



Leveraging Technology and Innovation for Disaster Risk Management and Financing

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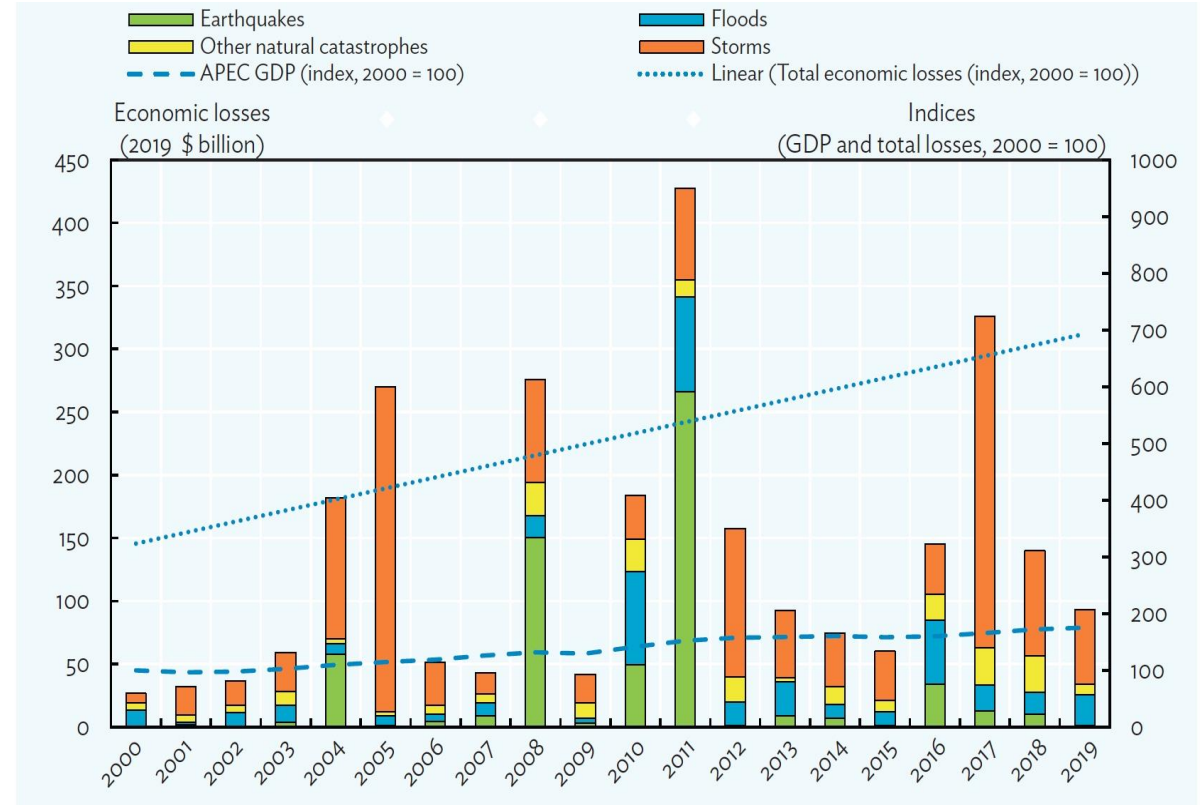


The APEC region remains highly vulnerable to natural hazards and climate change.

Between 2000 and 2019, the APEC region accounted for more than 40% of all victims and over 80% of economic losses reported globally.

A significant share of disaster and climate-related losses are borne by the affected households, businesses and governments.

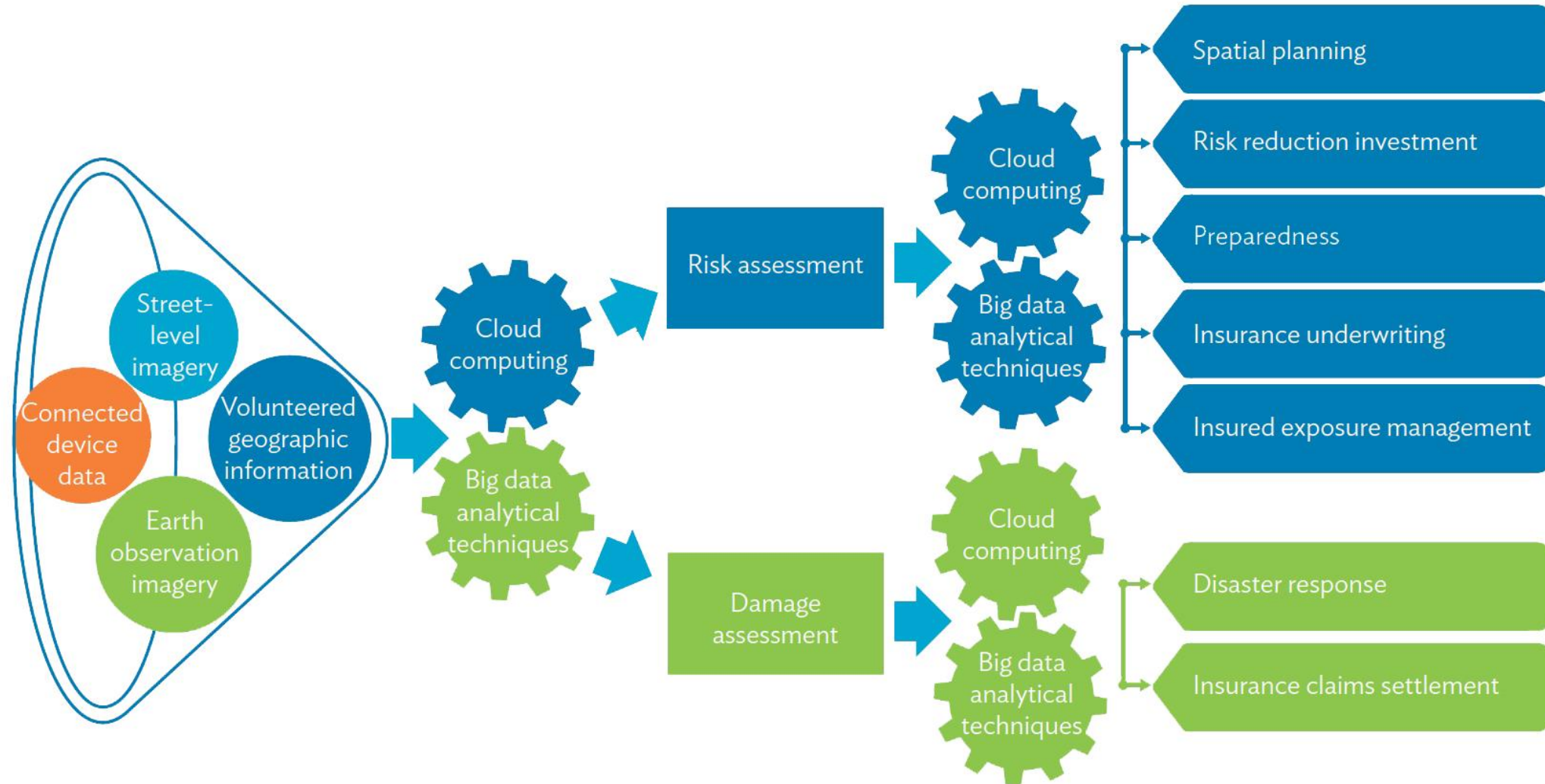
Since 2000 – only 35% of economic losses were insured and the level of insurance coverage has actually declined in a number of middle-income APEC economies



Economic losses from disasters are increasing at a faster rate than GDP – and economic and social trends are likely to continue to increase disaster risk

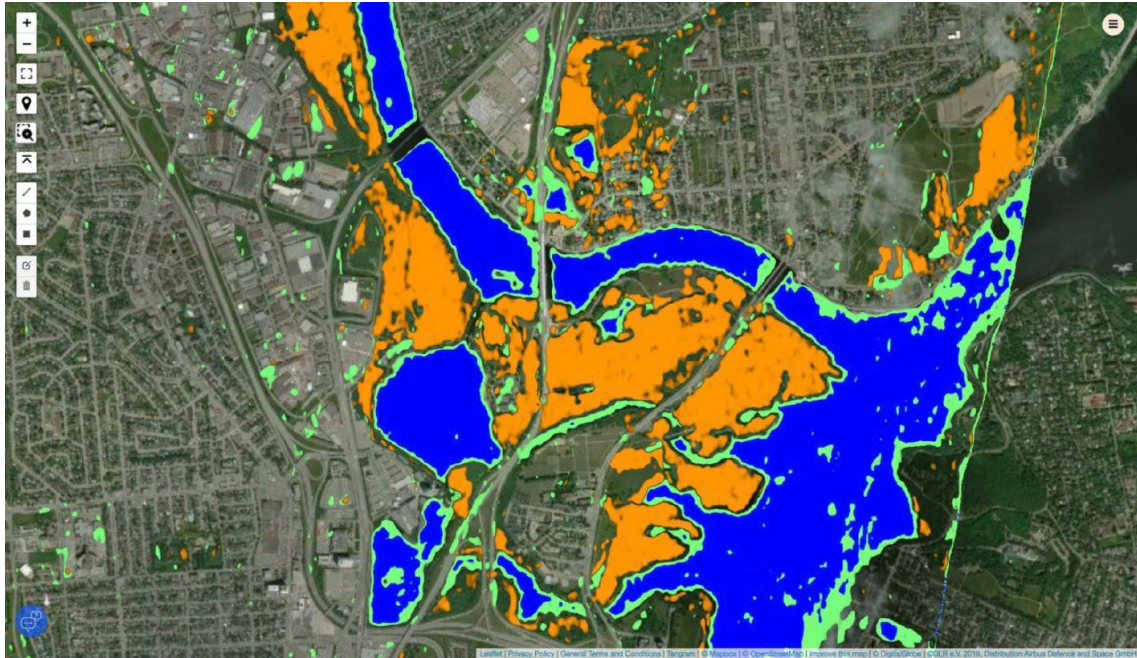


Potential contribution of emerging technologies and innovation





Applying Emerging Technologies to Damage Assessment: Ottawa (Canada) floods (May 2019)



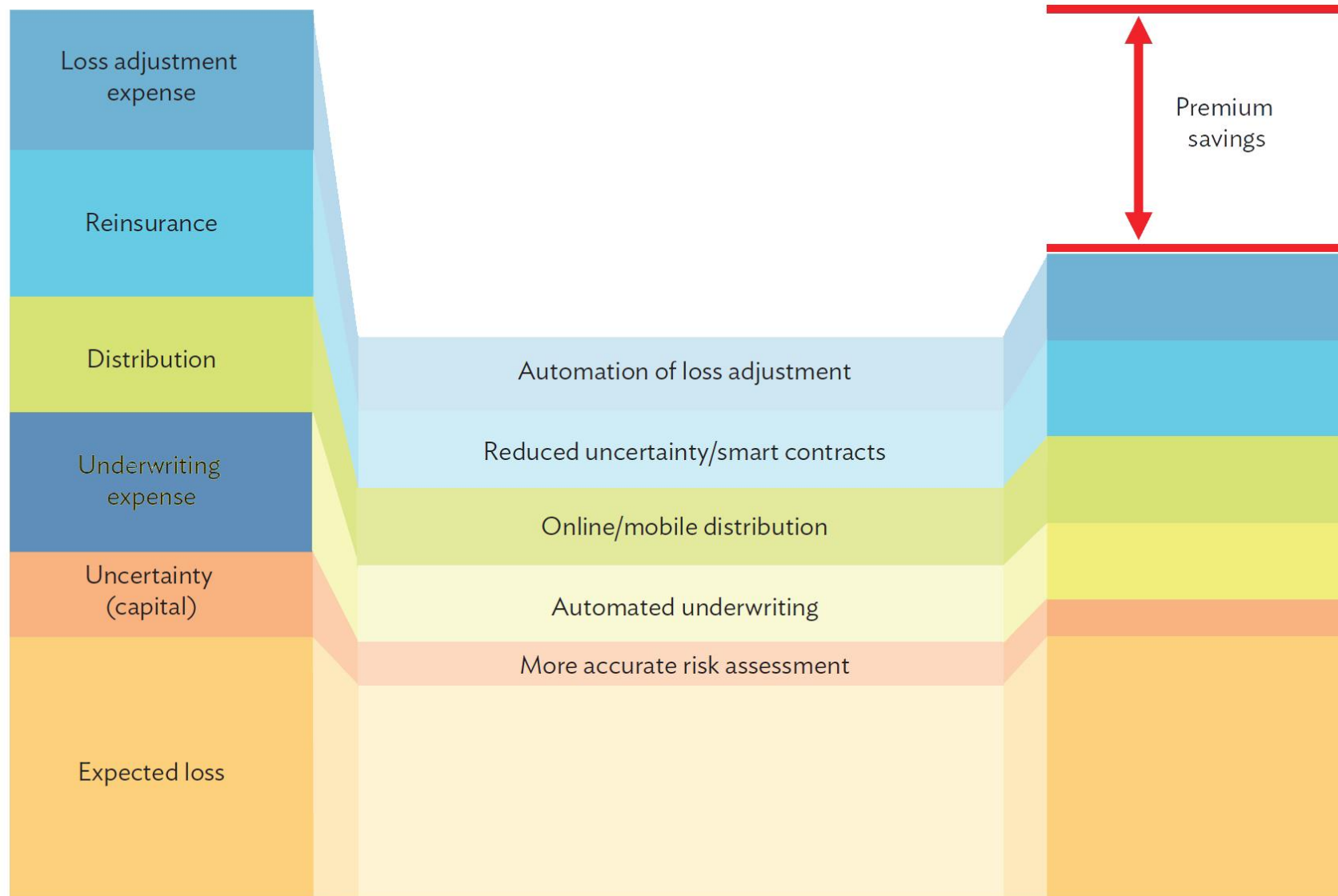
Flooded vegetation, Raised water, Pre-flood body of water

- ❑ **Synthetic Aperture Radar (SAR) earth observation data:** provides data regardless of cloud cover and time of day
- ❑ **Artificial intelligence (deep learning):** processes complex SAR data to classify terrain and detect changes in terms of water cover
- ❑ **Crowdsourced street-level imagery:** cross-reference impacted areas with OpenStreet map inventory of buildings and infrastructure

Damage report (flooded objects, length of flooded roads, damaged buildings) for an area of 2 134 km² in 53 minutes



Improving the availability/affordability of insurance



Source: OECD.



Applying Emerging Technologies to Financial Protection: Parametric insurance coverage

Jumpstart

- ❑ **Simplified application process:** underwriting based solely on home address
- ❑ **Simplified claims adjustment:** policyholders receive a text message if located in impacted area (based on USGS data)
- ❑ **Expedited payment:** data for claims adjustment available within 24 hours and claims accepted based on confirmation of policyholder impact



FloodFlash

- ❑ **Simplified application process:** underwriting based on address, coverage amount and selected water level trigger
- ❑ **Simplified claims adjustment:** policyholders receive payment if water level exceeds pre-specified level as measured by connected sensor
- ❑ **Expedited payment:** payment within days and as soon as sensor reading validated



Policy recommendations

Resilient communication infrastructure

- Investment in under-served regions

Technical skills

- Training and education programmes
- International partnerships (public, private, academic)

Data and technology access

- Regulatory impediments to data generation and sharing
- Open data and open-source software tools

User awareness and trust

- Public information and educational campaigns

Insurance regulatory framework

- Regulatory adaptations to support innovation while protecting consumers

Opportunities for regional cooperation to share experience and promote mutual recognition of regulatory frameworks



Regulatory adaptations: insurance

Premium pricing

- Some insurance supervisors narrowly define criteria that can be (or must be) considered in premium pricing

Distribution

- Some insurance coverage can only be sold via face-to-face meeting with policyholder

Core Functions

- Some insurance supervisors require that insurers undertake certain core functions (i.e. cannot be outsourced)

Indemnity requirement

- In some economies, insurance can only provide coverage on an indemnity basis

Cross-border restrictions

- Incentives for knowledge-sharing with foreign insurers or reinsurers may be limited by regulation



ADB supports innovative approaches to disaster insurance

Establishment of disaster risk financing scheme in the Philippines

Philippines: Disaster Resilience Improvement Program

- parametric disaster insurance scheme

Pilots on disaster insurance in Bangladesh, Viet Nam, CAREC

Bangladesh: Crop insurance for small farmers

- parametric insurance, mobile money, insurance literacy

Viet Nam: Municipal and rural infrastructure

- disaster insurance for public assets

Central Asia Regional Economic Cooperation: Regional sovereign risk transfer

- regional disaster risk financing solution (feasibility assessment for a pilot mechanism)

Automated credit and insurance services in the Philippines

Philippines: Automated credit and insurance services for farmers and agro-businesses *(proposed)*

- integrated value chain financing and risk management, insurance products, Fintech business applications





Thank you!



ADB-OECD Report: Leveraging Technology and Innovation for Disaster Risk Management and Financing

