Empowering Developing Member Countries in Asia to Use Earth Observation Data for Disaster Risk Reduction

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Objectives

- Enhancing the capacity of the Asian Development Bank's developing member countries (DMCs) to utilize Earth Observation (EO) data for disaster risk reduction.
- Capacity building to enhance the skills of technical personnel from Developing Member Countries (DMCs) to process satellite imagery.
- Provide hands-on experience in running algorithms and models in a cloud environment.
- Research to support DMCs in planning infrastructure projects by analyzing earth observation dataset

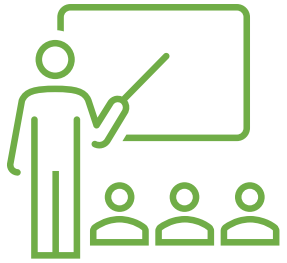
Implementation Overview

Step 1: Support Operationalization of Cloud Infrastructure

Identify the existing algorithms.

Tailor satellite processing algorithms to DMC needs (e.g., flood mapping).

Provide technical support.



Step 2: Support Capacity Building of DMCs

Conduct stakeholder training with ADB.

Utilize WASDI Flood Suite for disaster risk reduction.

Support country-specific use cases.

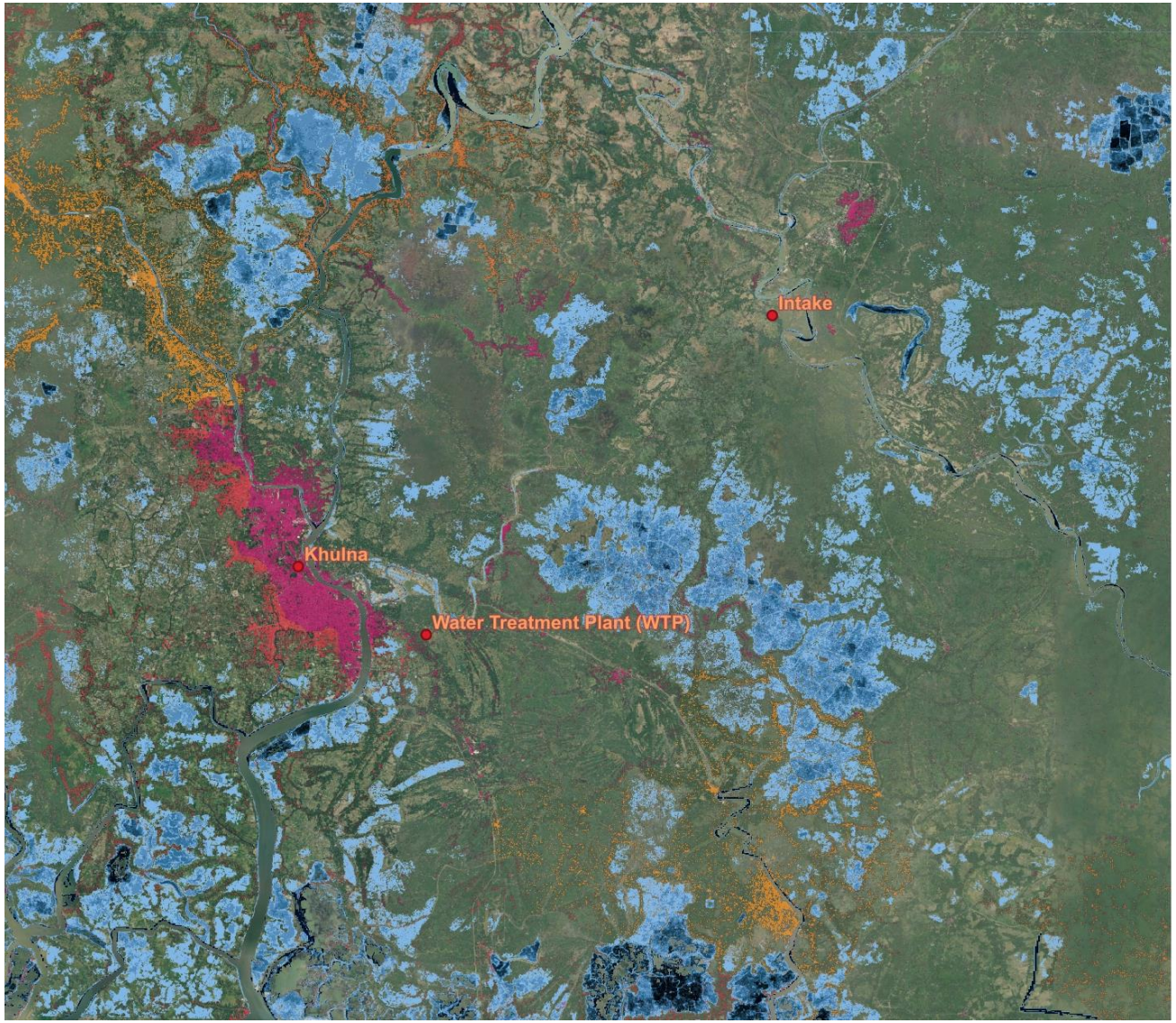
Operationalization

Support Operationalization of Cloud Infrastructure

- **Algorithm Identification:** Understand the existing algorithms within cloud resources.
- **Tool Implementation:** Adapt satellite processing algorithms for specific applications like flood mapping.
- **Technical Support:** Provide technical input to support the applications.

Support Capacity Building of DMCs

- **Stakeholder Identification:** Collaborate with ADB to understand the needs of stakeholders in DMCs.
- **Training Programs:** Conduct training sessions for technology transfer and knowledge building.
- **Tool Introduction:** Present tools and processing algorithms tailored to specific country needs.



Water Frequency Map
(excluding permanent water)

Area:
Khulna, Bangladesh

Period (9 years):
12 Feb 2015 to 25 Feb 2024

Algorithm used:
e-DRIFT Flood Archive Generator in WASDI

Image Source:
Sentinel -1
JRC Global Surface Water

Population Density (Meta 2020)
- <= 5.5
- 5.5 - 7.5
- 7.5 - 13.5
- > 13.5

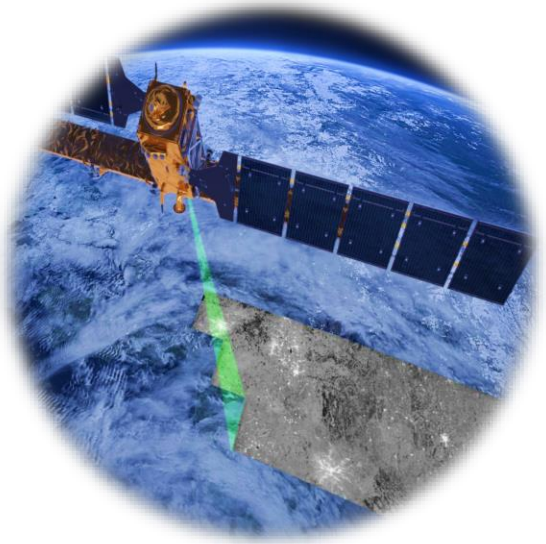
Flood Frequency
- 10 - 25
- 25 - 40
- 40 - 55
- 55 - 70
- 70 - 75
- 75 - 85
- 85 - 100
- 100 - 120
- > 120

Esri Satellite

(Sample Result) Flood Frequency Map for Khulna, Bangladesh

The flood frequency map was produced using Sentinel-1 Synthetic Aperture Radar (SAR) imagery for the period of 9-years starting from 2015. The dataset was processed in WASDI using e-DRIFT Flood Archive and Flood Frequency Map Generator applications.

The product is useful to identify potential reservoir site, as a case study to support ADB investment in Khulna Water Supply Project in Bangladesh.



Summary

Cloud Environment Support

Disaster Risk Reduction: Pre- and post-disaster scenarios using WASDI based on needs.

Capacity Building: GIC-AIT will deliver training on utilizing EO with WASDI applications.

Applications within the Cloud Environment

e-DRIFT Automatic S1-S2 Floods

e-DRIFT Flood Archive Generator and Flood Frequency Map Generator

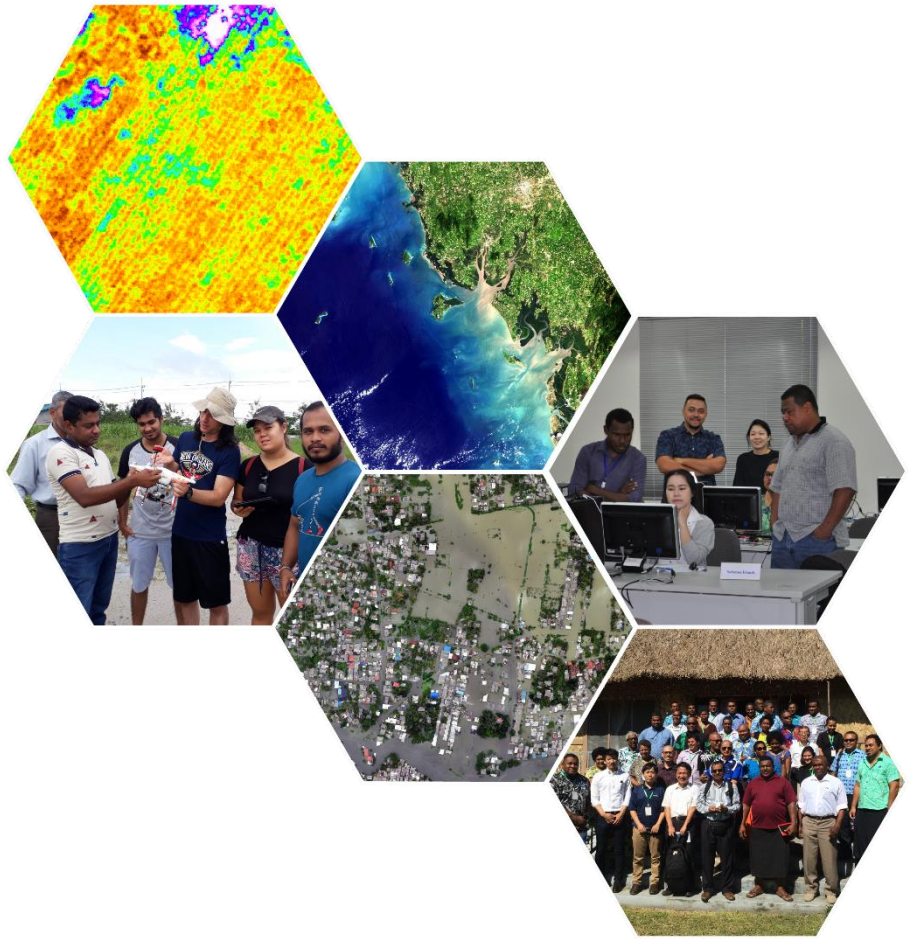
HASARD On Demand

Automatic AUTOWADE

Outcomes

Technical support to DMC-specific use cases.

Enhanced the stakeholder capacity of DMC.



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GIC