Development of SMART Area-BCM Planning Tool Based on Flood Monitoring, Prediction and Business Impact Assessment

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Background

The 2011 Thailand floods highlighted critical vulnerabilities in industrial zones and exposed limitations of isolated business continuity approaches. Despite increasing flood risks, integration between hazard assessments and business impact analysis remains insufficient, underscoring the need for comprehensive, area-based industrial resilience planning methodologies and frameworks.

Objectives

The objectives are to (1) Develop SMART Area Business Continuity Management (Area-BCM) planning tool that integrates data from real-time flood monitoring/prediction and business impact analysis, (2) Establish Industrial Resilience Index (IRI) and (3) Build multi-sectoral partnership that support formulation of effective Area-BCM plans to ensure business continuity.

Expectation from a future partner

The expectation from future partners is for multi-sectoral experts to collaborate through a transdisciplinary approach (TDA), aiming to strengthen Area-BCM planning by integrating a range of disciplines, including disaster risk management, civil engineering, business management that supports sustainable business growth.

Seeds and Needs

Research framework

Component 0: Development of Industrial Resilience Index (IRI)
- Develop IRI and conduct survey to assess levels of risk and vulnerability of target industrial zones to understand current state and monitor progress and effectiveness of interventions

Component 1: Development of real-time flood monitoring system
- Develop real-time flood monitoring system that can be jointly monitored by project stakeholders

Component 2: Conduct Flood predictions with AI-enhanced hydrological modeling
- Produce flood predictions and risk maps by AI-enhanced hydrological modeling

Component 3: Development of Business Impact Analysis (BIA) methodology and tools
- Develop BIA methodology that incorporate data from IRI and flood monitoring/prediction
- Develop SMART-BCM tool that can be used and managed by industry and other DRR stakeholders to support Area-BCM planning

Input

Feedback for reassessment

Component 4: Dissimmination and Training on BIA tool and Area-BCM planning
- Conduct training programs and workshops to develop pilot Area-BCM plans based on BIA and online tool
- Review pilot Area-BCM plans in target areas through simulated scenarios.

NIED is experienced in developing a Business Impact Analysis (BIA) methodology and tools, which have previously been applied in industrial zones in Thailand. Building on these experiences, we aim to further develop, in collaboration with experts from relevant sectors, a localized flood observation and forecasting system utilizing new technologies, digital twin-enhanced BIA tools, and methodologies to assess and monitor the resilience levels of industries, with a view to broader application in other regions and countries.