Disaster Risk Financing & Insurance Program

SUPPORTED BY WORLD BANK GROUP

Understanding Risk Financing and Assessment: Living Case Studies

Crisis and Disaster Risk Finance (CDRF), World Bank Group

Welcome and Introduction

Kaavya Krishna

Training and Knowledge Lead, CDRF, Finance,
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Understanding Risk Finance and Assessment

Sumati Rajput

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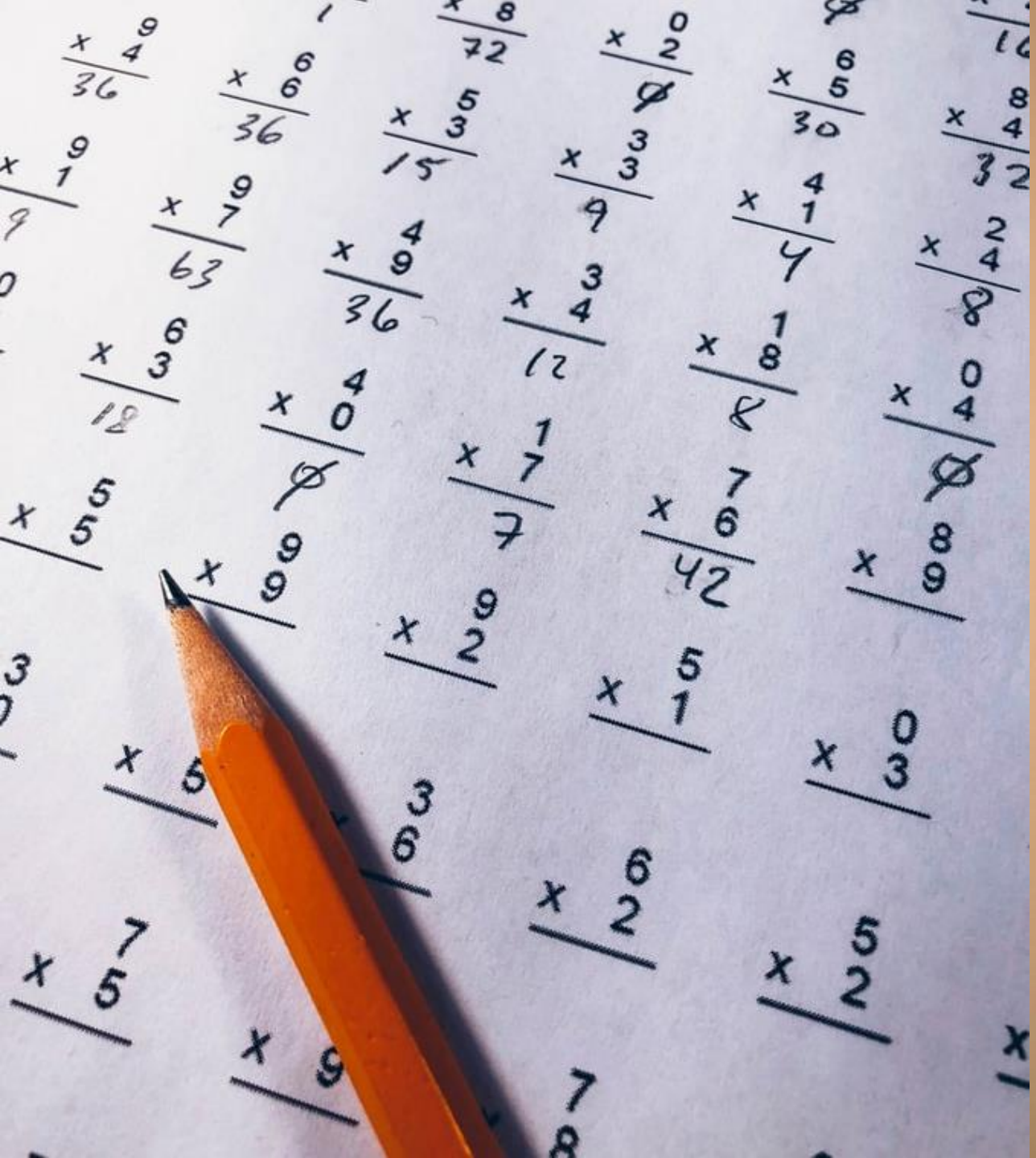
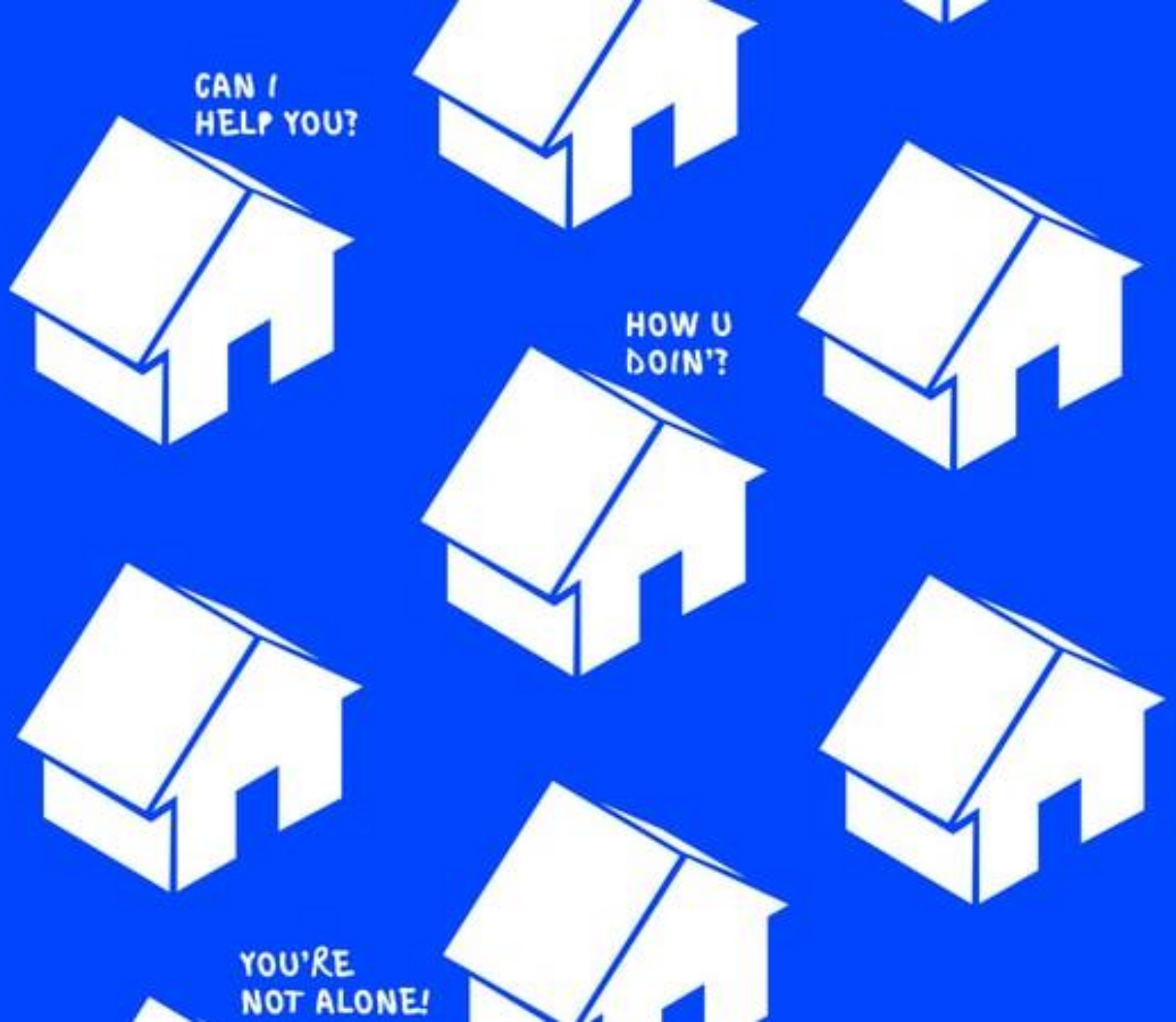



Crisis


CAN I
HELP YOU?
HOW U
DOIN'?
YOU'RE
NOT ALONE!


SHARK
SIGHTED
TODAY
ENTER WATER
AT OWN
RISK

risis

CAN I
HELP YOU?
HOW U
DOIN'?
YOU'RE
NOT ALONE!
Share


35
0
30
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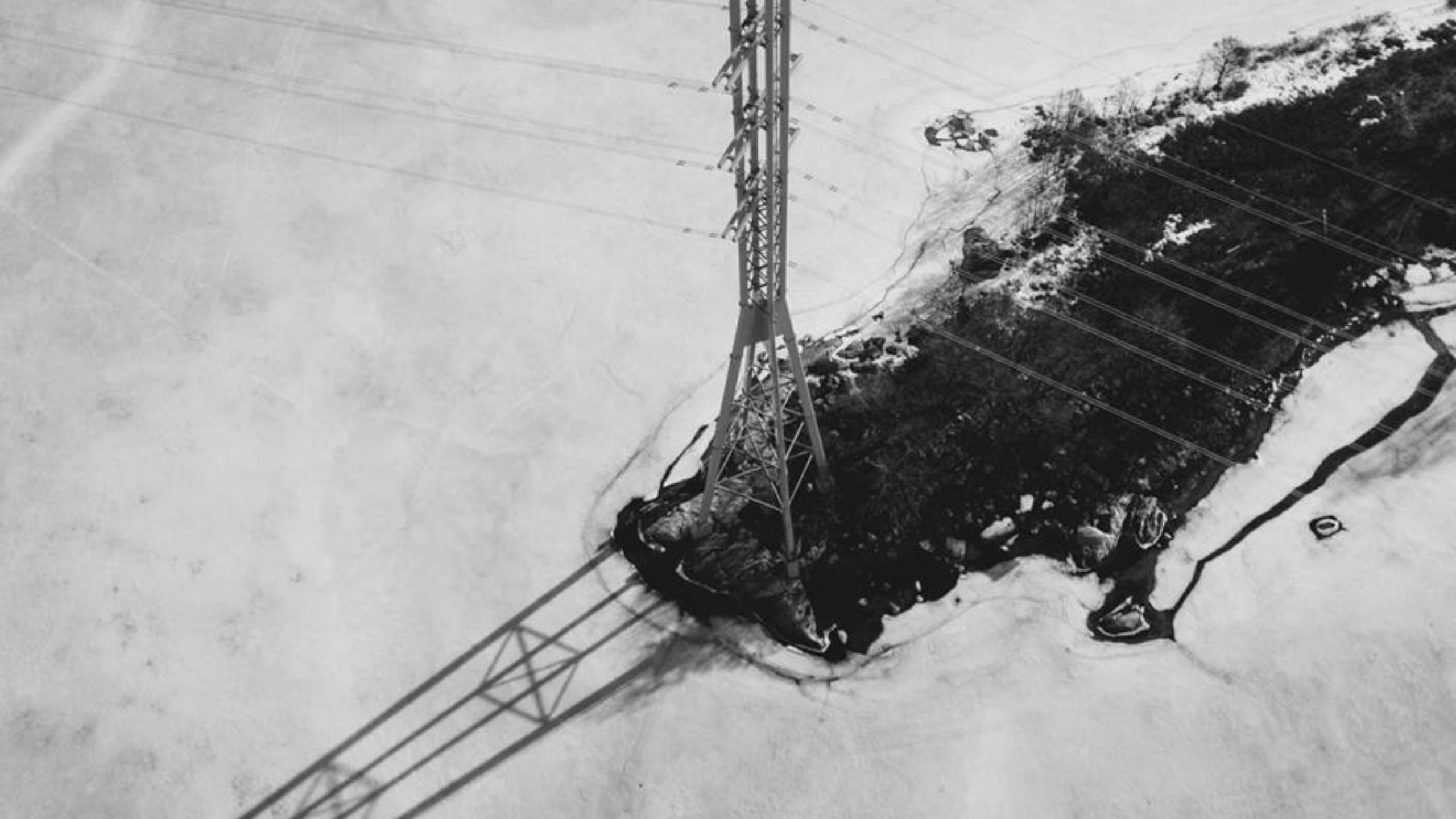
Master
MASTER
HARDENED



Financial Risk Management of Public Assets

Benedikt Signer

Program Coordinator, CDRF, FCI Global Practice, WBG

Case Study: The Philippines Perspective

Shannen Nicole Chua

Treasury Operations Officer, Bureau of the Treasury, the Philippines

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Financial Risk Management of Public Assets

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THE WORLD BANK
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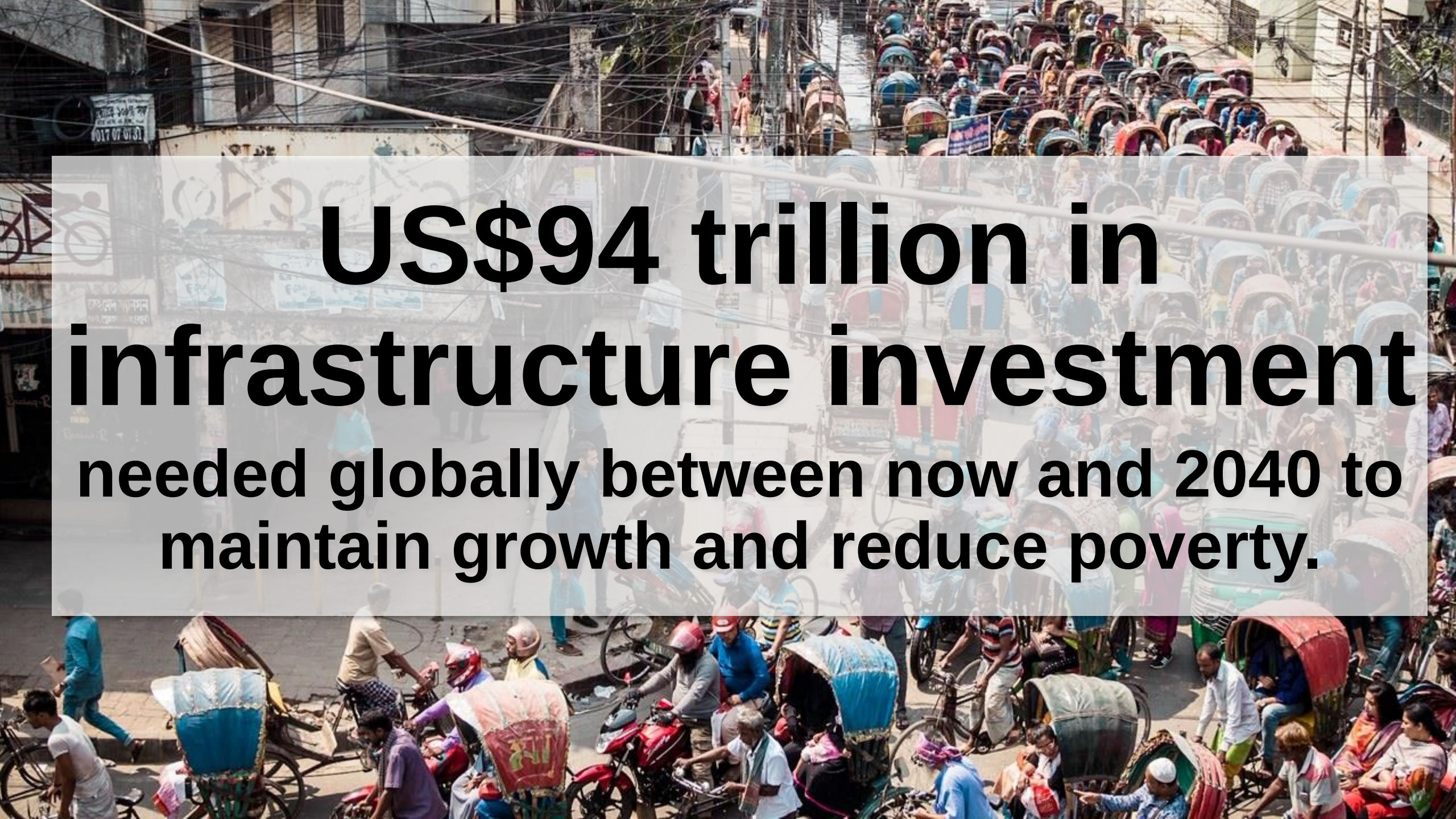


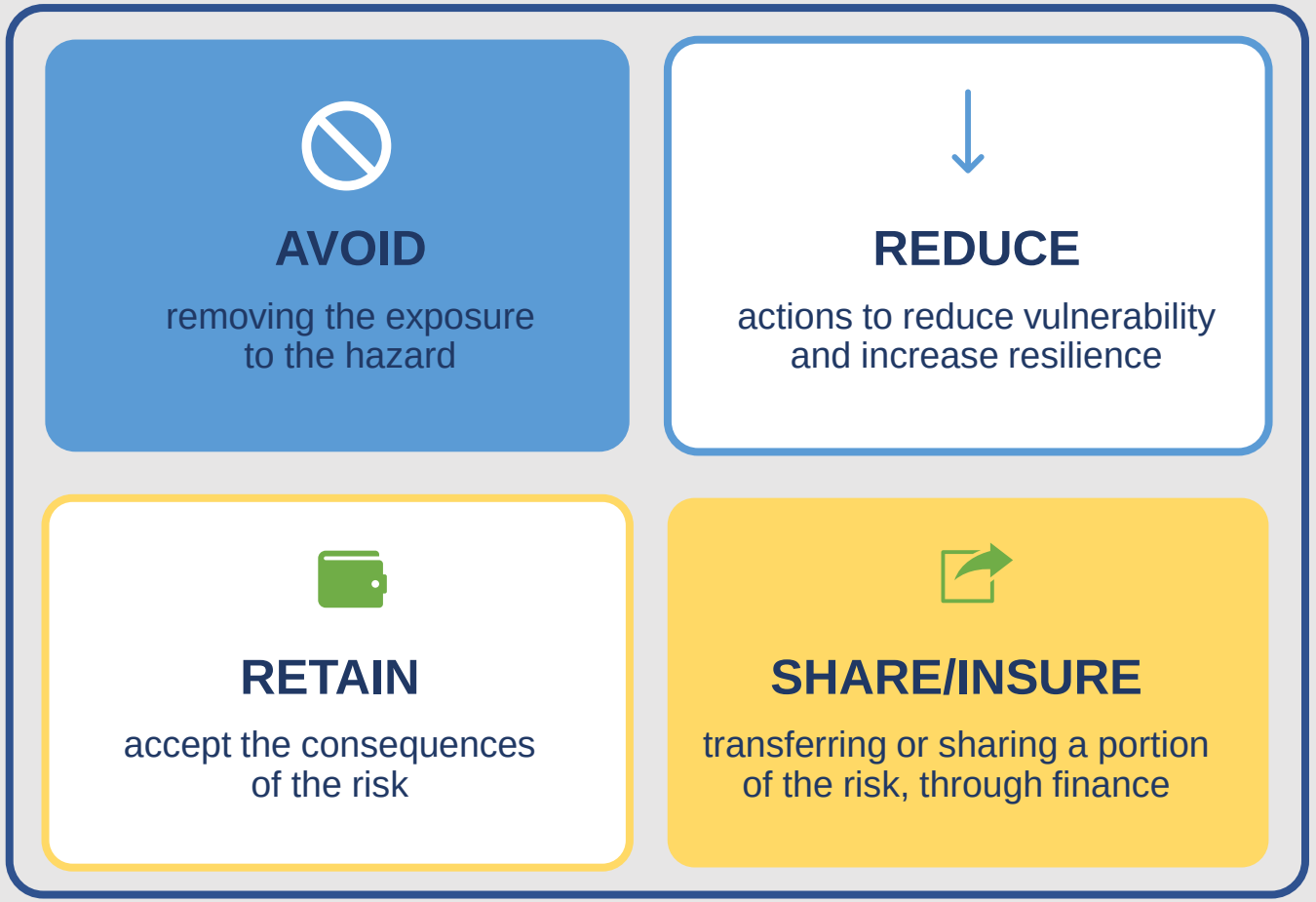
US$94 trillion in infrastructure investment

needed globally between now and 2040 to maintain growth and reduce poverty.

US$400 billion+ estimated annual cost of disruptions and damages

to energy and transport services and infrastructure in low- and middle-income countries globally.

Risk finance as part of a broad risk management strategy

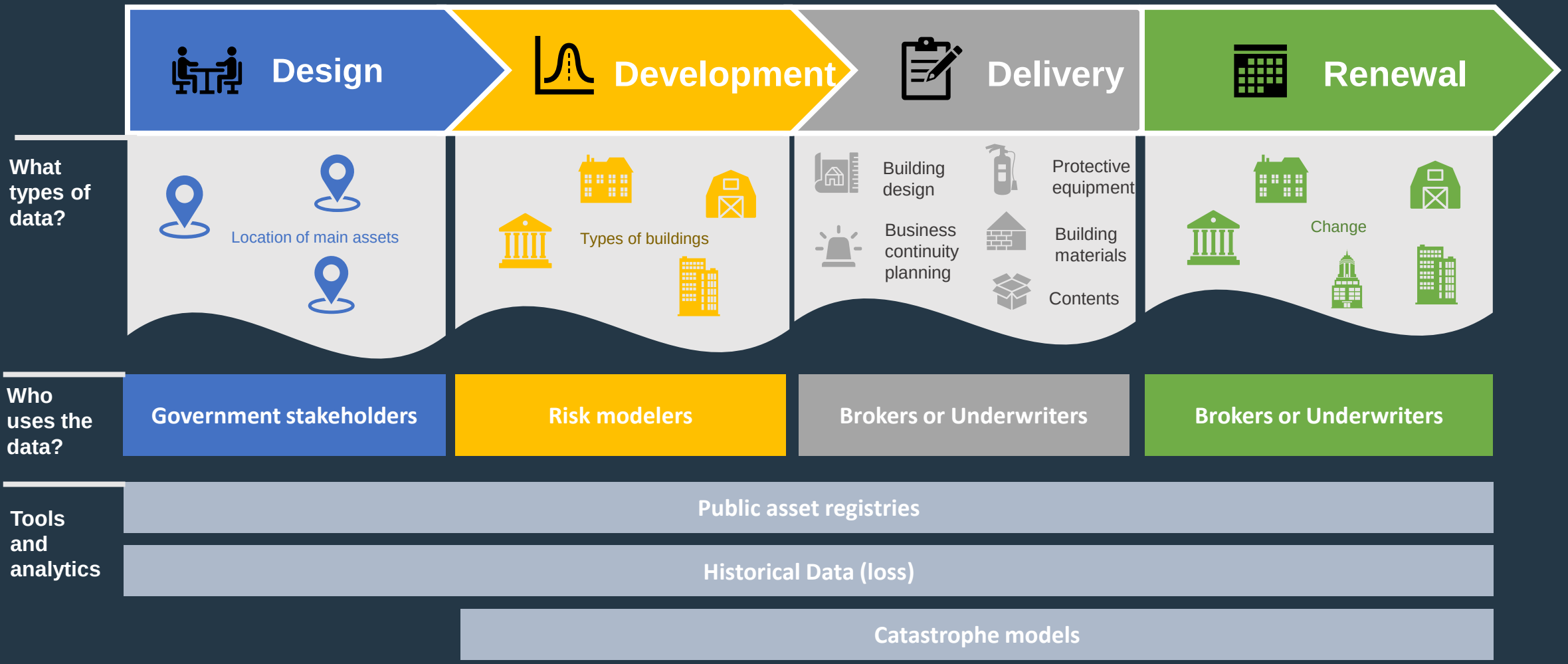


Two objectives:

Protect society by ensuring funding for continuity of services in line with service planning and standards.

Protect the government balance sheet through efficient management of contingent liabilities.

Risk data needs for of Public Asset Risk Financing



Minimum standard

Schedule of values

- Location Name
- Each location geocoded to street address (at least 90% of schedule)
- Total Insured Value at each location split at high granularity (i.e. physical property, contents, stock, hardware/software, fine art, business interruption)
- Occupancy at each location
- Number of Buildings
- Primary modifiers to include construction, year asset built and number of stories of the building
- Square Footage of Location

Loss experience

- Date of Loss
- Cause of Loss (Peril)
- Location of Loss
- Gross total incurred loss to asset
- Deductible applicable to loss
- Net loss payable by insurers
- Status of Claim (open/closed)
- 5-year average claim experience by year

Valuation methodology

- Basis of reinstatement: replacement cost value (RCV) versus Actual Cash Value (ACV)
- Evidence that value per square foot is adequate for occupancy type and in line with current building code costs.
- Evidence that inflation is being considered year on year

High Quality

Schedule of values

- Major Renovation Information
- Protection details: sprinkler systems, security (Alarms, Security Staff etc.), other additional protections
- Basement/Parking Information
- Catastrophe Zone of each location (For Flood, Earthquake and Typhoon)
- Secondary Modifiers collated from building diagrams. These may include EQ resiliency such as base isolation, cladding type, foundation information, pounding, bracing.

Loss experience

- Detailed description of loss outlining sequence of events (generally only necessary for meaningful loss amounts and not small losses)
- Mitigation steps taken by client to prevent future similar losses.

Valuation methodology

- Appointment of professional appraisal firm to value all assets on the schedule on a rolling 3-5-year basis.

Minimum standard

Schedule of values

- **Location Name**
- **Each location geocoded to street address (at least 90% of schedule)**
- Total insured value at each location split at high granularity (i.e. physical property, contents, stock, hardware/software, fine art, business interruption)
- Occupancy at each location
- Number of Buildings

+

Schedule of values

- Major Renovation Information
- Protection details: sprinkler systems, security (Alarms, Security Staff etc.), other additional protections
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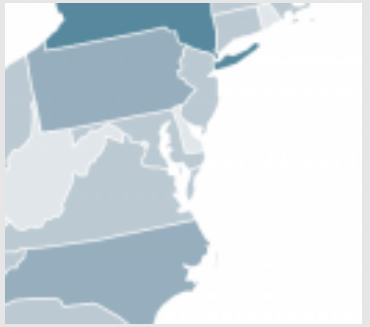

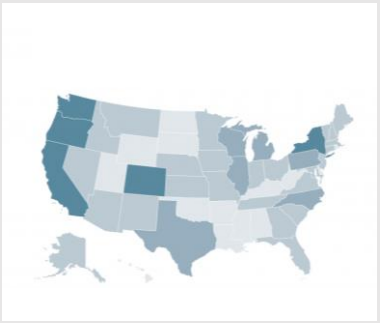

Building	Street, ZIP/Postcode	District	City	State/Province	Country
The World Bank Group	High Street NW DC 20433	Foggy Bottom	Washington DC	Washington DC	United States of America

Lower resolution | Lower overall confidence | Higher uncertainties on risk profile

It takes time and effort.
How can YOU make it easier for governments?

What can you do if the data for indemnity insurance of public assets is **missing or of lower quality than expected**?

How can you compensate for missing or inaccurate **asset values**?

How can you support **asset valuation** (especially replacement value)?

What technology is **ready for use** to **support data collection / management**?

How can **risk models** become more available and user-friendly to **financial decision makers**?

How can countries compensate for **missing loss history**?

The Philippines Perspective

Shannen Nicole Chua

Treasury Operations Officer, Bureau of the Treasury, the Philippines

Disaster Risk Financing & Insurance Program

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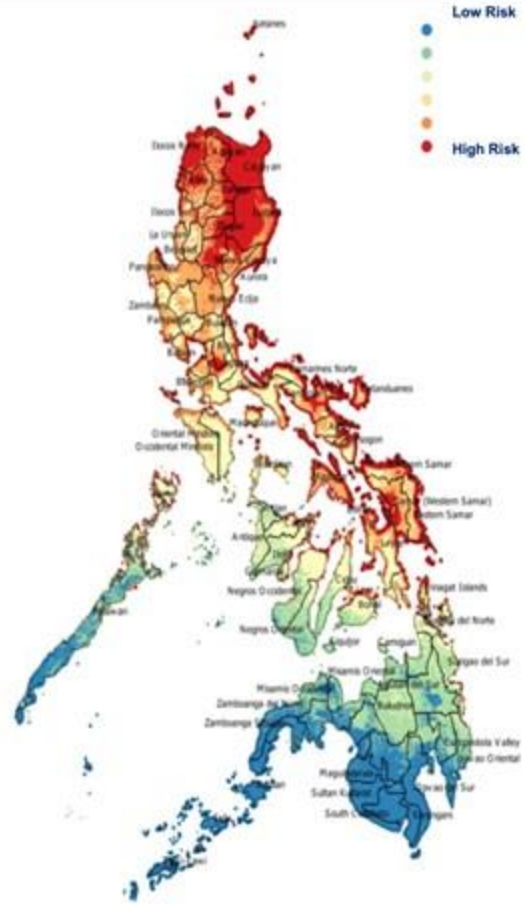
THE PHILIPPINES PERSPECTIVE

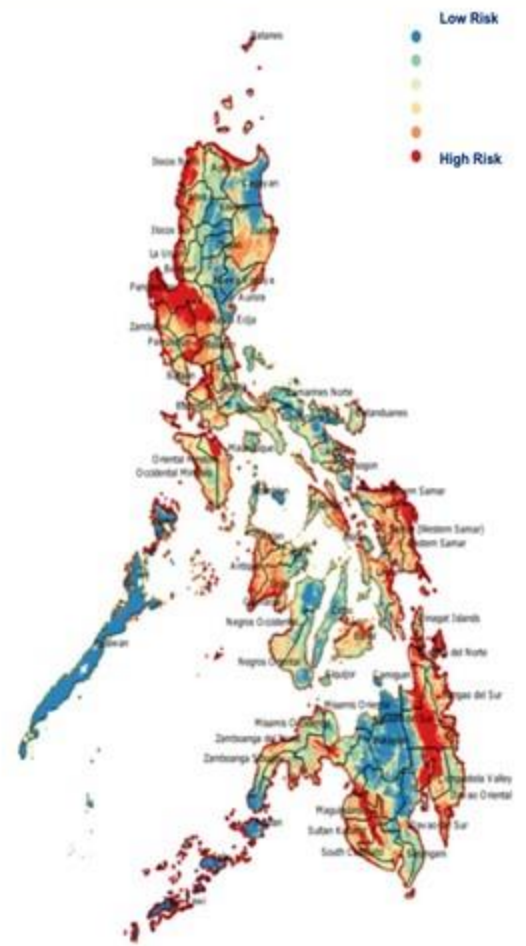
CONTEXTUALIZING THE PHILIPPINE LANDSCAPE

- Data Sources
  - National Asset Registry System
  - National Disaster Risk Reduction and Management Council Reports
  - DOST GeoRiskPH
  - AIR Catastrophe Model

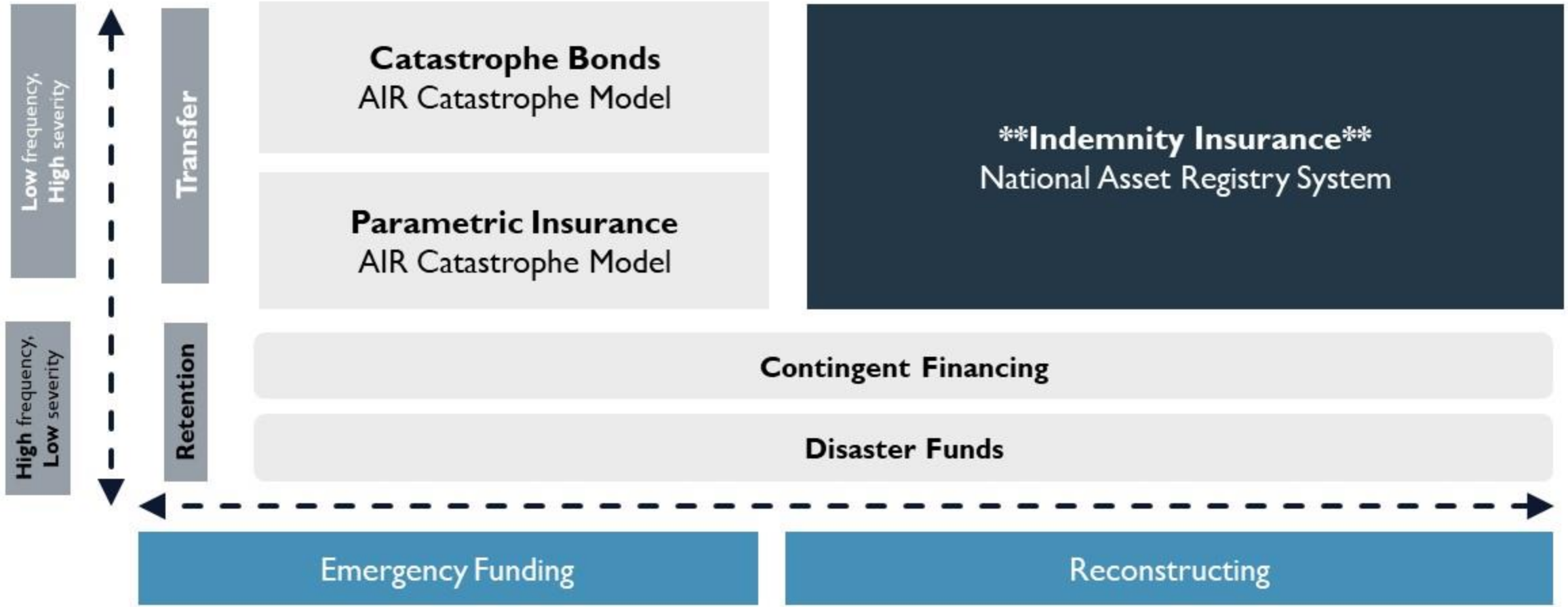
TYPHOON RISK



EARTHQUAKE RISK



PHILIPPINE DISASTER RISK FINANCING STRATEGY



NATIONAL ASSET REGISTRY SYSTEM

OVERVIEW

- ✓ Registry Strategically Important Assets

RATIONALE

- ✓ An indemnity insurance program would require asset information such as its location, replacement cost, condition, risk mitigating features, and the like.
- ✓ Asset data would be useful for overall asset management

GETTING THE DATA

Base: Excel template for minimum insurance data (sourced from the Insurance Commission)

→

Consultations with agency and key stakeholders on additional technical data to be put

→

Constant coordination with agency in filling up data fields

NATIONAL ASSET REGISTRY SYSTEM (NARS)

ASSET DATA

General Information	• National Asset Number • Organization/Agency Code • Asset Name/ Type • Property Number
Location Information	• Region, Municipality, City • PSGC Code • Latitude • Longitude
Legal / Ownership Information	• Ownership • Mode of Acquisition/ Conveyance • Conveyance Information • Acquisition/ Conveyance Date
Financial Information	• Book Value, Accumulated Depreciation • Asset Life, Number of years used • Sound Value/ Assessed Value/ Appraised Value • Mode of Disposal/ Disposal Date
Insurance Information	• Sum Insurable (if not insured) • Insurance Details (Amount insured, Coverage, Type of Policy, Amount Insured, Premium, and Deductible)

FUTURE PLANS

- **Interfacing:** Linkages with national government agencies and corporations as well as local government units that have their own asset registry to develop a common metadata set across the whole of government and to facilitate the sharing of information
- **Standardizing:** Adoption/adaption of international standards for data inputs and quality to allow for regional collaboration
- Easy Reference Dashboard with quick access to geospatial and asset information
- Risk Modeling capabilities to estimate damages of events and forecast potential losses of incoming events
- Simplified data gathering

CHALLENGES AND RECOMMENDATIONS

CHALLENGES

DATA GATHERING

Decentralized information
National vs Regional vs Provincial vs City

Coordination with agencies/counterparts

Inconsistent quality of data

Data privacy and security concerns

DATA INTERPRETATION

Limited personnel

Lack of specialists

Catastrophe Modeling Software

RECOMMENDATIONS

CAPACITY BUILDING

ANALYTICS SUMMARY to accompany data results

INTERACTIVE EXCEL TOOLS for data interpretation

LEVELING OF INFORMATION
not all information needed at the national level

SEADRIF Update and Future Programs

Gary Rynsard

Executive Director and Board Member,
SEADRIF Insurance Company

Case Study: SEADRIF Flood Risk Monitoring Tool

Cathy Ansell

Financial Sector Specialist, CDRF, FCI Global Practice, WBG

SEADRIF Update and Future Programs

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SEADRIF
SOUTHEAST ASIA
DISASTER RISK INSURANCE FACILITY

SEADRIF Update and Future Programs

Gary Rynsard

asean

Disaster Risk Financing
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Southeast Asia Disaster Risk Insurance Facility (SEADRIF)

To provide ASEAN countries with insurance solutions and advisory services to enhance financial resilience against disaster and climate shocks


Cambodia


Indonesia


Japan

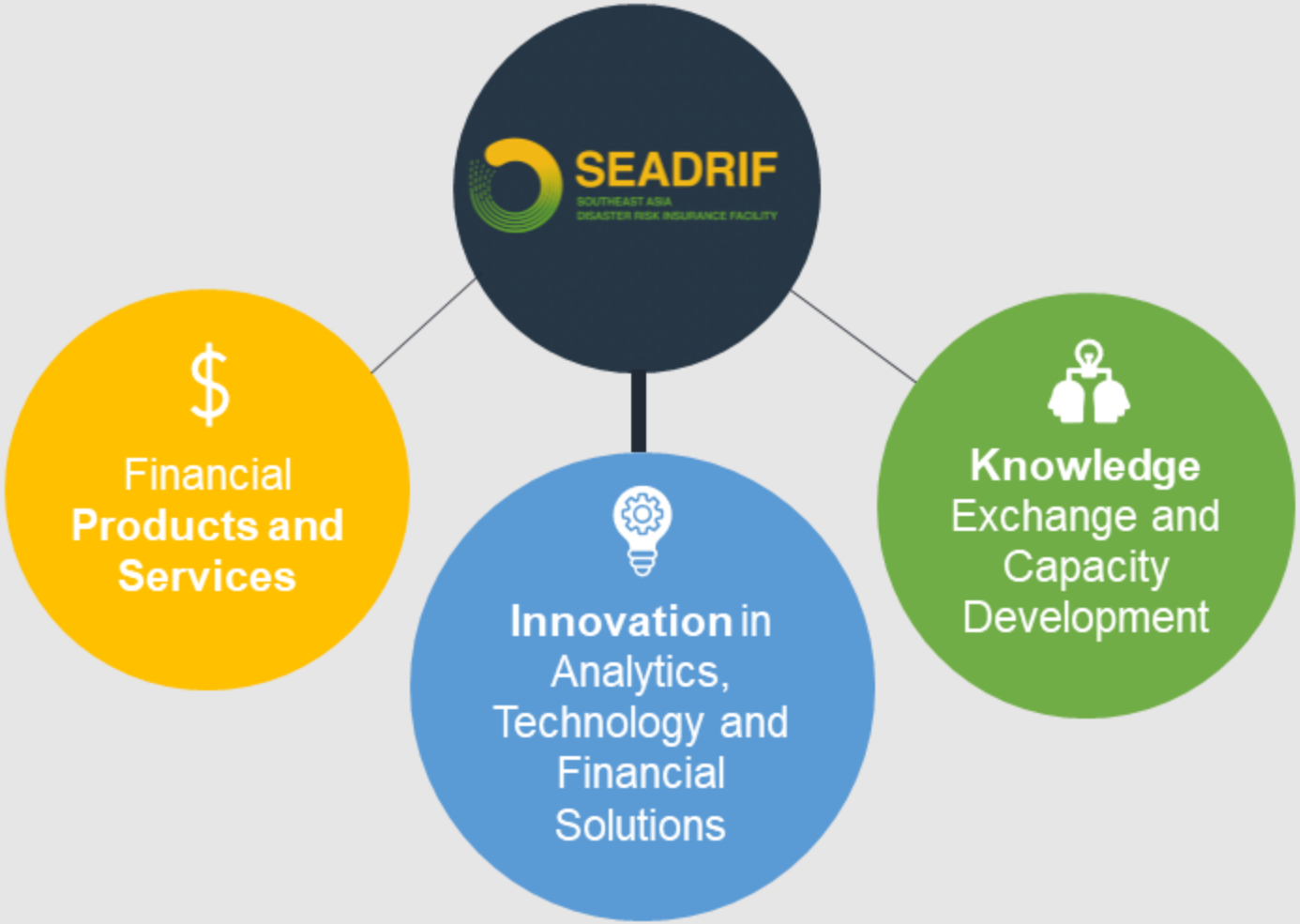

Lao PDR


Myanmar


Philippines


Singapore

SEADRIF as a full-service platform to strengthen financial resilience against disasters and climate shocks



From the start, SEADRIF has been established by member states to provide not just financial products and services, but also to catalyze regional collaboration and knowledge sharing, and to invest in joint public goods

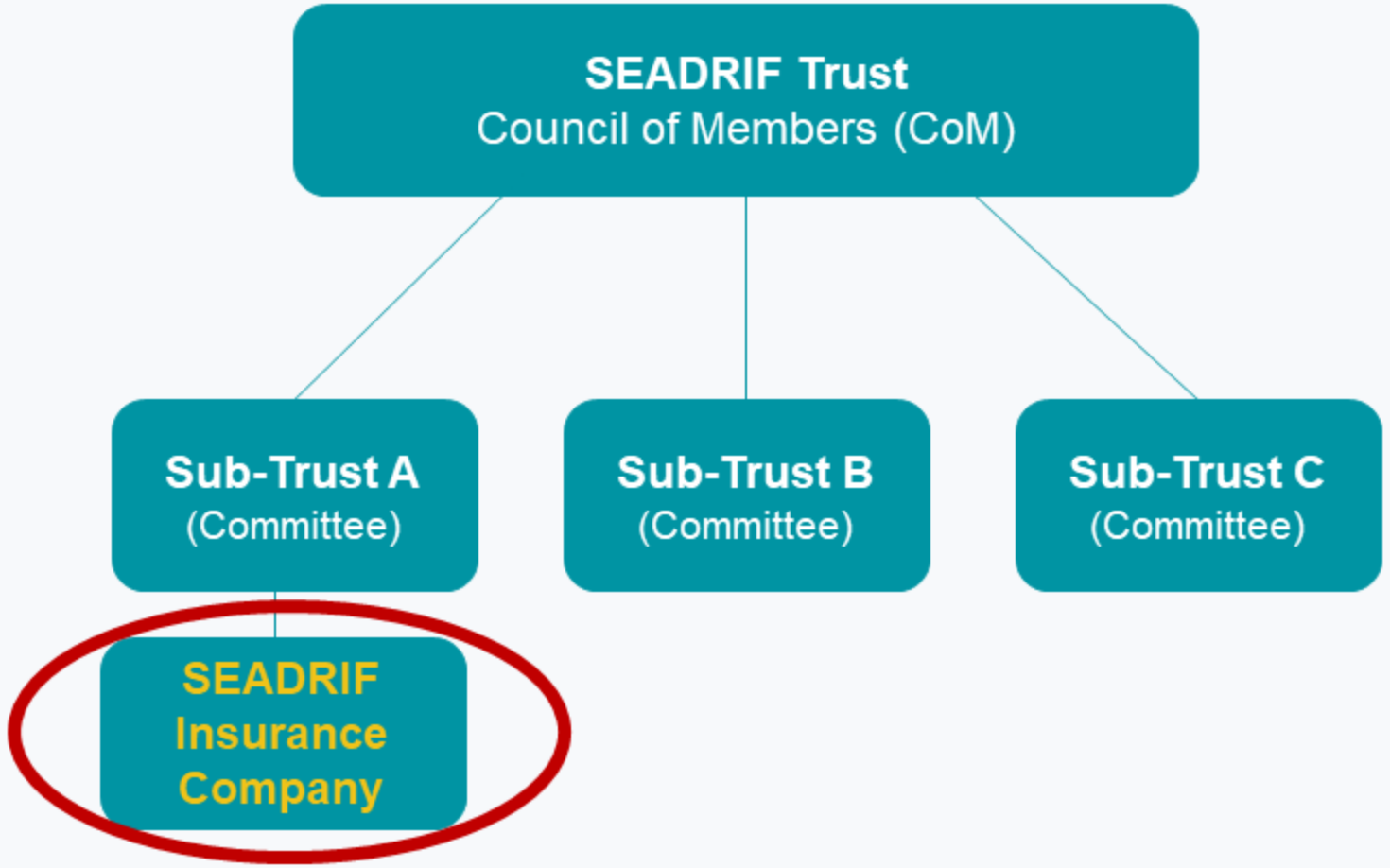
SEADRIF
SOUTHEAST ASIA
DISASTER RISK INSURANCE FACILITY

SEADRIF Insurance Company as part of the SEADRIF Governance Structure

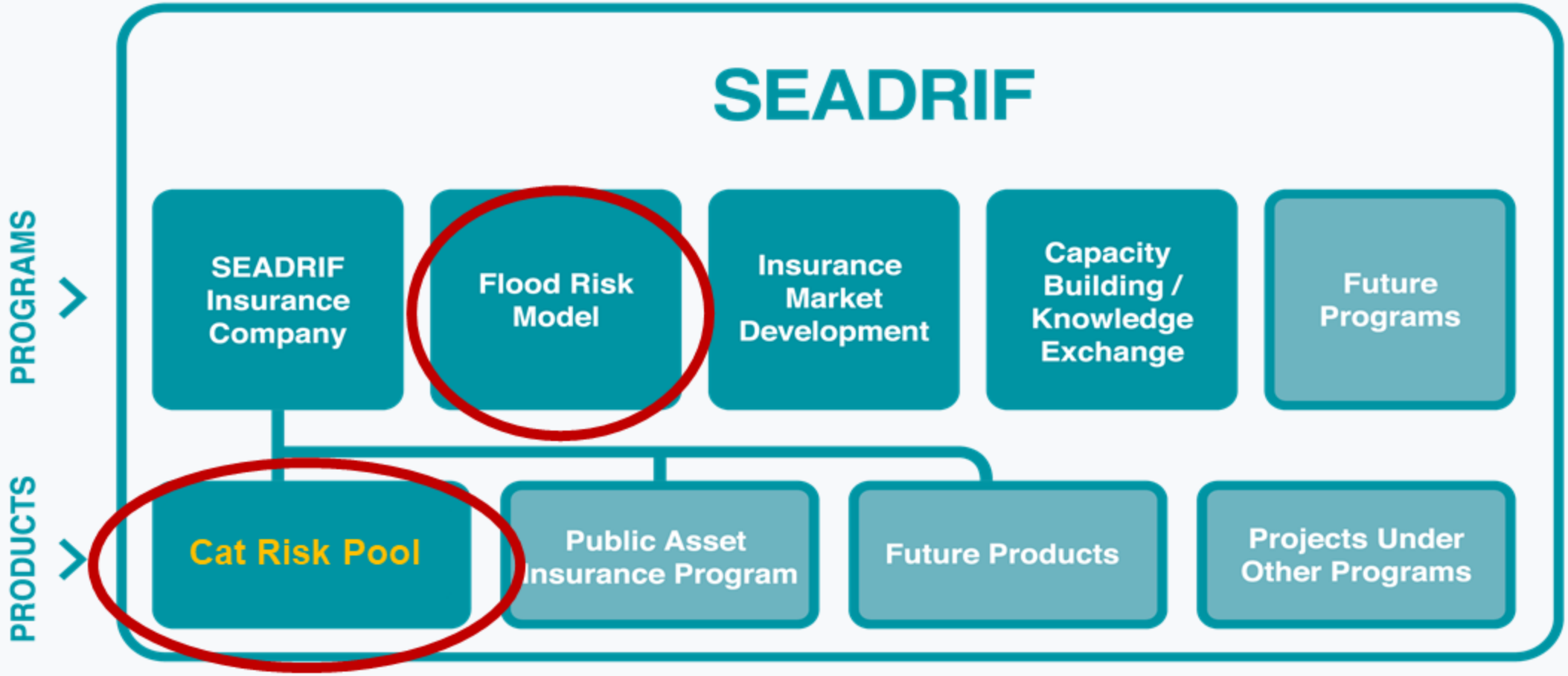
Management of Trust Properties — **Trustee**

Technical Support — **Lead Technical Partner (World Bank)**

Administrative Support — **Secretariat (ASEAN Secretariat)**

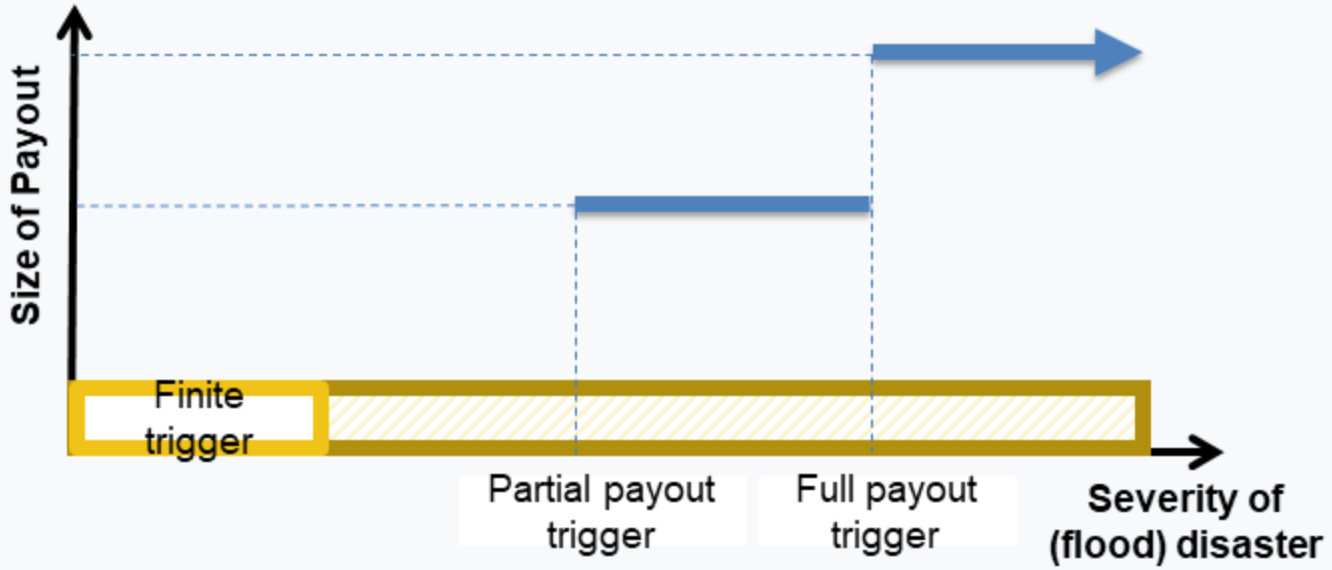


SEADRIF Insurance Company Products and Services



SEADRIF Insurance Company – First Catastrophe Risk Pool

- **Product includes**
  - **Parametric** section trigger for **Medium flood disaster** event triggers a **partial** payout
  - **Parametric** section trigger for **Severe flood disaster** event triggers a **full** payout
  - **Finite** section cover for an **eligible disaster** event



SEADRIF Flood Risk Monitoring Tool

Cathy Ansell

Financial Sector Specialist, CDRF, FCI Global Practice, WBG

SEADRIF
SOUTHEAST ASIA
DISASTER RISK INSURANCE FACILITY

SEADRIF Flood Risk Monitoring Tool

Disaster Risk Financing & Insurance Program
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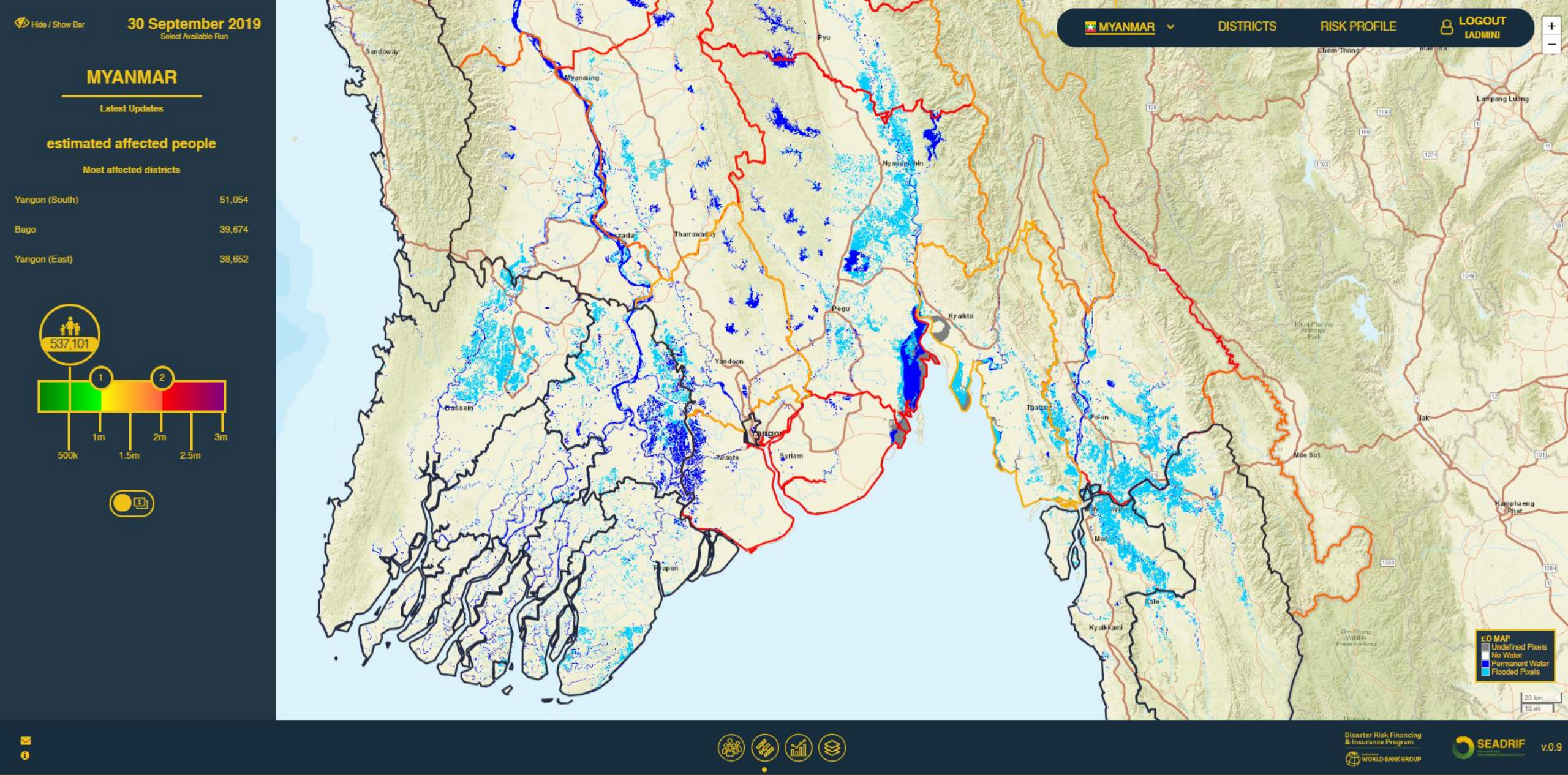


SEADRIF
SOUTHEAST ASIA DISASTER RISK INSURANCE FACILITY

Near-Real-Time Flood Monitor

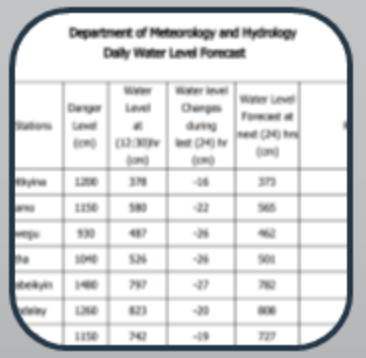
Near-Real-Time Flood Monitor

The SEADRIF Near-Real Time Flood Monitoring tool provides a continuous view of flooding in Myanmar and Laos PDR.

The Tool combines model data, satellite imagery and gauge observations to provide a best estimate of the flooding situation on the ground.

Satellite imagery

Operational weather models



Gauge data

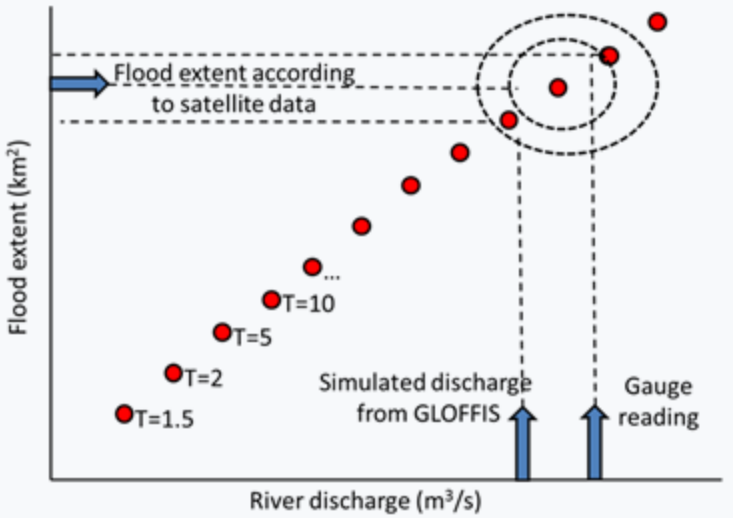
SEADRIF flood maps

Modelling a Flood Event

Satellite data, ECMWF Data, and Global Flood Forecasting Information System automatically retrieved by SEADRIF tool.

Tool selects best matching flood map for each data source through a series of algorithms.

Rules based algorithm selects the overall best flood hazard map for each sub area



Flood map is then overlaid with the WorldPop population database.

Population in flooded areas > 25cm depth is calculated = population affected by current flood event.

Satellite Imagery

Sentinel-1 is one of the European Space Agency's polar orbiting satellites which provides synthetic aperture radar imaging data.

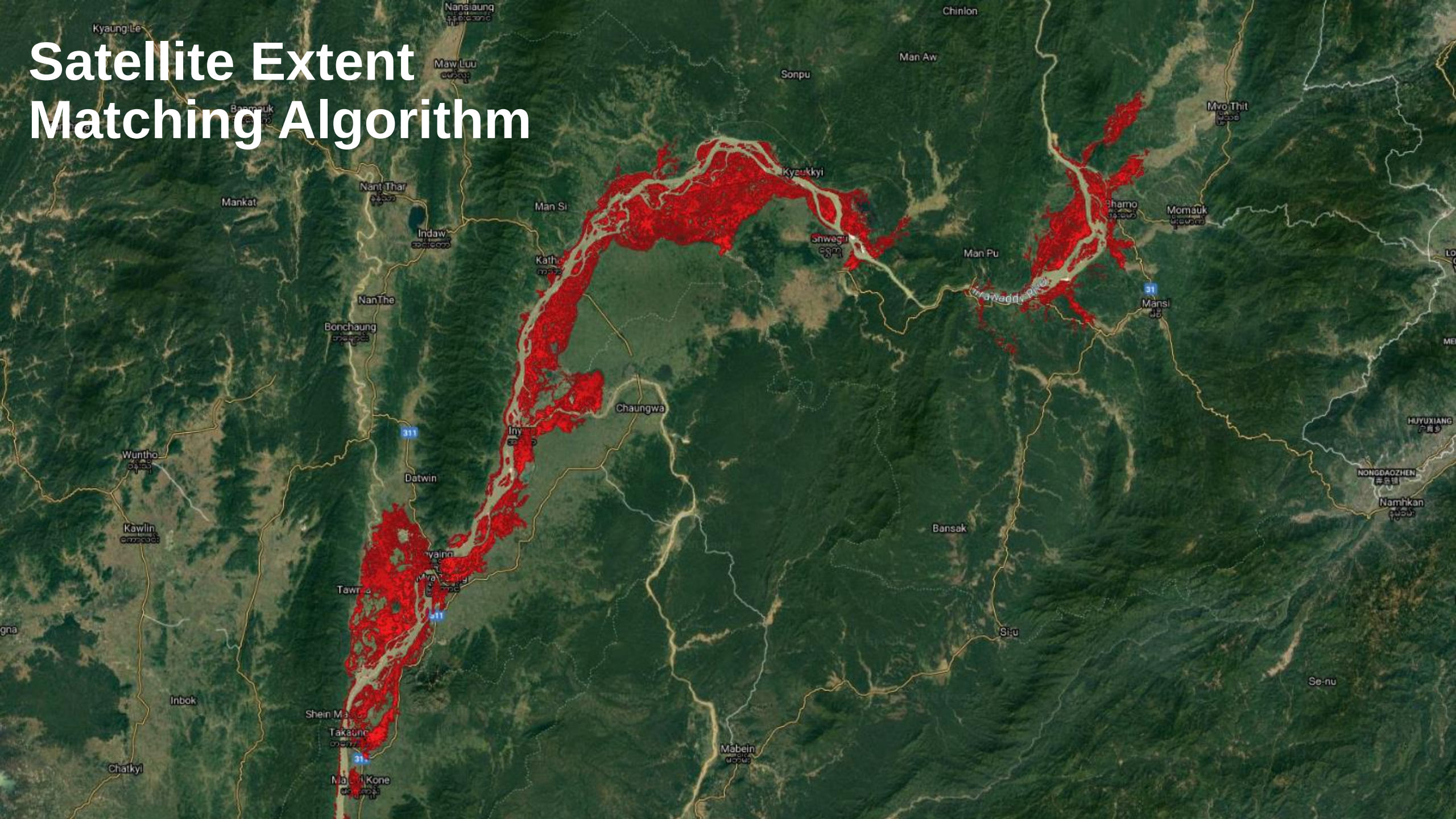
- **Flood imagery is available regardless of weather – it is not affected by cloud cover**

- **SEADRIF uses an algorithm specifically developed by Luxembourg Institute of Science and Technology to determine which areas are flooded in the satellite imagery**

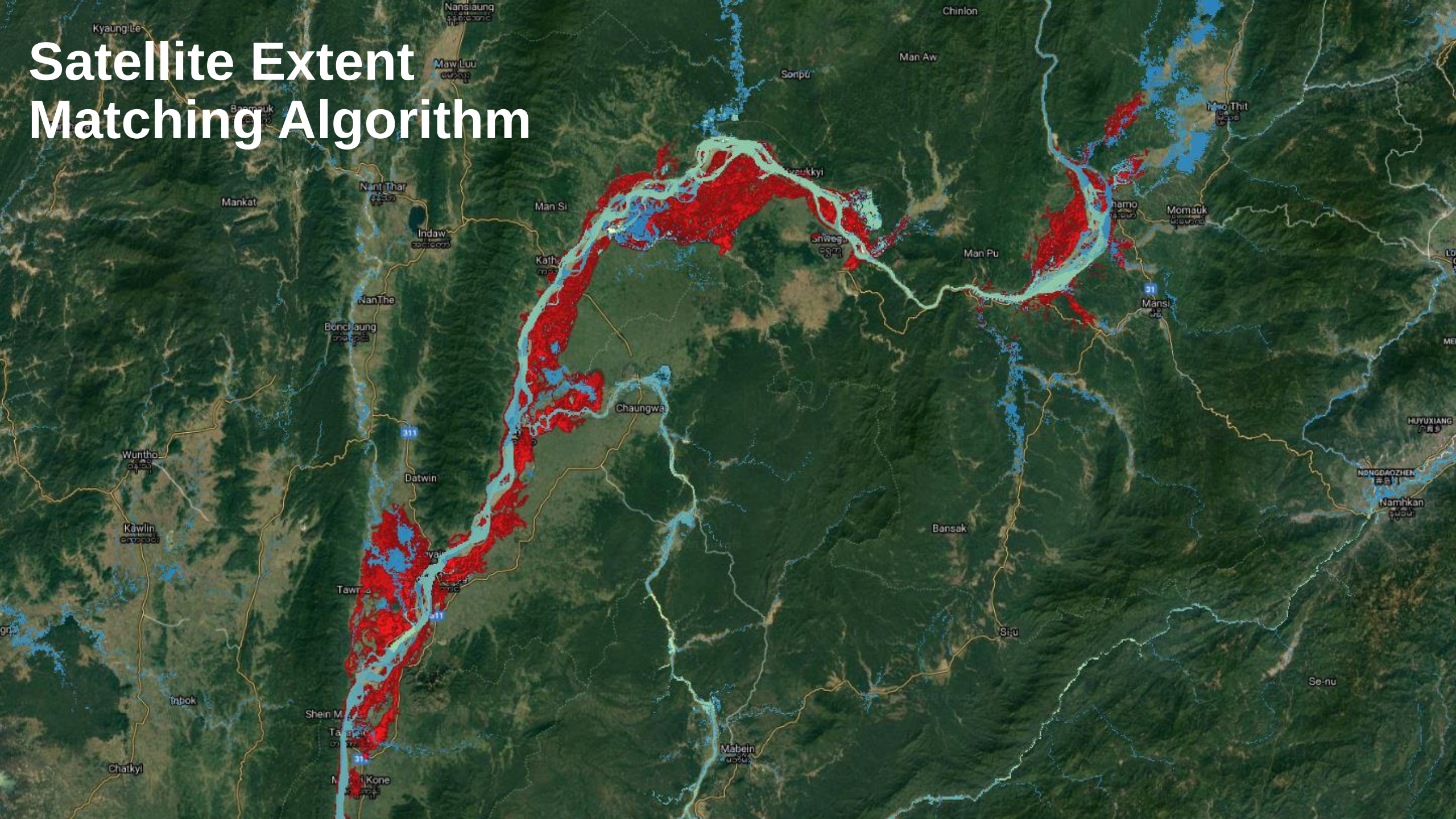
esa

European Space Agency

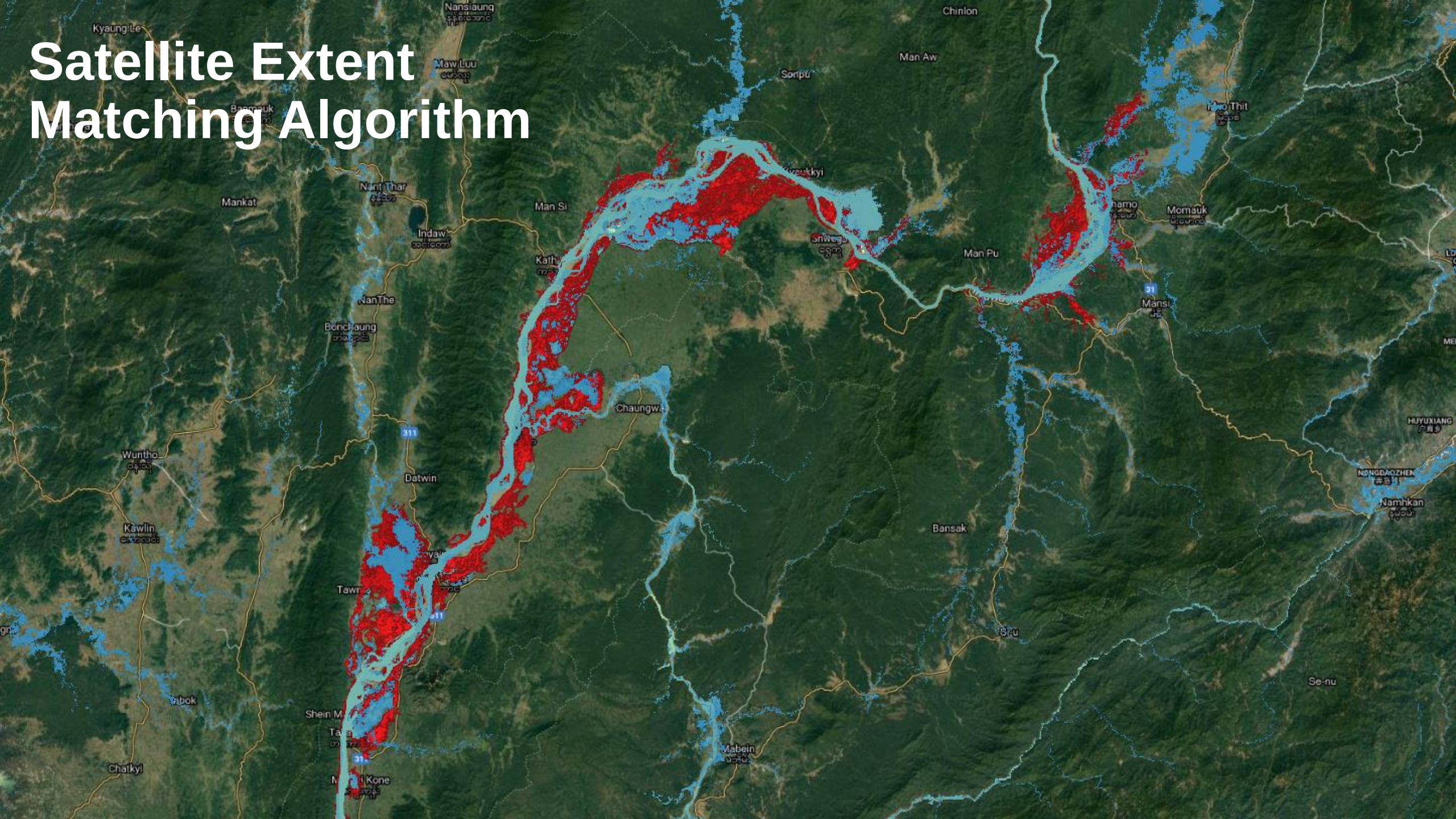
Satellite Extent Matching Algorithm



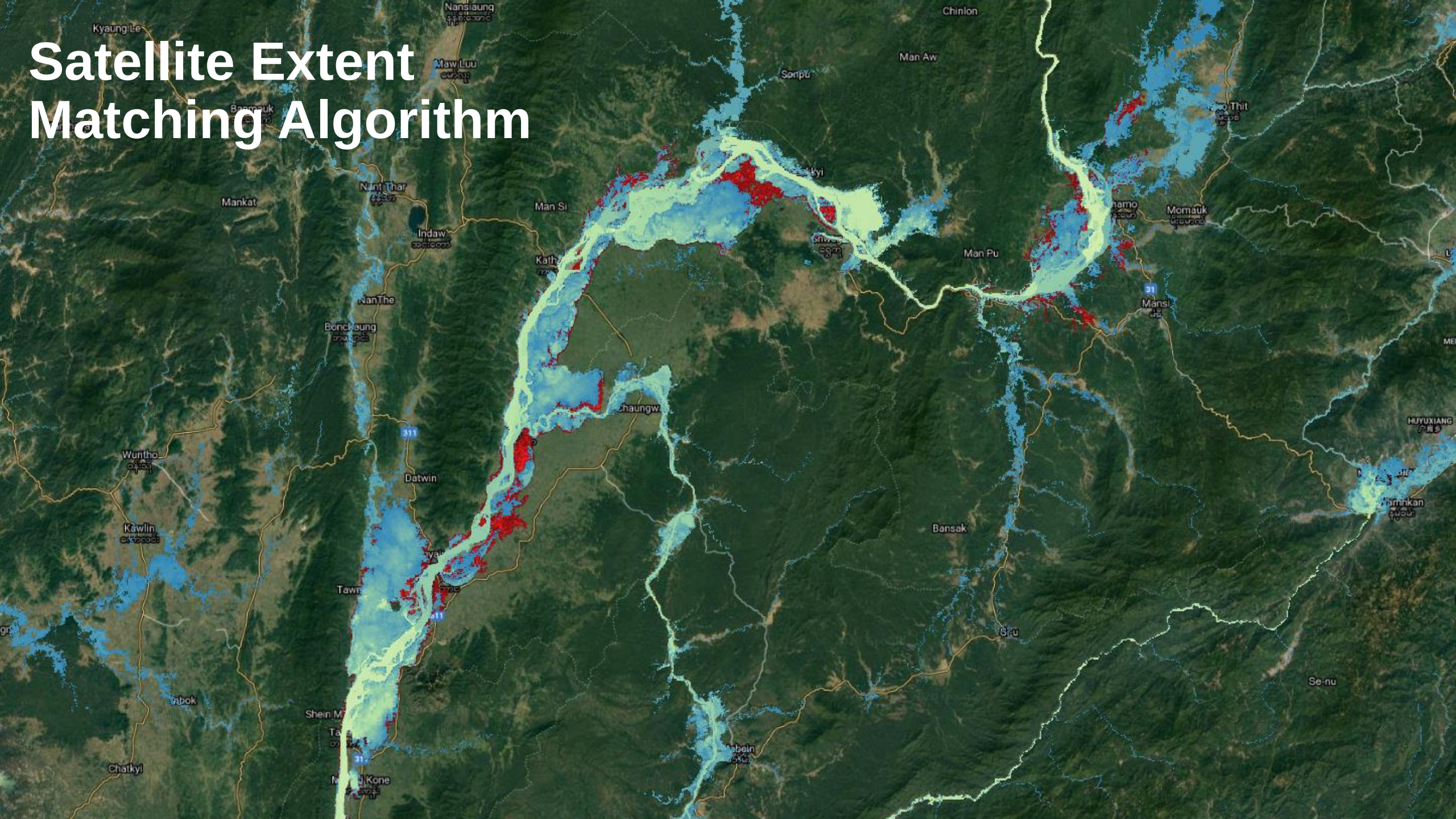
Satellite Extent Matching Algorithm



Satellite Extent Matching Algorithm



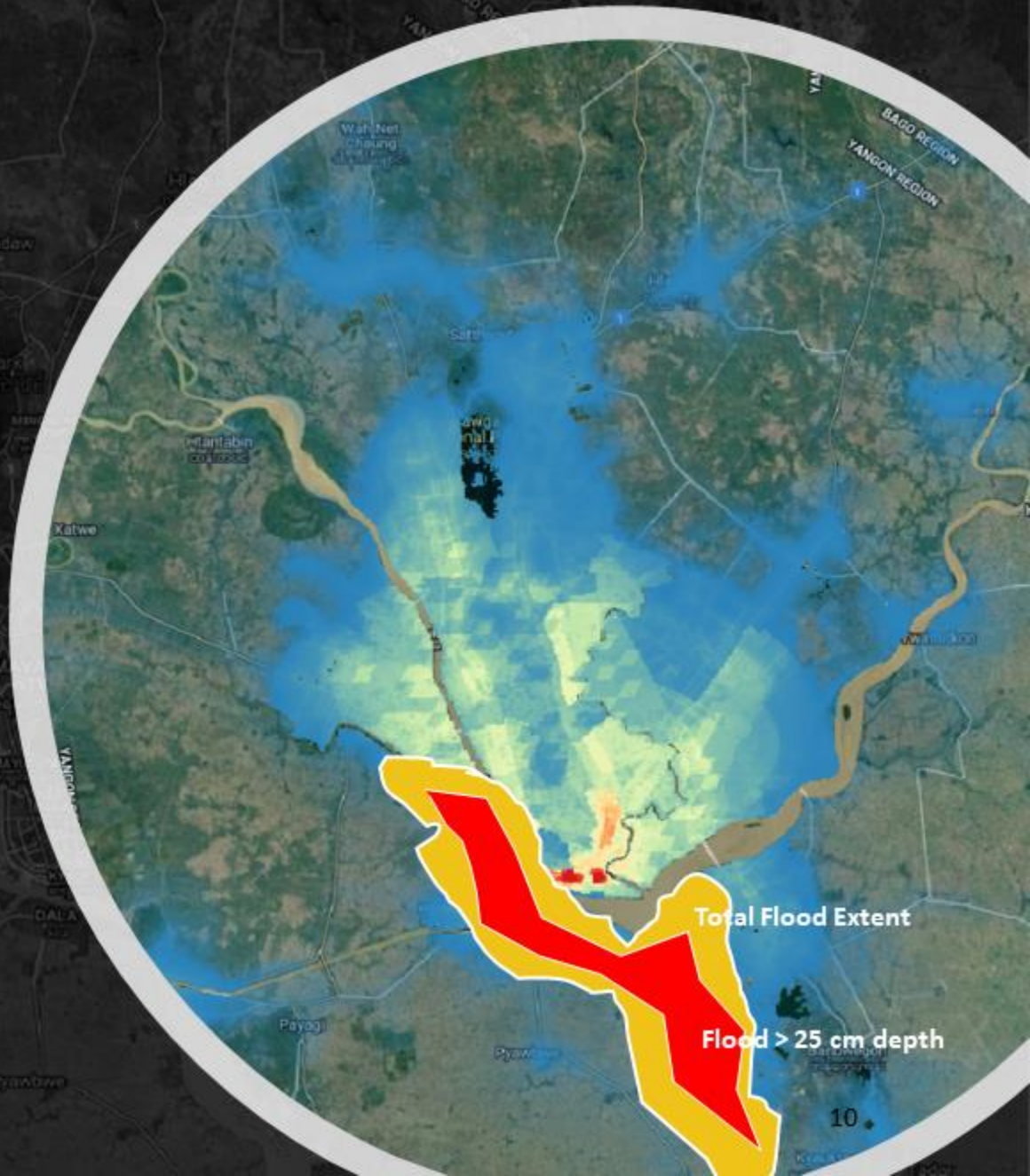
Satellite Extent Matching Algorithm



Output Metric – Population Affected

The flood model exposure is derived from the WorldPop population database.

- 100 m resolution raster
- Freely available database
- Widely used throughout scientific community
- Combines remotely-sensed and geospatial datasets of settlement locations, roads, buildings, nightlights etc. to map the population across a country
- For SEADRIF, the model development team adjusted the data to 2015 census data in Myanmar at township level, and projected to 2018.



SEADRIF
SOUTHEAST ASIA
DISASTER RISK INSURANCE FACILITY

Data on Public Spending

Tatiana Skalon

Disaster Risk Finance Specialist, CDRF, FCI
Global Practice, WBG

Case Study: COVID-19 Expenditure Analysis

Stephanie Allan

Senior Public Finance Management (PFM)
Specialist, Oxford Policy Management

Dayna Connolly

PFM Specialist, Oxford Policy Management

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Data on Public Spending

Tatiana Skalon

Disaster Risk Finance Specialist, Consultant, World Bank

Context: Government Resources Are Always Limited… COVID-19 Made It Worse

Are we using limited resources effectively and efficiently?
(inputs -> outputs -> outcomes)

Fundamental evidence on input is missing.
(disaster spending is fragmented, complex, hidden)

Governments lack this evidence too!

Situation: Why evidence gap is a problem?

DIFFICULT TO ANSWER QUESTIONS

How disaster damages translate into public spending?

How to limit the post-disaster costs, e.g. by investing in risk reduction?

How to find resources and design adequate sovereign disaster risk finance strategies?

Did our investments achieve results? What are the challenges to disbursement of public funds?

Solution: Building Evidence

First ever Public Expenditure Review (PER) on Post-Disaster Spending in the Philippines (and other two in Indonesia and Kenya):

- Focus on government spending AFTER disasters to establish a baseline
- Only partially covered efficiency, but did not cover long-term results
- On difference with other PERs, no cross-country comparison and preceding reviews

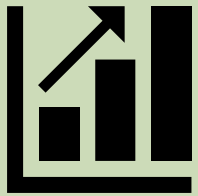
The PER in the Philippines helped to find:

- Key areas of spending (e.g. public infrastructure and social assistance)
- Sources of funds (agencies' budgets <2 times as big as national reserve fund)
- Procedural bottlenecks, low utilization rates, incomplete reporting

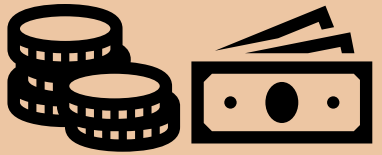
Next Steps: Public Budget

Public budgets are the first source of post-disaster funding…
…so more needs to be done to generate best practices:

To build cross-country evidence



To understand progress and changes



To understanding budget reallocation

COVID-19 Expenditure Analysis

Stephanie Allan

Senior Public Finance Management (PFM) Specialist, Oxford Policy Management

Dayna Connolly

PFM Specialist, Oxford Policy Management

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COVID-19 Expenditure Analysis

Cross country analysis from Pakistan, Albania, South Africa, and Ethiopia

Stephanie Allan

Senior PFM Specialist, Oxford Policy Management

Dayna Connolly

PFM Specialist, Oxford Policy Management

Oxford Policy Management

Rationale

DRF literature points to the direct and indirect cost of disasters to government, including opportunity costs of budget reallocations

But there is a lack of quantitative evidence on the scale budget reallocations, including the long-lasting effects on growth and development

- As per the Philippines PER, reallocations are typically **poorly documented** and what decisions were made and why is forgotten once a crisis abates

COVID-19 offers a **live case study** for us to analyse public expenditure decisions, with a focus on what *wasn't spent* as a result of the pandemic

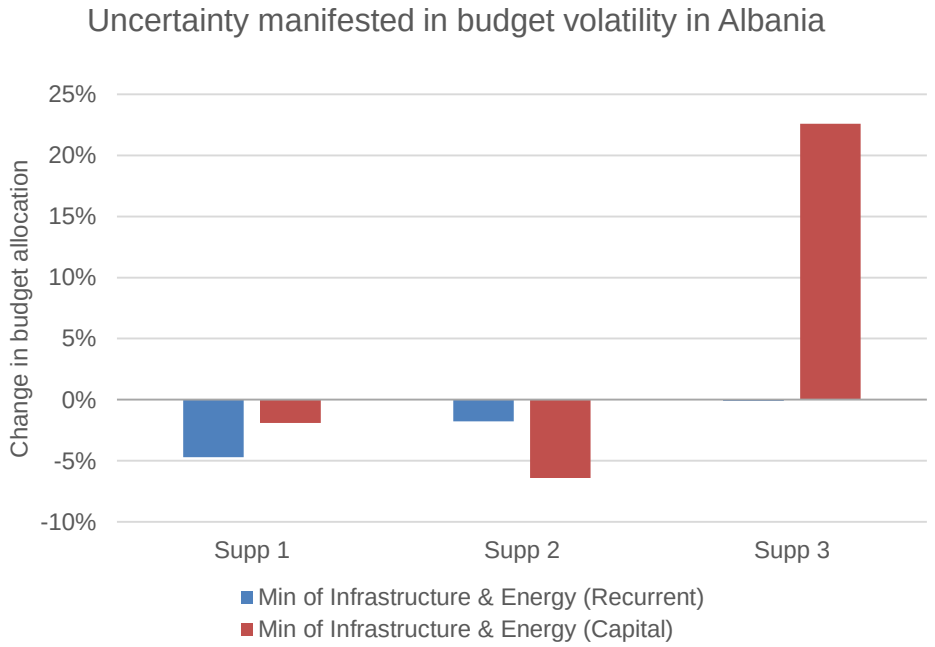
Covid-19 Impact

How has COVID-19 changed public expenditure, and what is the impact of this?

1	2	3	4	5
Financial Landscaping	**Counterfactual**	**Expenditure Analysis**	**Procedural Analysis**	**Impact Analysis**
Review of the existing budgetary instruments & analysis of their usage in relation to Covid-19	The outturns counterfactual can be established through utilising original budget documentation (before epidemic) and assessing deviations expected in "normal" years	Comparison of actual debt, revenue and expenditure against counterfactual baseline	Review of the legal and institutional framework, alongside any guidelines on budgeting and expenditure procedures	Economic analysis of the estimated impact of cut or delayed expenditures in terms of social and economic returns foregone

Emerging Findings

- Impetus for difficult reforms
- No-regrets approach to first cuts
- Uncertainty manifesting in budget volatility
- Importance of rapid fungible development finance
- Unintended consequences from sectoral ring-fencing
- Political economy plays a role
- Establishment of new COVID-funds, despite existing contingency funds
- More extensive cuts expected in the medium term
- Fiscal year matters
- Impetus for difficult PFM reforms



Emerging framework for budget cuts:

1. Unviable expenditures
2. Paybill
3. Capital & associated O&M

Telling Your Risk Financing Story

Kaavya Krishna

Training and Knowledge Lead, CDRF, Finance, Competitiveness and Innovation (FCI) Global Practice, WBG

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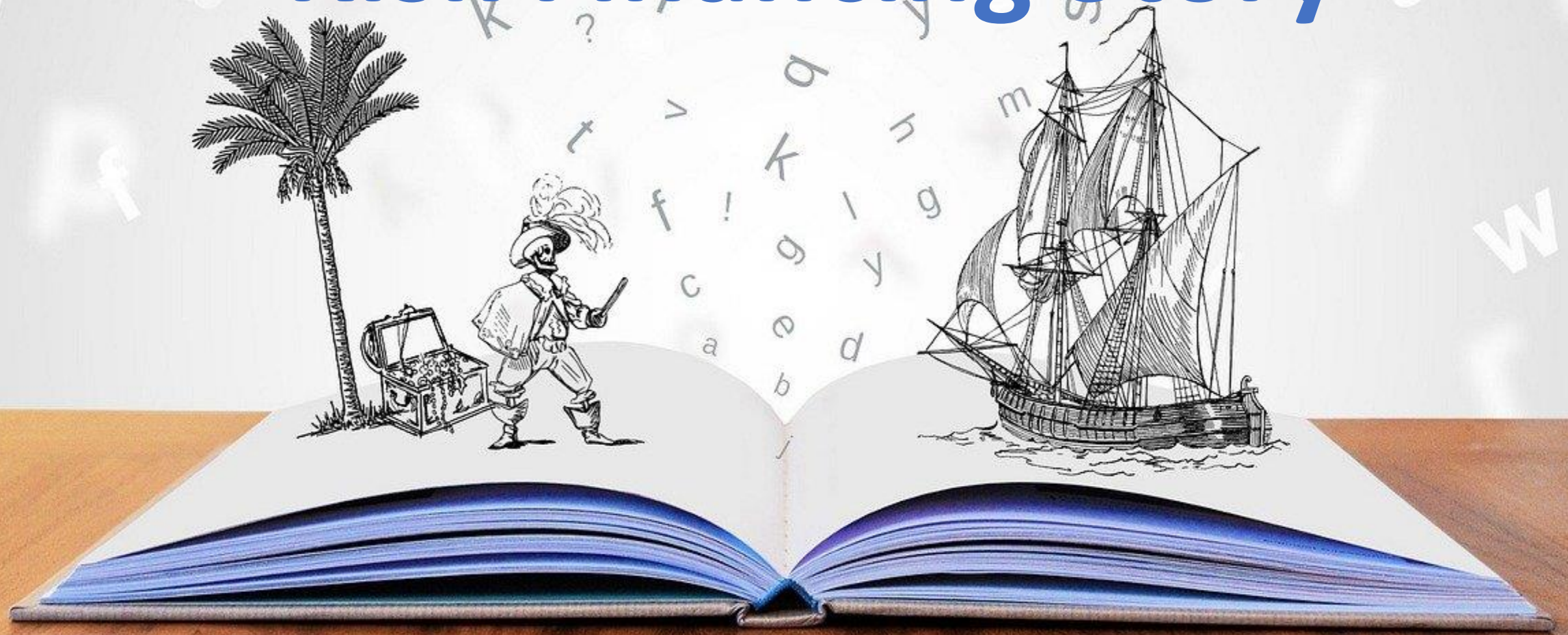
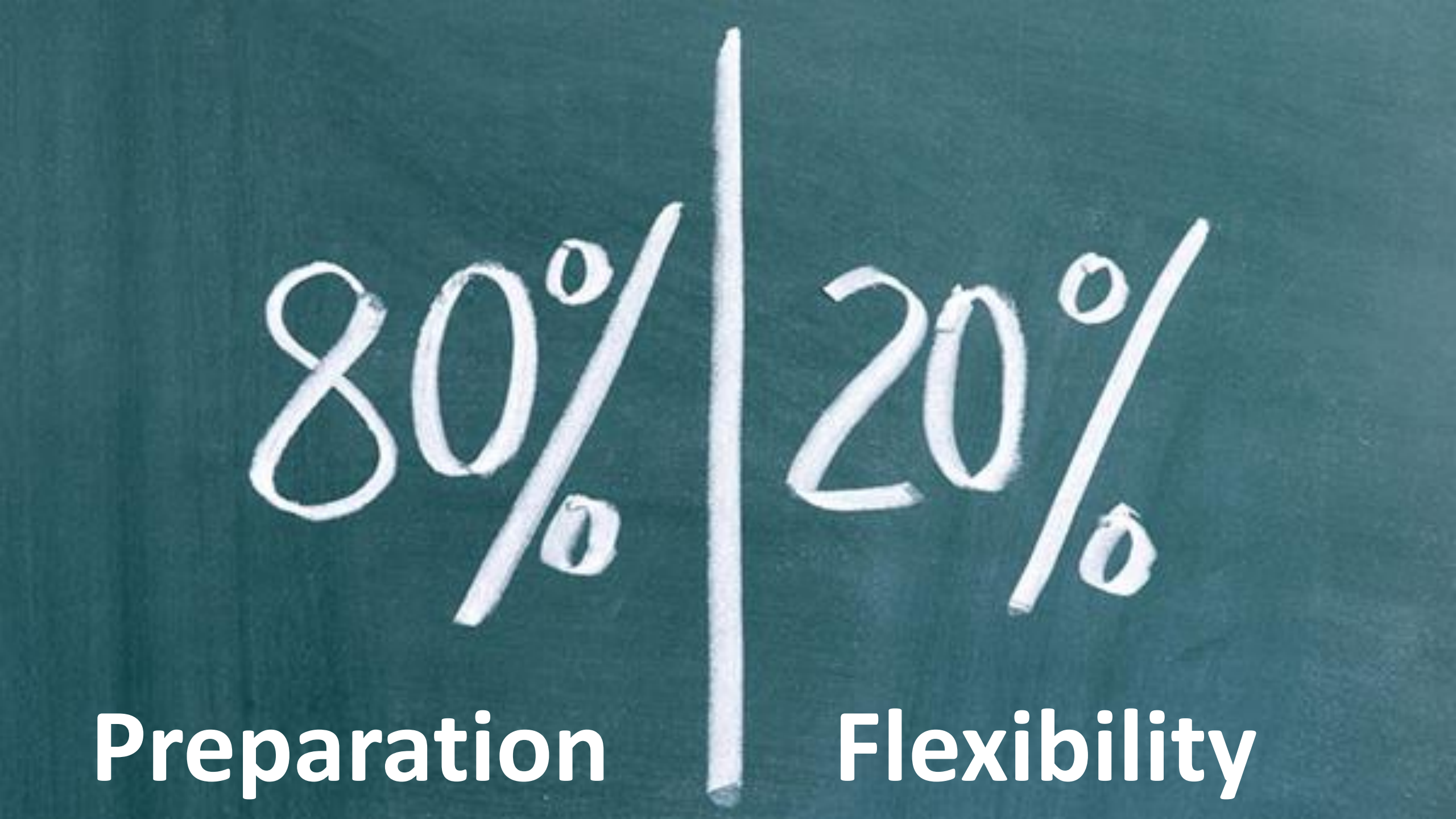
Telling your Risk Financing Story



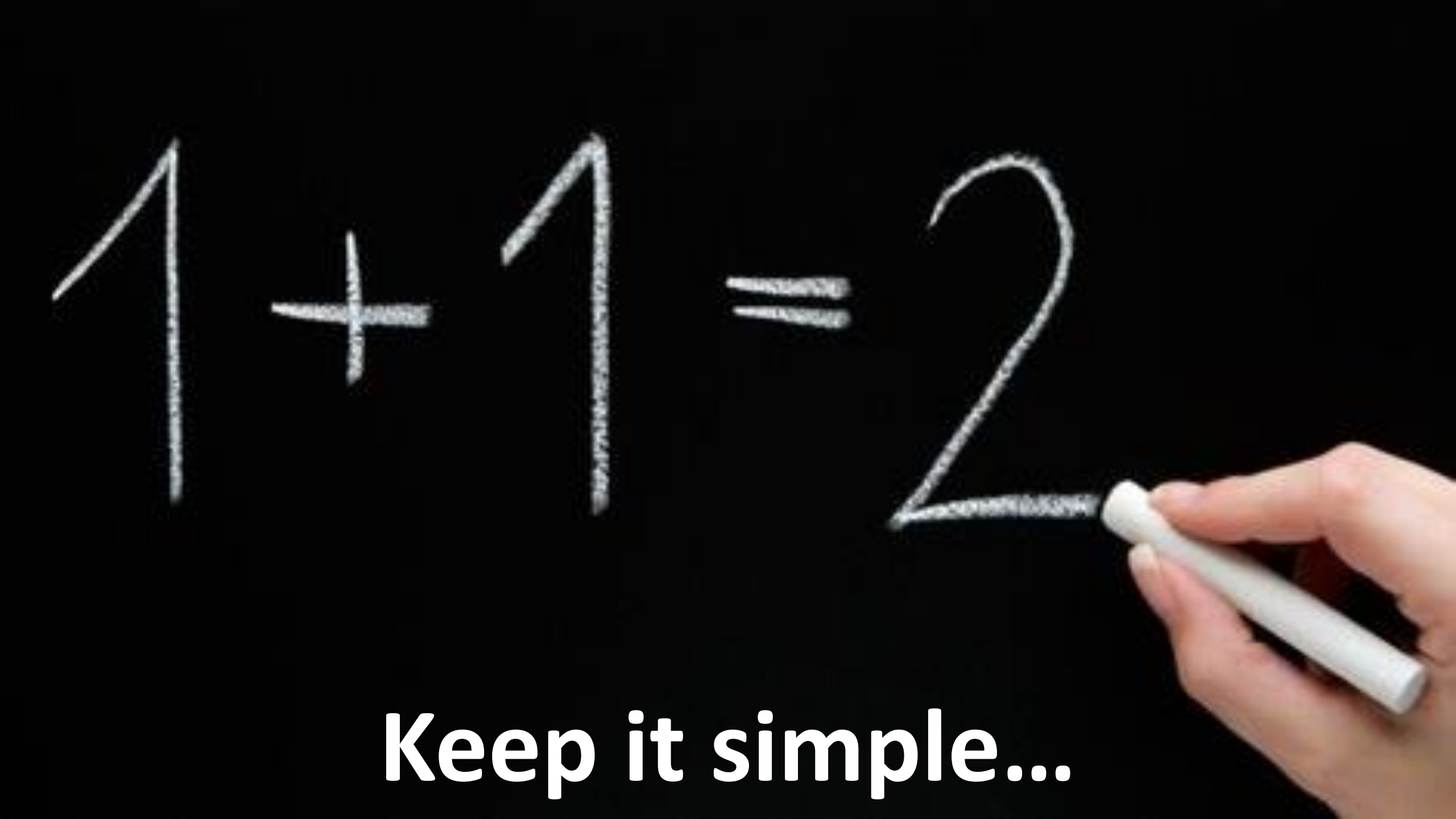
Kaavya Ashok Krishna

Use what you know…

Create a shared experience…


80%
20%
Preparation
Flexibility

Be clear and concise…



Keep it simple…

Storytelling = Storylistening…

BREAK

WELCOME BACK

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- **Data Need for Public Asset Insurance, hosted by Benedikt Signer**
- **SEADRIF Company + Flood Monitoring, hosted by Cathy Ansell**
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