SPECIAL SESSION 6:
Urban Land Use and Territorial Planning in the Pacific
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Urban Land Use and Territorial Planning in the Pacific


Organized by: Commonwealth Association of Planners (CAP)

Speakers:
- Mr. Bryce Julyan, Vice President (NZ-Pacific), Commonwealth Association of Planners
- Dr. Wendy Saunders – Senior Social Scientist, GNS Science, New Zealand
- Ms. Lesley Hopkins - Technical Director, Beca International Consultants, New Zealand
- Dr Azmizam Abdul Rashid, Urbanice, Malaysia

This Special Session was hosted by the Commonwealth Association of Planners (CAP). CAP is a major global institution in planning and is playing an increasingly significant role in the worldwide promotion of planning as a fundamental part of governance for sustainable human settlement. CAP currently represents over 40,000 planners from 27 countries throughout the Commonwealth including African, Asian, Australasian and Caribbean countries.

Drawing on examples and observations of planners and practitioners from Commonwealth members the session examined urban land use and territorial planning in the context of rapid urbanisation and climate change, and looked at its application in the Pacific Region. The presentations illustrated urban and territorial land use planning projects and tools that are being applied and developed to plan for land use changes in the context of coastal, tropical and island nations facing climate change and urbanisation rates that stretch land and infrastructure resources. Presentations were followed by a panel discussion on the key challenges, and then group discussion on what tools and actions can we use to improve, strengthen plans and planning to achieve sustainable, positive outcomes for our land use and urban areas, whilst acknowledging and responding to climate change by building resilience in our urban settlements.

Presentations were reflective of the issues facing many coastal nations however the challenges are exacerbated in Small Island Developing states (SIDS) and the examples highlighted some of the specific issues faced by Pacific nations and draw on some learnings and experiences from elsewhere in the Commonwealth.

The presentations included the 2018 CAP Outstanding Planning Achievement Award winning project relating to innovative risk-based planning and engagement for Natural Hazards in the Bay of Plenty Region, New Zealand. The project developed a regionally-consistent framework for managing the region’s natural hazards, including low likelihood and high consequence hazards, according to their risk (determined by both likelihood and consequence). The panel also included speakers who presented on the Vanuatu Urban Risk Assessment project which received a Commendation at the 2018 CAP awards.

Bryce Julyan, CAP Vice President for NZ and the Pacific, provided a presentation on CAP’s contribution to the Caribbean Planning methodology Review it has undertaken in conjunction with Caribbean Planning Association. With Commonwealth Foundation funding a project team was able to undertake the review of the planning methodologies applied across the eastern Caribbean for land use planning at national and local level. In particular this examined the methodologies in light of the impacts of climate-related events that devastated the region in 2017.

Speakers from Urbanice Malaysia shared their experience implementing SDG/NUA frameworks in Malaysia. Urbanice is set up under the Malaysian Ministry of Urban Wellbeing, Housing and Local Government as a Centre of Excellence to promote sustainable and climate responsive urban development.
REVIEW OF NATIONAL & LOCAL PLANNING METHODOLOGIES

Bryce Julyan, Vice President (NZ - Pacific), Commonwealth Association of Planners

Review of National & Local Planning Methodologies - Eastern Caribbean

Bryce Julyan
Vice President (NZ-Pacific)
Commonwealth Association of Planners

Photo: Dominica, Presenters own

Commonwealth Association of Planners
Connecting planners and planning across the Commonwealth

Membership:
6 Continents
28 Countries
Over 40,000 planners

The project

Commonwealth Foundation funding for CAP and Caribbean Planners Association project to review planning responses to the 2017 hurricane season – lessons learnt and tools and mechanisms that could be shared elsewhere


Background

Eastern Caribbean states are extremely vulnerable to natural hazards and impacts of climate change

Developing generic methodologies for the preparation of National and Local Area Land Use Plans for the region - currently being implemented at the national level in the British Virgin Islands (BVI), and at the local level (i.e. the Greater Marigot area) in Dominica.

Our partners

- Project to review and validate regional methodologies & implications of recent hurricanes on land use planning exercises in BVI & Dominica
- Practicality validation exercise
- Joint project – CAP, Caribbean Planners Association (CPA) and Caribbean Network for Urban and Land management (CNULM)
- Fieldwork and engagement processes incl professionals, state officials and civil society


Key objectives

- To advise the Governments of BVI and Dominica on ways to improve the existing projects being implemented, based upon changing conditions in the islands, in light of the recent hurricanes and a review of the existing methodology
- To advise the Governments and consultants regarding the improvement of Civil Society participation in the planning process
- To advise the inter-governmental Organisation of Eastern Caribbean States (OECS) on possible amendments to the initial methodologies.

Specific objectives

- Assess the impact of a major event on the generic methodology and how to best integrate on-going land use planning with post disaster planning and recovery.
- Provide inputs to the national governments and the consultants working on the projects in improving the ongoing exercises.
- Review data collection and analysis strategies and the need for rapid assessments and remote data analysis in the Caribbean context prone to natural disaster.
- Provide inputs to review of the OECS Land use planning programs, the two pilot projects and generic methodologies for the preparation of Land use plans in the OECS member states.

Scope

- The workshop was able to use the discussions on the specific review of the National Plan for BVI, the local area plan for Marigot, Dominica and local area planning in St Vincent and the Grenadines and in Antigua and Barbuda to engage in broader discussions on planning methodology and natural disasters.
- The workshop managed to have key public sector planners from 9 of the OECS member states.
- Achieved the aim of guidance on the existing methodologies and way forward.
**Potential suggestions?**

- Plan making should be part of an integrated process –
  - the importance of land tenure issues to affect the ability to implement and enforce planning and how critical these become in post disaster contexts
  - Links of heritage and cultural issues and linkages to the blue economy could be enhanced
  - Good base data and mapping is critical and shared access
  - Integrating planning and economic development is critical but even more so in post disaster recovery.
  - Design - planning processes can be used to support the creation of good physical environments.


**Key recommendations**

- Greater integration between land use planning and post disaster planning and recovery – regionally and locally
- Need to address the issues of:
  - socio-economic and socio-cultural resilience
  - Informal settlements
  - Respect and acknowledgement of indigenous populations and values
- Make provisions for returning plans and relocation plans
- Greater use of rapid assessments and other approaches to minimise time taken for plan-making
- Include considerations related to the blue economy
- Build understanding and raising awareness to educate civil society on the value of Planning. Generate acceptance of everyone's responsibility as ‘stewards’ for next generation. Change the mindset that Planning is just a regulatory and bureaucratic hurdle to be overcome.

Next steps

• How to support National Governments with critical limitations in institutional capacity for data collection and analysis. Regional level data collection – how to best analyse and map data to have it quickly available.

• How to better harmonize policies and laws supporting the planning and environmental aspirations in a region including better integration of culture and heritage, local economic development and the blue economy.

• How to improve the form and design of settlements and urban areas to both make them more livable, sustainable and resilient to climate change events and natural disasters.

Project team


Thank you

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CAP Vice President (NZ-Pacific)

MAINSTREAMING DRR - A CASE STUDY FROM PORT VILA & LUGANVILLE

Lesley Hopkins, Technical Director Planning, EECA International Consultants Ltd.

Mainstreaming Disaster Risk Reduction – A case study from Port Vila and Luganville, Vanuatu

PACIFIC URBAN FORUM – SESSION 6: URBAN LAND USE AND TERRITORIAL PLANNING IN THE PACIFIC
LESLEY HOPKINS
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Risk reduction to improve resilience

- Investing in disaster risk reduction for resilience
- Understanding disaster risk
- Strengthening disaster risk governance to manage disaster risk
- Enhancing disaster preparedness for effective response, and to "Build Back Better" in recovery, rehabilitation and reconstruction

July 2014
March 2015
Risk Mapping and Planning for Urban Preparedness

Improving the resilience of Vanuatu’s urban areas by expanding existing data on natural hazards and risks and applying this to planning and risk reduction activities.

- **Urban growth trends** - Where are people and property and why?
- **Hazard and risk mapping** - What and where are the risks?
- **Risk management strategy** - How to manage existing and future risks
- **Participation and communication action plan** - How do we communicate the risks?

**Urban Growth Trends**

- Growing at 4% per year
- Growth occurring outside municipal boundaries
- Greatest in the north and east of the city
- Mostly lower income residential development and some areas of informal settlement
- Growth derived from people moving into the area
- Landownership a key influencer
Hazard and risk mapping

- Seismic, river flood, wind, coastal inundation and tsunami
- Existing hazard data
- Mapping hazards for various mean return periods
- Risk parameters
- Urban risk assessment
- Risk maps
- Integrating data into a geospatial repository

Risk management strategy

- Institutional response to risk
- The existing land use planning framework
- Land use planning and zoning policy
- Development controls and zoning plans
- The Building Code
- Development instruments
Participation and communication action plan

- Review of existing education, information and communication materials
- Review of key messages
- Participation and communication plan:
  - Community engagement for all-hazard risk reduction
  - Community based tsunami evacuation maps and plans
  - Specific participation mechanisms
- Standard operating procedures

Lessons Learnt

- Science provides justification for action
- Give communities information to empower them to make decisions or demand action
- Spread information widely – don’t hold on to it
- Make it visual (e.g. posters and maps)
- A champion is required to carry things through
- Focus on legislation
- Tools are often available just not used
- Planning policy not formally adopted so has no teeth
- Land ownership has a big influence on development
Challenges

- National level policy required to guide lower level documents
- Existing urban planning rules don’t provide for decisions
- Planning mechanisms are old or in draft form
- Urban planning is less focussed on future land use
- It is easy to defer decisions
- Funding tends to focus on the here and now
- Capacity and training – limited qualified planners
- Continuity – building momentum for initiatives
- Difficult to mobilise resources
- Doesn’t attract public attention until an event happens
The Malaysian Perspective

AZMIZAM ABDUL RASHID
URBANICE MALAYSIA
Ministry of Housing and Local Government, Malaysia

2 July 2019
5th Pacific Urban Forum
Fiji

Malaysia Urbanisation

ECONOMIC AND REGIONAL DEVELOPMENT ASIA PACIFIC AND MALAYSIA

SDGs AND THE GLOBAL GOALS

Population
55% - 59% of population
58% - 60% of population

Local Economic Development
100% - 100% of area
100% - 100% of area

Social culture

Malaysia’s Future Challenges
- Economic and regional development Asia Pacific and Malaysia

Year 2010
- 6.4M households
- 4.3M average household size

Year 2040
- 10.1M households
- 3.8M average household size

Malaysia Urbanisation
Role of Cities & City Regions
320 Cities in Malaysia - important drivers of economic growth. Malaysia’s 3 largest cities and its conurbation – Kuala Lumpur, Penang and Johor Bharu constitute 70% of the national population.

Kuala Lumpur Conurbation

- 3.3% AREA
  - 4,305 Square kilometers

- 38% Contribution to Malaysia’s GDP
  - RM400,355m GDP 2015

- Population
  - 7,205 MILLION Population 2015
  - 10,886 million Population 2040

Malaysia Today Is An Urban Nation
Malaysia became an urban nation in 1991 - 50.4% of population lives in urban areas

- POPULATION MALAYSIA
  - 31 million (2017), 41.5 million (2040)

- URBANIZATION RATE FOR MALAYSIA
  - 33.5% (1970), 77% (2017)
  - To grow to 78.9% by 2020, 85% by 2040
Malaysia started to address environmental issues and achieving the sustainable development since 1972 after joining The United Nations Conference on the Human Environment. Malaysia signs the United Nations Framework Convention on Climate Change in 1993, ratified the Kyoto Protocol in 2002 and commit to 40% CO2 emission in COP15 in 2009.

UN set up the World Commission on Environment and Development

UN Convened World Conference on Environment and Development

Rio Summit; World committed on sustainable development & Agenda 21

Adopted UNFCC (UN Framework on Climate Change)

Kyoto Declaration on Green House Emission

Johannesburg Earth Summit 2002, Rio +10

Malaysia signs UNFCC

• Malaysia (Local Agenda 21)
• Planning Doctrine – holistic devt for land use planning
• 5th Fuel Policy. in the 8th Malaysia Plan
• SNRDP (small renewable energy power program)
• Selangor Mewangan 2030 (1994)

• 2002 – Malaysia ratified Kyoto Protocol
• 2004 – Ministry of Natural Resources and Environment
• 2005 – National Physical Plan
• 2006 – 8th Malaysia Plan – 4th thrust (Improve Standard and Sustainability of Quality of Life)
• 2006 – National Urbanisation Policy
• 2006– Ministry of Energy, Green Technology and Water (KeTTHA), National Green Technology Policy

• 2010-Green Building Index (GBI)
• 2011: MURNInet
• Low Carbon Cities Framework
• JB Township
• Blueprint Melaka Negeri Bandar Teknologi Hijau

11TH MALAYSIA PLAN STRATEGIC THRUSTS

Enhancing inclusiveness towards an equitable society

Improving wellbeing for all

Accomplishing human capital development for an advanced nation

Pursuing green growth for sustainability and resilience

Strengthening infrastructure to support economic expansion

Re-engineering economic growth for greater prosperity

Transforming public service for productivity

Urban Prosperity
Social Inclusion
Environmentally Sustainable
Governance Structures
Spatial Development

INTERNATIONAL LEVEL

MALAYSIA’S SUSTAINABILITY AGENDA

URBAN TERRITORIAL PLANNING AND IMPLEMENTATION OF SDGs
The Initial Assessment of The Sustainable Development Goals Indicators for Malaysia 2018

The 17 SDGs and 169 targets of the 2030 Agenda must be achieved at global, national and subnational levels. “Localizing” is the process of considering subnational contexts in the achievement of the 2030 Agenda, from the setting of goals and targets, to determining the means of implementation and using indicators to measure and monitor progress. Localization relates both to how the SDGs can provide a framework for local development policy and to how local and regional governments can support the achievement of the SDGs through action from the bottom up and to how the SDGs can provide a framework for local development policy.
WHY MALAYSIA NEEDS A NEW URBAN AGENDA?

1. Educate and focus attention on urgent urban challenges and future opportunities
2. Mobilize and empower urban actors around practical problem solving
3. Address the specific challenges of urban poverty and access to infrastructure
4. Promote integrated and innovative infrastructure design and service delivery
5. Promote land use planning and efficient spatial concentration
6. Ensure resilience to climate change and disaster risk reduction

MALAYSIA SUSTAINABLE DEVELOPMENT FRAMEWORK

17 SDGs & 230 TARGETS
Qualitative measures to achieve sustainable development goals & indicators

Thrusts

Tools & Enablers

Development policies
National Urban Policies
Urban Economic & Inclusive Growth

New Urban Agenda

Malaysia Growth Development Era

The 3 Phase of Malaysian Development Landscape

1970-1990 NEW ECONOMIC POLICY
Eradicate absolute poverty irrespective of race and eliminating identification of race by economic function

1991-2020 VISION 2020
To become. A developed nation in our own mould.
3 Phases:
National Development Policy
National Vision Policy
New Economic Model

2021 – 2040 NEW MALAYSIA
To be a People’s Nation
Shaped by citizens aspirations. Guided by clear targets.

Five Year Malaysia Plan

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<td>1st Malaysia Plan</td>
<td>2nd Malaysia Plan</td>
<td>3rd Malaysia Plan</td>
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<td>4th Malaysia Plan</td>
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<td>8th Malaysia Plan</td>
<td>9th Malaysia Plan</td>
<td>10th Malaysia Plan</td>
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**Malaysia Development Process**

**New Action Plans**
- Implementation Strategy & Plan that has a multi-stakeholder process
  - Quick wins

**New Urban Planning**
- New Urban Rules and Regulations
- Innovative Urban Planning and Design

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**National Physical Plan**

**RANGKA STRATEGIK PEMBANGUNAN**

Pembangunan spatial dipandu oleh rangka strategik pembangunan

**HAS**
- Kawasan atau aglomerasi pusat bandar yang menawarkan peluang pekerjaan dan pembangunan ekonomi
  - Wilayah Kukuh
  - Wilayah Membangun
  - Wilayah Berpotensi Tinggi
  - Katalis - Bandar Pertengahan

**GATEWAY**
- Tumpuan utama bagi pengangkutan dan komunikasi serta mempunyai potensi sebagai zona pembangunan strategik
  - Pintu Masuk Antarabangsa Laut
  - Pintu Masuk Antarabangsa Darat

**KORIDOR**
- Highly Strategic Linking Corridor
- Strategic Linking Corridor
- Potential Linking Corridor
- Radial Corridor
**Governance and Development Planning in Malaysia**

Spatial, Economic, Social and Environmental Policies, Strategies and Initiatives

**Town and Country Planning Act 1976 (Act 172)**

- **GOVERNANCE**
  - NATIONAL PHYSICAL COUNCIL
  - TOWN COUNTRY PLANNING ACT

- **COVERAGE**
  - MALAYSIA
  - NATIONAL PHYSICAL PLAN

- **REGIONAL AUTHORITIES ACT**
  - REGIONAL DEVELOPMENT AUTHORITIES
  - SOUTHERN NORTHERN EASTERN SABAH SARAWAK

- **PLAN**
  - REGIONAL PLAN

**LOCAL GOVERNMENT**

- STATE GOVERNMENT
- STATE WIDE
- STATE STRUCTURE PLAN

- LOCAL GOVERNMENT
- DISTRICT WIDE
- LOCAL PLAN

- LOCAL GOVERNMENT
- SPECIAL AREA WIDE
- ACTION AREA PLAN

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**Economic Corridors and Regional Development in Malaysia**


- **Established: 2006**
  - Focus areas: Iskandar Malaysia's 9 Pillars

- **Established: 2007**
  - Focus areas: Agriculture, Manufacturing & Tourism
  
  - Focus areas: Agriculture, Biotech, Tourism & Logistics

- **Established: 2008**
  - Focus areas: Oil & Gas, Tourism, Petrochemical, Manufacturing, Education, Agriculture

Spatial, Economic, Social and Environmental Policies, Strategies and Initiatives
**Economic Corridors and Regional Development in Malaysia**

- Looking at the picture of Malaysia, the need to set up a Regional Planning Committee (RPC) for a region in an area consisting of two or more states within the country is required according to a provision in Section 6A (Part IIA) of the Town and Country Planning Act 1976 (Act 172).
- As stated in Sub-Section 6A(5b), Act 172, the Committee plays a role and holds a responsibility to arrange a comprehensive Regional Plan in the process of regulation and management towards the development of a region.
- Generally, the definition of region is an area covering two or more administrative boundaries.
- On the other hand, a regional plan refers to a document containing spatial development strategies for a more balanced and fair distribution of growth and dispersal of development as well as to achieve an integrated and efficient infrastructural framework.
- It is also a tool for managing the growth and development of city regions or conurbations. Based in the 3rd Thrust, Chapter 17 of the Ninth Malaysia Plan, the main aim of regional planning is to achieve a more balanced inter-regional development. In Peninsular Malaysia, currently there are three planning regions namely East Coast Economic Region (ECER), Northern Corridor Economic Region (NCER) and Iskandar Malaysia (IM) in Southern Johor.

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**Managing Dynamic Regions**

Territorial Planning and Development That Need Urgent Attention

- **2,217 sq.km.**
- Covers 3 Districts and 5 local planning authorities

Joint Chairman:
Prime Minister Malaysia
Chief Minister of Johore State
Managing Dynamic Urban Territorial Planning

Managing Common Assets of Dynamic Regions

LOW CARBON CITIES
Malaysia encourages all our cities to be low carbon and sustainable

2015: Malaysia commits to 45% reduction of carbon emission intensity per GDP by 2030 (35% based on 2005 GDP and additional 10% reduction with international support)

LOW CARBON CITIES
Malaysia encourages all our cities to be low carbon and sustainable
AFFORDABLE LIVING AS KEY TO URBAN SUSTAINABILITY

The Affordable Living Concept

Affordable homes → Close to good public transport → Opportunities for work nearby

- Unit layout can be flexible at lower densities
- Strong individual identity and personalization

Local shops nearby

Public space usable / enjoyable

Walkable neighbourhoods

Affordable Living in Cities should be the key agenda

Making affordable housing schemes more viable with sustainability and inclusivity measures.

“where it is affordable, accessible & equitable”

RECYCLING IS MADE EASY AT EVERY COMMUNITY CENTRE WITHIN 10 MINUTE WALK DISTANCE FROM HOME.

SENDING CHILDREN BY FOOT TO SCHOOL IS EASIER AS 100% SCHOOLS WITHIN 10M ARE CONNECTED WITH SAFE WALKING PATHS TO SURROUNDING HOMES.
75% of IoT projects concentrate on five SDGs.

- SDG 9: Industry, innovation, and infrastructure
- SDG 11: Smart cities and communities
- SDG 7: Affordable and clean energy
- SDG 3: Good health and well-being
- SDG 12: Responsible production and consumption

IoT Analytics & World Economic Forum (analysis)

**GAME CHANGERS FOR CITIES**

- **ADAPTIVE CITIES**: Making cities resilient and sustainable
- **SEAMLESS CITIES**: Connecting people and spaces
- **SMARTER CITIES**: Advancing urban data management
- **SUSTAINABLE CITIES**: Optimising urban energy systems
- **LIVING CITIES**: Advancing circular resource management

**TECHNOLOGICAL INNOVATIONS TO IMPLEMENT CLIMATE LEVERS**

**TRANSFORMATION DRIVERS**

- **TECHNOLOGICAL ADVANCES TO IMPLEMENT**
- **SMART MANAGEMENT**
- **SUSTAINABLE INFRASTRUCTURE**
- **SMART RESOURCES**
- **INNOVATION**

**WELCOME TO**

Seventh Asia-Pacific Urban Forum (APUF-7)

15-17 October 2019

Penang, Malaysia

**Theme:**

“Future of Asia and Pacific Cities: Transformative Pathways to Achieve the 2030 Agenda for Sustainable Development”

**UNESCO**

**UN-HABITAT**

**UMURBAN**

**KPKT**
Risk based land use planning for natural hazards & climate change

What is risk-based planning?

- Based on international risk management framework
- Consistency between governance, buildings, land use
- Risk = consequence x likelihood
- Decisions based on risk rather than hazard
- Smarter development NOT necessarily no development
The approach – a five step process

1. Know your hazard
2. Determine severity of consequences
3. Evaluate likelihood of event
4. Risk-based approach to policy and resource consents
5. Monitoring & Evaluation

• Engagement strategy for each step
• Focus on consequences

Consequence Table

<table>
<thead>
<tr>
<th>Consequence level</th>
<th>Social/cultural</th>
<th>Built</th>
<th>Lifeline utilities</th>
<th>Health &amp; safety</th>
</tr>
</thead>
<tbody>
<tr>
<td>Catastrophic</td>
<td>-25% of buildings within hazard assessment area have functionally compromised.</td>
<td>1-24% of buildings within hazard assessment area have functionally compromised.</td>
<td>A lifeline utility service is out for &gt;1 month (affecting &gt;20% of the town/city population).</td>
<td>&gt;1000 dead and/or &gt;500 injuries.</td>
</tr>
<tr>
<td>Major</td>
<td>11-24% of buildings within hazard assessment area have functionally compromised.</td>
<td>21-48% of buildings within hazard assessment area have functionally compromised.</td>
<td>A lifeline utility service is out for 1 week – 1 month (affecting &gt;25% of the town/city population).</td>
<td>11-100 dead and/or 101-1000 injured.</td>
</tr>
<tr>
<td>Moderate</td>
<td>6-10% of buildings within hazard assessment area have functionally compromised.</td>
<td>6-10% of critical buildings within hazard assessment area have functionally compromised.</td>
<td>A lifeline utility service is out for 1 day to 1 week (affecting &gt;25% of the town/city population).</td>
<td>2-10 dead and/or 11-100 injured.</td>
</tr>
<tr>
<td>Minor</td>
<td>1-5% of buildings within hazard assessment area have functionally compromised.</td>
<td>2-10% of critical buildings within hazard assessment area have functionally compromised.</td>
<td>A lifeline utility service is out for 2 hours to 1 day (affecting &gt;25% of the town/city population).</td>
<td>1 dead and/or 1-10 injured.</td>
</tr>
<tr>
<td>Insignificant</td>
<td>No buildings within hazard assessment area have functionally compromised.</td>
<td>&lt;1% of critical buildings within hazard assessment area have functionally compromised.</td>
<td>A lifeline utility service is out for up to 3 hours (affecting &gt;25% of the town/city population).</td>
<td>No deaths.</td>
</tr>
</tbody>
</table>

NB for the purpose of Table 21:

• the term “town/city population” means the catchment of people within the hazard assessment area that is served by the lifeline utility, except that with respect to a lifeline utility that predominantly or exclusively serves a population outside the hazard assessment area, it means the population in the area served by the lifeline utility.

• the applicable consequence level will be the one that corresponds to the rise that represents the highest measured or estimated consequence.
Informed by engagement with community representatives, iwi, infrastructure providers and experts to determine what low, medium and high risk is.

Likelihood Table

<table>
<thead>
<tr>
<th>Hazard</th>
<th>Column A: Likelihood for initial analysis (AEP %)</th>
<th>Column B: Likelihood for secondary analysis (AEP %)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Volcanic hazards (including geothermal)</td>
<td>0.1</td>
<td>0.2</td>
</tr>
<tr>
<td>Earthquakes (Liquefaction)</td>
<td>0.1</td>
<td>0.2</td>
</tr>
<tr>
<td>Earthquakes (Fault rupture)</td>
<td>0.017</td>
<td>0.2</td>
</tr>
<tr>
<td>Tsunami</td>
<td>0.1</td>
<td>0.2</td>
</tr>
<tr>
<td>Coastal erosion</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Landslp (Rainfall related)</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Landslp (Seismic related)</td>
<td>0.1</td>
<td>0.2</td>
</tr>
<tr>
<td>Flooding (including coastal inundation)</td>
<td>1</td>
<td>2</td>
</tr>
</tbody>
</table>

1The term “initial analysis” refers to the starting point for risk analysis as described in Step 1 of this methodology. It is the first scenario to be assessed for risk. The term “secondary analysis” refers to any subsequent scenario that is assessed for risk in accordance with Step 5 of this methodology.

2AEP (Annual Exceedance Probability) is the probability that a natural hazard event of a certain size will occur, or will be exceeded, in a 1-year period of time. For example, an inundation level with a 2% AEP means that there is a 2% chance in any one year of that level being equaled or exceeded.
User guide produced for councils and community

- How to determine risk categories
- How to apply with incomplete information
- Alternative risk assessment methodologies
- Examples of use

- Flow charts of process
- Spatial scales
- Mapping risk
- Cumulative and cascading hazards
- Sea level rise

Toolbox available

Lessons and challenges

- **Engagement takes time**
  - But worth the time for robust and transparent decision making
- **Time and cost to gather information**
- **Cumulative and cascading hazards**
  - SLR and climate change
- **Capability and capacity building required**
  - Guidance
  - Training
  - Follow up support

Contribution to planning in the Pacific

- **Sustainable Development Goal's**
  - Goal 11: Make cities and human settlements inclusive, safe, resilient and sustainable
  - Goal 13: Take urgent action to combat climate change and its impacts
- **Sendai**
  - 30(f) To promote the mainstreaming of disaster risk assessments into land-use policy development and implementation, including urban planning …, and the use of guidelines and follow-up tools informed by anticipated demographic and environmental changes;
- **Pacific New Urban Agenda**
  - Sustainable development
  - Environment, resilience & urbanisation
  - Urban governance
@PUF2019

Pacific Urban Platform

pacific_urban_forum