

pu f5

PRESENTATIONS SPECIAL SESSION 6

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

Host

Sponsors and Co-organizers



SPECIAL SESSION 6:

Urban Land Use and Territorial Planning in the Pacific

Day 2 (2 July, 2019. Nadi, Republic of Fiji).

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



New Zealand
Planning Institute[®]
Te Kokiringa Taumata

Beca



Commonwealth
Association of
Planners

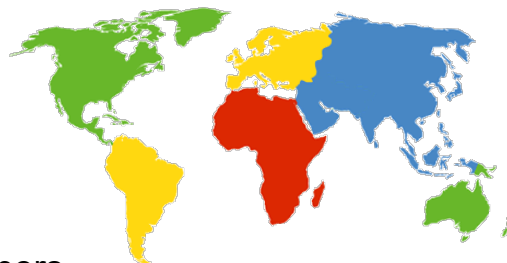
Connecting planners and planning across the Commonwealth

Membership:

6 Continents

28 Countries

Over 40,000 planners



<http://www.fukuoka.unhabitat.org/info/news/puf.html>

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



Photo: Presenter's own - BVI



Photo: Caribbean News Weekly - BVI

<http://www.fukuoka.unhabitat.org/info/news/puf.html>

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.



Photo: BBC - Dominica

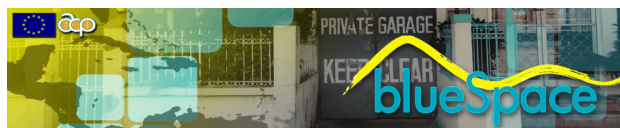
<http://www.fukuoka.unhabitat.org/info/news/puf.html>

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



Commonwealth
Foundation



<http://www.fukuoka.unhabitat.org/info/news/puf.html>

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.



Photo: Daily Mail - Dominica

<http://www.fukuoka.unhabitat.org/info/news/puf.html>

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



Photo: Daily Mail - Dominica

<http://www.fukuoka.unhabitat.org/info/news/puf.html>

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



Photo: UNDP - Dominica Post Irma

<http://www.fukuoka.unhabitat.org/info/news/puf.html>

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.



Photo: CNN - Tortola

<http://www.fukuoka.unhabitat.org/info/news/puf.html>

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.

<http://www.fukuoka.unhabitat.org/info/news/puf.html>

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

<http://www.fukuoka.unhabitat.org/info/news/puf.html>

Thank you



@CAPplanners



Commonwealth Association of Planners



Annette.O'Donnell@rtpi.org.uk



commonwealth-planners.org



New Zealand
Planning Institute
Te Kokiringa Taumata

www.planning.org.nz



www.beca.com



bryce.julyan@beca.com

CAP Vice President (NZ-Pacific)

<http://www.fukuoka.unhabitat.org/info/news/puf.html>

MAINSTREAMING DRR - A CASE STUDY FROM PORT VILA & LUGANVILLE

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



The slide features a header with logos for the Government of Vanuatu, the Department of Urban Planning and Development, the National Advisory Board on Climate Change and Disaster Risk Reduction, BECA, GNS Science, and NIWA. The main title is 'Mainstreaming Disaster Risk Reduction – A case study from Port Vila and Luganville, Vanuatu'. Below the title, a box contains the following text:

PACIFIC URBAN FORUM – SESSION 6: URBAN LAND USE AND TERRITORIAL PLANNING IN THE PACIFIC

LESLEY HOPKINS
TECHNICAL DIRECTOR – PLANNING
BECA INTERNATIONAL CONSULTANTS LIMITED
EMAIL: LESLEY.HOPKINS@BECA.COM

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



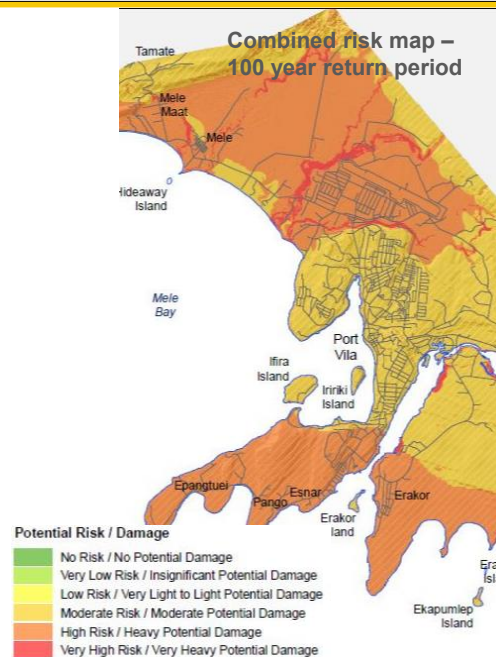
Improving the resilience of Vanuatu's urban areas by expanding existing data on natural hazards and risks and applying this to planning and risk reduction activities.

-

[illegible]

Hazard and risk mapping

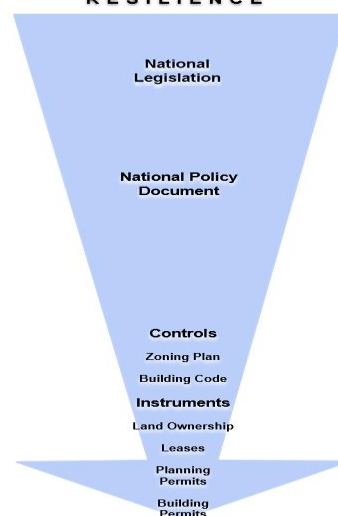
- Seismic, river flood, wind, coastal inundation and tsunami
- Existing hazard data
- Mapping hazards for various mean return periods
- Risk parameters
- Urban risk assessment
- Risk maps
- Integrating data into a geospatial repository



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

Institutional Responses to promote RESILIENCE



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



BECA

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

BECA

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

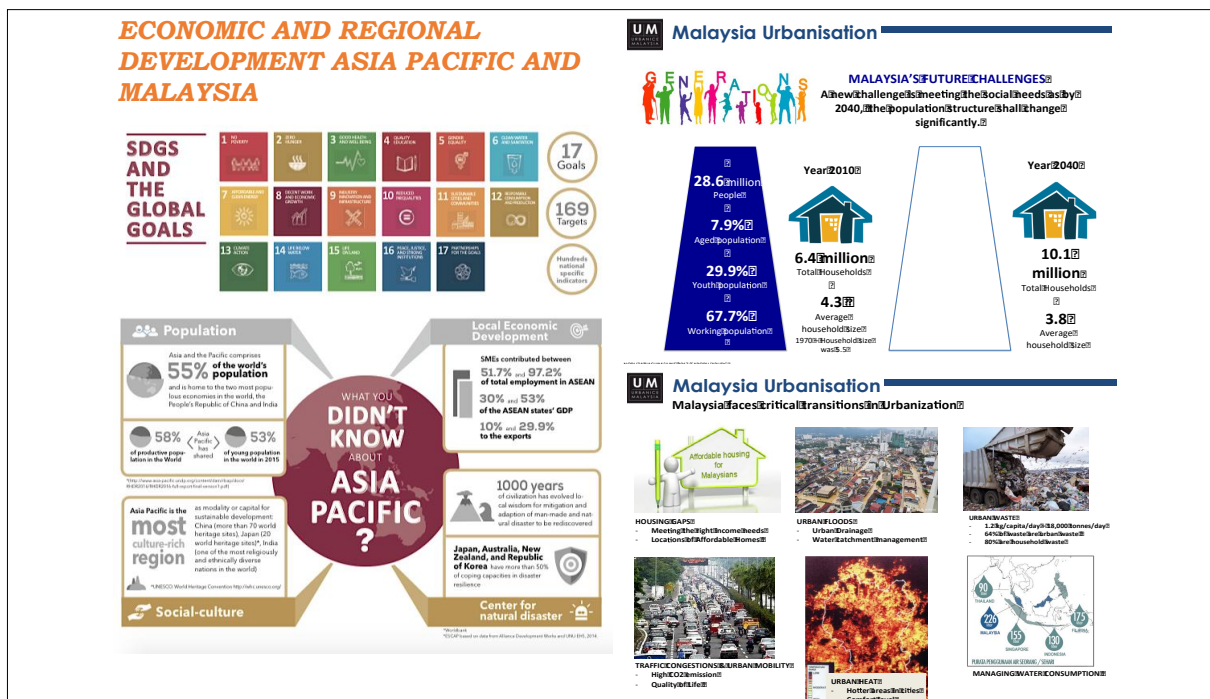


Risk Mapping and Planning for Urban Preparedness Project team:

Graeme Roberts, Team Leader, Beca International Consultants Ltd
Lesley Hopkins, Urban Planner and Project Manager, Beca International Consultants Ltd
Dave Heron, Hazard and Risk Analyst, GNS Science Ltd
Biljana Lukovic, GIS Analyst, GNS Science Ltd
Graeme Smart, Flood Modeller, NIWA
Sylvain Todman, Vanuatu Department of Meteorology and Geo-Hazards
Florence Iautu, Vanuatu Department of Meteorology and Geo-Hazards

URBAN & TERRITORIAL PLANNING INNOVATION IN ASIA - PACIFIC

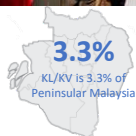
Amizam Abdul Rashid, URBANICE Malaysia, Ministry of Housing and Local Government





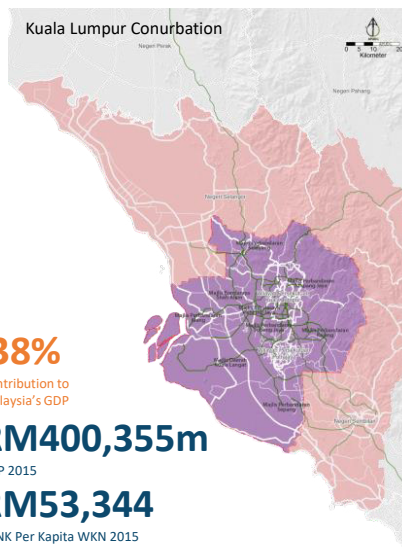
Role of Cities & City Regions

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.



AREA
4,305
Square kilometers

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

- 10.8 M (1970), 24 M (2002), 28 M (2010)
- **31 million (2017), 41.5 million (2040)**

URBANIZATION RATE FOR MALAYSIA

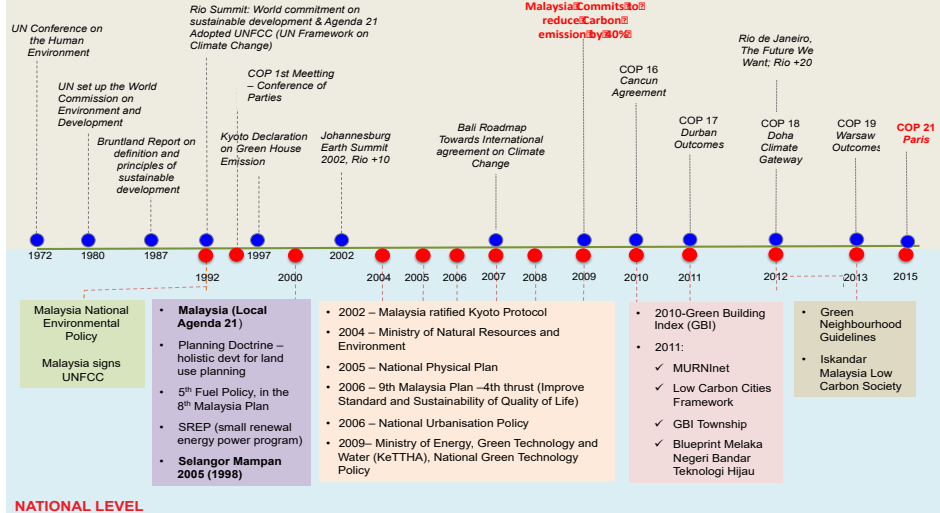
- 33.5% (1970), 77% (2017)
- **To grow to 78.9% by 2020, 85% by 2040**



MALAYSIA'S SUSTAINABILITY AGENDA

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.

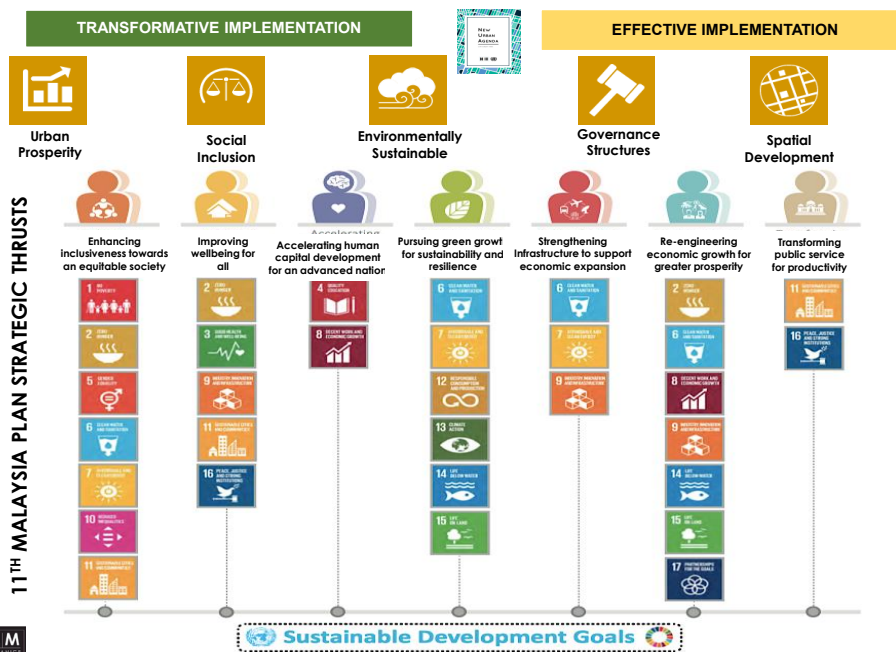
INTERNATIONAL LEVEL



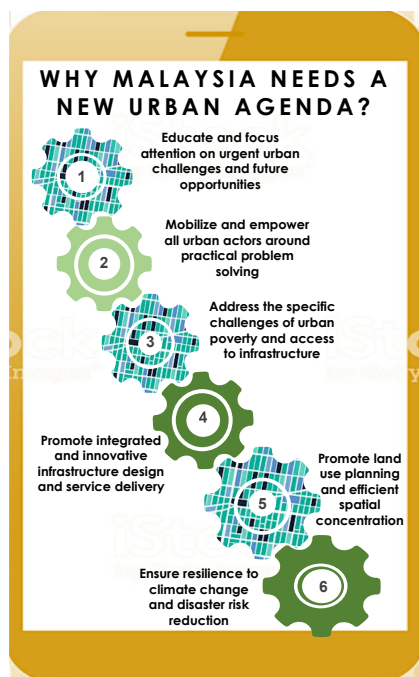
NATIONAL LEVEL

© APUDG

URBAN TERRITORIAL PLANNING AND IMPLEMENTATION OF SDGs







Malaysia Growth Development Era

The 3 Phase of Malaysian Development Landscape



Malaysia Development Process



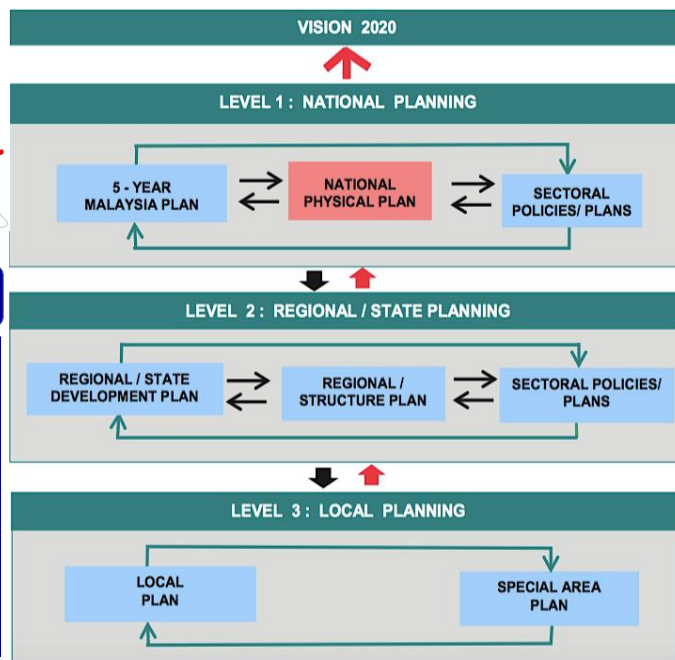
LOCAL ACTIONS

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



National Physical Plan

RANGKA STRATEGIK PEMBANGUNAN

Pembangunan spatial dipandu oleh rangka strategik pembangunan

HAB

Kawasan atau aglomerasi pusat bandar yang menawarkan peluang pekerjaan dan pembangunan ekonomi

- Wilayah Kuching
- Wilayah Membangun
- Wilayah Berpotensi Tinggi
- Katalis - Bandar Pertengahan

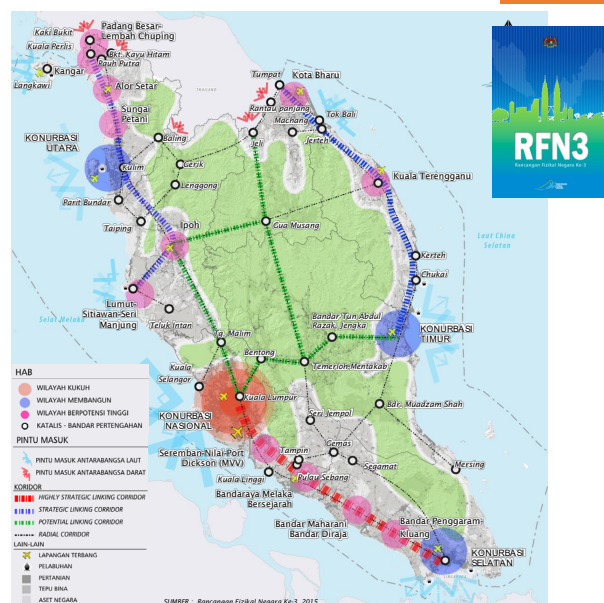
'GATEWAY'

Tumpuan utama bagi pengangkutan dan komunikasi serta mempunyai potensi sebagai zon pembangunan strategik

- Pintu Masuk Antarabangsa Laut
- Pintu Masuk Antarabangsa Darat

KORIDOR

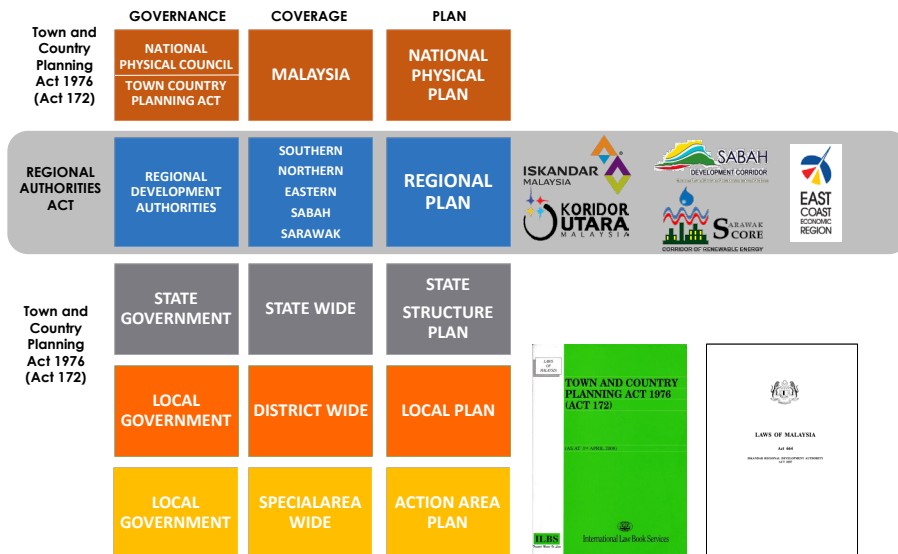
- Highly Strategic Linking Corridor
- Strategic Linking Corridor
- Potential Linking Corridor
- Radial Corridor



APUDG

Governance and Development Planning in Malaysia

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






Economic Corridors and Regional Development in Malaysia

Mooted in the Ninth Malaysia Plan, 2006–2010, and launched in 2006 (Government of Malaysia 2006)



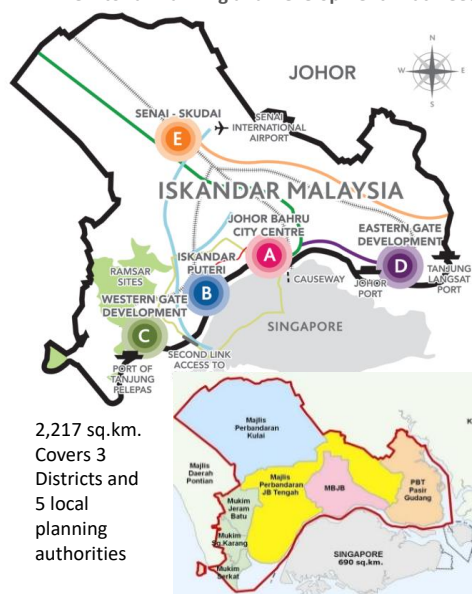
Economic Corridors and Regional Development in Malaysia

- Looking at the picture of Malaysia, the needs to set up a Regional Planning Committee (RPC) for a region in 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, 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.

Regional Plan	States Involved	Development Plan	Location Plan
East Coast Economic Region	<ul style="list-style-type: none"> Pahang Terengganu Kelantan The district of Mersing in Johor 	<ul style="list-style-type: none"> The construction of the main trunkroad of Simpang Pulai-Gua Musang-Kuala Terengganu. A new University in Kelantan and Terengganu. Upgrading of Kuala Terengganu Airport. A food manufacturing Park project, oil palm based industries and an integrated Halal Hub in Pahang. 	
Northern Corridor Economic Region	<ul style="list-style-type: none"> Perlis Kedah Pulau Pinang Northern Perak 	<ul style="list-style-type: none"> Trans-Eastern Kedah Hinterland Highway project in Kedah. Extension of the existing Kulim High Technology Park in Kedah. The construction of the Outer Ring Road and the Second Bridge in Pulau Pinang. An integrated Halal Hub and Food Manufacturing Park in Kedah. An integrated Halal Hub in Perlis. The construction of a National Food Terminal Complex in Ipoh, Perak. 	
Iskandar Malaysia	<ul style="list-style-type: none"> Southern part of Johor - from the Mukim of Serkat in the west, to Pasir Gudang in the east, from Kulai in the north to Johor Bahru in the south. 	<ul style="list-style-type: none"> The development of Nusajaya Township as the new administrative center of Johor. The development of an education hub, a center for creative industry and several tourist attractions. The development of the Johor Logistics Hub, consisting of 2 major international-class ports in Tg. Pelepas and Pasir Gudang and an international airport in Senai. Extension to the existing runway at Senai International Airport, making Senai an integrated logistic hub. 	

Managing Dynamic Regions

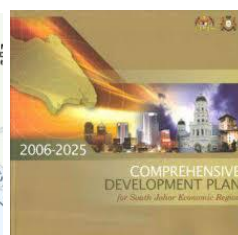
Territorial Planning and Development That Need Urgent Attention



ISKANDAR
REGIONAL
DEVELOPMENT
AUTHORITY

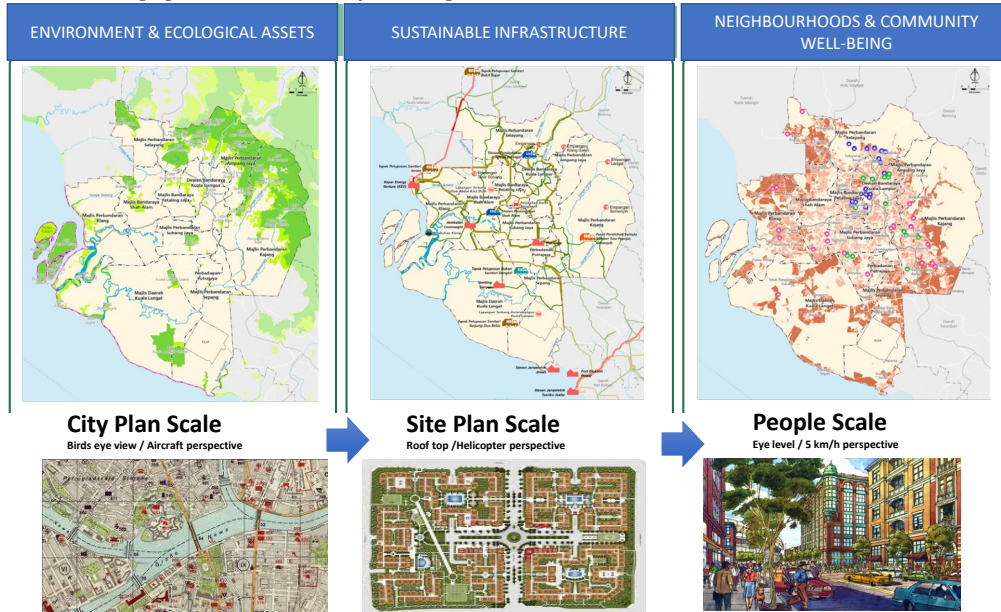
LAWS OF MALAYSIA
Act 564
ISKANDAR REGIONAL DEVELOPMENT AUTHORITY
ACT 1987

Joint Chairman :
Prime Minister Malaysia
Chief Minister of Johore State



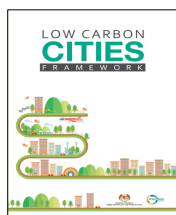
Managing Dynamic Urban Territorial Planning

Managing Common Assets of Dynamic Regions

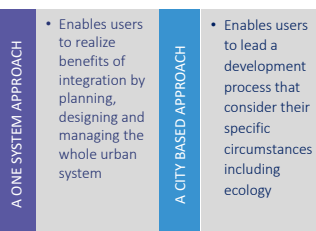
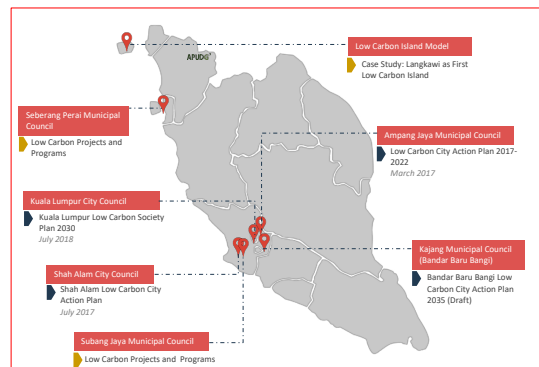


LOW CARBON CITIES

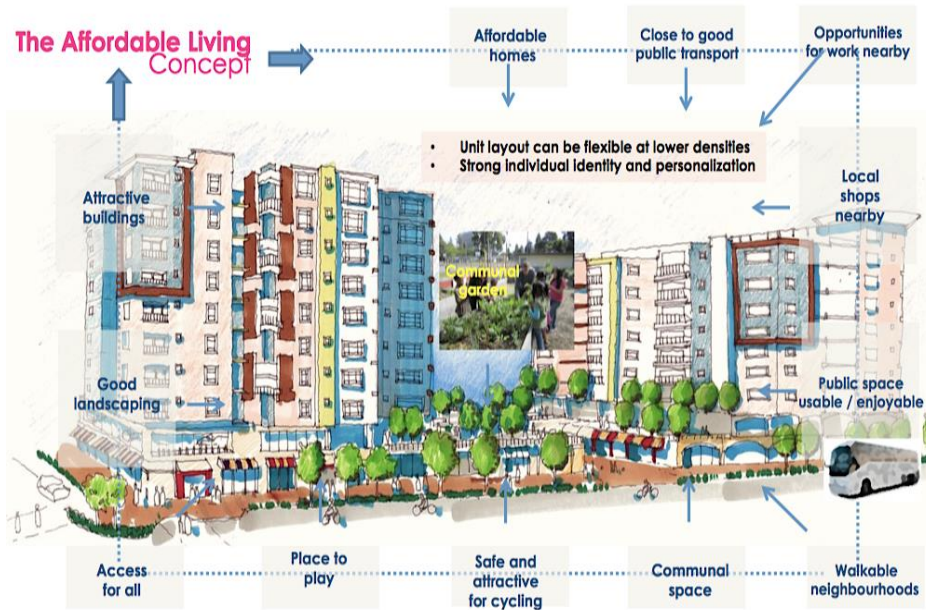
Malaysia encourages all our cities to be low carbon and sustainable



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)



AFFORDABLE LIVING AS KEY TO URBAN SUSTAINABILITY



Affordable Living in Cities should be the key agenda

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



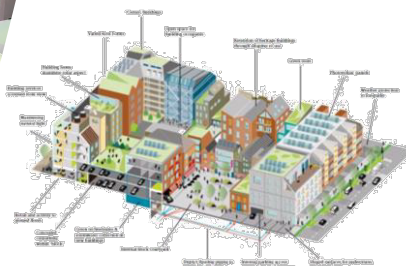
“where it is affordable, accessible & equitable”



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



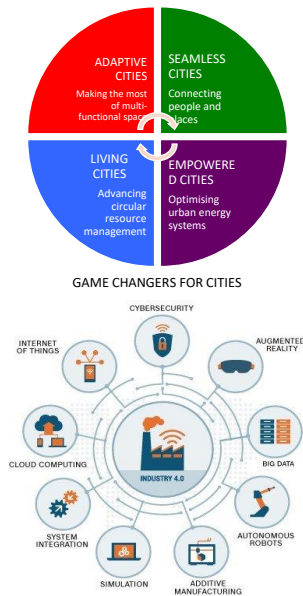
SENDING CHILDREN BY FOOT TO SCHOOL IS EASIER AS
100% OF SCHOOLS WITHIN ISL ARE CONNECTED WITH SAFE WALKING PATHS TO SURROUNDING HOMES.



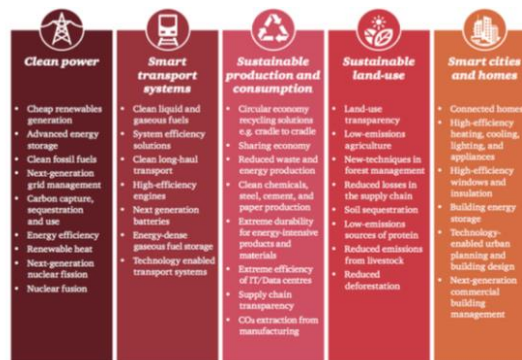
APUDG

Moving Forward : Cities 4.0 as the Game Changer

Technologies and Big Data are the Game Changers for Effective and Efficient Urban Management



TECHNOLOGICAL INNOVATIONS TO IMPLEMENT CLIMATE LEVERS



TRANSFORMATION DRIVERS

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)

7th Asia-Pacific Urban Forum (APUF-7)

**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”**



RISK BASED LAND USE PLANNING FOR NATURAL HAZARDS & CLIMATE CHANGE

Wendy Saunders, Senior Social Scientist, GNS Science, New Zealand

Risk based land use planning for natural hazards & climate change



Wendy Saunders, PhD, MNZPI
Natural Hazard Planner

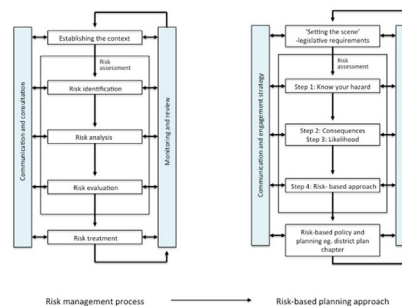


Independent Social Research, Evaluation & Facilitation
Fifth Pacific Urban Forum, Nadi, 1-3 July 2019



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

Fith Pacific Urban Forum, Nadi, 1-3 July 2019

GNS Science

Consequence Table

Consequence level	Built			Lifelines utilities	Health & safety
	Social/cultural	Buildings	Critical buildings		
Catastrophic	≥25% of buildings of social/cultural significance within hazard assessment area have functionality compromised.	≥50% of buildings within hazard assessment area have functionality compromised.	≥25% of critical buildings within hazard assessment area have functionality compromised.	A lifeline utility service is out for > 1 month (affecting ≥ 20% of the town/city population) OR out for > 6 months (affecting < 20% of the town/city population).	>101 dead and/or >1001 injured
Major	11–24% of buildings of social/cultural significance within hazard assessment area have functionality compromised.	21–49% of buildings within hazard assessment area have functionality compromised.	11–24% of critical buildings within hazard assessment area have functionality compromised.	A lifeline utility service is out for 1 week – 1 month (affecting ≥ 20% of the town/city population) OR out for 6 weeks to 6 months (affecting < 20% of the town/city population).	11–100 dead and/or 101–1000 injured
Moderate	6–10% of buildings of social/cultural significance within hazard assessment area have functionality compromised.	11–20% of buildings within hazard assessment area have functionality compromised.	6–10% of critical buildings within hazard assessment area have functionality compromised.	A lifeline utility service is out for 1 day to 1 week (affecting ≥ 20% of the town/city population) OR out for 1 week to 6 weeks (affecting < 20% of the town/city population).	2–10 dead and/or 11–100 injured
Minor	1–5% of buildings of social/cultural significance within hazard assessment area have functionality compromised.	2–10% of buildings within hazard assessment area have functionality compromised.	1–5% of critical buildings within hazard assessment area have functionality compromised.	A lifeline utility service is out for 2 hours to 1 day (affecting ≥ 20% of the town/city population) OR out for 1 day to 1 week (affecting < 20% of the town/city population).	≤1 dead and/or 1–10 injured
Insignificant	No buildings of social/cultural significance within hazard assessment area have functionality compromised.	<1% of buildings within hazard assessment area have functionality compromised.	No damage within hazard assessment area, fully functional.	A lifeline utility service is out for up to 2 hours (affecting ≥ 20% of the town/city population) OR out for up to 1 day (affecting < 20% of the town/city population).	No dead No injured

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 row that represents the highest measured or estimated consequence.

Fith Pacific Urban Forum, Nadi, 1-3 July 2019

GNS Science

Hazard	Column A: Likelihood for initial analysis* AEP (%) [#]	Column B: Likelihood for secondary analysis* AEP (%) [#]
Volcanic hazards (including geothermal)	0.1	0.2 0.005
Earthquake (Liquefaction)	0.1	0.2 0.033
Earthquakes (Fault rupture)	0.017	0.2 0.005
Tsunami	0.1	0.2 0.04
Coastal erosion	1	2 0.2
Landslip (Rainfall related)	1	2 0.2
Landslip (Seismic related)	0.1	0.2 0.033
Flooding (including coastal inundation)	1	2 0.2

Likelihood Table

*The 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.

[#]AEP (Annual Exceedance Probability) is the probability that a natural hazard event of a certain size will occur, or will be exceeded, in a time period of one year. For example, an inundation level with a 2% AEP means that there is a 2% chance in any one year of that level being equalled or exceeded.

Fifth Pacific Urban Forum, Nadi, 1-3 July 2019

GNS Science

Final risk screening matrix

Informed by engagement with community representatives, iwi, infrastructure providers and experts to determine what low, medium and high risk is.

Likelihood ¹² (AEP %)	Consequences				
	Insignificant	Minor	Moderate	Major	Catastrophic
≥2	Low risk	Medium risk	Medium risk	High risk	High risk
<2–1	Low risk	Low risk	Medium risk	Medium risk	High risk
<1–0.1	Low risk	Low risk	Medium risk	Medium risk	High risk
<0.1–0.04	Low risk	Low risk	Low risk	Low risk	Medium risk
<0.04	Low risk	Low risk	Low risk	Low risk	Medium risk

Key

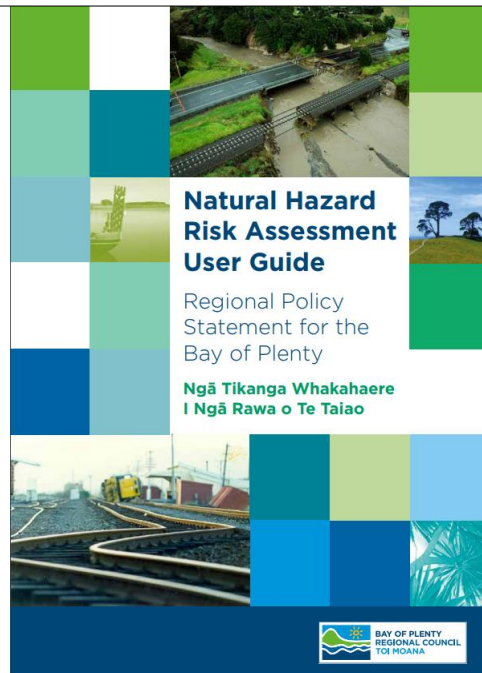
High risk	High risk
Medium risk	Medium risk
Low risk	Low risk

Fifth Pacific Urban Forum, Nadi, 1-3 July 2019

GNS Science

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



Fifth Pacific Urban Forum, Nadi, 1-3 July 2019

GNS Science

Toolbox available

A toolbox for risk based land use planning for natural hazards

This toolbox aims to support risk-based land use policy and plan development in local government. It offers a new approach where consequences of natural hazard events are the focus. It presents techniques, practice steps and options for enabling local government to review multiple natural hazard risks, both within councils and with external stakeholders.

The toolbox is presented in three key themes:

- setting the scene for why this approach is important;
- the five step risk based approach for natural hazards and;
- examples of implementation.

This toolbox is offered as a resource and guide, and is not intended as a prescription or as an off-the-shelf solution to successful management of natural hazards.

Setting the Scene

Why this approach is important, general information and principles of engagement

- **Site Index** – a full index of the guide
- **What this toolbox does and does not do** – the limitations and assumptions of the approach
- Full report can be downloaded here: [MS67_Riskbased_planning_report.pdf](#) 3.32 MB
- **About the project** – background to the project and developers
- **Feedback** – this toolbox will continue to evolve, so let us know what you think, or your experience of using the toolbox

Risk based approach

Steps and actions of each phase of the approach

Examples

Implementation examples

<http://www.gns.cri.nz/Home/RBP/Risk-based-planning/A-toolbox>

Fifth Pacific Urban Forum, Nadi, 1-3 July 2019

GNS Science

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

Fifth Pacific Urban Forum, Nadi, 1-3 July 2019

GNS Science

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

Fifth Pacific Urban Forum, Nadi, 1-3 July 2019

GNS Science



@PUF2019



Pacific Urban Platform



pacific_urban_forum



<http://www.fukuoka.unhabitat.org/info/news/puf.html>

