Leveraging Technology and Innovation for Disaster Risk Management and Financing

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Disclaimer: The views expressed in this presentation do not necessarily reflect those of ADB or the OECD.
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

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

- **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

Source: OPT/NET
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

Jumpstart, 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

Source: Jumpstart, FloodFlash
## Policy recommendations

| Category                                      | 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!

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