Multi-Hazard Analytics for School Resilience

Project LIGTAS

Learning Institution Geohazard Tracking and Assessment for Safety

Jose Marie Antonio Minoza
Center for AI Research PH
11 JUNE 2025 | UP-PASCN ANNUAL SYMPOSIUM

LIGTAS

Education Center for AI Research
PHILIPPINES

Background

Class Suspensions

Current weather-related class suspensions often lack precision, **creating a challenge in balancing student safety with educational continuity.**

Weather events **affect regions differently**, yet decisions are typically made for entire areas.

HEADLINES

Bad weather class suspension policy to be reviewed

Elizabeth Marcelo - The Philippine Star

November 21, 2024 | 12:00am

0

Department of Education (DepEd) Secretary Sonny Angara on August 13, 2024.

STAR / Ryan Baldemor

MANILA, Philippines — Education Secretary Sonny Angara has ordered a review of the Department of Education (DepEd)'s policy on class suspension during typhoons, saying there must be a balance between ensuring the safety of students and teachers and preventing further increases in the number of school days lost.

Background

Extreme Heat

Extreme heat events are **increasingly disrupting education** in the Philippines, with recent temperature spikes **forcing closures in nearly half of Manila's schools.**

OFFICIAL STATEMENT

ON CLASS SUSPENSIONS AND SHIFTING TO ADM DUE TO HIGH HEAT INDEX, OTHER CALAMITIES

4 April 2024 - In light of the high heat index experienced in different parts of the country, the Department of Education (DepEd) reiterates the provisions of Department Order 037 issued in 2022, which provides guidelines on the cancellation or suspension of classes and work in schools in the event of natural disasters, power outages/power interruptions, and other calamities.

Specifically, DepEd has given the school heads the authority and discretion to suspend the conduct of in-person classes and shift to alternative delivery modes (ADM) in cases of extreme heat and other calamities that may compromise the health and safety of learners, teachers, and non-teaching personnel. This measure was the subject of OASOPS No. 2023-077 issued last 20 April 2023, and OUCT and OUOPS Memorandum dated 28 February 2023 (Implementation of Alternative Delivery Mode (ADM) in All Public Elementary and Secondary Schools).

Given that DepEd sup
in the best interest
assessments for timel
of learners and person

Thank you.

ABS-CBN Halalan 2025 Entertainment News Metro.Style Sports More Traffic 32°C Manila

Weather & Traffic

Heat wave shuts down schools in nearly half of Manila

Agence France-Presse

Published Mar 03, 2025 12:51 PM PHT

LIGTAS (Multi-Hazard Analytics for School Resilience)

To **transform educational resilience** by linking natural hazards with learning outcomes using AI, **enabling targeted interventions,** creating adaptive learning environments that **maintain academic progress despite environmental challenges.**

Learning Institution Geohazard Tracking and Assessment for Safety (LIGTAS)

Operations | Disaster Risk Reduction and Management Service

DepED DEPARTMENT OF EDUCATION
ecair Education Center for AI Research PHILIPPINES

Framework

Probabilistic AI Network

via Bayesian Network

Interventions

(e.g. Alternative Delivery Modes,
Strategy and Preparedness Measures)

Data Source: BEIS

Learning Outcomes

Effect on Student's Performance
(e.g. Reading Proficiency)

Data Source: CRLA

Resources

(e.g. Number of Classrooms,
Facilities, Electricity)

Data Source: BEIS and NSBI

Framework

Probabilistic AI Network

via Bayesian Network

Interventions

(e.g. Alternative Delivery Modes,
Strategy and Preparedness Measures)

Data Source: BEIS

interrupts learning days

Natural Hazards

as External Factors
(e.g. Volcanic Activity,
Landslide, Flood)

Learning Outcomes

Effect on Student's Performance
(e.g. Reading Proficiency)

Data Source: CRLA

destroy
learning environment

Resources

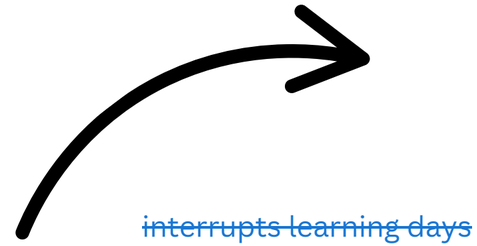
(e.g. Number of Classrooms,
Facilities, Electricity)

Data Source: BEIS and NSBI

Framework

Probabilistic AI Network

via Bayesian Network



~~interrupts learning days~~

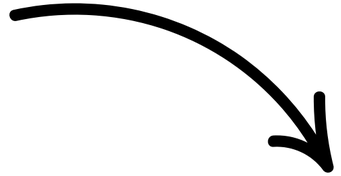
Natural Hazards

as External Factors
(e.g. Volcanic Activity,
Landslide, Flood)

~~destroy~~
~~learning environment~~

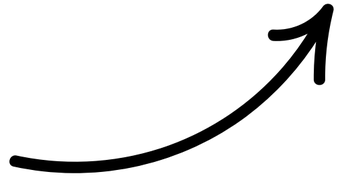
Interventions

Proactive Strategies



Learning Outcomes

Reduce the Effect of Disaster/s



Resources

Equipped with Better Learning
Environment

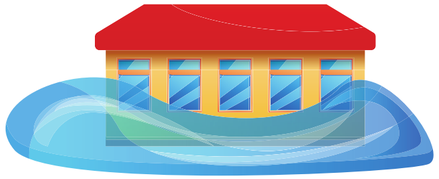
Earth Observation Datasets

Copernicus

sentinel-2

ECMWF

Geological Hazards



Hydrological Hazards

Meteorological Hazards

DepED DEPARTMENT OF EDUCATION
ecair Education Center for AI Research PHILIPPINES

Reading Proficiency and Flood Risks

Red Zones

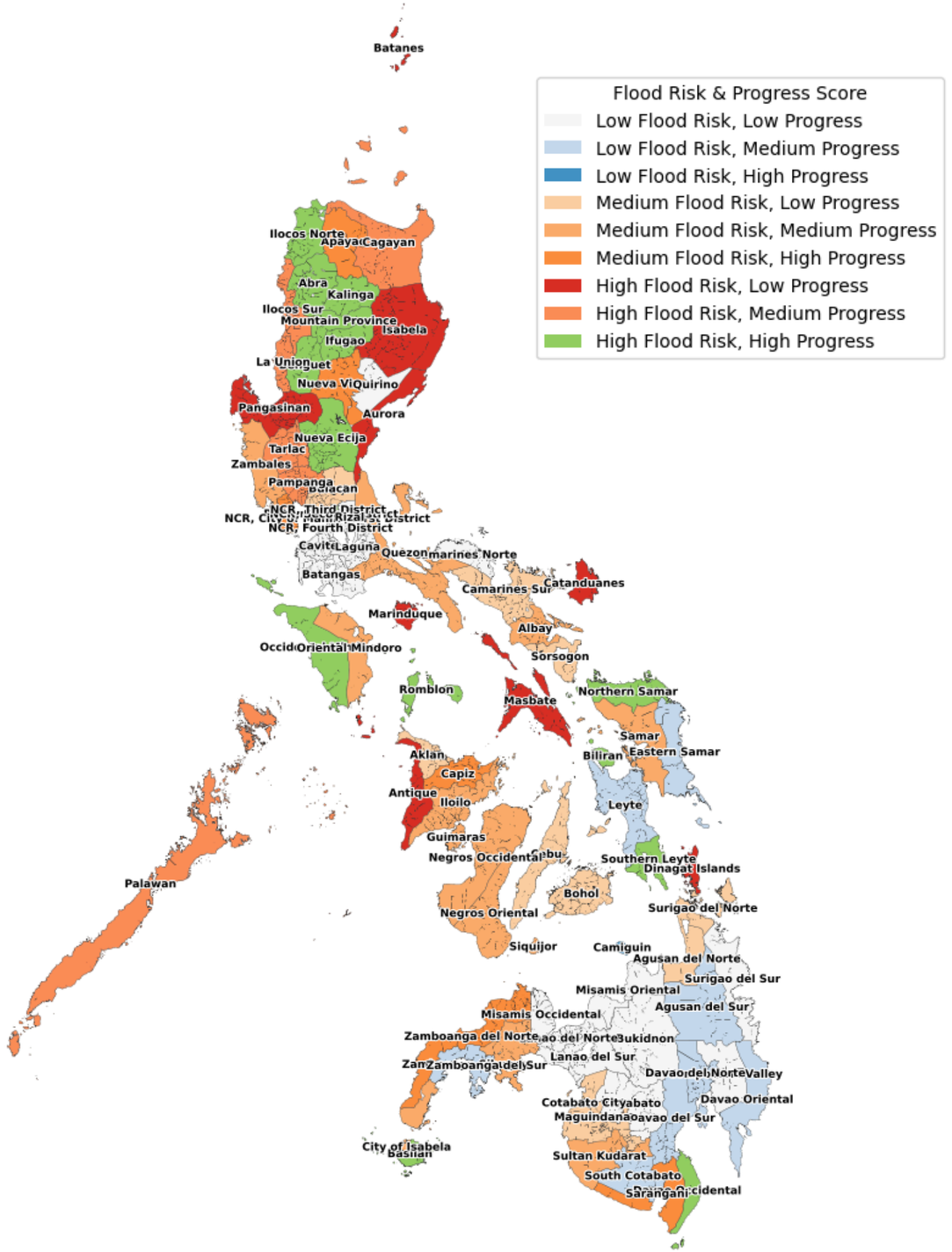
High Flood Risk + Low Reading Proficiency

Priority Status: Immediate intervention required
Infrastructure Gap: Critical vulnerability in educational facilities

Green Zones

High Flood Risk + High Reading Proficiency

Success Models: Educational resilience despite hazards
Learning Opportunity: Successful educational continuity strategies



Multi-Hazard Analytics for School Resilience

Project LIGTAS

Learning Institution Geohazard Tracking and Assessment for Safety

Jose Marie Antonio Minoza, MSc
Center for AI Research PH
11 JUNE 2025