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Session III:
Disaster Risk Management

5 November 2015

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Outline

- Summary of disasters and damage and loss in the Pacific and some ICT opportunities
- Use of online data to inform Government decision making – PDaLo.
- GIS and Hazard mapping in Pacific
- Making information accessible to general public, local Govt. and private sector to inform decision making and planning.

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Pacific Disasters

Pacific is one of the most at risk regions in the world.

Between the years 1567 and 2013 *(but primarily from 1970):*

- 386 Tropical Cyclones
- 229 Tsunamis
- 119 Earthquakes
- 112 Floods

Which have resulted in over:

- US$3.3 Billion economic cost (inflation not accounted for)
- 19,527 fatalities
- Approx. 11.8 million people affected
- Over 187,000 homes damaged or destroyed

(Source: Pacific Damage and Loss Database, 2013)

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ICT Opportunities & DRM

- Open database
- Data “cloud” backup
- Crowdsourcing
- ICT-based early warning systems
- Earth Observations
- Ground-based observation networks
- GIS (global, regional, national, local)
- Assistive devices and accessible information (including for persons with disabilities)

➔ *Continuity planning (business, information, energy, …)*

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Pacific Damage and Loss (PDaLo) Online Database

DesInventar in the Pacific

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Extensive Database

Time series 1567-2014

1’167 Records

257 Education centres affected

22 states and territories

19’411 deaths

11’481’849 affected

103’533 Houses damaged

74’856 Houses destroyed

31 Hospitals affected

145 records referenced with GLIDE N

81 customized indicators

16 customized hazards

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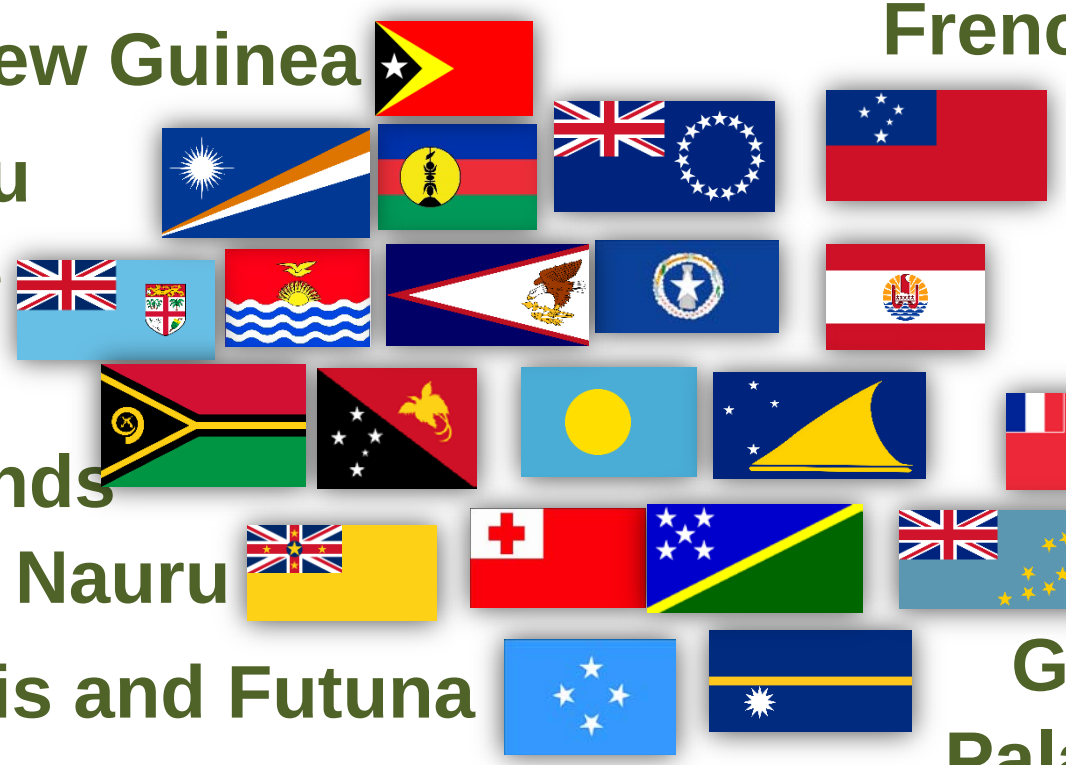
22 Countries and territories from the Pacific Region



East Timor

Marshall Islands

Papua New Guinea

French Polynesia

Vanuatu

New Caledonia

Niue

American Samoa

Northern Mariana Islands

Kiribati

Tonga

Solomon Islands

Nauru

Guam

Fiji

Wallis and Futuna

Palau

Cook Islands

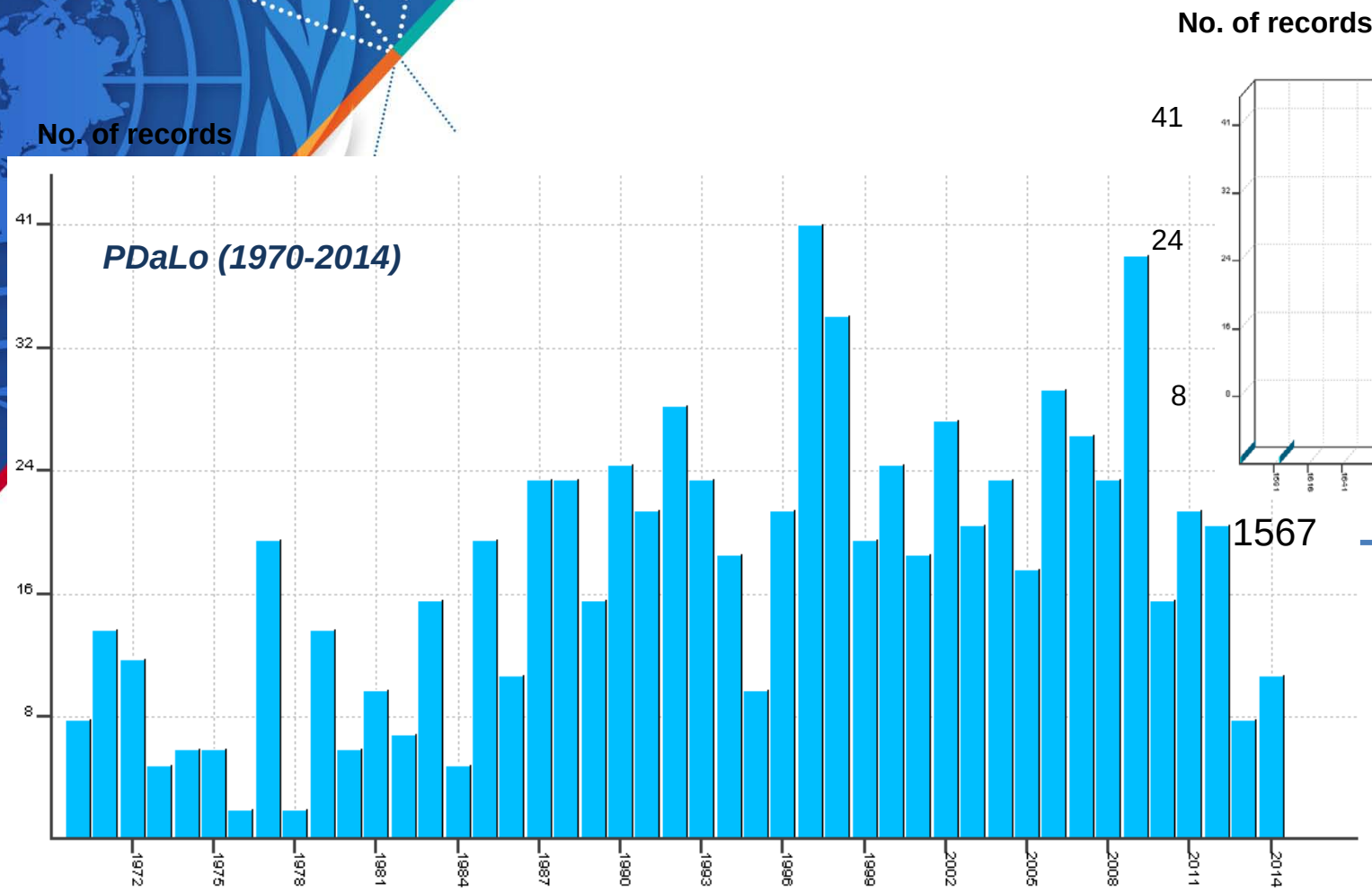
Tuvalu

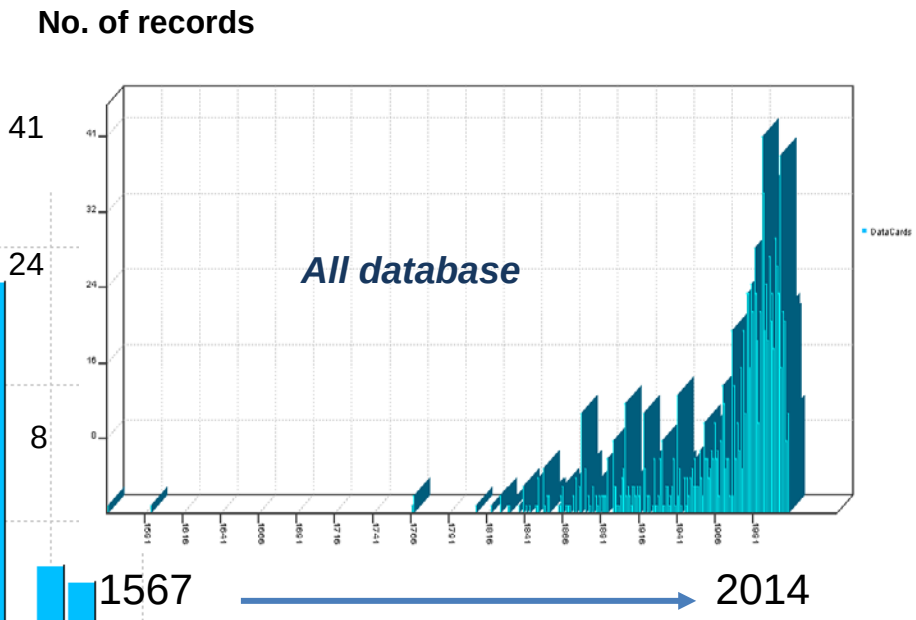
Tokelau

Federated States of Micronesia

Samoa

Temporal Distribution





Records going back to the XVI Century. Since 1970, excellent coverage.

1’167 Records

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Next steps for PDaLo

- Excellent database with good coverage and well-discussed standards.
- Synergies with Government bodies, UN Agencies as well as NGOs should continue, so data is shared and entered in a rigorous way.
- Looking for partners to cover information on disasters in agriculture (damages in crops ha.).
- More work to be carried out regarding small-scale/slow-onset disasters.
- Next Workshop in late November – Suva, Fiji.

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Geographical Information Systems (GIS) in all 4 phases of DRM

- Mitigation: mitigation planning, such as land use zoning, based on risk assessment
- Preparedness: establishing (multi-hazard) early warning systems & identifying demographic needs (e.g. population).
- Response: pre- and post-disaster images to identify damages
- Recovery: high-resolution satellite images for identifying changes for recovery

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PCRAFI

- Good use of GIS data publically available
- Pacific Catastrophe Risk Assessment and Financing Initiative (PCRAFI) aims to provide the Pacific Island Countries (PICs) with disaster risk modeling and assessment tools.
- The *Pacific Disaster Risk Assessment* project provides 15 countries with disaster risk assessment tools to better understand, model, and assess exposure to natural hazards.
- http://pcrafi.sopac.org/

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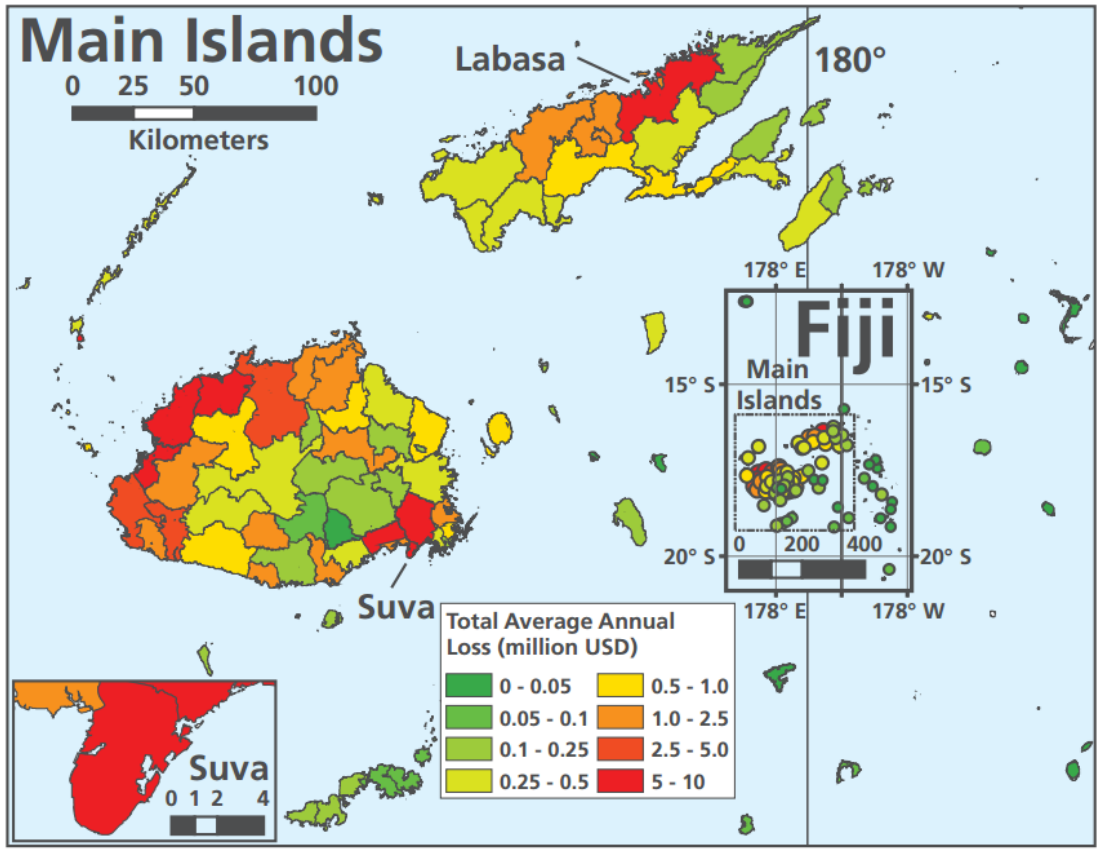
PCRAFI Example: Average Annual Loss in Fiji

In the next 50 years Fiji has 50% chance of experiencing loss over US$806 million



Source: PCRAFI 2011

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Vanuatu Example

Use of ICT in Early Warning Systems

- Monitoring Stations *send data* to Meteorological service *send message* to Public
- Messages sent through social media (e.g. Face book), SMS, Email, and Government Websites.
- Oceania Regional Seismic Network for earthquake and tsunami warning (South-West Pacific area) – Vanuatu lead but PICs share data, expertise and resources.

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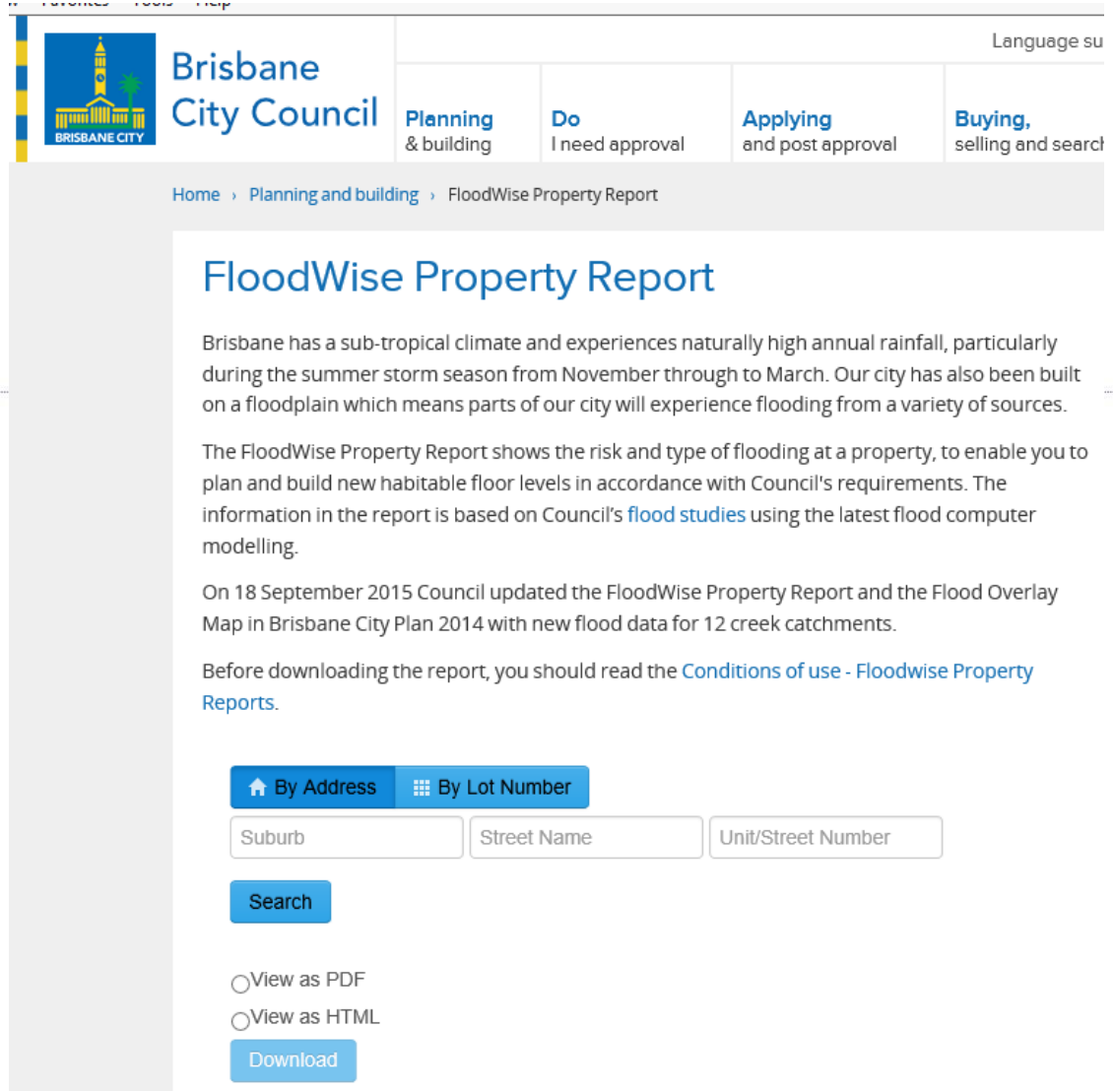
Brisbane Example:



(Source: http://www.brisbane.qld.gov.au/planning-building/planning-guidelines-tools/online-tools/floodwise-property-report)

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Sample Report Info

FLOOD LEVEL INFORMATION

(Source: http://www.brisbane.qld.gov.au/planning-building/planning-guidelines-tools/online-tools/floodwise-property-report)

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Summary

- Pacific is a high risk area and *more development = more risk*
- The use of online data and tools are an effective way of enhancing work in all phases of Disaster Risk Management in the Pacific *(especially informing land use planning)*
- Data must be kept up to date.
- Data must be made publically available and useable in a friendly format.

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