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UNDRR GETI and WHO Webinar

Resilience of local governments: A multi-sectoral approach to integrate public health and disaster risk management



in partnership with



Speakers:

- Dr. Peter Williams, IBM Distinguished Engineer, Retd
- Dr. Benjamin Ryan, Clinical Associate Professor, Baylor University, United States

Commentator:

- Dr. Rajib Shaw, Professor Graduate School of Media and Governance, Keio University, Japan.

Resilience of Local Governments: A Multi-sectoral Approach to Integrating Public Health and Disaster Management

Tuesday April 7th, 2020

Dr Peter Williams, IBM Distinguished Engineer, Retd., USA

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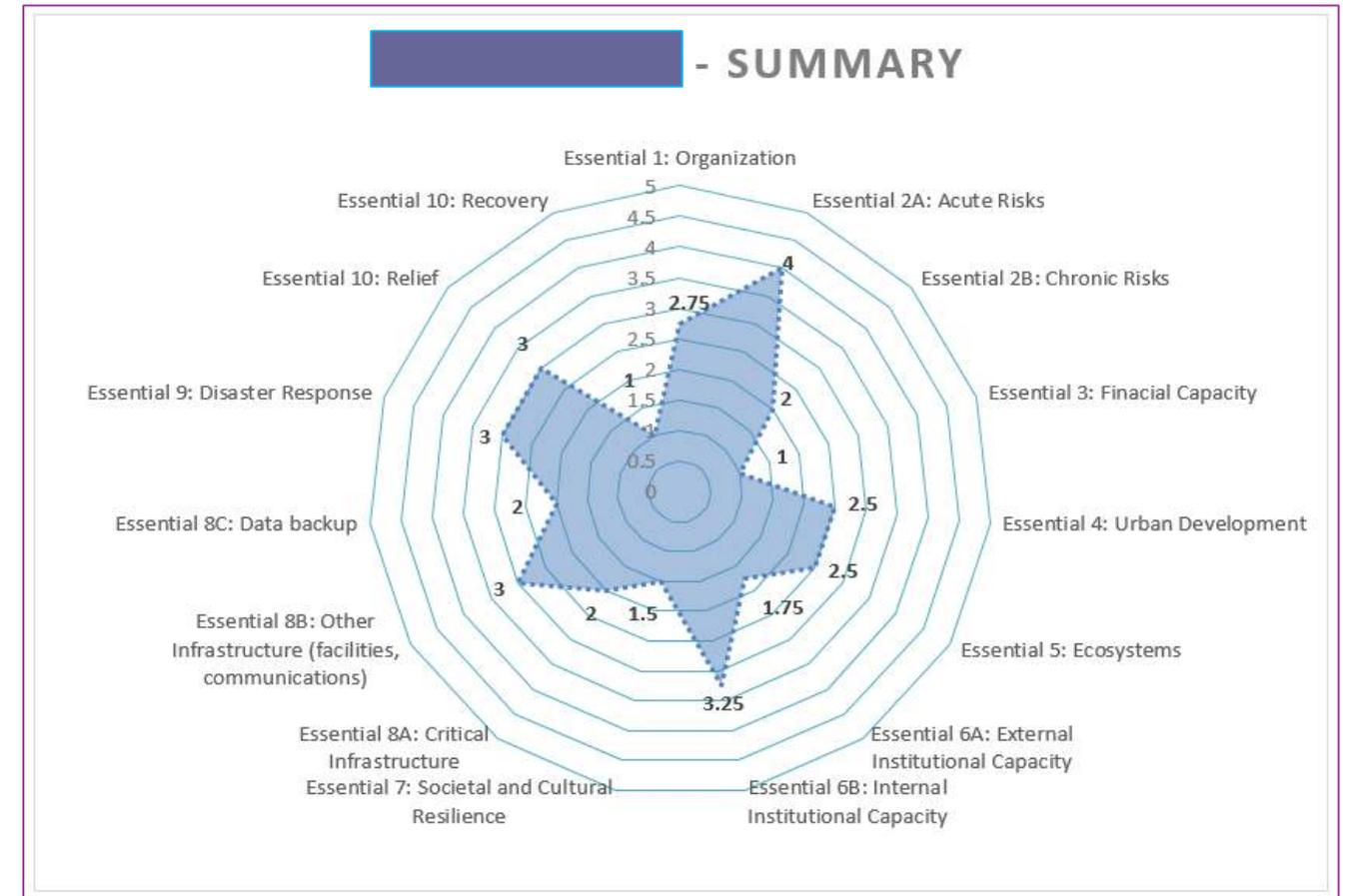
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Keio University, Japan

Introduction and Contents

- The “Public Health Addendum” is a supplement to the UNDRR’s original Disaster Resilience Scorecard for Cities , written to help address the public health implications of major disaster such as floods, earthquakes and the like.
- Pandemics share depth and breadth of impact with other disasters. An instrument that deals with those impacts across all relevant city systems may therefore prove useful in formulating a more effective response to the wider issues and implications posed by Corona Virus - and other pandemics that may arise in the future.
- This presentation introduces the City Scorecard very briefly to provide context for the Public Health Addendum. It then discusses the Addendum itself. It contains the following sections:
 - The Disaster Resilience Scorecard for Cities
 - The Public Health Addendum
 - Using the Scorecard – Resilience Planning

The Disaster Resilience Scorecard for Cities

- The Disaster Resilience Scorecard for Cities was co-authored by IBM and AECOM on behalf of UNDRR (UNISDR as it was then) in 2014 and officially launched in 2017.
- The City Scorecard breaks the UNDRR’s “Ten Essentials” for Making Cities Resilient into around 47-117 measurements, each scored 0 – 3 (preliminary version) and 0 – 5 (detailed version). It:
 - ... has now been used by ~ 200 cities worldwide, as well as by the EU for critical infrastructure resilience.
 - ... has been translated into 13 languages.
 - ... can be downloaded for free from:
<https://www.unisdr.org/campaign/resilientcities/home/toolkitblkitem/?id=4>
- A further version of the Scorecard, for industrial or commercial buildings and campuses was recently published and is available for free from:
<https://www.preventionweb.net/publications/view/69845>.



The Frame of Reference: Chronic and Acute Stresses

Chronic stresses

- Environmental
- Economic
- Social
- Cultural

May predispose to, or worsen acute events

May hinder recovery



Interactions



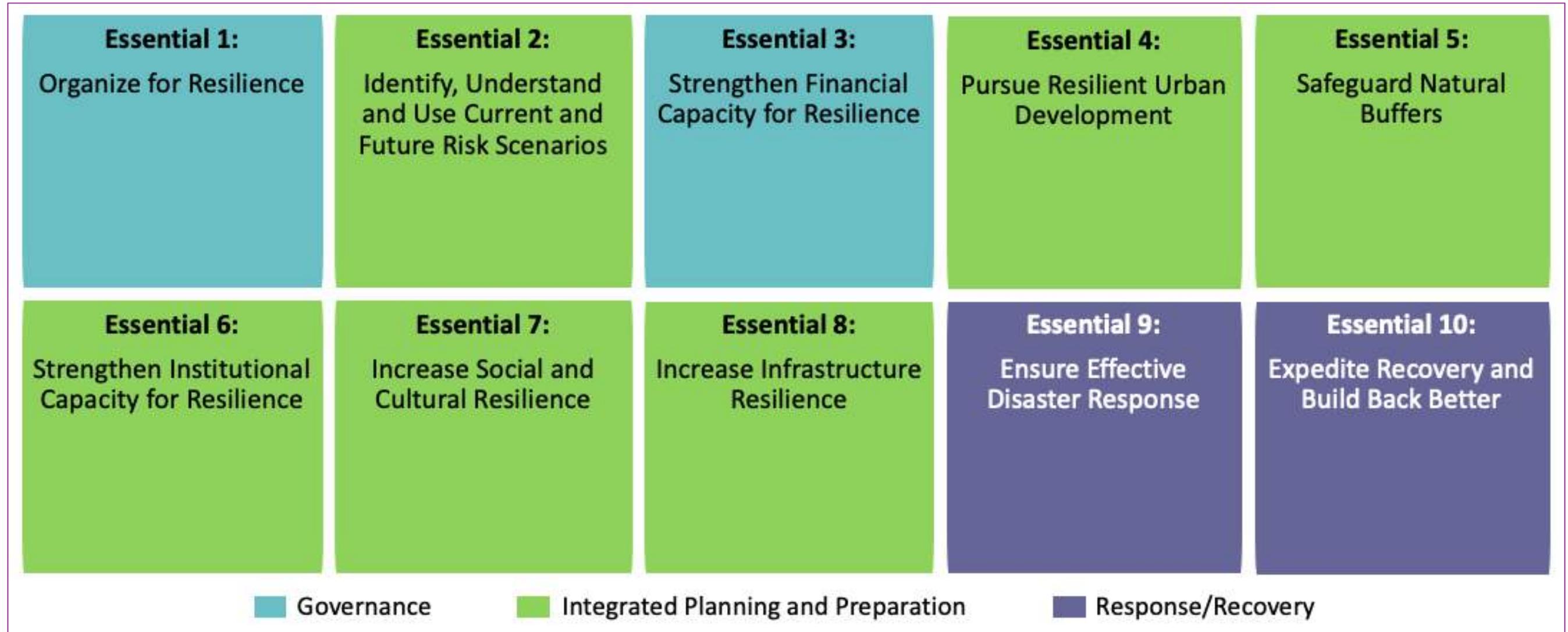
May exacerbate chronic stresses

Acute events

- Earthquakes
- Floods
- Storms
- Heat
- **Pandemics.**

(After work by Prof. Joseph Fiksel)

The UNDRR's Original "Ten Essentials" For Making Cities Resilient



- Pros:
 - Relatively holistic, complete coverage of the field – both by subject and by different timescales.
 - Allows “systems of systems” (technological, social, economic) to be addressed – great for making connections between these.
- Con: *public health* issues don't emerge clearly from this structure.

The City Scorecard – Structure. Example from Essential 1

Ref	Subject / Issue	Question / Assessment Area	Indicative measurement scale	Comments
1.1	Plan Making			
1.1.1	Risk consideration in Plan Making	To what extent are risk factors considered within the City Vision / Strategic Plan?	<p>5 – The plan includes a range of actions / priorities (e.g. urban growth and infrastructure projects) that directly respond to current and anticipated future risks.</p> <p>4 – The plan includes a range of actions / priorities (e.g. urban growth and infrastructure projects) that directly respond to current identified risks.</p> <p>3 – The plan context is framed around clear presentation of the city risk factors.</p> <p>2 – A robust risk assessment methodology is integral to the city plan.</p> <p>1 – There is evidence within the plan that risks (hazards x likelihood) is broadly understood within the City planning team.</p> <p>0 – Risks are not considered in the plan.</p>	<p>Risk identification and aggregation into scenarios is considered in Essential 2.</p> <p>This assessment criterion (1.1.1) is aimed at the city teams involved in strategic planning / plan making. Does the plan making process use best available science and risk assessment process to inform the order, magnitude and location of major new urban growth or significant infrastructure investment? i.e. is the future spatial vision for the city informed through clear risk assessment processes.</p>
1.1.2	Consultation in Plan Making	Is this strategy developed through inclusive, participatory multi-stakeholder consultation?	<p>5 – Yes – All relevant groups have been invited and attended. Stakeholders have been fully briefed on the process and receive regular bulletins on the progress of the plan.</p> <p>4 – At least 8 of the 10 listed groups (right) have been engaged / consulted.</p> <p>3 – At least 6 of the 10 listed groups have been engaged / consulted.</p> <p>2 – At least 4 of the listed groups have been engaged / consulted.</p> <p>1 – At least 2 of the listed groups were invited.</p> <p>0 – Stakeholder engagement has been undertaken.</p>	<ul style="list-style-type: none"> • The city emergency services; • Other city services and departments (public works, transportation); • The local health sector; • Utility providers including telecommunications; • Local businesses; • NGOs; • Civil society organisations including minority group representation; <ul style="list-style-type: none"> • Environmental sector; • The wider city population in all neighbourhoods, both formal and informal community groups; • Local universities; • Scientific institutions; • Other tiers of government or neighbouring cities, where necessary for the city's resilience; • Industry associations.

Making Cities Resilient Report 2019 – Essentials 3, 7 and 10 lagging

Figure 2: Overall progress of local governments in disaster resilience and risk reduction (all regions)

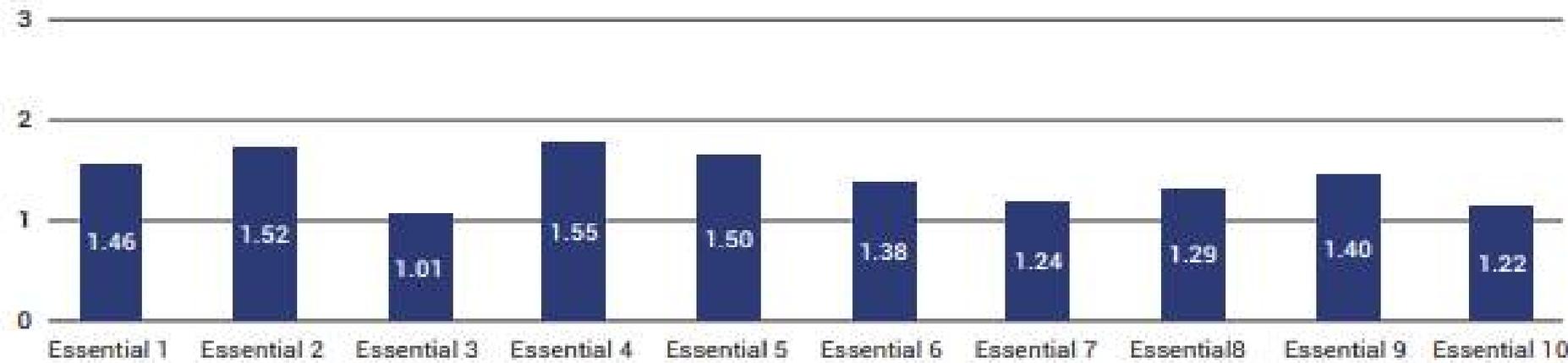


Figure 3: Overall performance of local governments in disaster resilience and risk reduction (all regions)



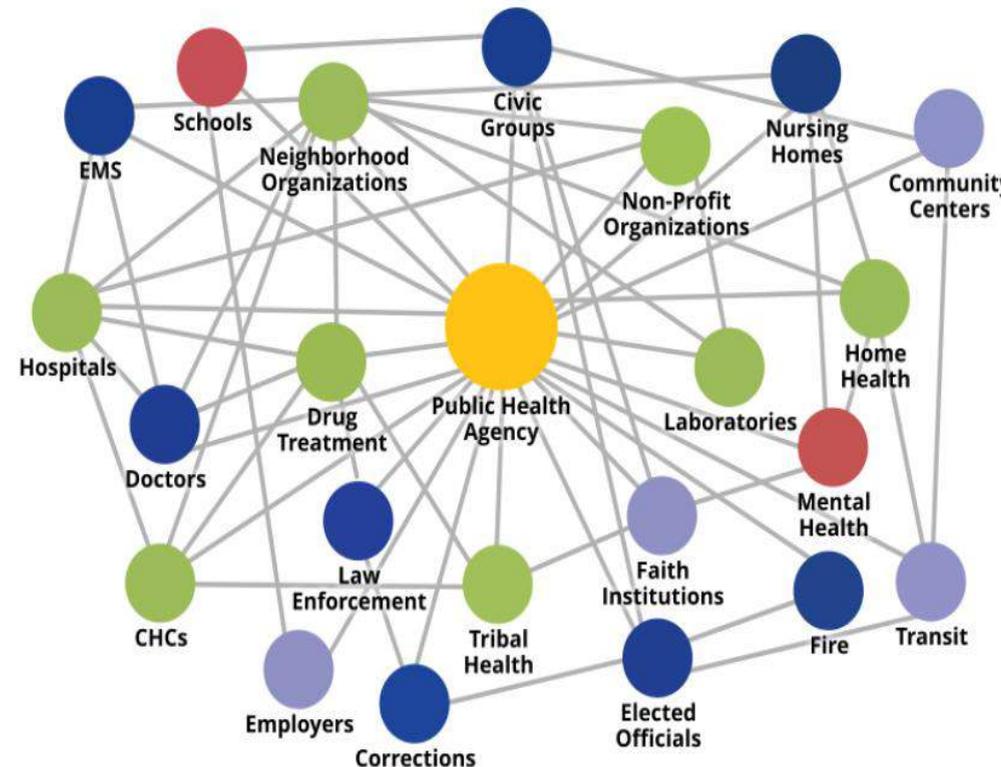
Other trends:

- The full economic impact of a disaster is rarely understood (until you have been in one).
- “Tactically strong, strategically weak”
- Community engagement needs to include business
- Critical asset management is the “forgotten hero” (or villain!) of disaster management.
- Too much reinvention - not enough attention paid to learning from elsewhere.
- The discussion is ALWAYS as important as the score.

The Public Health Addendum

- Created to address the one obvious weakness in the “Ten Essentials”.
- Uses the same “Ten Essentials” structure as the City scorecard – in the context of a pandemic, focuses on the wider issues of management and recovery
 - It is **NOT** a medical or epidemiological tool, although these disciplines will inform answers given.

- Hospitals – local, regional;
- Isolation facilities;
- Residential facilities, nursing homes, assisted living facilities;
- Community health clinics, doctors’ offices, outpatient care facilities;
- EMS systems;
- Mental health facilities;
- Health laboratory and testing facilities;
- Public sector health departments.



- Water and sanitation systems;
- Food distribution systems;
- Pharmaceutical and medical supply distribution systems, drug stores;
- Environmental health systems;
- Community information, engagement and outreach processes and facilities;
- Skills, staff, assets, facilities and equipment required to function – availability post-disaster.
- Tele-medicine/tele-health systems.

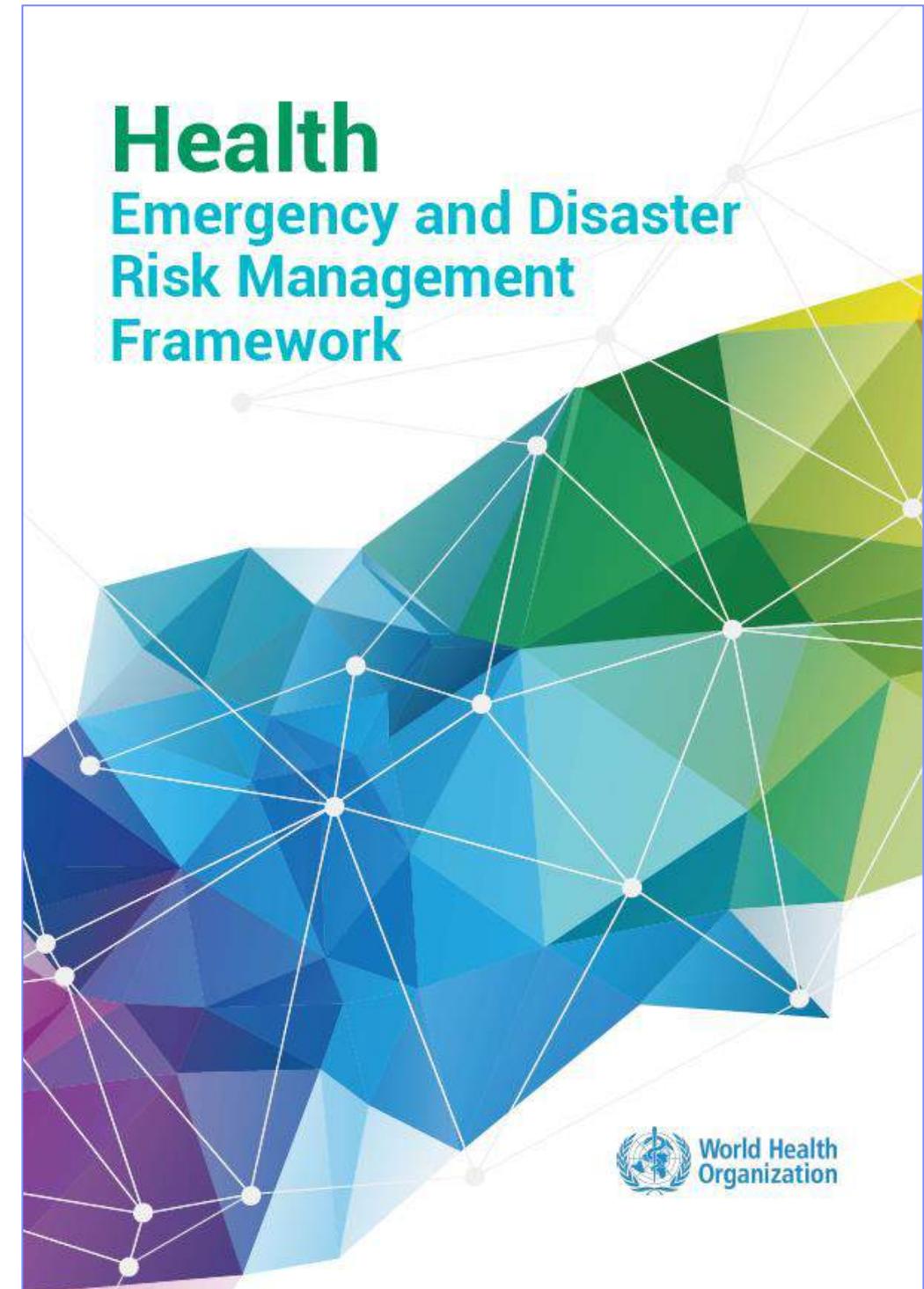
Examples of What is Covered

Essential	Examples in Healthcare Addendum
1. Organization & Governance	<ul style="list-style-type: none"> • Are public health and medical professionals involved in disaster planning and management? • Are other professionals (e.g. sanitation, water, energy, comms) involved in public health planning?
2. Risk understanding	<ul style="list-style-type: none"> • Inclusion of a pandemic scenario in risk planning. • Inclusion of pandemics (and pre-existing chronic health stresses – malaria, malnutrition) as a complexity factor, alongside “disasters as usual” – floods, earthquakes, fire etc.
3. Financial architecture	<ul style="list-style-type: none"> • Adequacy and protection of of funding • Resilience “dividends” – other benefits that arise from resilience spending
4. Land use and building codes	<ul style="list-style-type: none"> • Code and zoning compliance of key facilities
5. Ecosystem services	<ul style="list-style-type: none"> • Protection of ecosystem services with health benefits - natural water filtration, tree cover, recreation space
6. Capacity	<ul style="list-style-type: none"> • Availability of public health skills – medical and other • Availability and sharing of required data with (that is, to and from) other stakeholders
7. Social capacity	<ul style="list-style-type: none"> • Community engagement processes and effectiveness • Community trust of information provided • Community mental health and mental stress management
8. Infrastructure	<ul style="list-style-type: none"> • Resilience of key health infrastructures • Resilience of other relevant infrastructures– water, power, communications, sanitation, trash collection. • Surge capacity • Continuity of care facilities for those already sick
9. Disaster response	<ul style="list-style-type: none"> • Early warning systems • Integration with emergency management • Education, rehearsals, drills, public health supplies
10. Recovery planning	<ul style="list-style-type: none"> • Offsetting long run impacts on health • Learning and improving.

Linked – WHO Emergency and Disaster Management Risk Framework

Core principles:

- Risk-based approach.
- Comprehensive emergency management across prevention, preparedness, readiness, response and recovery.
- All-hazards approach.
- Inclusive, people- and community-centred approach.
- Multisectoral and multidisciplinary collaboration.
- Whole-of-health system-based.
- Ethical considerations.



Scorecard Cross Reference to WHO Framework**

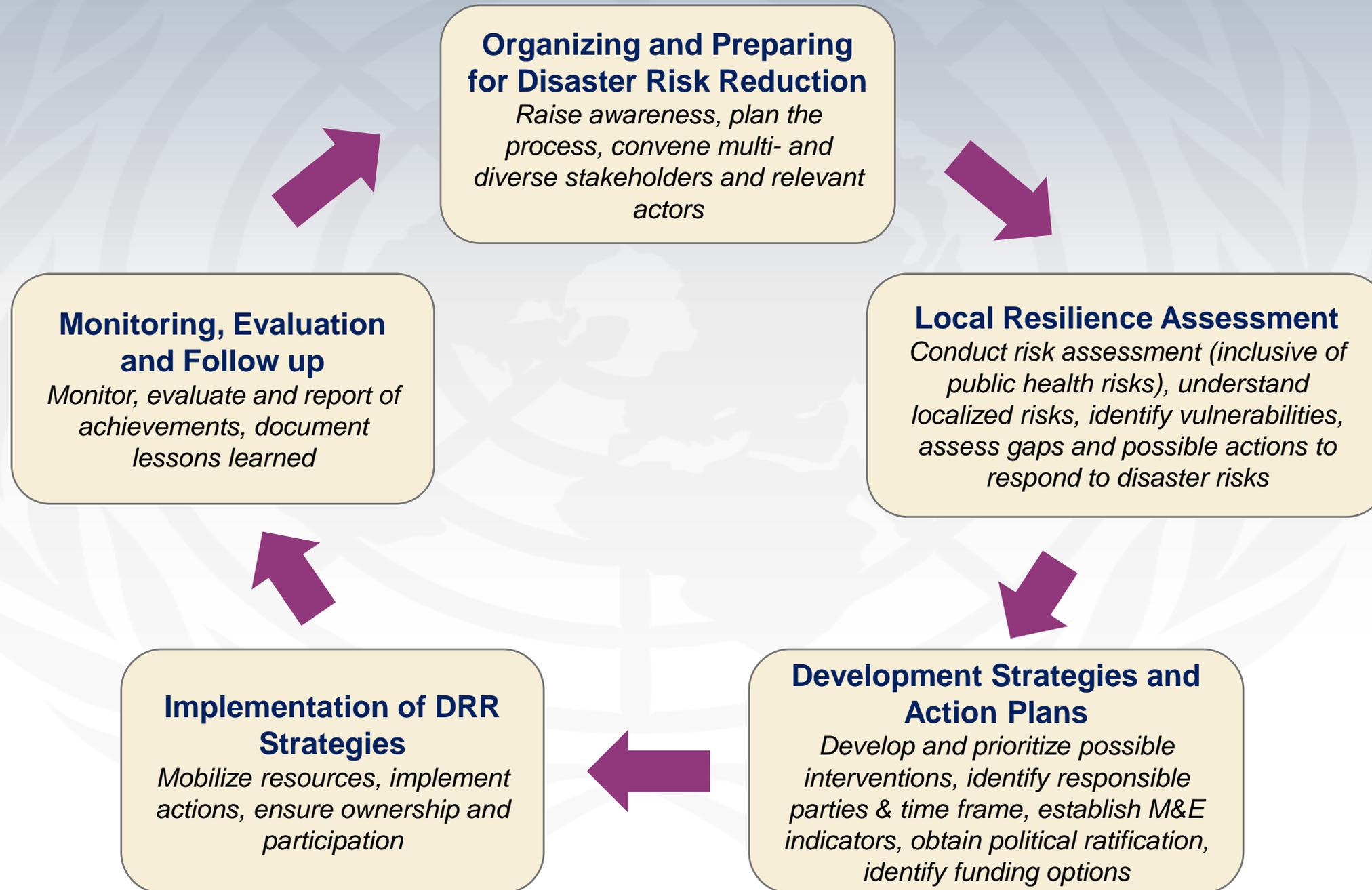
***Health Emergency and Disaster Risk Management Framework, World Health Organization, 2019. ISBN 978-92-4-151618-1*



WHO Framework Component	UN DRR Ten Essentials
1. Policies, Strategies and Legislation	Essential 1, Organize for Resilience
2. Planning and Coordination	Essential 1, Organize for Resilience Essential 9, Ensure Effective Disaster Response
3. Human Resources	Essential 6, Strengthen Institutional Capacity for Resilience
4. Financial Resources	Essential 3, Strengthen Financial Capacity for Resilience
5. Information and Knowledge Management	Essential 6, Strengthen Institutional Capacity for Resilience
6. Risk Communications	Essential 2, Identify, Understand and Use Current & Future Risk Scenarios Essential 7, Increase Social and Cultural Resilience
7. Health Infrastructure and Logistics	Essential 4, Pursue Resilient Urban Development Essential 8, Increase Infrastructure Resilience
8. Health and Related Services	Essential 7, Increase Social and Cultural Resilience Essential 8, Increase Infrastructure Resilience
9. Community Capacities for Health Emergency and Disaster Risk Management (Health EDRM)	Essential 7, Increase Social and Cultural Resilience Essential 8, Increase Infrastructure Resilience
10. Monitoring and Evaluation	Essential 9, Ensure Effective Disaster Response Essential 10, Expedite Recovery and Build Back Better

- Note – in some cases, elements of the original City scorecard may be required as well as the Public Health Addendum

Moving towards local resilience that integrates public health and disaster risk management



Implementation

	Milestone Phases	Steps
Phase one	Organize and prepare to apply the public health scorecard	<ol style="list-style-type: none"> 1. Prepare institutional setting, raise awareness 2. Convene actors, formalize participatory process 3. Plan and execute the process
Phase two	Assess and diagnose public health system capacity	<ol style="list-style-type: none"> 4. Become familiar with public health system capacity 5. Conduct a risk assessment 6. Analyze the local environment and actors 7. Prepare an assessment report
Phase Three	Develop an action plan	<ol style="list-style-type: none"> 8. Define vision, objectives and main actions 9. Define programmes and projects 10. Institutionalize and sustain the plan
Phase Four	Implementation	<ol style="list-style-type: none"> 11. Implementation and resource mobilization 12. Ensure broad participation and ownership
Phase Five	Monitoring and follow-up	<ol style="list-style-type: none"> 13. Monitor, follow up and evaluate the plan 14. Disseminate and promote the plan

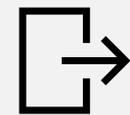
What is required to complete the public health scorecard?



Public health system capacity, stakeholders, planning and procedural documentation



Public health infrastructure (see Essential 8)



Data on healthcare outcomes of previous disasters, if available



Demographic data, including for vulnerable populations



Community and professional feedback on system capacity and effectiveness.

Case study – Community-driven mainstreaming in the Ha’apai Islands, Tonga

- Water scarcity was a persistent problem in the Ha’apai Islands, negatively **affecting people’s health**, crop yield and livestock productivity.
- Community consultations identified water supply as the top priority.
- Site selection, safe access to water at night for women, and accessibility of persons with disabilities and older persons were among some of the issues.
- Pooling of technical and financial resources from a wide range of partners increased the purchasing power to obtain new water tanks.
- Drawing upon local volunteers and engineers ensured capacity to implement and maintain the project was kept local.
- As a result of this bottom-up mainstreaming initiative, the Ministry of Finance and National Planning has started to make decisions based on the community needs and priorities.

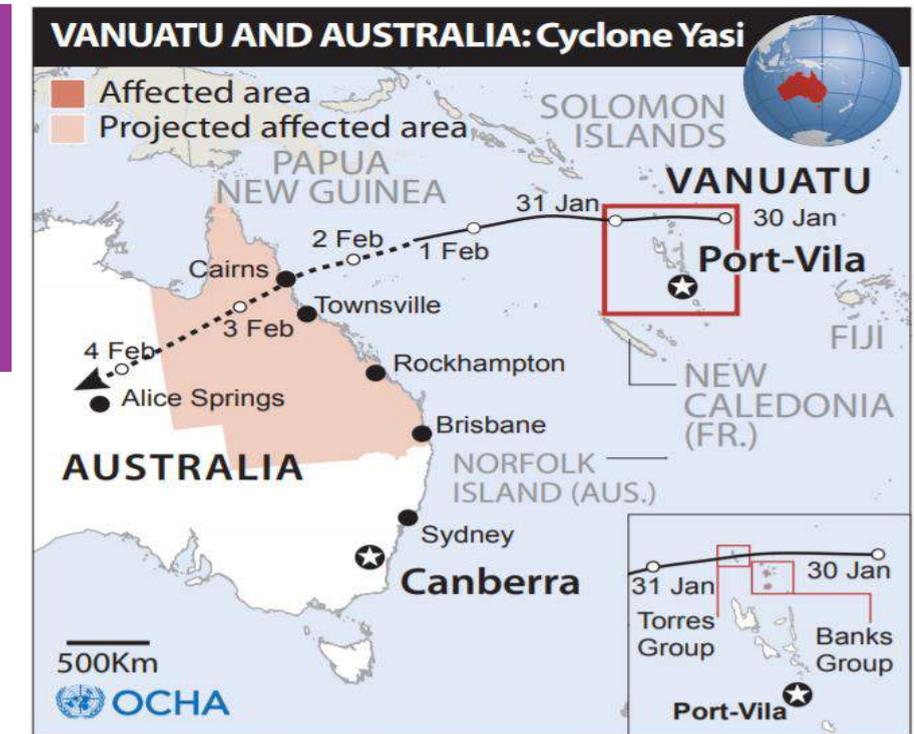


Essential 02: Identify, Understand and Use Current and Future Risk Scenarios
Addendum - Integration of public health and disaster scenarios

Case study – Public health system resilience

Cairns and Hinterland Hospital and Health Service Queensland, Australia

- February 2, 2011, Tropical Cyclone Yasi, a system the size of Hurricane Katrina, threatened the city of Cairns.
 - Resulted in evacuation of 356 patients, staff, and relatives to Brisbane (approximately 1,700 km away by road).
 - Closure of the hospitals.
 - Provision of a temporary emergency medical center for 28 hours during the height of the cyclone.
- Tropical Cyclone Yasi was the biggest storm in Queensland's history with tens of thousands of people moved from their homes.



31 January 2011 - Tropical Cyclone Yasi passed through the Banks Island Group in Vanuatu, bringing heavy rains, winds and 3-4m storm surge waves. Dwellings and crops were damaged.

Map Sources: Europa Technologies, GAUL, UNCS, UNISYS.
References: OCHA. Tropical Cyclone Yasi - Situation Update 31. 31 January 2011.



Case study – Public health system resilience

Cairns and Hinterland Hospital and Health Service Queensland, Australia

- Following the event, the then Premier and Minister for Reconstruction ordered a health review.
- Multisectoral review of public health systems needs was undertaken.
- Included leaders and stakeholders from local government, health department, emergency services, politicians and engineers.
- A systematic assessment of risks and capabilities identified the need for alternative site for critical and emergency care during disaster events.
- Funding provided for the “Cairns South Health Facility”, which will be a multipurpose facility:
 - Emergency care in a category five cyclone if the Cairns Hospital Emergency Department is unable to function
 - Site helipad to enable the evacuation of patients and casualties
 - Day to day, the facility will provide community health services.

Source: https://www.health.qld.gov.au/cairns_hinterland/south

Cairns South Health Facility



Source: https://www.health.qld.gov.au/cairns_hinterland/south

Cairns Hospital



Source: [Advance Cairns](#)

- The displaced Rohingya people in Cox's Bazar, Bangladesh, sheltered in makeshift settlements in extremely congested areas.
- Minimal access to basic infrastructure and services, and are prone to natural hazards, especially cyclones, floods and landslides.
- An assessment of medium-term needs and a risk assessment identified priority investments to improve disaster risk management, healthcare, education and emergency response.
- A Health Sector Support Project helped to further develop disease surveillance and outbreak response capacities of the Ministry of Health and Family Welfare.
- Activities to strengthen disease outbreak response included vaccination campaigns and disease-specific diagnosis and treatment services.
- There are now mechanisms for responding to the health impacts of possible disasters, such as the spread of cholera and diarrhea as well as other water- and vector-borne diseases associated with storms and flooding.



Essential 07: Understand and Strengthen Societal Capacity for Resilience Addendum – Integration of public health and societal capacity

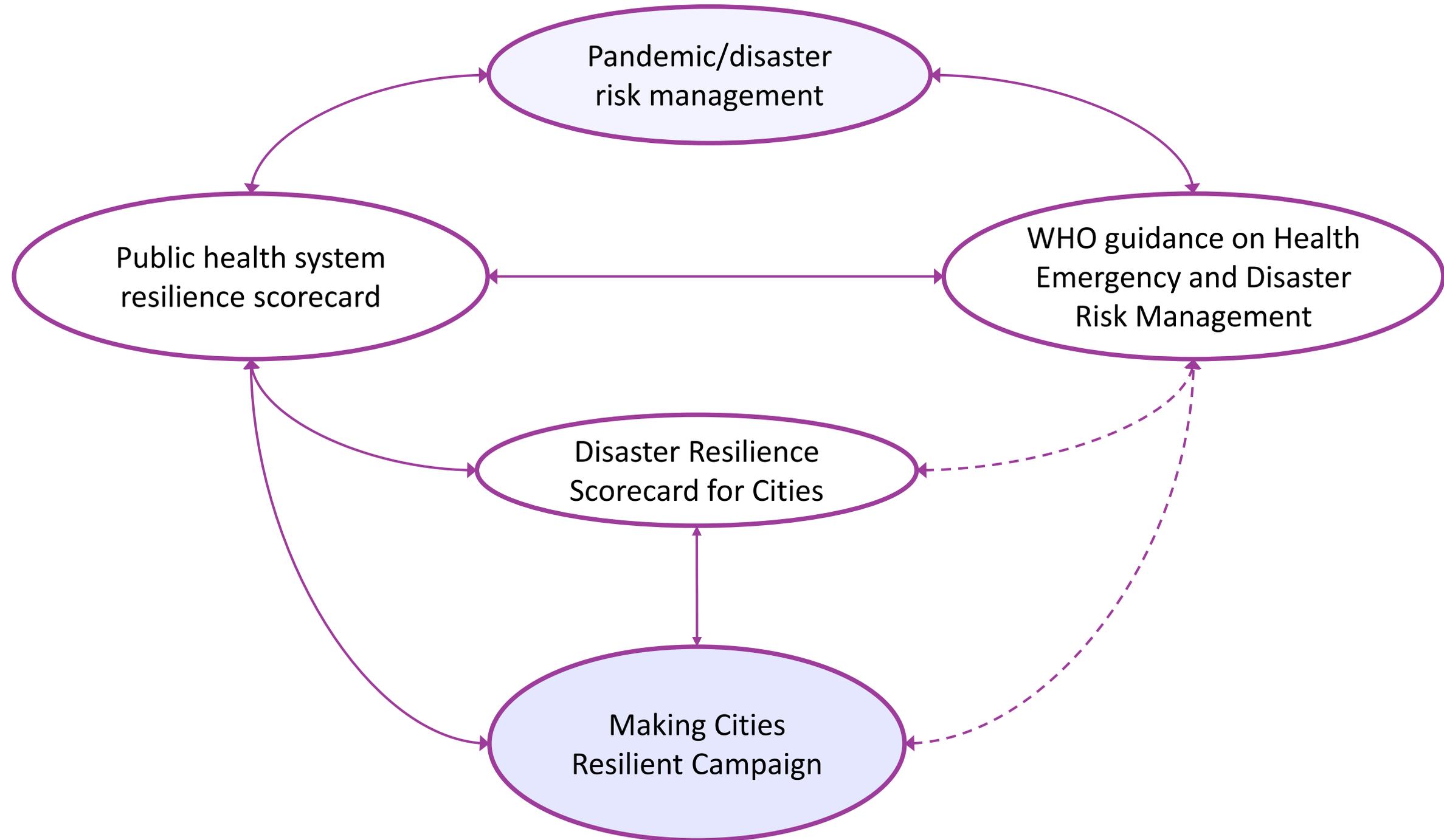
Scorecard indicators relevant to pandemic/disease outbreak

No	Assesses
A1.1/9.2	<p>Governance mechanisms for disaster risk and emergency management include public health professionals</p> <ul style="list-style-type: none"> Emergency care, primary care, environmental health, epidemiology, medical supplies, other government entities, etc.
A2.1	<p>Disaster risk planning includes public health emergencies</p> <ul style="list-style-type: none"> Pandemics/outbreaks and other public health disasters are included in risk scenarios adopted by the city.
A2.2	<p>Consideration of public health impacts arising from other disasters</p> <ul style="list-style-type: none"> Trauma and post-trauma care, treatment of chronic conditions, water and food-borne illnesses, quarantine facilities, emergency shelters, psychological care, etc.
A3.1	<p>Funding earmarked for addressing public health implications of disasters</p> <ul style="list-style-type: none"> Essential hospital services, alternate care sites, emergency medical supplies, etc.
A6.1	<p>Sufficient, skilled health professionals to maintain public health around disasters</p> <ul style="list-style-type: none"> Doctors, nurses, allied health professionals, pharmacists, environmental health, epidemiologists, supply chain managers, laboratory technicians, etc.
A6.2	<p>Public health data shared with all stakeholders that need it</p> <ul style="list-style-type: none"> Awareness of public health assets and facilities needs pre and post disaster.

Scorecard indicators relevant to pandemic/disease outbreak

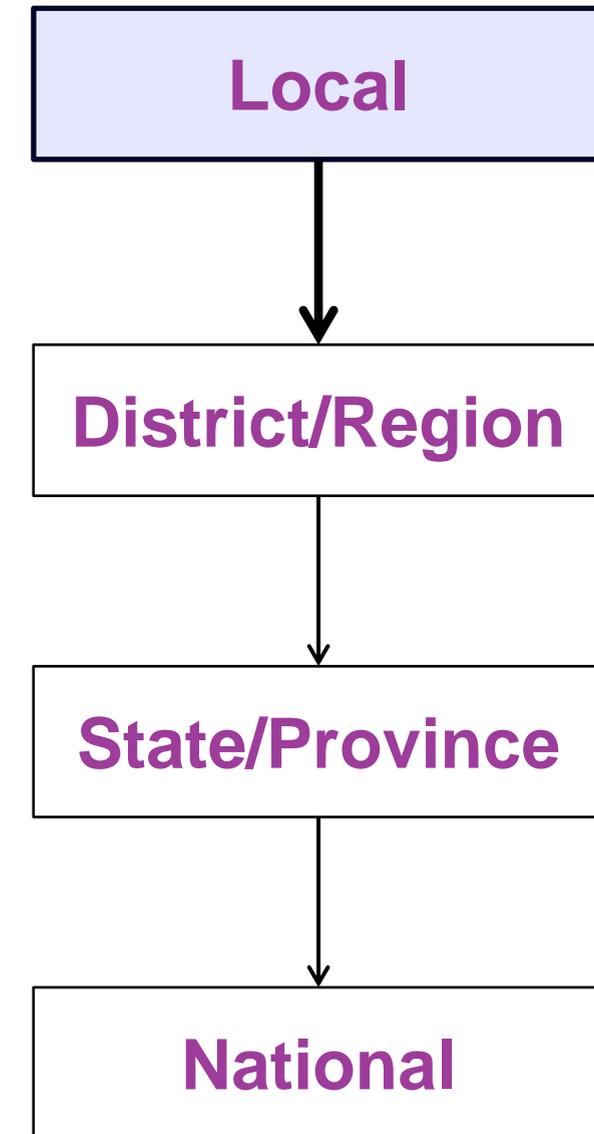
No	Assesses
A7.1	<p>Communities are prepared to maintain public health levels after a disaster</p> <ul style="list-style-type: none"> Infectious diseases monitoring and alerts, air and water quality testing and supporting vulnerable.
A7.1.2	<p>Community can access and trust public health information</p> <ul style="list-style-type: none"> Emergency hygiene, disease prevention, support for vulnerable and outbreak information.
A8.1	<p>Existence of health infrastructure besides hospitals</p> <ul style="list-style-type: none"> Isolation capabilities, community clinics, nursing homes, laboratories, drugstores, supplies, etc.
A8.2	<p>Health facilities can manage a surge of patients</p> <ul style="list-style-type: none"> Estimated loss of critical bed days, urgent medical supplies and health workforce shortages.
A9.1	<p>Early warning systems exist for impending healthcare emergencies</p> <ul style="list-style-type: none"> City monitors health trends for the early warning of a healthcare emergency, such as a pandemic and chronic healthcare stress that is building towards a “tipping point”.
A9.5	<p>Supply items and equipment required to maintain public health after a disaster</p> <ul style="list-style-type: none"> PPE, first aid supplies, infection control and sanitation supplies, medications and medical equipment.

Multisectoral mechanism for supporting pandemic management



Moving to action

- Locally led and developed
- Help cities establish their public health system resilience baseline and can help to frame an action plan
- Cities should ideally move on to develop action plans and assign responsibilities
- Further work will inevitably be needed to support project definition and design, business case, funding, etc
- Work to complete the public health scorecard will be valuable for cities participating in the Making Cities Resilience Campaign and other initiatives such as:
 - 100 Resilient Cities (100RC) & Global Resilient Cities Network by the Rockefeller Foundation
 - C40
 - UN-Habitat's City Resilience Profiling Programme
 - City Resilience Program (CRP) of World Bank amongst others.



Moving to action (cont.) – Sample Local Emergency Committee

- Completion led by local emergency committee
- Either local emergency preparedness management or health department
- Could be completed as part of official meetings
- Completed scorecard and action plan should be submitted to state/provincial governments
- Completion needs to occur while all stakeholders are present
 - This maximizes engagement, understanding, awareness and time



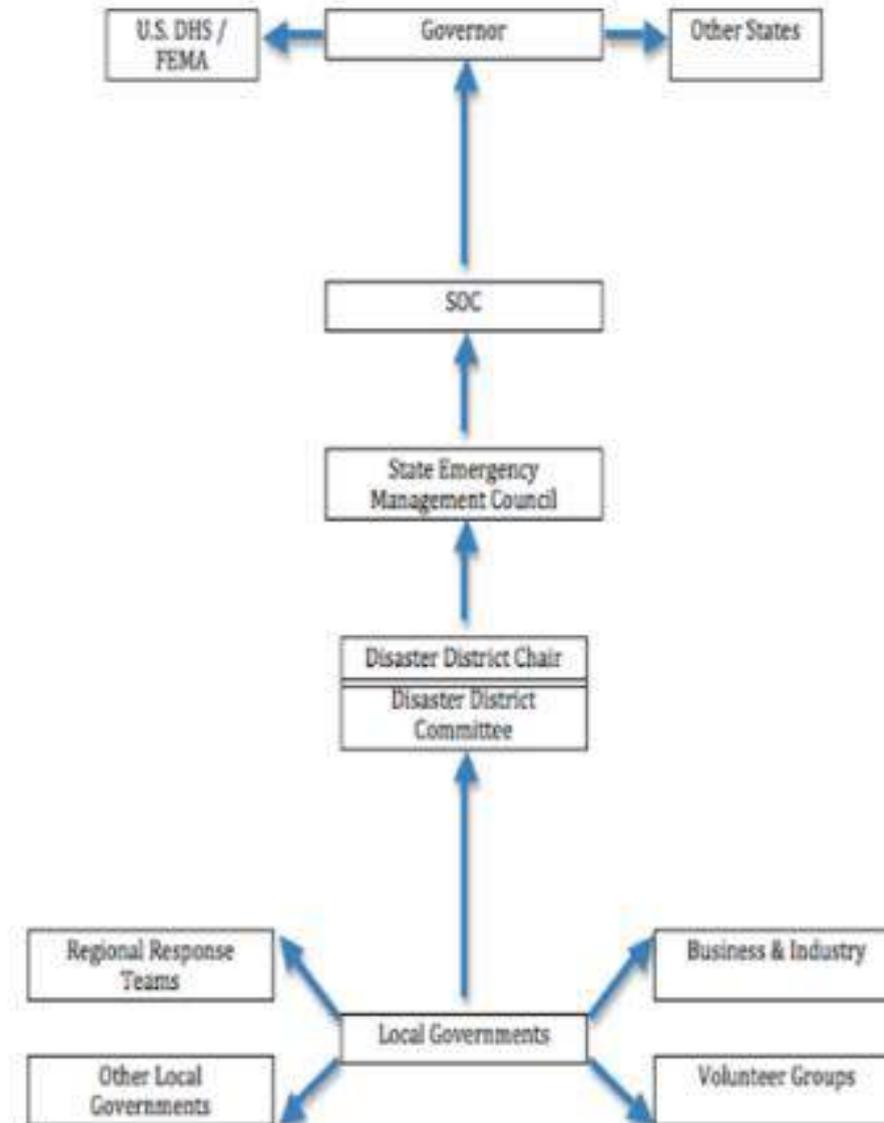
Moving to action (cont.)

– Implementation could occur across sectors and disaster systems

Texas disaster districts



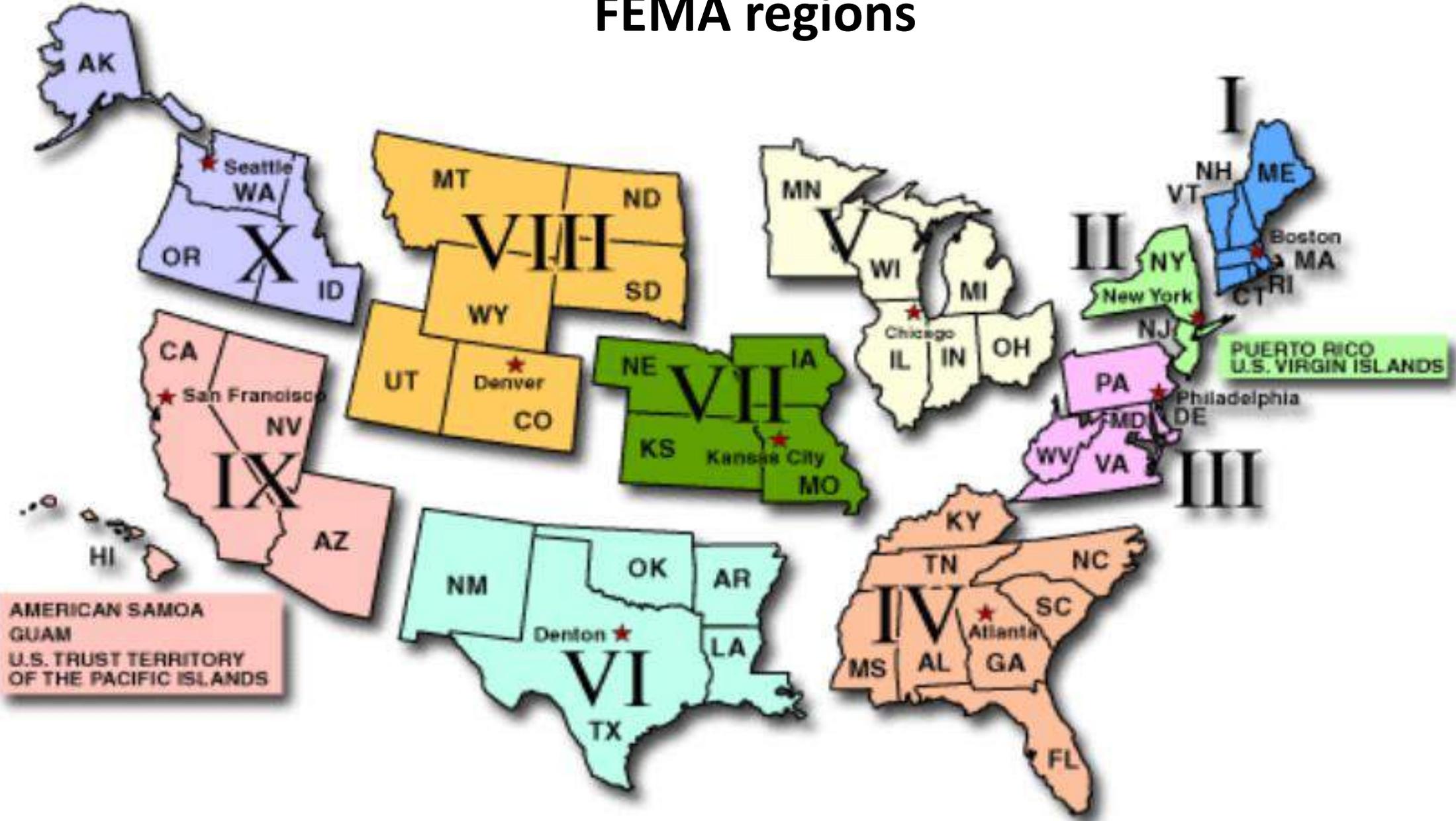
Requesting assistance



Moving to action (cont.)

– Implementation could occur across nations through disaster systems

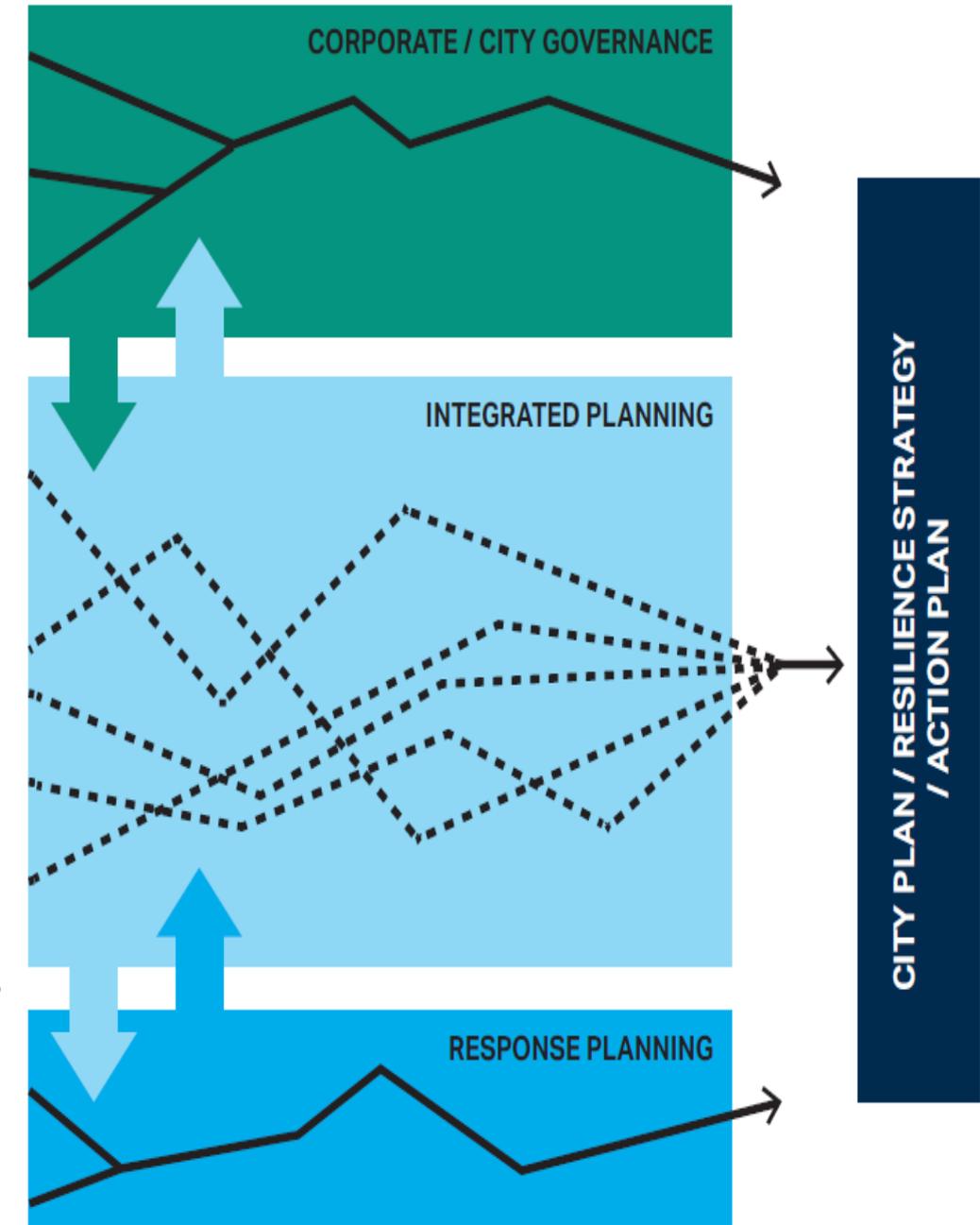
FEMA regions



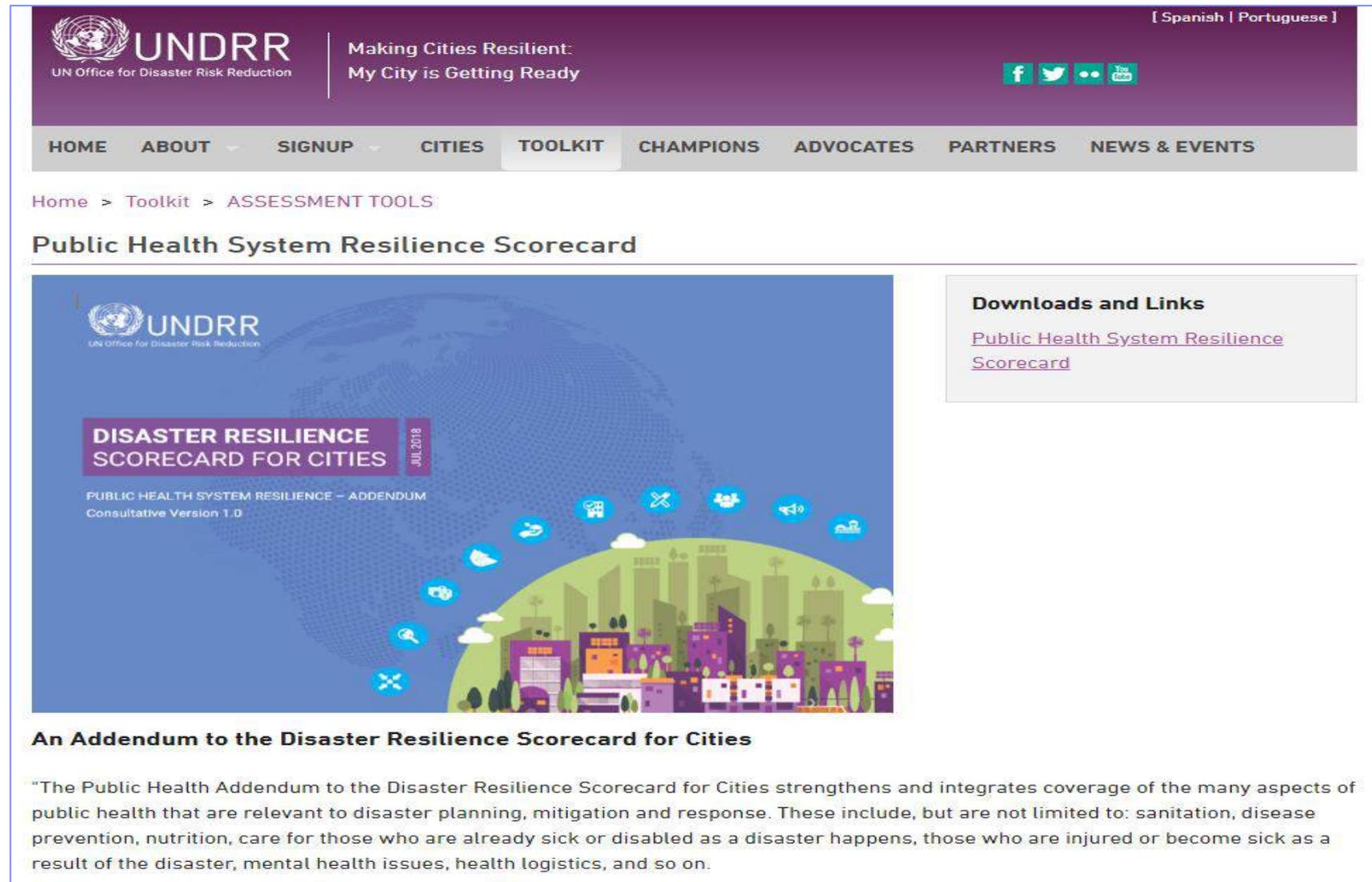
Source: FEMA – <https://www.fema.gov/regional-contact-information>

Public Health Addendum Benefits

- The benefits of completing extend far beyond reporting.
- The conversations the process can generate may even be more important than the scores.
- If completed in a collaborative way, cities can:
 - Establish a baseline measurement of their public health system resilience
 - Increase awareness and understanding of resilience challenges
 - Enable dialogue between key city stakeholders who may otherwise not collaborate regularly
 - Enable discussion of priorities for investment and action, based on a shared understanding of the current situation
 - Enable the development of a resilience strategy / action plan that integrates public health issues
 - Ultimately lead to actions and implementable projects that deliver increased public health system and overall resilience for the city over time.



Download the Public Health Addendum to the City Disaster Resilience Scorecard



The screenshot shows the UNDRR website interface. At the top, there is a purple header with the UNDRR logo and the text "Making Cities Resilient: My City is Getting Ready". Below the header is a navigation menu with links for HOME, ABOUT, SIGNUP, CITIES, TOOLKIT, CHAMPIONS, ADVOCATES, PARTNERS, and NEWS & EVENTS. The main content area features a breadcrumb trail: Home > Toolkit > ASSESSMENT TOOLS. The title of the page is "Public Health System Resilience Scorecard". Below the title is a large graphic with the UNDRR logo and the text "DISASTER RESILIENCE SCORECARD FOR CITIES JUL 2018" and "PUBLIC HEALTH SYSTEM RESILIENCE – ADDENDUM Consultative Version 1.0". To the right of the graphic is a box titled "Downloads and Links" containing a link to "Public Health System Resilience Scorecard". Below the graphic is a section titled "An Addendum to the Disaster Resilience Scorecard for Cities" with a paragraph of text.

UNDRR
UN Office for Disaster Risk Reduction

Making Cities Resilient:
My City is Getting Ready

[Spanish | Portuguese]

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Public Health System Resilience Scorecard



UNDRR
UN Office for Disaster Risk Reduction

**DISASTER RESILIENCE
SCORECARD FOR CITIES** JUL 2018

PUBLIC HEALTH SYSTEM RESILIENCE – ADDENDUM
Consultative Version 1.0

An Addendum to the Disaster Resilience Scorecard for Cities

"The Public Health Addendum to the Disaster Resilience Scorecard for Cities strengthens and integrates coverage of the many aspects of public health that are relevant to disaster planning, mitigation and response. These include, but are not limited to: sanitation, disease prevention, nutrition, care for those who are already sick or disabled as a disaster happens, those who are injured or become sick as a result of the disaster, mental health issues, health logistics, and so on.

<https://www.unisdr.org/campaign/resilientcities/toolkit/article/public-health-system-resilience-scorecard>

Thank you! Questions?

Dr Peter Williams

IBM Distinguished Engineer, Retd.

California, USA

rpwilliams1958@gmail.com

Dr Benjamin Ryan

Clinical Associate Professor

Baylor University, Texas, USA

benjamin_ryan@baylor.edu