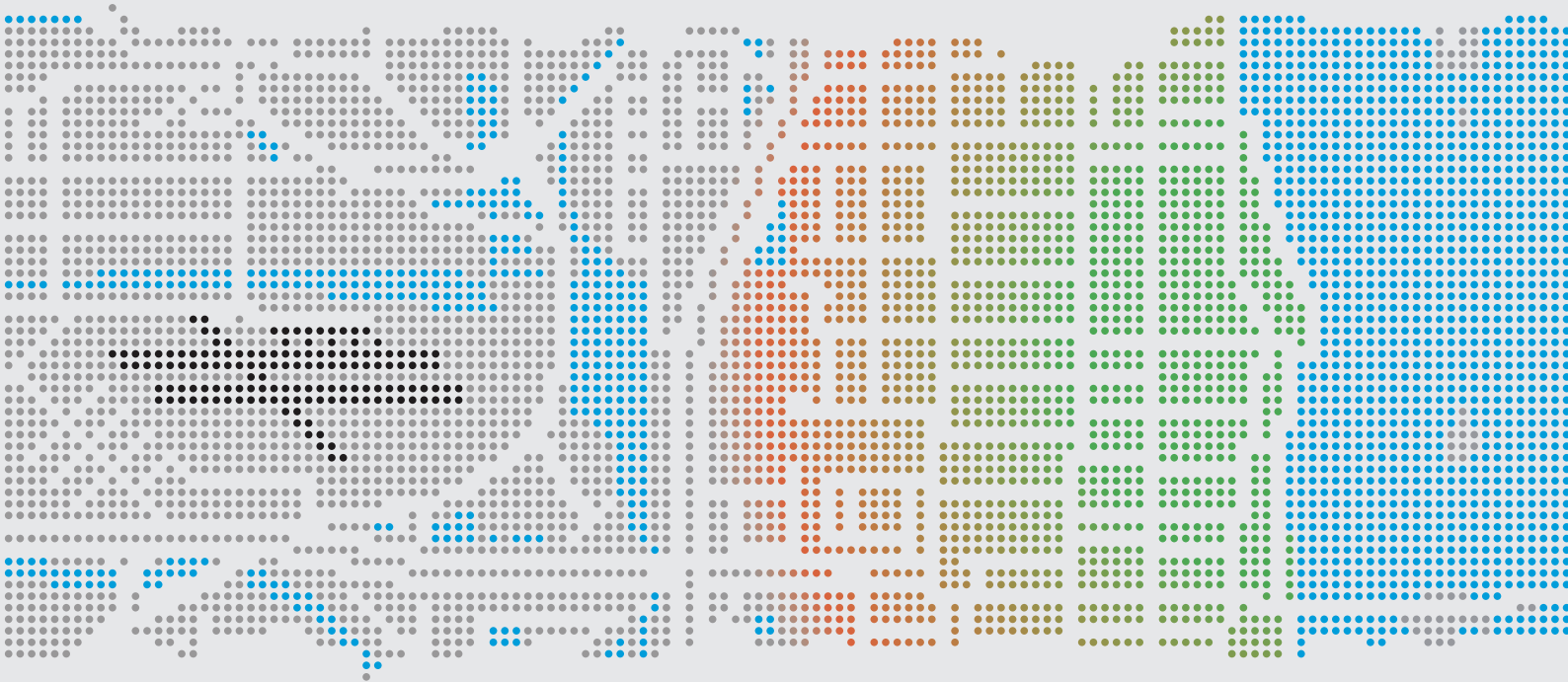




Resilient cities

A toolkit for insurers to identify the business case



ClimateWise

Established in 2007, ClimateWise is a growing global network of 28 leading insurers, reinsurers, brokers and industry service providers which share a commitment to reduce the impact of climate change on society and the insurance industry. ClimateWise is a voluntary initiative, driven directly by its members and facilitated by the University of Cambridge Institute for Sustainability Leadership (CISL), which brings business, government and academia together to identify solutions to critical sustainability challenges.

All members are independently, annually audited on their integration of the six ClimateWise Principles across their business activities.

The ClimateWise Principles include leading on climate risk analysis and climate-resilient investment, raising customers' climate awareness, and reducing the member's own carbon footprint.

Cambridge Institute for Sustainability Leadership

For 800 years, the University of Cambridge has fostered leadership, ideas and innovations that have benefited and transformed societies. The University now has a critical role to play to help the world respond to a singular challenge: how to provide for as many as nine billion people by 2050 within a finite envelope of land, water and natural resources, whilst adapting to a warmer, less predictable climate.

The University of Cambridge Institute for Sustainability Leadership (CISL) empowers business and policy leaders to make the necessary adjustments to their organisations, industries and economic systems in light of this challenge. By bringing together multidisciplinary researchers with influential business and policy practitioners across the globe, we foster an exchange of ideas across traditional boundaries to generate new solutions-oriented thinking.

Rewiring the Economy

Rewiring the Economy is our ten-year plan to lay the foundations for a sustainable economy, built on ten interdependent tasks, delivered by business, government, and finance leaders co-operatively over the next decade.

Publication details

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Lead author disclaimer

This publication has been prepared for general guidance on matters of interest only, and does not constitute professional advice. Data used from third-party sources has not been independently verified or audited.

Author and acknowledgements

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The toolkit design and editorial process was led by Dr Tom Herbstein, Amy Nicholass, Zoe Loughlin and Adele Williams at CISL.

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Copies and more information

The full document and appendices can be downloaded from ClimateWise's website: www.cisl.cam.ac.uk/resilient-cities-toolkit

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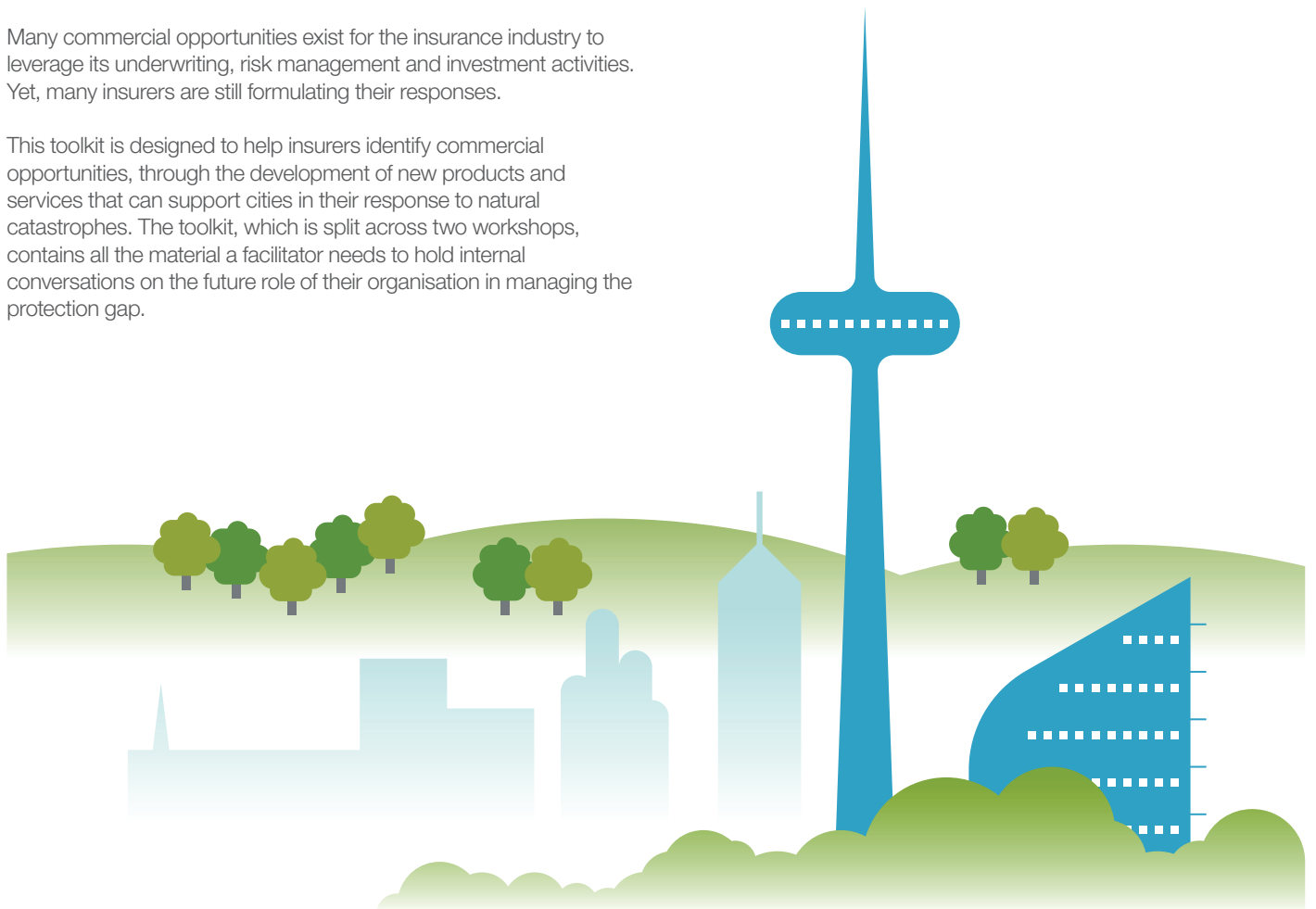
Executive summary

As a result of the climate risk *protection gap* – the growing divide between total economic losses from natural catastrophes and those losses covered by insurance – new questions are being asked about the role insurance can play in helping society to manage its exposure to physical risks.

This is a particularly important challenge for cities which are both significant insurance markets and highly vulnerable to many perils of climate change.

Many commercial opportunities exist for the insurance industry to leverage its underwriting, risk management and investment activities. Yet, many insurers are still formulating their responses.

This toolkit is designed to help insurers identify commercial opportunities, through the development of new products and services that can support cities in their response to natural catastrophes. The toolkit, which is split across two workshops, contains all the material a facilitator needs to hold internal conversations on the future role of their organisation in managing the protection gap.



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Acknowledgements

The toolkit was developed by ClimateWise in close collaboration with ClimateWise members between July 2016 and April 2017, and builds on the CERES / ICLEI / ClimateWise scoping work for Resilience Zones. Interviews were held with company leaders from investment, underwriting and corporate social responsibility; 11 ClimateWise

members were actively involved in this process: Allianz, Aon, Aviva Canada, Lloyd's, RenaissanceRe, RMS, Santam, Swiss Re, Tokio Marine, Willis Towers Watson and XL Catlin. The authors wish to thank Jeb Brugmann and all those who provided valuable input and participated in the interviews and subsequent discussions.

ClimateWise members



Foreword



Maurice Tulloch

The growing exposure to climate-related perils requires our industry to innovate to address the widening divide between total economic losses and insured losses, which is known as the *climate-risk protection gap*.

As Chairman of ClimateWise, I have encouraged a focus on identifying how the insurance industry can play a proactive role in supporting society's resilience to climate risks. By doing this, ClimateWise aims to help society to: manage the physical impacts of climate change that we face, minimise an increase in uninsurable assets and maintain the industry's role as society's risk manager.

Indeed, significant commercial opportunities already exist within insurers' value chains. In particular, the industry's data, modelling and investment activities have all received growing attention in recent months for the contribution they can make in informing and managing risk.

However, one of our industry's challenges is that our primary focus remains on the provision of risk transfer and less on managing the physical exposure to risk. Many areas of our industry are yet to clarify the business case for managing risk and resilience. It is my hope and expectation that this ClimateWise toolkit, which focuses on the business case for promoting resilience, can play a significant role in the transformation of our industry.

A handwritten signature in black ink, appearing to read 'Maurice Tulloch'.

Maurice Tulloch
Chairman of ClimateWise and CEO International and
Chairman, Global General Insurance at Aviva

Foreword



Dominic Christian

The urgency to create more resilient and sustainable societies is of growing concern for the insurance industry. Risk management, and thus effective risk transfer, is critical to successful societal frameworks, be these young or old.

It is essential that we greatly improve the assessment and identification of the risks posed particularly by large-scale, climate-driven catastrophes and also their profound impacts on communities and economies. These risks are changing, and understanding is increasing. For many, risk transfer is hard to find, and still harder to understand. Indeed, in any event, risk transfer is not the sole answer; ultimately, it is critical, but it is only truly valuable as part of an overall risk defence programme.

For insurance folk, concern about climate exposures is mainly centred on the devastation that is potentially wrought on cities. Cities, in particular, are highly vulnerable from an insurance perspective. They are homes for millions of people, centres of economic activity, significant insurance markets and often located in high-risk, vulnerable locations.

The aftermath of disasters in cities not only affects lives and livelihoods, but can also have significant consequences for the broader economy, including the insurance industry.

An insurance industry that helps to promote resilience also promises to create a wealth of new and innovative business opportunities, for communities and our industry.

Each insurance organisation has different expertise, resources and data that it can harness to address this challenge. We designed this toolkit to help identify these opportunities.

The ClimateWise toolkit offers support to our members, and will help them to identify their unique capabilities. By developing new products and services, members contribute to the industry's role as society's risk manager. This toolkit offers insurers an opportunity to engage colleagues and identify new models for investing in the development of products and services that cities can use to help them improve their physical resilience to climate risks. Working together, we can offer a brighter and safer tomorrow.

Dominic Christian
Research Chair, Executive Chairman of Aon Benfield International and CEO of Aon UK Limited

1. Building a business case for urban resilience

The world is changing owing to increasing global populations and rapid urbanisation. This is having a significant impact on cities, governments and the private sector as they try to respond.

From an insurance perspective, attention is on the need for cities to become more resilient to the various climate risks they face. The value of more resilient urban areas is well understood. However, from an insurance perspective, translating this value into a concrete business case remains challenging. The purpose of this toolkit is to provide insurance practitioners with the material they need to build a business case for urban resilience within their own organisations and support their engagement with other stakeholders. The toolkit has been developed in partnership with ClimateWise members, based on their experience and needs.

Improving resilience can lead to significant reputational and financial benefits for the insurance industry. This includes it becoming a socially conscious organisation and achieving the long-term benefits associated with improved insurability. Where insurance is already available, a reduction in the cost of premiums provides another incentive for promoting urban resilience. This is already well practised across commercial risk management. Here, large businesses work with risk engineers and insurance experts to manage different types of risks.

Applying this thinking to urban resilience appears feasible, particularly in developed markets. However, in practice, this is rarely realised. One complication is that those who pay insurance premiums are not necessarily those who construct infrastructure or invest in resilience. Flood protection schemes are one example of this.

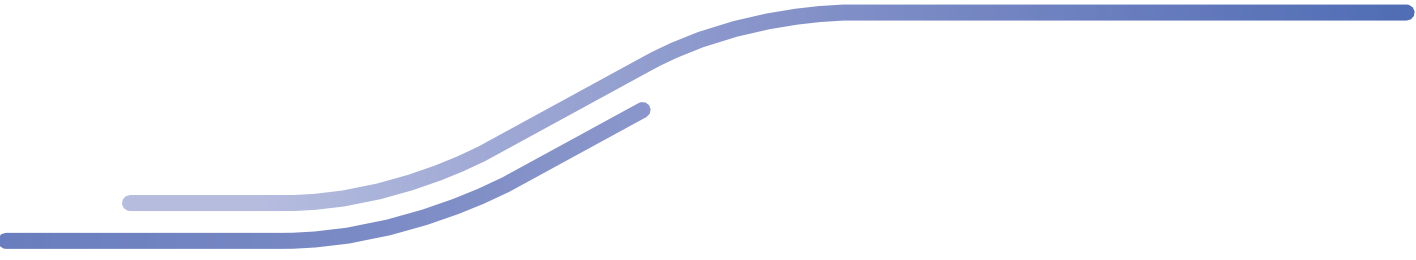
Yet many insurers struggle to integrate resilience considerations into their day-to-day products and services. It is often unclear how these services could be delivered to clients (eg as a package of insurance products and advice, or as stand-alone advisory services). Much of this uncertainty stems from the nature of the industry itself, which has historically focused more on financial risk transfer than physical risk management. It is also unclear how insurers can blend their commercial insurance offerings with the perception that data on risk and resilience are public goods. For example, how can insurers share the data they rely upon to price risk without affecting their bottom line?

Driving urban resilience is not, of course, the sole responsibility of the insurance industry. Many other stakeholders must be involved, especially those who make day-to-day decisions that influence resilience.

Recognising this, ClimateWise, in partnership with other organisations, has set out to bring together different urban decision-makers and facilitate a dialogue around urban resilience. This led to ClimateWise developing a set of 'risk tools' for city officials. Insurers can further support this process by creating a common understanding of risk and advocating for more action around resilience. Indeed, many leading insurance companies are currently exploring various innovative ideas to overcome the challenges and barriers faced. These include:

- Developing an evidence base for how urban resilience may benefit insurers.
- Creating alignment between other stakeholders (particularly government authorities) to provide appropriate strategic advice to insurers, rather than simply broadening the number of stakeholders being engaged.
- Insurers taking greater steps to identify their commercial business case for supporting urban resilience. For example, aligning the understanding of risk between the underwriting and investment functions of insurers.

This toolkit has been developed in discussions with insurers. Its aim is to provide direct support to those in the industry who are engaged in urban resilience discussions. It provides a collection of materials, including the agendas for two consecutive workshops and links to web-based and other resources. The main objective of the workshops is to stimulate discussions to help identify the business case for investing in product and service development around urban resilience.



The workshops can be conducted in-house, and can take the format of a discussion or a break-up into small groups. Alternatively, the workshops could feature in a broader strategic discussion either as a session in an away-day or as stand-alone exercises. They can be guided by a facilitator who can be either internal or external to the business and does not need to have any prior experience of resilience activities. The facilitator's role is to guide participants through the various steps and facilitate the discussion and outputs, capturing key points (or nominating participants to do so) as they arise.

This document provides ready-to-use agendas for the workshops. However, facilitators are encouraged to amend their contents and timings according to their own organisation's specific needs and preferences. It is recommended that the workshops are delivered consecutively.

Workshop 1 will explore opportunities associated with urban resilience, and then identify existing activities within the insurance industry and their potential impact.

Workshop 2 will explore the business case for urban resilience within your own organisations.

Conclusion and next steps

We hope this toolkit is of value in helping your organisation identify commercial opportunities for developing new products and services that promote urban resilience.

Good luck.

The workshops are intended to help participants brainstorm new opportunities and directions for their organisation. No idea, at this stage, is a bad one. The toolkit's supporting material and background reading are available as separate documents that can be accessed via the ClimateWise website. Given the broad nature of urban resilience, and the required response by organisations, workshop participants should include senior representatives from:

- underwriting
- investment
- Corporate Social Responsibility (CSR) and risk advisory functions of the company
- management.

Prior experience of urban resilience is not a requirement. However, an openness to explore and innovate is important.

Once the workshops have been concluded, the facilitator should circulate a summary of the findings to the relevant sustainability or business development board members. These findings will help organisations to identify their specific business case for investing in the development of urban resilience products and services.

2. The toolkit

Contents

1. Background briefing: urban resilience and insurance [↗](#)

To be circulated as pre-reading for all participants in advance of workshop one.

2. Workshop 1: urban resilience and insurance [↗](#)

Will explore opportunities associated with urban resilience, and then identify existing activities within the insurance industry and their potential impact. Supporting material includes:

- a. Multi-media resources [↗](#)
- b. Examples of existing industry activities [↗](#)
- c. Identified barriers and challenges [↗](#)

3. Workshop 2: identifying the business case for resilience [↗](#)

Will explore the business case for urban resilience within your own organisation. To guide the workshop facilitation. Supporting material includes:

- a. Participant worksheets [↗](#)

4. Additional resources

- a. Further reading and guidance [↗](#)

For all supplementary material visit: www.cisl.cam.ac.uk/resilient-cities-toolkit [↗](#)



Background briefing: Urban resilience and insurance

Introduction

ClimateWise, the insurance industry leadership group on the risks and opportunities of climate change, has been looking for ways to promote the role the insurance industry can play in promoting urban resilience. ClimateWise believes there are many commercial opportunities for insurers to play a more proactive role in helping cities prepare for the inevitable impacts they face.

The upcoming workshops are intended to help you and your colleagues brainstorm the business case for your organisation investing in the design of products and services around urban resilience. The two workshops will:

1. Explore opportunities associated with urban resilience and then identify existing activities within the insurance industry and their potential impact.
2. Explore the specific business case for urban resilience within your own individual organisation.

Following the two workshops, the facilitator will collate the ideas and disseminate them internally to key decision-makers.

“the protection gap is the growing divide between total growing economic losses from catastrophes and those losses covered by the insurance sector.”³



The growing vulnerability of urban areas

The world is changing owing to increasing global populations and rapid urbanisation. Since 1990, the number of mega-cities has nearly tripled. Globally, more than 54% of the world's population now reside in urban areas.¹ The most urbanised regions include North America (82%), Latin America and the Caribbean (80%), and Europe (73%).¹ By 2050, more than 65% of the world's population is projected to be living in cities, and the fastest growth is likely to occur in Asia.

Urban areas

The criteria for what constitutes an urban setting varies broadly but includes factors such as: how administrations classify municipalities as urban; the minimum population threshold; the population density; the proportion employed in non-agricultural sectors; the presence of infrastructure such as paved roads, electricity, piped water or sewers; and the presence of education or health services.²

Consequently, urban areas are crucial in supporting the broader response to climate risks. This is because they serve as centres of economic activity, technology and innovation. However, urban centres are often exposed to an array of climate risks. These include sea-level rise, heat waves, river flooding, windstorms or landslides. Such risks pose real dangers to urban residents as well as to their livelihoods and assets, including critical infrastructure. Furthermore, many of these climate and associated pressure points overlap in urban areas, which compounds the challenges faced by decision-makers.

Urbanisation is therefore a key driver behind increasing economic exposure to catastrophes. It puts further pressure on those managing these risks and those living, working and financially invested in urban areas, including local communities, governments and the insurance sector.

What are recent efforts by the insurance industry to promote urban resilience?

There is growing recognition of the value of resilience at the city level.

This increased recognition is reflected in the United Nation's approval of a stand-alone urban Sustainable Development Goal (SDG). SDG 11 sets a target of substantially increasing the number of cities that have adopted and implemented disaster risk reduction and climate change mitigation / adaptation policies by 2020:

These global policy initiatives are supported, at the implementation level, by various regional and international networks, including the C40 Cities Climate Leadership Group, 100 Resilient Cities, and ICLEI – Local Governments for Sustainability. They focus on facilitating knowledge exchange, best practice and collaboration between member cities. They highlight the importance of cities engaging with, and securing buy-in across, public and private sectors if progress in urban resilience is to be achieved. Crucially, these activities signal a more positive narrative around resilience – considering it as an investment rather than a cost.

“By 2020, substantially increase the number of cities and human settlements adopting and implementing integrated policies and plans towards inclusion, resource efficiency, mitigation and adaptation to climate change, resilience to disasters, and develop and implement, in line with the Sendai Framework for Disaster Risk Reduction 2015–2030, holistic disaster risk management at all levels.”⁵

Definitions of resilience⁴

United Nations Office for Disaster Risk Reduction

The ability of a system, community or society exposed to hazards to resist, absorb, accommodate, adapt to, transform and recover from the effects of a hazard in a timely and efficient manner, including through the preservation and restoration of its essential basic structures and functions through risk management.

Stockholm Resilience Centre

Resilience is the capacity of a system, be it an individual, a forest, a city or an economy, to deal with change and continue to develop. It is about how humans and nature can use shocks and disturbances, like a financial crisis or climate change, to spur renewal and innovative thinking.

100 Resilient Cities

Urban resilience is the capacity of individuals, communities, institutions, businesses, and systems within a city to survive, adapt, and grow no matter what kinds of chronic stresses and acute shocks they experience.

Urban Land Institute

For the purposes of this report, the Urban Land Institute's definition of resilience was used: “The ability to prepare and plan for, absorb, recover from, and more successfully adapt to adverse events”.

Who benefits from urban resilience?

The private sector can play a variety of roles to promote urban resilience, including innovative financing and infrastructure public-private partnerships⁷. In a survey of 248 business executives, conducted by the Economist Intelligence Unit, most of the companies highlighted the commercial value associated with urban resilience. However, they also expect government to take the lead in responding to urban climate risks⁸.

Understanding of the cost-effectiveness and other benefits of enhanced resilience has been strengthened by improved risk assessment capabilities and climate and economic modelling following disasters. However, there are several challenges for deriving a business case for urban resilience, which are highlighted in the following box, using the real-estate sector as an example.

The returns on resilience: the business case report⁹

In 2015, the Urban Land Institute's Center for Sustainability and the Urban Land Institute released the Returns on Resilience: The Business Case report. The report contains ten case studies of real-estate projects from across the USA. It details how each project was constructed to be climate resilient and the expected returns of those resilience measures.

Although no generic definition of 'business case for resilience' is used, the report provides guidance on when such a business case may exist. In particular:

- A business case for resilience may exist when the cost savings of being climate resilient exceed the premium that must be paid to adopt resilience measures (eg the Spaulding Rehabilitation Hospital in Boston, Massachusetts, and the 1450 Brickell development in Miami, Florida).
- A business case for resilience may exist when investing in resilience measures helps to enhance the value of the development (eg the Ritz-Carlton in the Cayman Islands).
- A business case for resilience may exist when investing in resilience measures provides improved business opportunities owing to, for example, better marketability (eg ENR2 in Tucson, Arizona).

Improved cost savings will be project specific. However, particularly important cost savings identified across the case studies included reduced insurance premiums, reduced energy costs and reductions in general maintenance costs.

The report identifies a number of common themes about resilience that should be kept in mind. Firstly, simply complying with building codes may be insufficient; developers should be willing to invest more in resilience and be innovative (provided the cost benefits exist). Secondly, project developers should learn from the resilience strategies of others in order to understand and assess the value of strategies to deal with risks. Thirdly, sustainability and resilience often work in tandem; promoting one can play a key role in promoting the other. And finally, improving resilience can make a property more attractive; businesses should be more open to the idea of resilience as a business opportunity rather than as a cost.

Establishing a business case for urban resilience requires a better understanding of the interests and priorities and their potential contributions across a variety of stakeholders in the urban development process. Often these interests and priorities do not align:

- **Local governments:** can improve their first line of response to natural hazards, potentially minimising associated political, economic and social risk.
- **Infrastructure developers:** can benefit from business opportunities for new goods and services (eg new materials, technologies). However, this can lead to higher short-term costs for upgrades in design and implementation.
- **Utilities providers:** can benefit from reduced service disruption and maintain profitability if the relevant utilities are privately owned. Urban resilience can reduce the risk of serious incidents involving utilities due to natural hazards (eg damage to electricity grids).

- **Real-estate financiers:** can benefit from reduced financing risk and provide for more sustainable future cash flows (eg rent) when property markets adequately internalise the price of disaster risk.
- **Property developers:** can benefit from business opportunities for developing new goods and services, and access to areas that are otherwise considered unattractive for development. However, in the short term, urban resilience is likely to be regarded as costly.
- **Owners / managers of assets:** may require further investment to make existing infrastructure more resilient and may be concerned about government assistance for risk reduction.

For insurers, there are clear opportunities of working with stakeholders and helping them to realise the benefits of resilience. However, insurers often struggle to identify the business case for promoting urban resilience within their own sector.

What are the risks and opportunities of urban resilience for insurers?

Overall, urban resilience can add value for the insurance industry by:

- Enhancing reputations (eg being seen as socially engaged) by providing technical know-how and capital, and improving the long-term insurability of urban areas.
- Creating efficiency and sustainability in urban areas, further improving long-term insurability.
- Providing an opportunity for the development and sale of new insurance products, and tapping into new markets.

Developing risk knowledge and expertise is likely to be the starting point for most insurers. It is particularly important in the creation of insurance markets in developing countries. Achieving resilience requires a comprehensive understanding of:

- The vulnerability and exposure to different stressors. For example, in New York City, a large amount of equipment was moved to the basement of buildings post-9/11. Although the intention was to protect it from terrorism, it also exposed it to severe flood risk.
- The different types of resilience strategies and the kinds of disasters insurers can address in each specific context (eg flood defences may have a greater impact on reducing risk in coastal cities compared with inland cities).

Various studies have emphasised the potential benefits of resilience for insurance and other stakeholders, and are considered below.

Building Resilient Cities study¹⁰

This report by CERES, ICLEI and ClimateWise explored how resilience can become a cornerstone of urban planning and redevelopment, by bringing together insurers and other urban decision-makers in a series of workshops across the USA and Canada. The series aimed to create a systematic understanding of where mutually beneficial collaboration could exist between these stakeholders to reduce the risks and increase the performance and value of today's climate-vulnerable local areas. The project led to the development of a four-stage strategic planning framework that was tested and refined in these workshops, and based on the diverse ideas and innovations identified by workshop participants.

The four cornerstones of a 'resilience zone' strategy



Figure 2: The Four Cornerstones of a 'Resilience Zone' strategy

Source: Ceres, ClimateWise and The Next Practice. (2013). *Building resilient cities: Curriculum guide and approach for break-out groups*. Retrieved from <https://www.cisl.cam.ac.uk/publications/publication-pdfs/building-resilient-cities-from-risk-assessment-to.pdf>¹⁰

Realising the 'triple dividend of resilience'

The triple dividend framework proposes a new approach to accounting for resilience benefits, which would enable decision-makers, including insurers, to build stronger business cases for resilience.¹¹ The framework addresses a current under-valuation of resilience. This is linked to the common perception that – similar to investing in insurance – investing in flood resilience yields benefits only after disaster strikes (see Figure 3).

However, increasing evidence suggests that enhancing resilience yields other significant and tangible benefits. These 'co-benefits' of resilience investments occur independently of whether the disaster event occurs. For example, many resilience investments have 'no regrets' elements beyond the reduction of potential disaster losses. These co-benefits merit greater analysis and promotion. These full benefits of flood resilience investments are referred to as the 'resilience dividend'. They go far beyond the standard economic approach to investment appraisals.

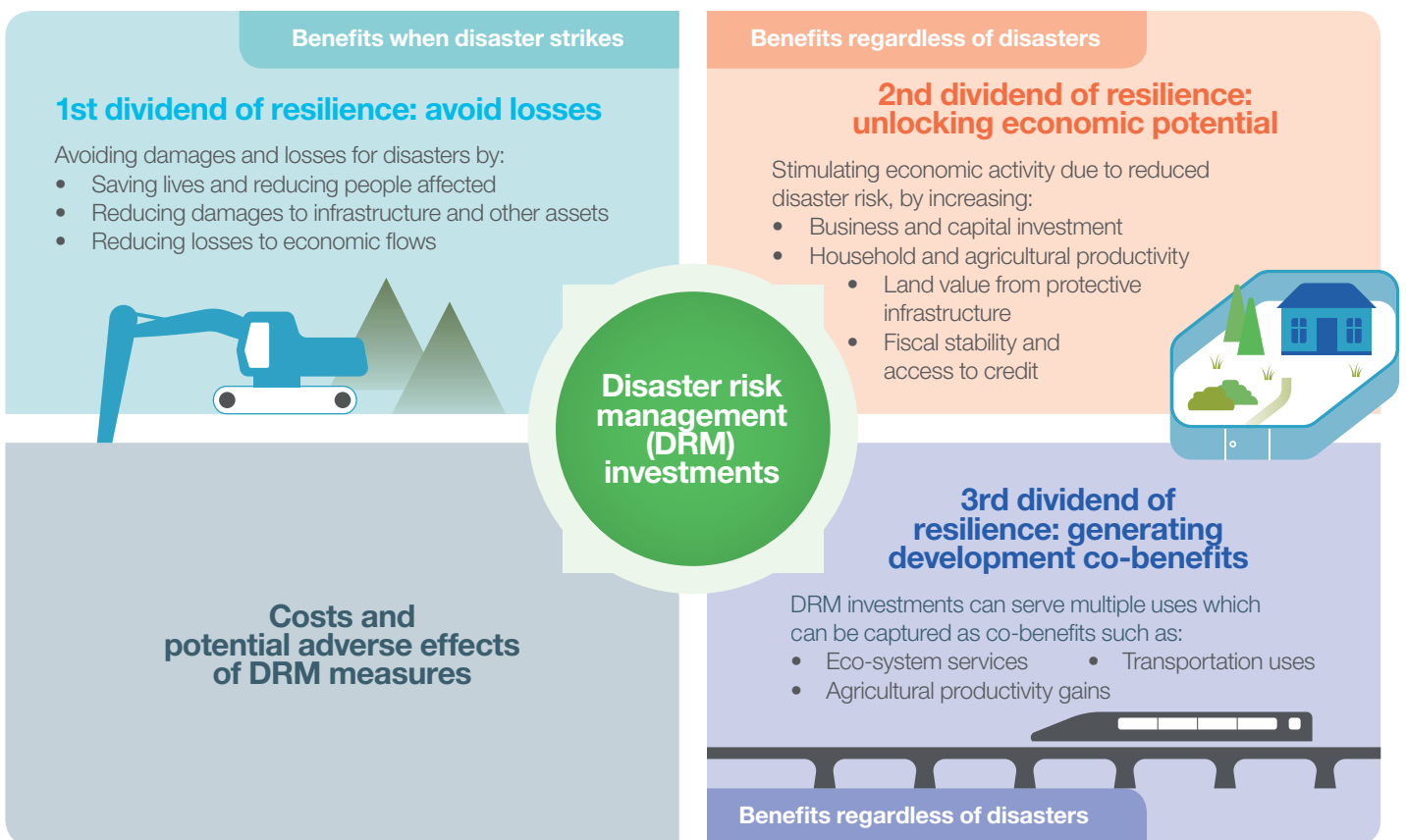


Figure 3: The triple dividend of resilience

Source: Surminski, S., & Tanner, T. (2016). *Realising the 'triple dividend of resilience' – A new business case for disaster risk management*. Springer International Publishing.¹²

Examples include the role flood risk management plays in helping poor households move out of poverty, creating social cohesion and stability, protecting cultural heritage, improving environmental management (eg watersheds and coastal areas) and promoting educational and skills-related benefits. Insurers can use this framework to work internally and with city authorities and other urban stakeholders to evaluate and quantify the value of resilience.

Investing in resilience reduces losses and damages in the case of disaster, it can also yield development benefits regardless of disasters. Typically, standard disaster risk management investment appraisals fail to account for the 2nd and 3rd dividends of resilience.

Investing for Resilience

This ClimateWise report found that insurers are not the natural investors in resilience infrastructure that many external commentators perceive them to be. Although there is clearly a strong customer-oriented motive to improve risks through good risk management, to reduce losses for an individual insurer, there is not a direct relationship between increased investment in resilience infrastructure and increased underwriting profits.⁴

However, the report identifies three distinct areas of activity offering business opportunities for insurers:

- Considering resilience within insurers' own investment activities.
- Promoting resilience indirectly across the broader financial markets.
- Promoting societal resilience to climate risk in general.

The report highlights the lack of effective measurement of resilience for investors, municipalities or others with the potential to support resilience efforts. A resilience rating system may create a better understanding, and clearer cost-benefit appraisals, of resilience measures and increase their attractiveness for investors.⁴



Actions for insurers

- Initiate a virtuous circle reinforcing the desirability of resilience by adding resilience as an appropriate feature of investments (section 3.1);
- Offer options for resilience investing to policyholders (section 3.4);
- Develop new types of insurance cover or adapt existing ones to support the monetisation of returns on investing in resilience (section 4.3);
- Support platforms to package, market and sell investments in resilience projects (section 4.4);
- Adopt indemnity bases that include resilience reinstatement (section 5.2);
- Provide long-term incentives to policyholders through multi-year insurance policies (section 5.3);
- Provide long-term incentives to policyholders through profit-sharing insurance pools (section 5.4);
- Participate in stakeholder partnerships with municipalities and government agencies (section 5.6);
- Second staff to local and national government departments and agencies (section 5.6); and
- Increase the focus on resilience in CSR activities (section 5.7).

Figure 4: Actions for insurers

Source: University of Cambridge Institute for Sustainability Leadership (CISL). (2016, December). *Investing for resilience*. Cambridge, UK: Cambridge Institute for Sustainability Leadership. Retrieved from <https://www.cisl.cam.ac.uk/publications/sustainable-finance-publications/investing-for-resilience>⁴

The insurer of the future

The insurance industry, as the world's largest institutional investor, can draw on its long history of risk prevention and reduction. Strengthening urban resilience should therefore be of commercial interest to both insurers and investors. However, far too often, property and infrastructure investment decisions proceed without any reflection on the climate risks they may be exposed to.¹³

“The insurance industry has a role to play in supporting society’s climate resilience – by doing this well it can enhance insurability, and protect its own assets.”³

The ‘insurer of the future’ helps to promote climate-resilient cities by aligning its investment, underwriting and advisory activities. By increasing resilience, fewer assets are likely to become uninsurable. This will help to maintain or improve overall insurance penetration and enable the insurance industry to strengthen its role as society’s risk manager: “We have to create a world in which it is unacceptable not to have planned in advance.”¹⁴

What is your future vision of your organisation?

Improving urban resilience will lead to fewer assets becoming uninsurable. From an insurer perspective, this can help both externally and internally.

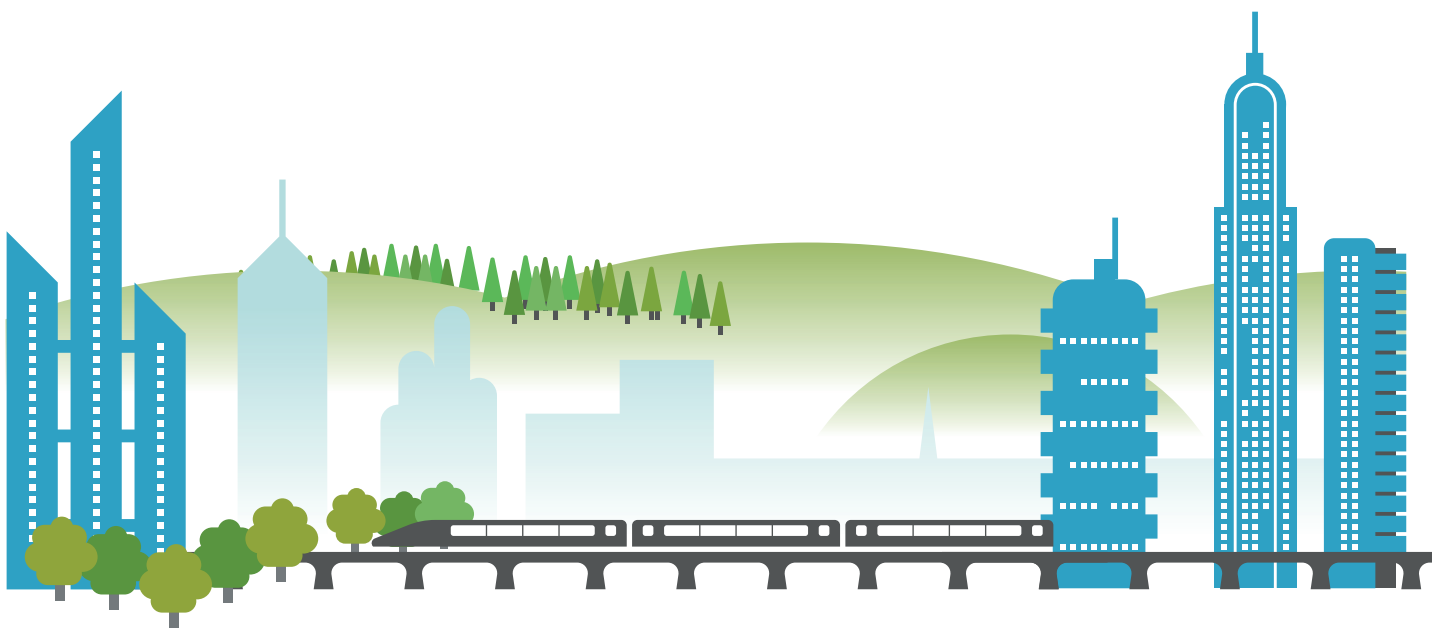
Internally:

- Reduce claims costs and increase affordability of insurance.
- Develop new products and services.
- Respond to regulatory concerns about risk exposure.

Externally:

- Maintain the insurability of key markets.
- Promote positive risk taking and develop partnerships with key stakeholders.
- Enhance the industry’s reputation as society’s risk manager.

Thus, the main objective of this toolkit is to help you identify the business case for your organisation to start investing in product and service development in urban resilience. We urge you to keep an open mind, as no idea – at this stage – is a bad one.





Workshop 1

Urban resilience and insurance



Objective 2
Reflect on the risks and opportunities urban resilience presents the insurance sector.

Objective 1
Gain a deeper understanding of urban resilience and current industry activities in this area.

Exercise set-up

Time consideration

One hour plus 20 min individual preparation time to read through 'Background briefing: Urban resilience and insurance' and 'Identified barriers and challenges'.

Material needed

Flip charts, post-it notes / white board, pens/ or online real-time ideas sharing software.



10
min

1. Introduction and context

- Each participant introduces themselves. Include any relevant experience or expectations they may have on urban resilience and what they want to get out of the workshop.
- Outline the purpose of the workshop. Refer to the 'background briefing'.
- Play a video (see 'Multi-media resources') to set the scene.



20
min

2. Discussion - what is your current understanding of urban resilience?

- Encourage participants to reflect on resilience either as a general concept or within their own individual areas of business. Prompting questions include:
- What makes a city resilient to climate (and other) risks?
 - Which stakeholders play a role in enhancing city resilience – benefitting, paying for and delivering it?
 - How can insurance enhance urban climate resilience?



20
min

3. Brainstorm – what are the risks and opportunities urban resilience presents insurance?

- Capture all ideas on the risks and opportunities of urban resilience. Prompting ideas can be drawn from existing industry initiatives (see 'Examples of existing industry activities'). Does this indicate that the industry is moving from aspiration to action?
- Are there additional examples from within and outside the insurer that could be added to the list?
 - How would participants judge the success of resilience initiatives?
 - What lessons are there for those who want to strengthen the urban resilience focus of the industry?



10
min

4. Concluding discussion - what role can insurers play to promote urban resilience?

- Each participant is asked to produce a 60 sec statement highlighting:
- What urban resilience opportunities currently exist for the insurance industry?
 - What resources are needed to make the most of these opportunities?
- Each participant writes down the next steps they can take to further this awareness of urban resilience within their organisation.



- Produce a summary note of key points and share with participants.

Workshop 1 resources: Multimedia resources

How to use

This tool is to be used in section 1 of 'Workshop 1'; choose one or two of the most relevant resources to show at the start of the workshop. These resources will also be useful when communicating urban resilience to colleagues outside the workshop setting and for self-directed study. CISL is not responsible for external websites, so access is at your own risk.

VICE News. (2017, 14 March)

Miami's real estate market is benefitting from rising sea levels

Real estate in Miami Beach is booming despite its vulnerability to global warming and sea-level rises. Raising the funding to protect Miami Beach from global warming relies on the real-estate market remaining strong.

GFDRR. (2016, 20 October)

Investing in urban resilience: Protecting and promoting development in a changing world

Expanding cities are key to alleviating poverty and fuelling global prosperity. However, this growth is increasing vulnerability to climate change and natural disasters. Investment in urban resilience is crucial to safeguarding city infrastructure and promoting sustainability.

The World Bank. (2015, 22 December)

Now is the time to invest in resilient cities

Investing in climate and disaster resilience is crucial to ensuring cities survive future climate change and the resulting increase in natural disasters.

The Energy and Resources Institute (TERI). (2016, 8 July)

Decoding urban climate change resilience

The development of resilient cities that can absorb future shocks and stresses is key to mitigating the effects of climate change. TERI has worked in India to mainstream resilience in urban planning and development frameworks.

GFDRR. (2016, 5 April)

Building regulation for resilience

Building codes and land use planning controls are crucial to minimising the effects of natural disasters on urban areas, which are growing at an accelerating rate. The World Bank / GFDRR program Building Regulation for Resilience aims to achieve this in vulnerable countries.

Swiss Re. (2014, 6 November)

Resilient cities: pathway to a more sustainable future

Climate and disaster risk needs to be managed to make cities safer. Support is also needed in recovery periods, which insurance can provide.

The World Bank. (2016, 14 September)

Sri Lanka: Reducing flood risk for a more livable Metro Colombo

Colombo is Sri Lanka's largest and most important economic centre. The Metro Colombo Urban Development Project seeks to reduce its vulnerability to natural disasters and improve living standards.

SciDev.Net. (2015, 25 February)

Why urban climate change resilience is critical to Asia

Cities in Asia are developing rapidly, often with little thought given to climate risks. A number of initiatives, such as the Asian Cities Climate Change Resilience Network, are helping cities to plan for and consider their climate change vulnerability.

Asian Development Bank. (2015, 12 May)

Making cities climate change resilient

Climate change means cities in Asia need to be prepared for increased incidences of natural disasters. The ADB's Green Cities Initiative seeks to help cities achieve this.

The Trust for Public Land. (2014, 24 March)

Climate-smart cities

Improving the resilience of cities to climate change involves weaving green elements into the built environment (eg through the development of water smart parks and reducing dependence on cars). The Trust for Public Land helps cities implement such improvements.

Economic and Social Research Council. (2012, 18 June)

Cities and climate change

The Urban Transitions Project has surveyed 100 cities, mapping out what is being done to respond to climate change, including reducing emissions and increasing resilience. The results are shown in this video.

Asian Cities Climate Change Resilience Network (ACCCRN). (2017, 6 March)

Building urban climate change resilience in Indonesia

As over half of Indonesia's population is in urban areas, it needs to prepare for climate change by investing in urban resilience. The ACCCRN is working in Indonesia to achieve this.

PricewaterhouseCoopers (PwC). (2016, 8 September)

Urban resilience: Aware, accessible, aligned

Margareta Wahlström, former Special Representative of the UN Secretary-General for Disaster Risk Reduction, discusses the policy tools cities need to improve their resilience to natural disasters.

Climate Change and Victoria. (2016, 19 July)

Rural city of Wangaratta: improving community resilience to climate change

Vulnerable groups need support to respond to issues associated with climate change (eg rising costs). In Wangaratta, the 'Rent Savers' and 'Cooking Circles' initiatives aim to provide such support.

City Climate Leadership Awards. (2013, 2 December)

Creating cities resilient to climate change: Interview with Le Hoang Quan

In this video, Chairman of Ho Chi Minh City People's Committee Le Hoang Quan discusses the importance of urban resilience and the need for all actors to be involved.

100 Resilient Cities (2017, 10 July)

What is urban resilience?

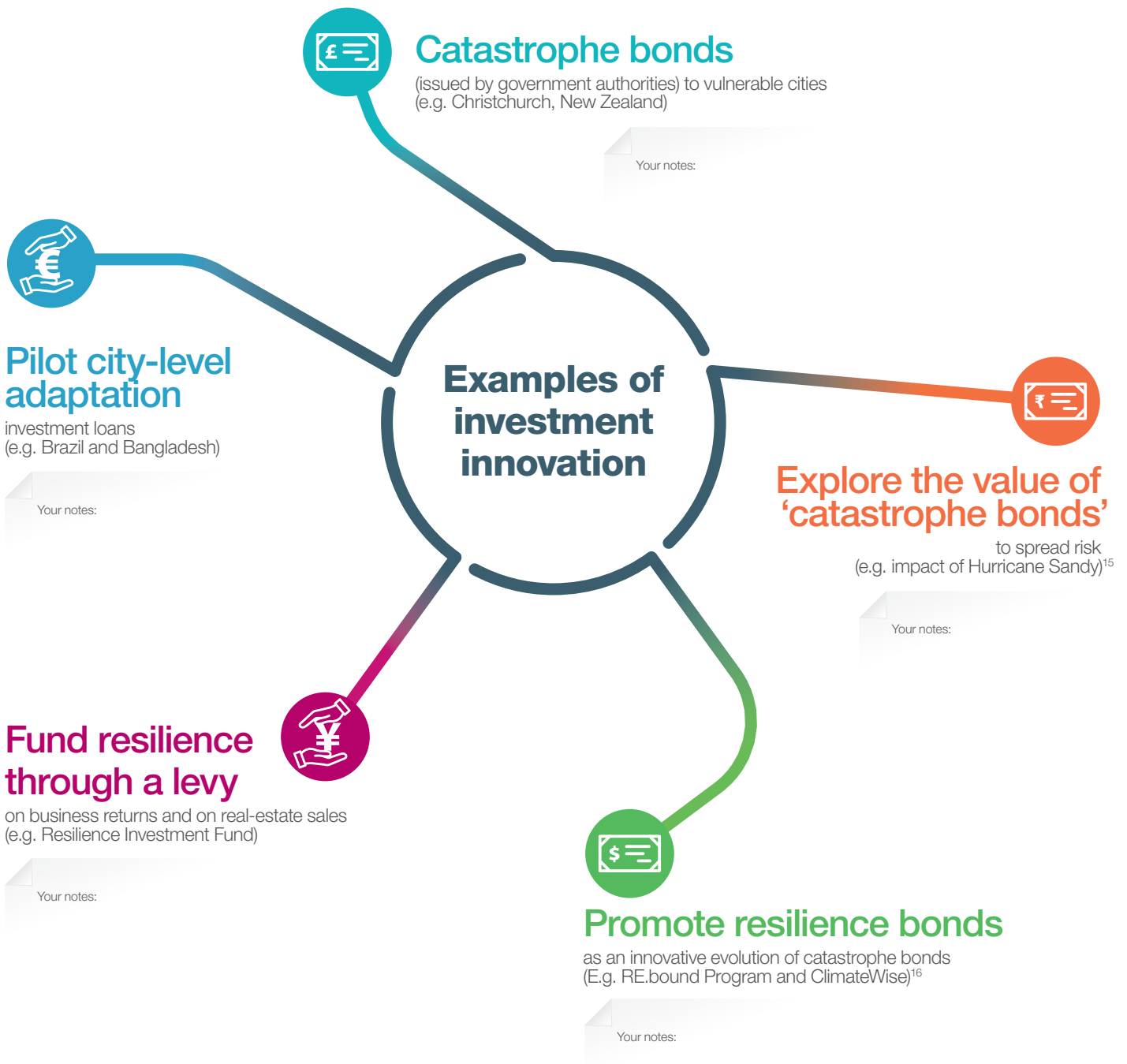
Urban resilience is a city's ability to survive, adapt and grow amid the many shocks and stresses it inevitably experiences. From Da Nang in Vietnam to Medellin in Colombia, cities are taking action to prepare for their uncertain futures – with the help of 100 Resilient Cities.

Workshop 1 resources: Examples of existing industry activities

Review of emerging ideas and recent insurance industry initiatives that support urban resilience.

How to use

This resource accompanies 'Workshop 1' and provides working examples of activities that are already taking place within the insurance industry. It can also be used as a self-directed reading exercise.





Provide insurance modelling expertise

to help local authorities manage risk and promote resilience²³

Your notes:

Form partnerships

between insurers and key risk managing organisations (e.g. AXA and Suez)²⁹

Your notes:



Help cities

identify cost-effective adaptation measures to manage climate risks²⁴

Your notes:



Coordinate stakeholders

around key disaster risk response efforts (e.g. Australian Business Roundtable)²⁸

Your notes:



Develop new tools

to help insurance clients manage their risk exposure (e.g. Aviva's Plan and Protect app)²⁵

Your notes:



Help SMEs

to adequately assess and manage their risk exposure (e.g. DERRIS)²⁷

Your notes:



Coordinate with other insurers

to promote the sharing of publically useful data (e.g. Insurance Loss Data Sharing Project)²⁶

Your notes:

Examples of advisory innovation

Workshop 1 resources: Challenges and examples of proposed solutions to realising commercial viability of urban resilience

Perceived barriers	Advisory solutions
<p>1. “ Limited evidence of the benefits resilience brings ”</p>	<p>Engage with those operating investment analysis and risk modelling functions. Consider wider benefits of resilience (eg social and environmental).¹²</p>
<p>2. “ Building back better after an event seems unattractive to many clients ”</p>	<p>Develop and implement sustainable claims management guidelines.</p>
<p>3. “ Risk advisory services are of value for underwriting. Beyond that we can’t see value ”</p>	<p>Focus on the positive impact that risk advice can have on urban resilience.</p>
<p>4. “ Insurers are involved in too many ‘talking shop’ initiatives ”</p>	<p><i>What solutions can you come up with? ...</i></p>
<p>5. “ We sell protection, not resilience ”</p>	<p><i>What solutions can you come up with? ...</i></p>
<p>6. “ There is a lack of entrepreneurial spirit within the insurance industry ”</p>	<p><i>What solutions can you come up with? ...</i></p>
<p>7. “ Cities lack capacity and financial resources ”</p>	<p>Help to build city capacity. Support the appointment of a chief resilience officer.</p>
<p>8. “ Our existing insurance model does not allow for city perspectives ”</p>	<p>Participate in pilot projects exploring risk pools for cities or community-based insurance solutions (eg Dept. for International Development in India & Asian Development Bank in Philippines).</p>

How to use

This tool is to be used to inform discussion in section 3 of 'Workshop 1', or as a self-directed reading exercise.

Product solutions**Training solutions**

Engage with third parties around independent verification and certification.
Adopt resilience indicators to communicate progress.¹⁴

Develop and share an evidence base for the benefits of different resilience measures.
Develop a positive resilience narrative.¹²
Work with engineers / technical experts to develop industry standards and guidance.

Use adaptation appraisal mechanisms (eg aligning risk reduction benefits with green benefits).

Rehearse disaster responses and claims management needs with city authorities.

Use concepts like 'smart', 'sustainable' and 'efficient' which have more positive connotations for those making urban decisions.

What solutions can you come up with? ...

Learn from other examples (eg addressing the brownfield problems in the 1980s). In emerging economies this could focus on drought-resistant seeds with insurance cover in case of failure.

Explore what activities exist and how they can be scaled.

Focus on how managing and reducing risk makes future insurance protection more effective.

Build positive narratives on the value of urban resilience.

Break the mould by actively developing new technologies to support urban resilience. Including customer engagement tools, packaging of resilience and insurance solutions and scorecards to store relevant building information.

What solutions can you come up with? ...***What solutions can you come up with? ...***

Conduct risk training courses to increase knowledge and skills.

Consider mutual insurance products where such schemes may be more cost-effective.

Develop a risk advisory role at the city level (eg chief risk officer, secondments).



Workshop 2

The business case for resilience

Objective 1

Understand the various needs of different stakeholders involved in urban resilience.

Objective 2

Identify the internal business case for urban resilience in your specific organisation.



Exercise set-up

Time consideration

One hour plus 20 min individual preparation time to read through 'Background briefing: urban resilience and insurance' and 'Identified barriers and challenges'.

Material needed

Flip charts, post-it notes / white board, pens/ or online real-time ideas sharing software. Copy of A3 participant worksheet for each small group or projection of participant worksheet for whole group.



10
min

1. Introduction and context

- Outline the purpose of the exercise and explain the structure of the session, referring to the 'Background briefing' and 'The returns on resilience: the business case report' textbook.
- Each participant introduces themselves: name and job function, plus any relevant experience or expectations they may have with respect to urban resilience and shares what they want to get out of the workshop.



20
min

2. Collaborative exercise - Identifying varying urban resilience needs

Discuss the two pictures, A and B. Focus on:

- What are the resilience needs? • What could/does already insurance offer?

Split the group and allocate one picture to each group. Using the participant worksheet (attached), fill in the specific resilience needs of the city and how the insurance industry can support. Illustrative examples include:

Homeowners

- **Their objectives:** receive rapid support following loss to protect property values.
- **Their needs:** receive financial support after disaster, advice on how to prepare/prevent/reduce, incentives to enhance resilience (before and after an event), city-level protection measures (drainage, flood defences etc.)

City authorities

- **Their objectives:** growing the city by attracting new investments and developments, fulfilling duties to protect the city, providing working infrastructure.
- **Their needs:** risk modelling, risk financing, investment funds.

Allow time for each group to feed back.



20
min

3. Brainstorming - moving from ideas to action

Participants discuss and identify the resources required to build a business case for one idea proposed in the collaborative exercise. For example:

- Data requirements?
- Partnership/collaboration with other stakeholders?
- Political commitment?
- Financial support?
- In-house expertise?
- More evidence on cost/benefits?

Participants select two resources for each idea and record that in the participant worksheet.



10
min

4. Concluding discussion – next steps

Each participant draft a 90 sec sales pitch and present to the group. Include:

- An resilience opportunity that could be explored further and why it would benefit the insurer.
- The resources and partners required, internally and externally, that they would need to collaborate with
- Next steps after this workshop has finished, to make this idea a reality.




10
min

- Provide a summary of key ideas and next steps for participants. This can be used for internal evaluation and for follow-on work.
- Combine the material collated across the two workshops with the 'Background briefing tool'. Feed this back to the board to a) demonstrate the key messages of the workshop and b) highlight any resources the participants would require to translate theoretical discussion into real life opportunities.

Workshop 2 resources: Collaborative exercise worksheet

How to use

This tool is to be completed by small groups during the 'Collaborative exercise – identifying different urban resilience needs' in section 2 of 'Workshop 2'. Allocate half of the stakeholders to each group for consideration, and nominate a member of the group to fill in the worksheet. Additional materials required are pictures A and B.



Extract from: www.cisl.cam.ac.uk/resilient-cities-toolkit

Resilient cities: a toolkit to identify the business case

Urban resilience and insurance worksheet

Stake-holders in the city	Stakeholder needs with regards to urban climate risks	Ideas of how insurance can support	What would be needed to develop insurance business case?
Home-owner			
Local Businesses			
City Authorities			
Property			
Developers			

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Available to download as A3 format for printing and projector use from:
www.cisl.cam.ac.uk/resilient-cities-participant-worksheet.pdf



Workshop 2 resources: Collaborative exercise – identifying different urban resilience needs

Picture A



Picture B, Bogota, Colombia





3. Additional resources: Further reading and guidance

1. Web portals

- [PreventionWeb: Resilient Cities Connect \(RCC\)](#)
- [UN-Habitat City Resilience Profiling Programme](#)
- [The Rockefeller Foundation / 100 resilient cities](#)
- [Resilient Cities Series Resilience Library](#)
- [Resilience Tools](#)
- [Urban Resilience Research Network](#)
- [World Bank GFDRR Urban Resilience](#)
- [Stanford Urban Resilience Initiative](#)

2. Measuring resilience



Lisa, E., Schipper, F. & Langston, L. (2015). *A comparative overview of resilience measurement frameworks*. Overseas Development Institute. Examines different resilience indicators used in international frameworks to understand what they say about resilience.



Arup and the Rockefeller Foundation. (2016). *Research report volume 4: measuring city resilience*. Arup and the Rockefeller Foundation. Discusses recent progress supporting the Arup City Resilience Framework.



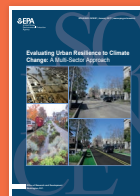
USAID. (2016). *Urban resilience measurement: An approach guide and training curriculum*. USAID. Curriculum developed for the implementation of urban resilience missions.



UNISDR. (2015). *Disaster resilience scorecard for cities*. UNISDR. Disaster resilience based on ten 'essentials' of resilience. Supports the Sendai Framework.



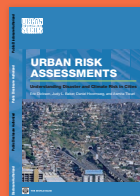
Arup. (Undated). *City resilience index: Understanding and measuring city resilience*. Arup and the Rockefeller Foundation. Index for measuring resilience performance over time.



United States Environmental Protection Agency. (2017). *Evaluating urban resilience to climate change: A multi-sectoral approach*. EPA. EPA research report supporting the EPA's strategic goals of responding to climate change.



Cole, J. (Ed.). (2013). *Measuring the resilience of cities: The role of big data*. Proceedings of the conference measuring the resilience of cities: The role of big data. 25 October 2013. Conference proceedings discussing how to measure the improvement in urban resilience.

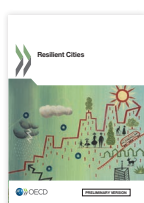


The World Bank. (2012). *Urban risk assessments: Understanding disaster and climate risk in cities*. The World Bank. Provides guidelines for effective urban risk assessment.



Institute for Social and Environmental Transition-International, Thailand Environment Institute, and Vietnam National Institute for Science and Technology Policy and Strategy Studies. (2013). *Assessing city resilience: Lessons from using the UNISDR local government self-assessment tool in Thailand and Vietnam*. Institute for Social and Environmental Transition-International. Provides findings of applying the UNISDR local government self-assessment tool.

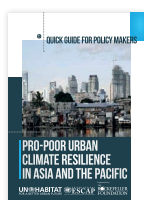
3. Resilience indicators for cities



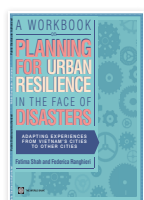
OECD. (2016). *Resilient cities*. OECD.
Considers measurement and policy changes to promote urban resilience – includes many examples.



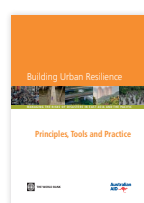
Frantzeskaki, N. (2016). *Urban resilience: A concept for co-creating cities of the future*. Resilient Europe, URBACT and the European Union.
Provides an overview of urban resilience and its dimensions. Intended to provide input for strategic conversations.



United Nations. (2014). *Pro-Poor Urban Climate Resilience in Asia and the Pacific*. United Nations.
Policy guide for promoting pro-poor urban resilience.



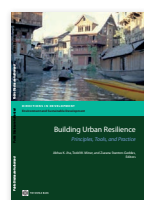
Shah, F., & Ranghieri, F. (2012). *A workbook on planning for urban resilience in the face of disasters: Adapting experiences from Vietnam's cities to other cities*. The World Bank.
Considers urban resilience and implementing actions plans.



The World Bank and Australian Aid. (2012). *Building urban resilience: Managing the risks of disasters in East Asia and the Pacific*. The World Bank and Australian Aid.
Covers the principles, tools and practice of urban resilience.

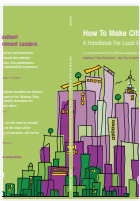


The Rockefeller Foundation. (2015). *City resilience framework. 100 Resilient Cities*. Available at: <https://assets.rockefellerfoundation.org/app/uploads/20160105134829/100RC-City-Resilience-Framework.pdf>
Arup framework for promoting city resilience (what areas need to be addressed).



Jha, A. K., Miner, T. W., & Stanton-Geddes, Z. (2013). *Building urban resilience: Principles, tools, and practice*. The World Bank.
Discusses the principles, tools and practice of urban resilience.

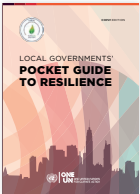
4. Urban resilience guides



UNISDR. (2012). *How to make cities more resilient: A handbook for local government leaders*. UNISDR. Designed to give guidance to governments on the essential principles of urban resilience and how to implement them.



Institute of Development Studies. (2009). *Urban governance for adaptation: Assessing climate change resilience in ten Asian cities*. Institute of Development Studies. An early case study of urban resilience examples in Asia.



UN-Habitat. (2015). *Local governments' pocket guide to resilience: COP21 edition*. United Nations Human Settlements Programme. Gives a range of examples of city resilience programmes.



GFDRR. (2014). *Can Tho, Vietnam: Enhancing urban resilience*. City Strength Resilient Cities Program. A recent case study of urban resilience in Vietnam.



Jha, A., Bloch, R., & Lamond, J. (2012). *Cities and flooding: A guide to integrated urban flood risk management for the 21st century*. The World Bank. Guidance on the specific example of flooding and urban flood risk management (including resilience).



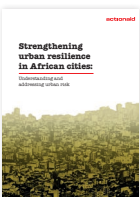
GFDRR. (2015). *Addis Ababa, Ethiopia: Enhancing urban resilience*. City Strength Resilient Cities Program. A recent case study of urban resilience in Ethiopia.



UN-Habitat. (2017). *Trends in urban resilience 2017*. United Nations Human Settlements Programme. Discusses current framework of urban resilience and gives examples.



The World Bank. (2015). *Building regulation for resilience: Managing risks for safer cities*. International Bank for Reconstruction and Development. Looks at the specific role that improving building regulations can play in urban resilience.



ActionAid. (2016). *Strengthening urban resilience in African cities: Understanding and addressing urban risk*. ActionAid. Specific case study on urban resilience in Africa (includes insights from case studies).

5. Investing in resilience



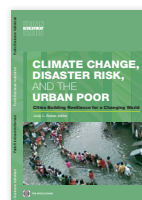
University of Cambridge Institute for Sustainability Leadership (CISL). (2016, December). *Investing for resilience*. Cambridge, UK: Cambridge Institute for Sustainability Leadership. Discusses the promotion of resilience in investment portfolios and financial markets.



The World Bank. (2015). *Investing in urban resilience: Protecting and promoting development in a changing world*. The World Bank. Discusses the importance of urban resilience, financing needs and obstacles.



ICLEI. (2011). *Financing the resilient city*. ICLEI – Local Governments for Sustainability. Discusses the financing needs of urban resilience and creating market conditions to achieve it.



The World Bank. (2011). *Climate change, disaster risk, and the urban poor: Cities building resilience for a changing world*. The World Bank. Broadly discusses urban resilience and the poor, including recommendations.



Urban Land Institute. (2015). *Returns on resilience: The business case*. Urban Land Institute. Describes the business case for urban resilience through a range of practical examples.



The Economist. (2014). *Building climate change resilience in cities: The private sector's role*. *The Economist* and the Rockefeller Foundation. Describes the role of the private sector in promoting urban resilience. May be useful for developing a business case (although it is not focused on this point).

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