Seizing the Opportunities in Asia and the Pacific: Bridging the Science and Digital Innovation Divide through AIGeo Use Cases for Disaster Risk Reduction

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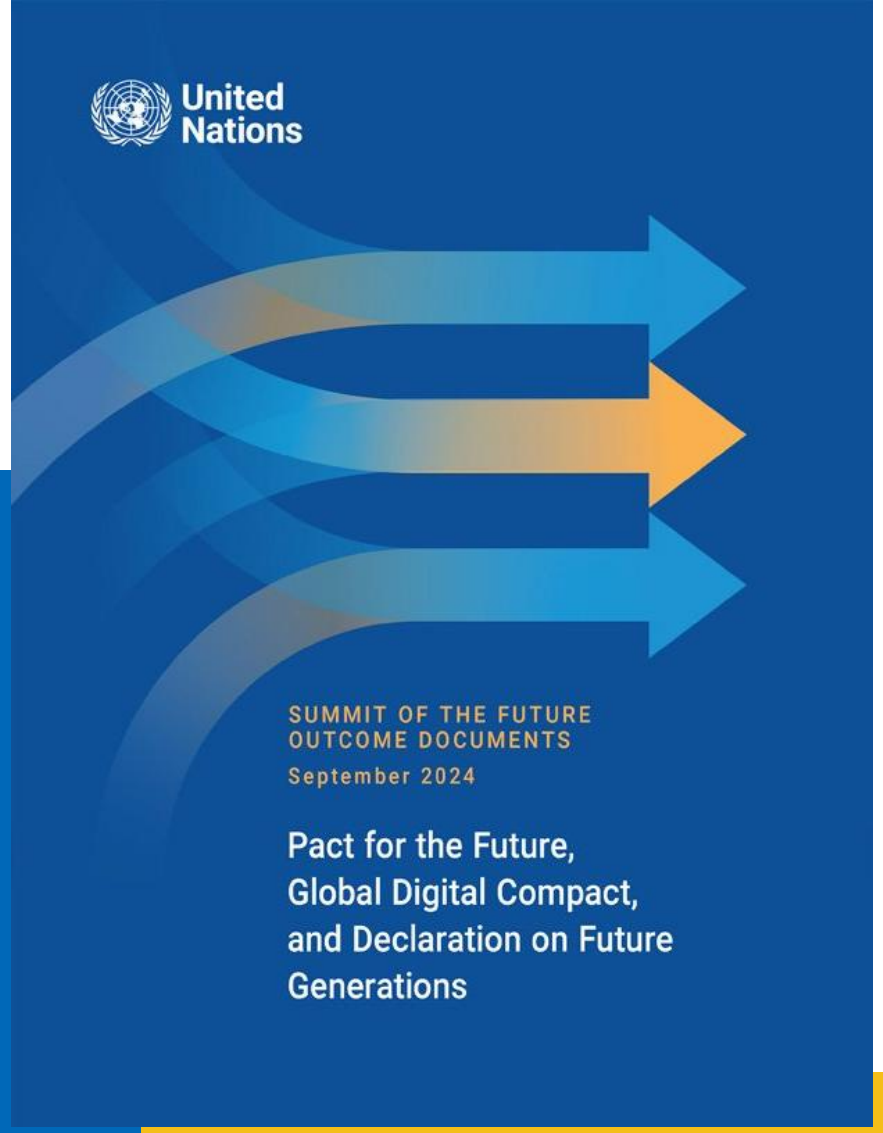

AI and SDGs

Mandates at the Global Level

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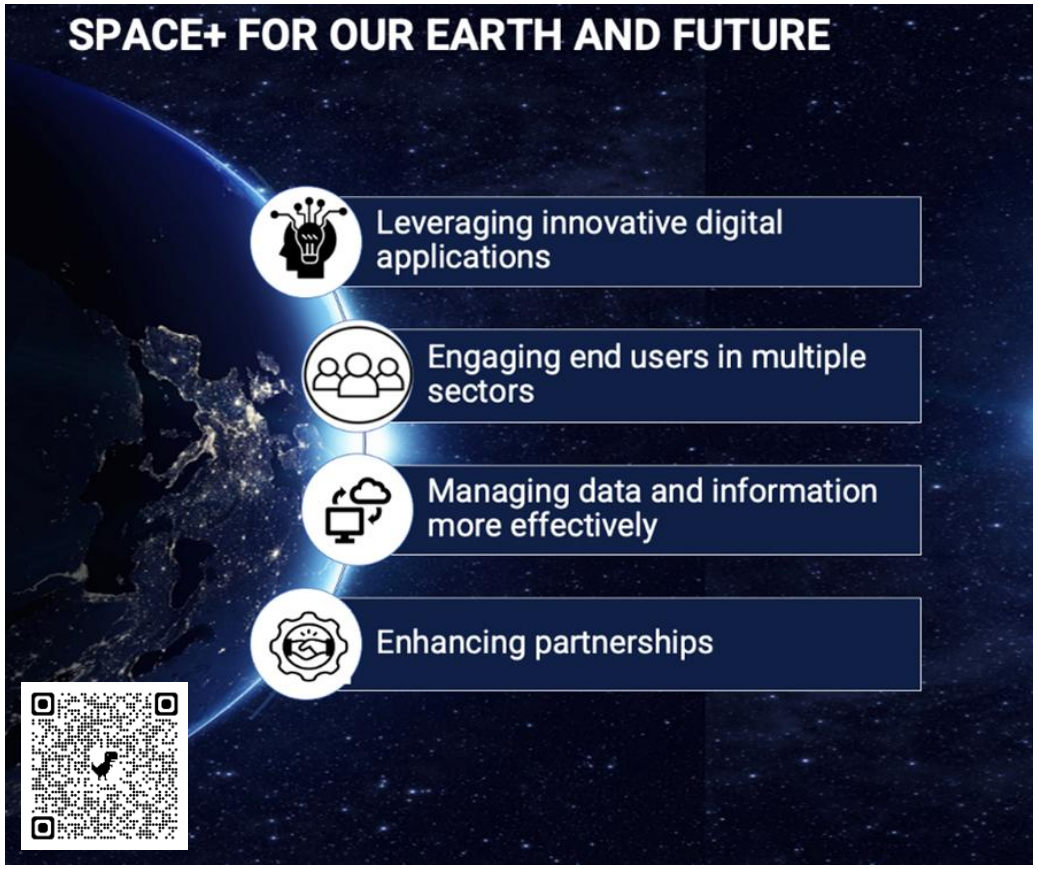
- In the Pact for the Future (Annex on **Global Digital Compact)**, AI is recognized as a transformative tool capable of accelerating progress toward the Sustainable Development Goals (SDGs).
- The **Declaration on Future Generations**, underscores the transformative potential of AI in achieving the SDGs.
- UN Resolution (A/RES/78/265): Seizing the opportunities of **safe, secure and trustworthy** artificial intelligence systems for sustainable development.
- UN Resolution (A/RES/78/311): Enhancing international cooperation on **capacity-building of artificial intelligence**.



Mandates at the Regional Level

The Fourth Ministerial Conference on Space Applications for Sustainable Development in Asia and the Pacific

Supporting Countries by Leveraging AI and Digital Innovations in Geospatial Applications

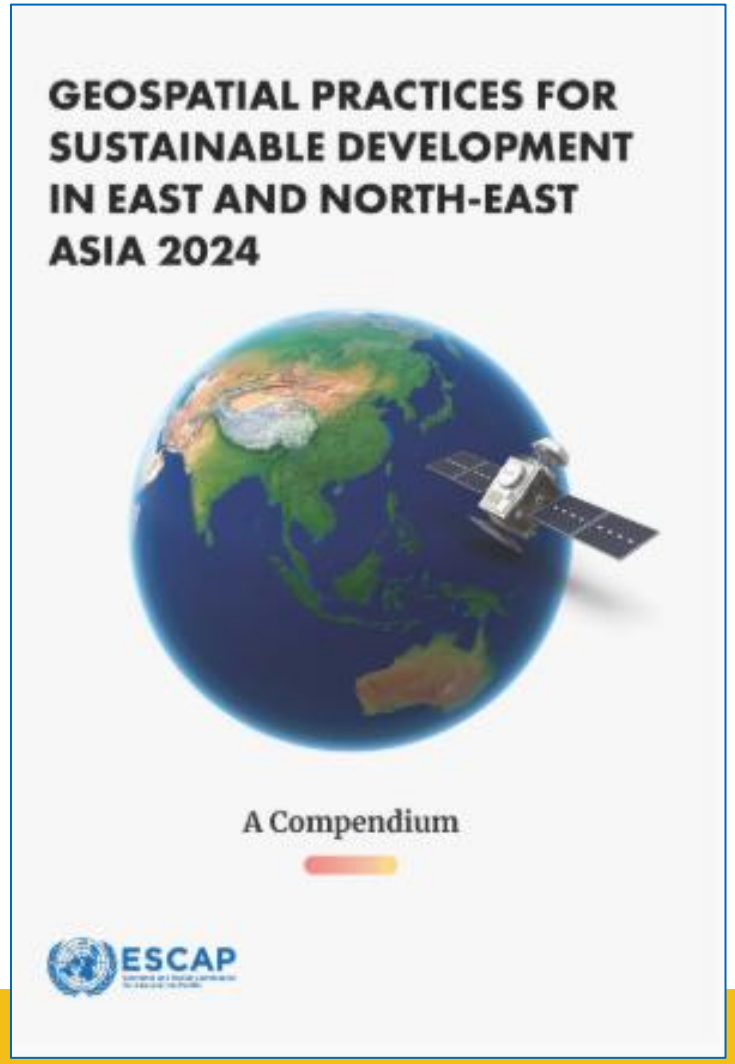
Enhancing Regional Cooperation in Digital Innovations for the SDGs

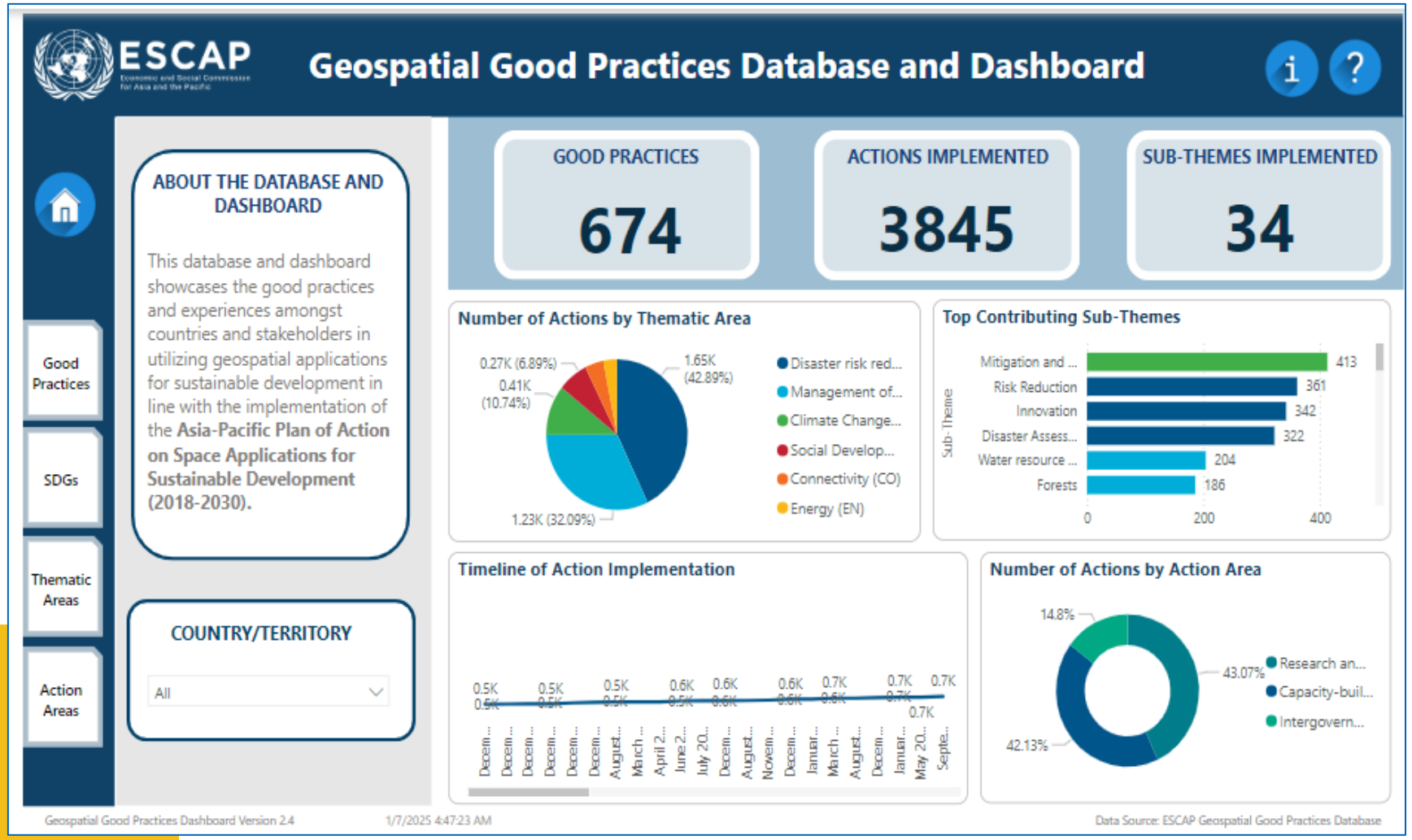
Mandates at the Regional Level

Theme topic of the 80th Session of the Commission

Resolution 80/1. Leveraging digital innovation for sustainable development in Asia and the Pacific

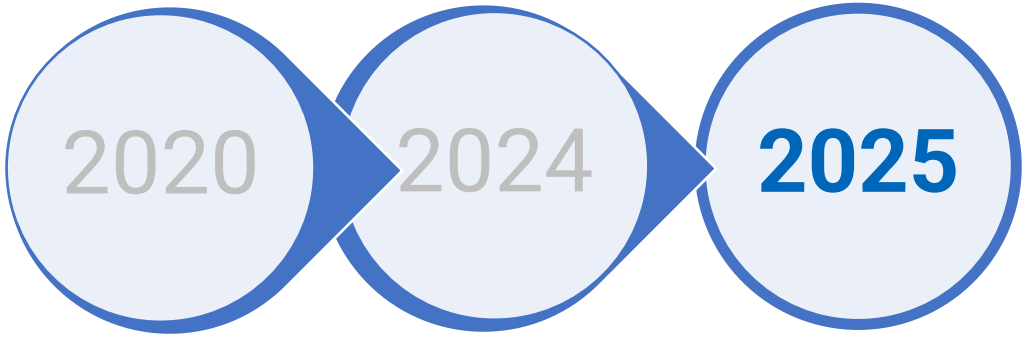
Actions Taken





Explore more

How did SatGPT evolve?



SatGPT: a **web-based quantitative tool** that allows a user to *spatially map any flood event* from **1984 to present** in near-real time, using cloud computing, big Earth data and large language models

- **Google Earth Engine** is used as the cloud computing platform

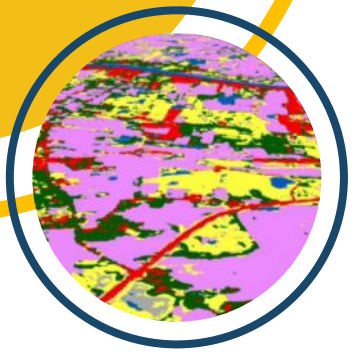
- Access to **a massive data catalog of Earth observation data**

- **Large language models generate the code** to *process data in less than* **1 minute to** *generate a* **single flood map**

SatGPT for Flood Hotspot Mapping

- Flooding has affected **over 3 billion people** and caused over $**900 billion in losses** in the past 30 years in the **Asia and the Pacific**.
- **SatGPT is a flood mapping expert accessible to every user in the region.**

Historical flood maps in less than 1 minute at a minimal cost



SATGPT

How SatGPT Works

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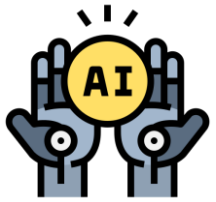


Ethical AI

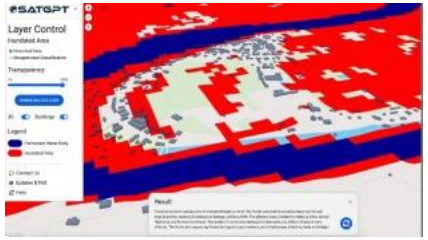
Participatory AI Modelling

End User

Customized UI

ChatGPT Query to Generate Code

Computing on GEE



Infrastructure

SATGPT

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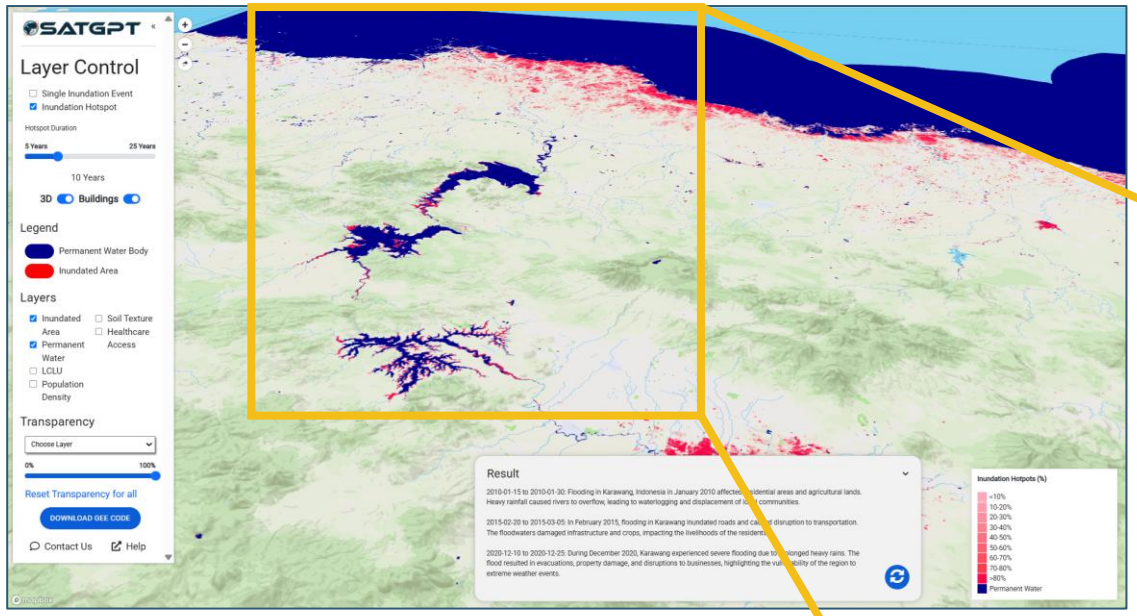
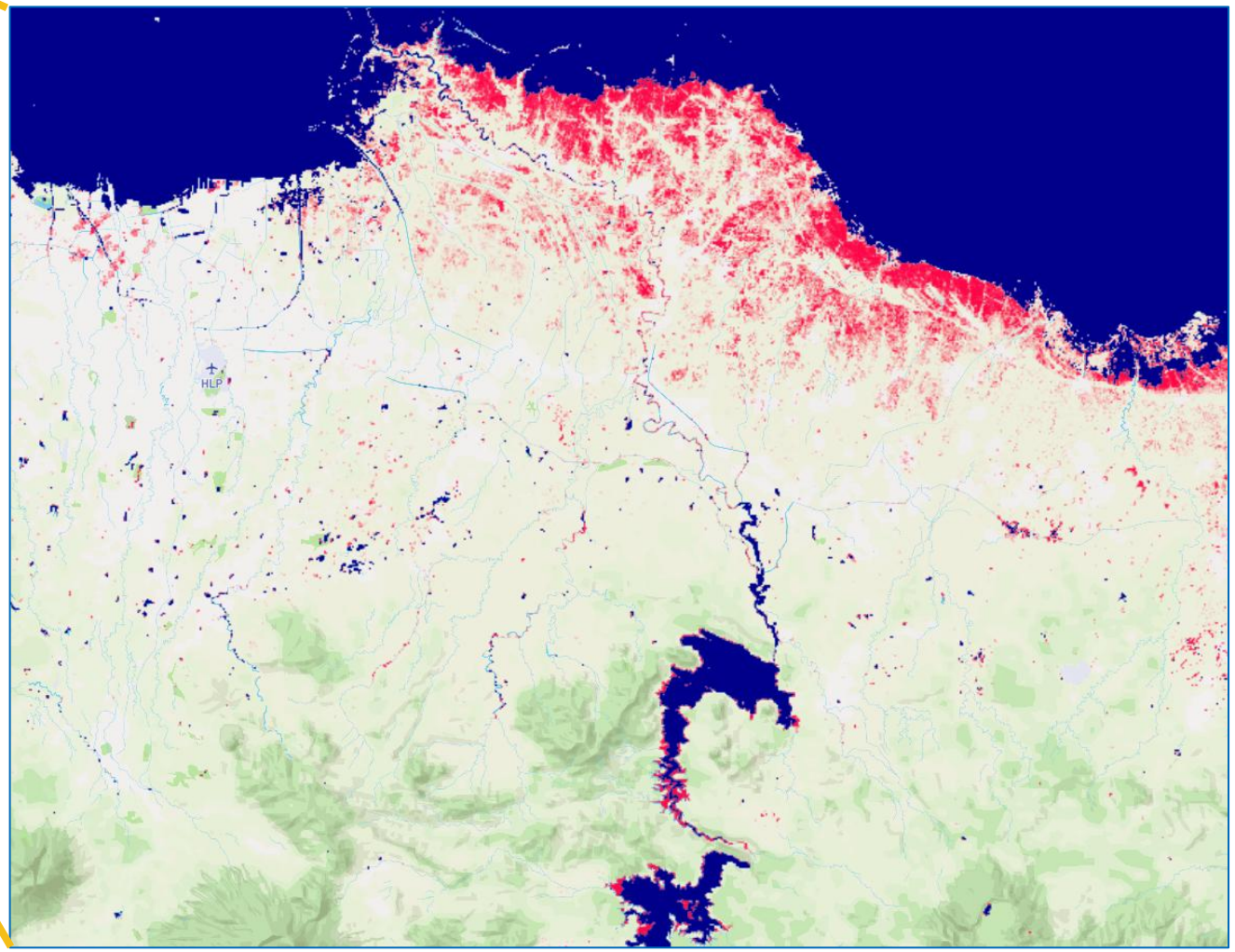
SatGPT Interface



"Map the flooding in Karawang, Indonesia from 2010 to 2020"



Finalist
2024 ITU SDG Digital GameChangers Awards

SDG Digital

ITU

UNDP

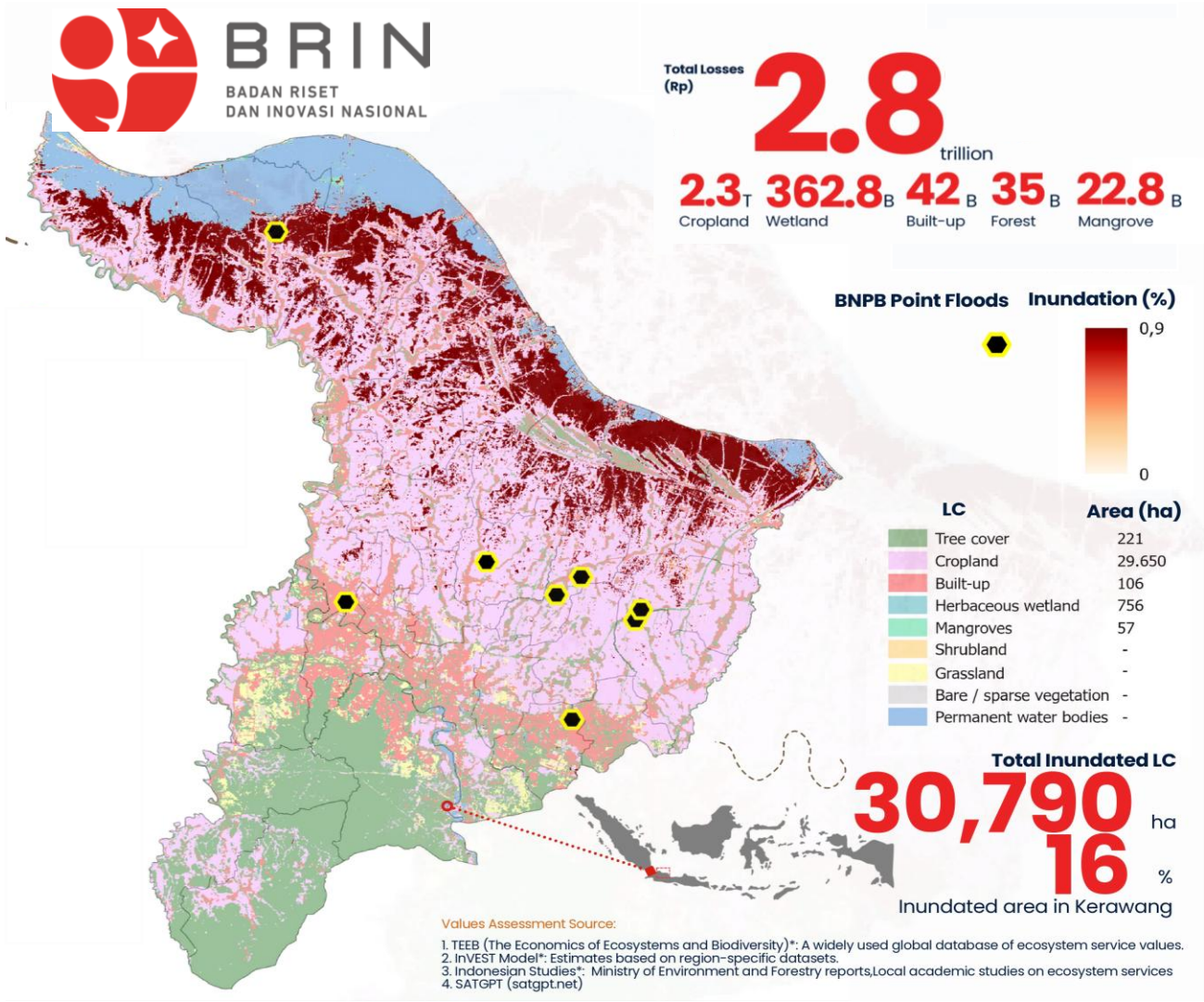
SatGPT Use Case

Country's practice: SatGPT analysis with socioeconomic data for estimating economic losses in Indonesia.

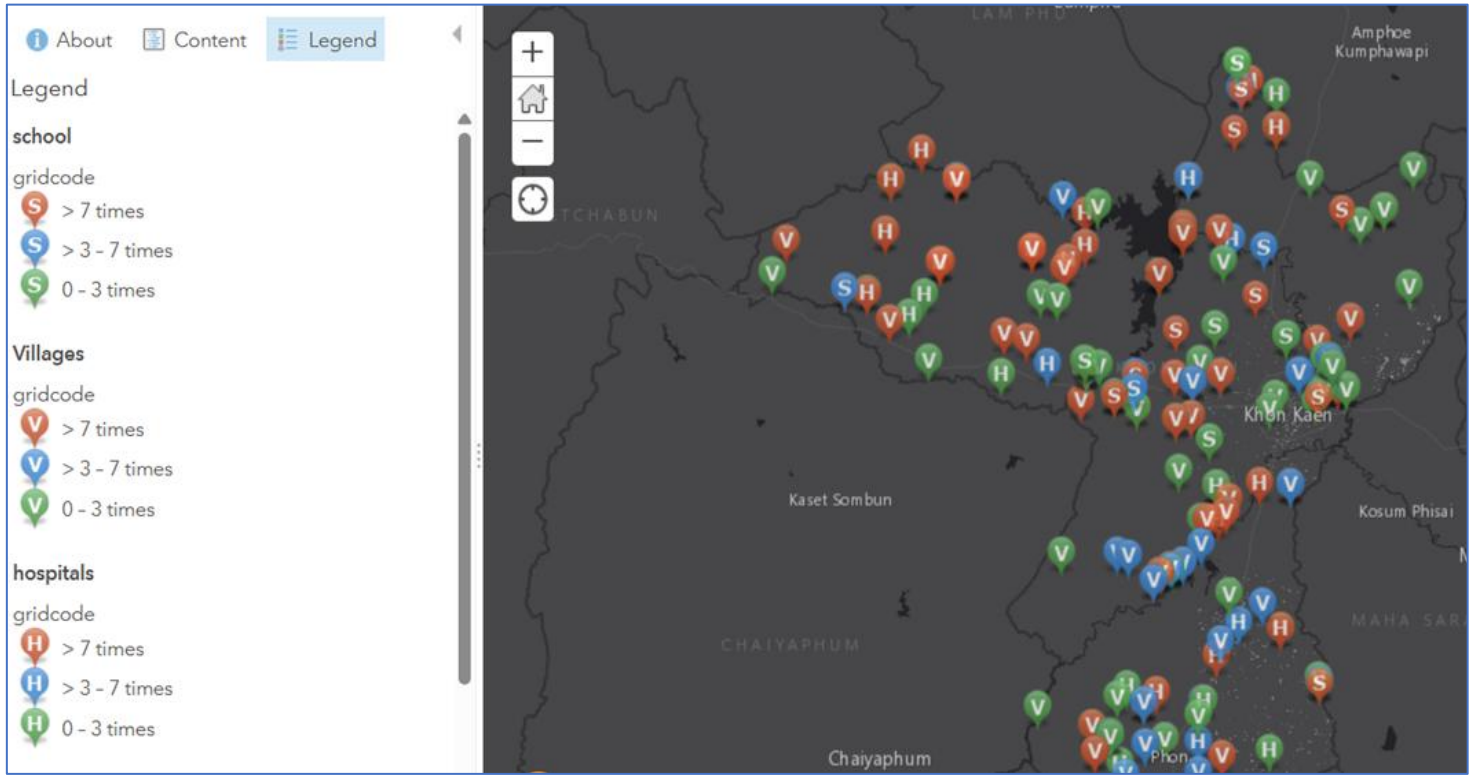
2024 Best Paper Award of the IEEE Aerospace & Electronics Systems and Geoscience and Remote Sensing Joint Chapter

0.1109/AGERS65212.2024.10932922

Flood Impact Analysis: Karawang, Indonesia



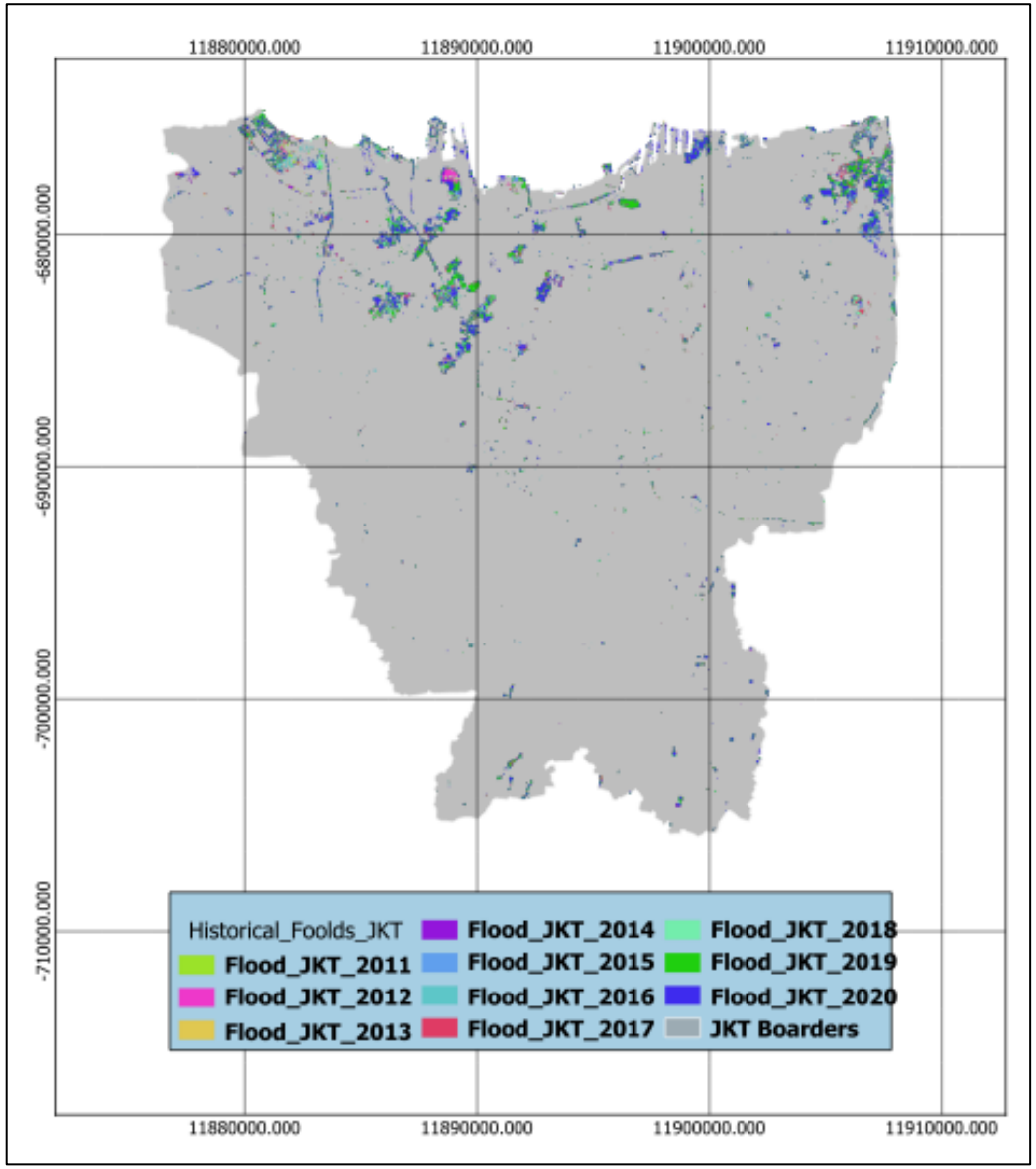
SatGPT Use Case



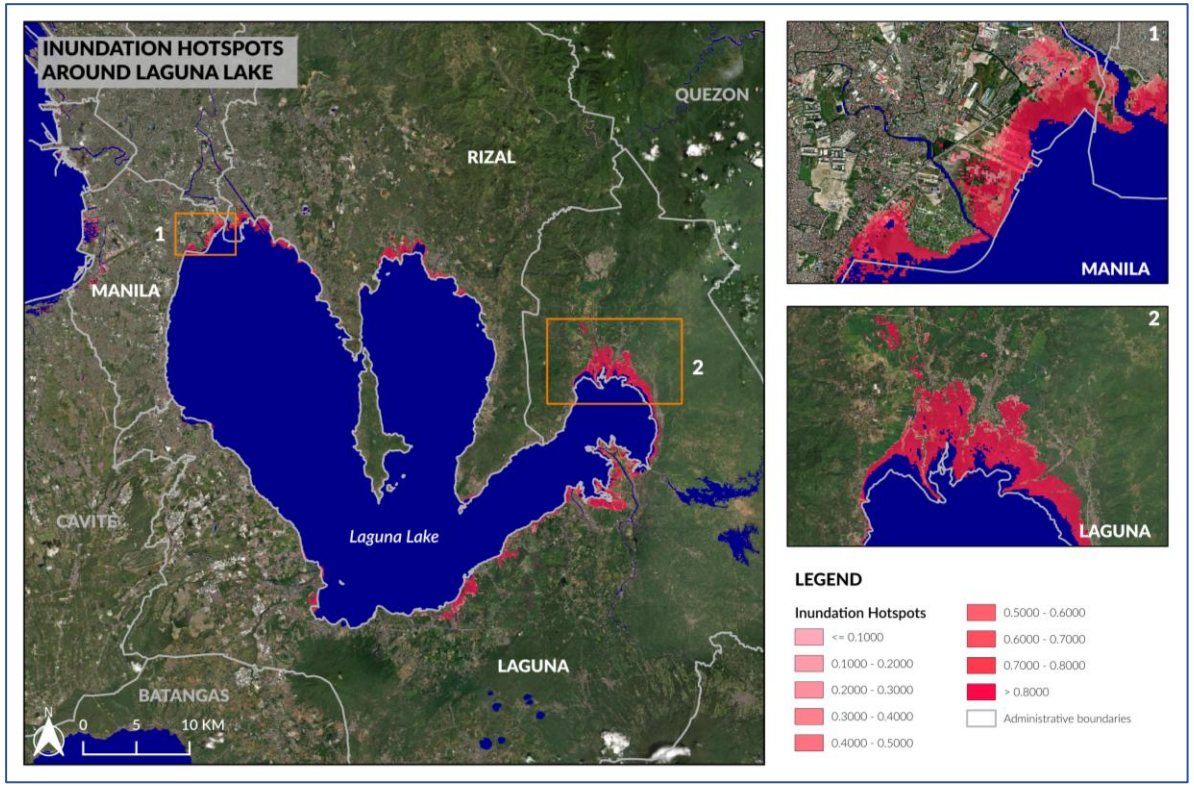
▲ SatGPT inundation hotspot data can help in **identifying villages, schools, and critical infrastructure that can support disaster preparedness and recovery**.

Urban Flooding: Khon Kaen, Thailand and Jakarta, Indonesia

► **SatGPT can help map annual historical flooding and determine its relationship with weather related events**. It also allows the identification of healthcare facilities that are frequently affected by floods.

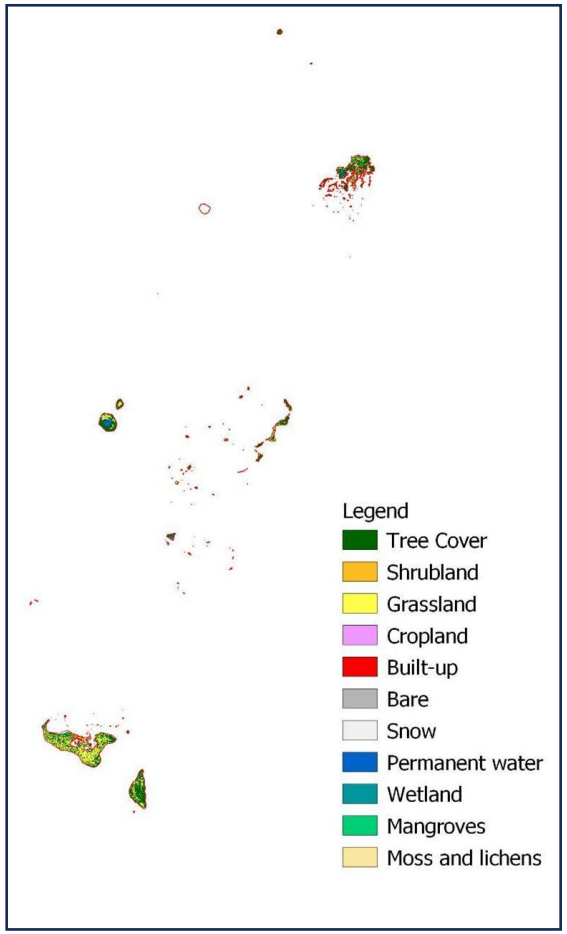


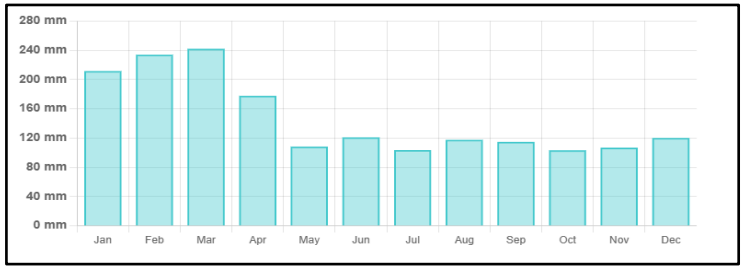
SatGPT Use Case



▲ Mapping inundation hotspots around **Laguna Lake (2010–2020)** with SatGPT **helps inform spatial planning and infrastructure development.**

Effect of Flooding in Land Use and Land Cover: Laguna Lake, Philippines and Tonga





▲ Using the inundation hotspot generated by SatGPT, **the impact of heavy rainfall events in poorly drained lowland and urban areas can be determined.**

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What is next?

Map hotspots across a range of disasters

Develop SatGPT for forest fires, coastal ecosystem monitoring (mangroves, sea level rise), crop, and urban areas

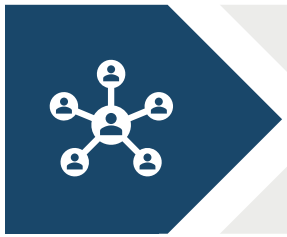
Training and Validation

Conduct training and country-level validation on AI applications in geospatial analytics, with a specific emphasis on SatGPT

Partnerships and Collaborations

Strengthen partnerships in UN system, interested research entities, policy think tanks with objective of enabling integration of AI solutions, particularly SatGPT, into existing systems for disaster risk management and resource monitoring

Engage the Youth



Inspire the youth through knowledge exchanges to promote the independent usage of SatGPT


Drawing from various United Nations documents

Thank you

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