

GNSS APPLICATION FOR JAKARTA FLASH FLOOD EARLY WARNING SYSTEM

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Research and Publication: Climatically Responsive Urban Configuration, Urban Energy, IT Development and Application in Urban Spatial Analysis, Publica Policy and Strategic Global Studies, Green architecture and Urban Development



Center for Spatial Data & Analysis (CSDA) & GNSS Webinar Series
 "GNSS Applications for Academics, Commercial and Policy Makers"

DAY 1
 Wednesday, September 16, 2022
 13:00 - 16:00 (Western Indonesian Time)

Keynote:
 Prof. Dr. rer. nat. Abdul Haris
 Vice-Minister of IT for Research and Innovation

Chair:
 Mr. Sateesh Kogure
 Japan Space Program, Cabinet Office "Introduction to GNSS and ERS"

Panelists:
 Prof. Dinesh Mananahar
 CSDA, The University of Tokyo "Introduction to GNSS for Engineers"

Panelist:
 Mr. Sateesh Kogure
 Japan Space Program, Cabinet Office "Introduction to GNSS and ERS"

Panelist:
 Prof. Nishiki Kaku
 Tokyo University of Marine Science and Technology (TUMSAT), "GNSS Data Collection, Commercialization and Innovation: GNSS 2.0 & Beyond"

Panelist:
 Prof. Ryosuke Shibasaki
 CSIS, The University of Tokyo

Panelist:
 Dr. Gatot H. Prasno
 Geospatial Information Agency (Badan Informasi Geospasial) "Policy and Service of the CSIS"

Registration:
 Registration: <http://bit.ly/CSDAWebinar4>

Our Supporters:
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Live On: YouTube

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Center for Spatial Data & Analysis (CSDA) Webinar Series 4
 School of Strategy & Global Studies, Universitas Indonesia (CSGI-U)
 in Collaboration with UCSI University and The University of Tokyo

Information Technology and Innovation in Facing Strategic and Global Challenges: Three Countries Perspectives

Keynote Speakers:
 Prof. Dr. Arif Kusuma, S.E., M.M., Ph.D.
 Director of Strategy & Global Studies, Universitas Indonesia (CSGI-U)

Panelists:
 Prof. Dr. Lin Yola
 Director of Strategy & Global Studies, Universitas Indonesia (CSGI-U)

Panelist:
 Mr. Sateesh Kogure
 Japan Space Program, Cabinet Office "Introduction to GNSS and ERS"

Panelist:
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 Tokyo University of Marine Science and Technology (TUMSAT), "GNSS Data Collection, Commercialization and Innovation: GNSS 2.0 & Beyond"

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CSIS TUMSAT

SGS UI HYBRID GNSS WEBINAR & TRAINING 2022
 "GNSS APPLICATIONS FOR URBAN ENVIRONMENT"
 18th and 19th March 2022

Registration:
 DAY 1 - WEBINAR SERIES 7
 GNSS APPLICATION FOR URBAN ENVIRONMENT
 Discussion on concept of GNSS application for field of Urban Urban, Academic, Scientific, Research, Engineers, and Decision Makers

Important Dates:
 REGISTRATION: 18th - 19th March 2022
 EVENT DAY 1: Friday, 18th March 2022 (18:00-18:30)
 EVENT DAY 2: Saturday, 19th March 2022 (08:00-12:00)
 (Western Indonesian Time)

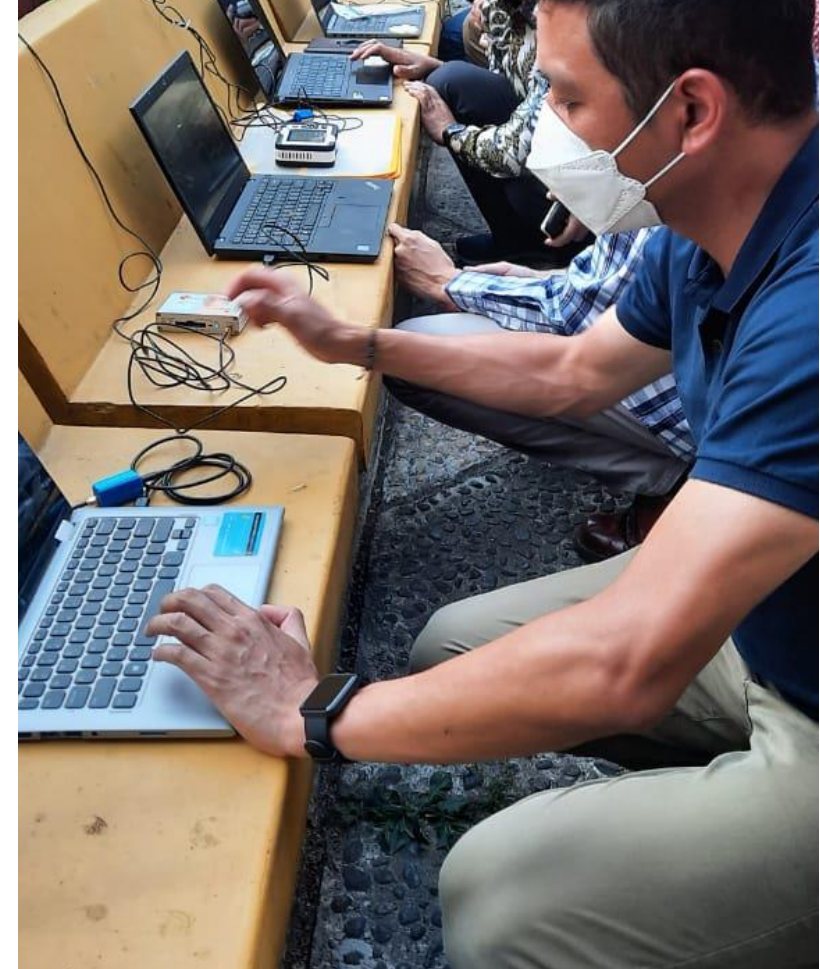


Recording... LIVE on YouTube

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Participants:
 CSDA Chairm..., CSDA Commi..., Honorable Minis..., Yudhi Firman..., Director_GEO..., Ahmad Daud..., UCSI-Prof Ah..., UCSI Special..., Director ICSD..., Dr Hendricus..., CSIS, Univers..., Honorable M..., Asyil A-Dinas..., Rudy P Tamb..., Ratihawalin..., Honorable Datuk..., Gita Sri Andini..., UCSI - Ian Pra..., CSDA MC - Siti N..., MOSTI - Syaz..., Muhajarsyah..., Patrick Keyin..., deo perdana..., Sharifah NA..., Tajar seliabudi..., Leni Pebrianti..., Ghazi Apta Pr..., Director of SS..., WILDAN..., Sonny Toman..., Vice Director..., DVC_Research..., DVC_Academ..., Nurlaila Ram..., Pustekpim_W..., Tritjondro Bas..., Danni Wasin..., Dr. Lionel De..., Vice-Chancell..., Maudiyah Sal..., DeanFEI@...

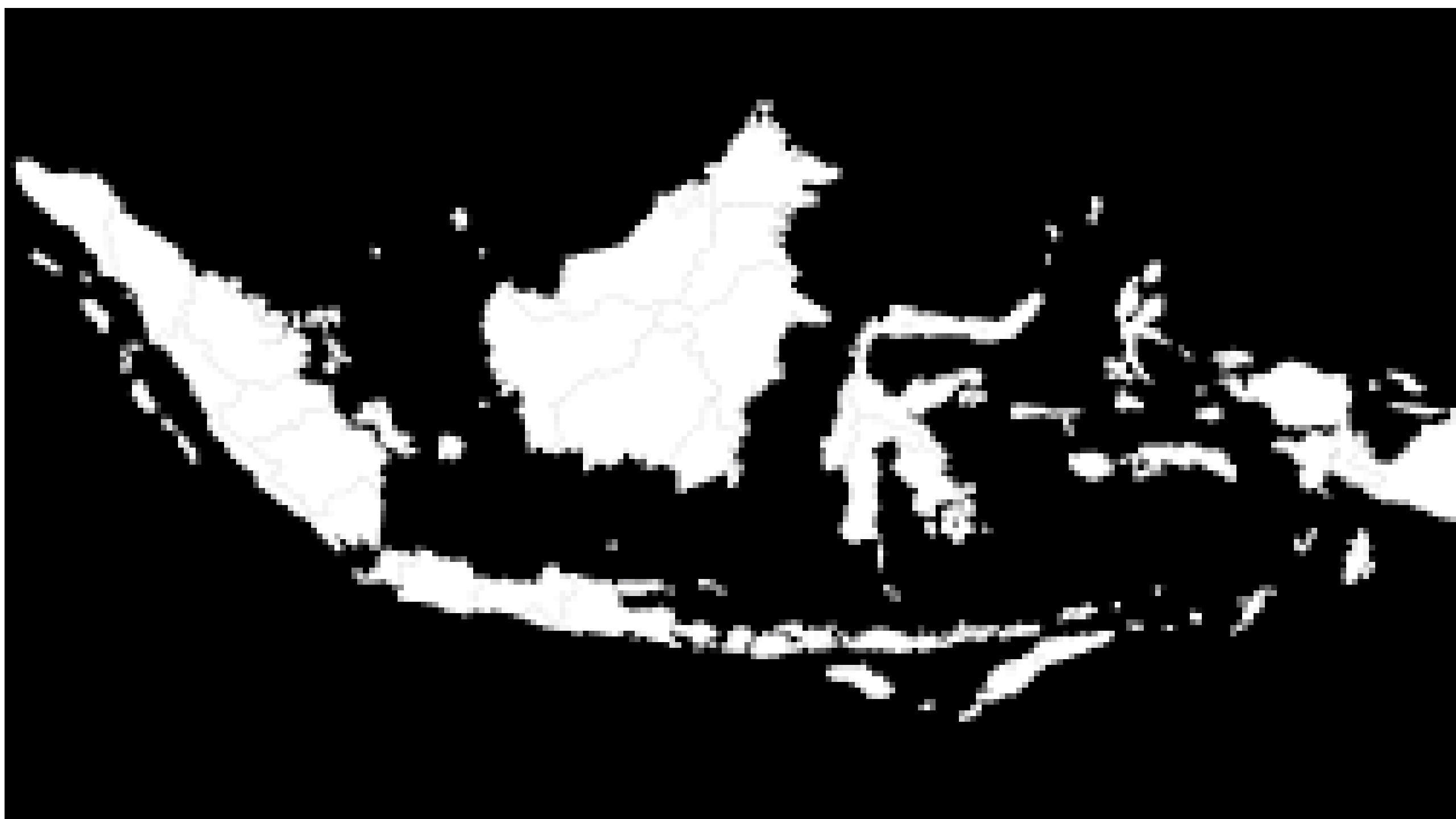
Unmute Stop Video Security Participants Chat Share Screen Pause/Stop Recording Reactions Leave



- GNSS Technology and Application for in Spatial Analysis for Urban Studies Department, SSGS Universitas Indonesia
- Collaboration with Innovations, Technology and Social Change Research Cluster; urban traffic study, air pollution study, water transportation system, urban development and emission increase, toll and non toll navigation study, etc
- International Training Using Global Navigation Satellite System For Spatial Education and Research at SSGS Universitas Indonesia . 18 December 2021 <https://sksg.ui.ac.id/training-using-global-navigation-satellite-system-for-spatial-education-and-research/>
- LAUNCHING OF CENTER FOR SPATIAL DATA AND ANALYSIS (CSDA) & INTERNATIONAL GNSS WEBINAR SERIES - GNSS APPLICATIONS FOR ACADEMICS, COMMERCIAL, AND POLICY MAKERS (SSGS UI, 10 SEPTEMBER 2020). <https://www.csda.sksg.ui.ac.id/site/>
- INTERNATIONAL WEBINAR SERIES 4 WITH THE THEME "INFORMATION TECHNOLOGY AND INNOVATION IN FACING STRATEGIC AND GLOBAL CHALLENGES" (SSGS UI, 16 OCTOBER 2020). <https://www.csda.sksg.ui.ac.id/site/>
- SONY AWARD. The Rapid Prototype Development (RPD) Challenge 2021: Multi-GNSS Asia. September 2021 – January 2022. <https://www.rpdchallenge.com/>
- GNSS Training Course by UNDP, jointly organized by the Centre for Spatial Information Science (CSIS), The University of Tokyo (UTokyo), Japan and the International Committee Global Navigation Satellite Systems (ICG) Tribhuvan University, Pokhara, Nepal from 11-14 January 2022. <https://www.multignssasia.com/post/registration-open-rpd-challenge-2021>
- SSGS UI HYBRID GNSS INTERNATIONAL WEBINAR & TRAINING, 18 – 19 March 2022. <https://www.youtube.com/watch?v=m5oOcb9O08>

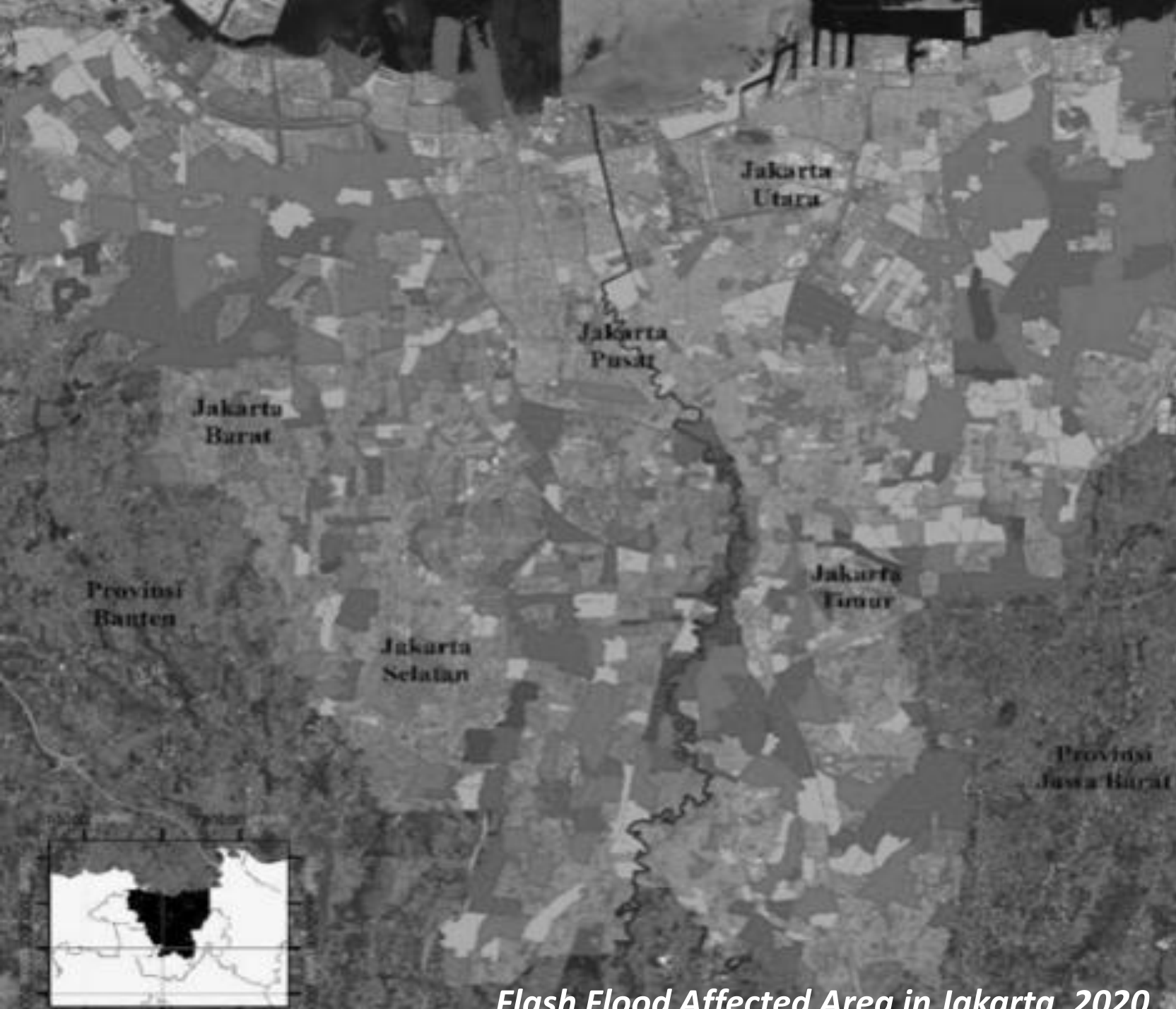
Agenda

- GNSS Application for Jakarta Flash Flood Early Warning System
- Integrated Water Transportation Navigation System for Indonesia coastal area









Flash floods occurred in almost throughout the Indonesian capital of Jakarta during the rainy season due to the overnight rain

Dumps 400 millimeters (15 in) of rainwater, causing the main rivers to overflow.

In 2020, Jakarta flood caused at least 66 people have been killed, and 60,000 displaced in the worst flooding in the area since 2007.

There is urgent need of a strategic solution to overcome this problem, at least during the disaster time to mitigate the social and economic risk and lost.

Flash Flood Affected Area in Jakarta, 2020



Jakarta's authority has initiated to provide the flood warning tool, in form of loud speaker

Four Units of this Technology has been installed in six location of slum riverside area

However, it has some issues;

- 1. Very high cost tool**, its valued USD 260,000 for 6 sets. So its only could be installed for few sets
- 2. Faulty and Error Technology.** Surrounding residents complained that the loud speaker sometimes didn't work properly during disaster time, or sometimes it event rang noisy when not needed.
- 3. It's a stand alone technology, not a system**, it provides the flood evacuation warning only, not the flood detection
- 4. Limited warning coverage area.** It serves only radius 500 meters.

THE SOLUTION



INTEGRATED SYSTEM

Serves both flash flood detection (GNSS MADOCA) and warning alert (QZSS EWS & Spresense). It also connects authority, residence within the disaster area, and public.



SERVICE FOR ALL

The database serve all parties; authorities, affected residents, public and private players.



HIGH ACCURACY & FAST MESSAGE

The technology applies the accurate and precise data for the fast disaster response



APPLICABLE TO MOST DISASTER AREA

When completed, it could be applied to most area with flash flooding issues



LOW COST

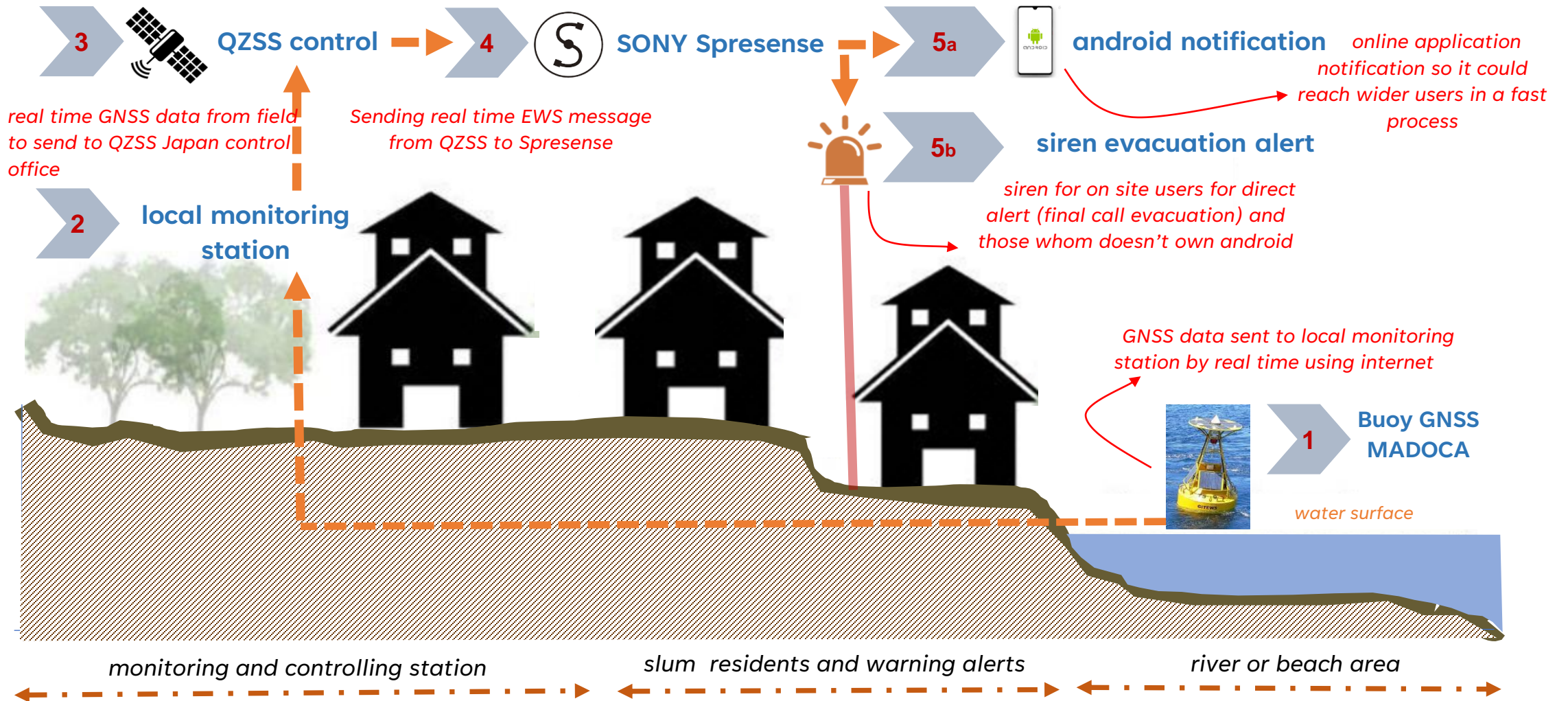
Affordable technology so it could be installed in more monitored coverage area



MORE OPTIONS OF WARNING DEVICE

It provides warning in more options; manual (warning siren) and digital (android)

FLOOD EARLY WARNING SYSTEM



COMPONENTS OF FLASH FLOOD EARLY WARNING SYSTEM

// GNSS MADOCA PPP



The GNSS receiver to install in the solar panel buoy placed on the water surface to measure river level rise.

// SPRESENSE DEVICE



EWS message receiver and decoding from QZSS

// LOCAL MONITORING STATION



The river level rise data is monitored by local monitoring station for controlling and maintenance

// SIREN EVACUATION WARNING



Evacuation alert through the on site siren for residents

// QZSS CONTROL OFFICE

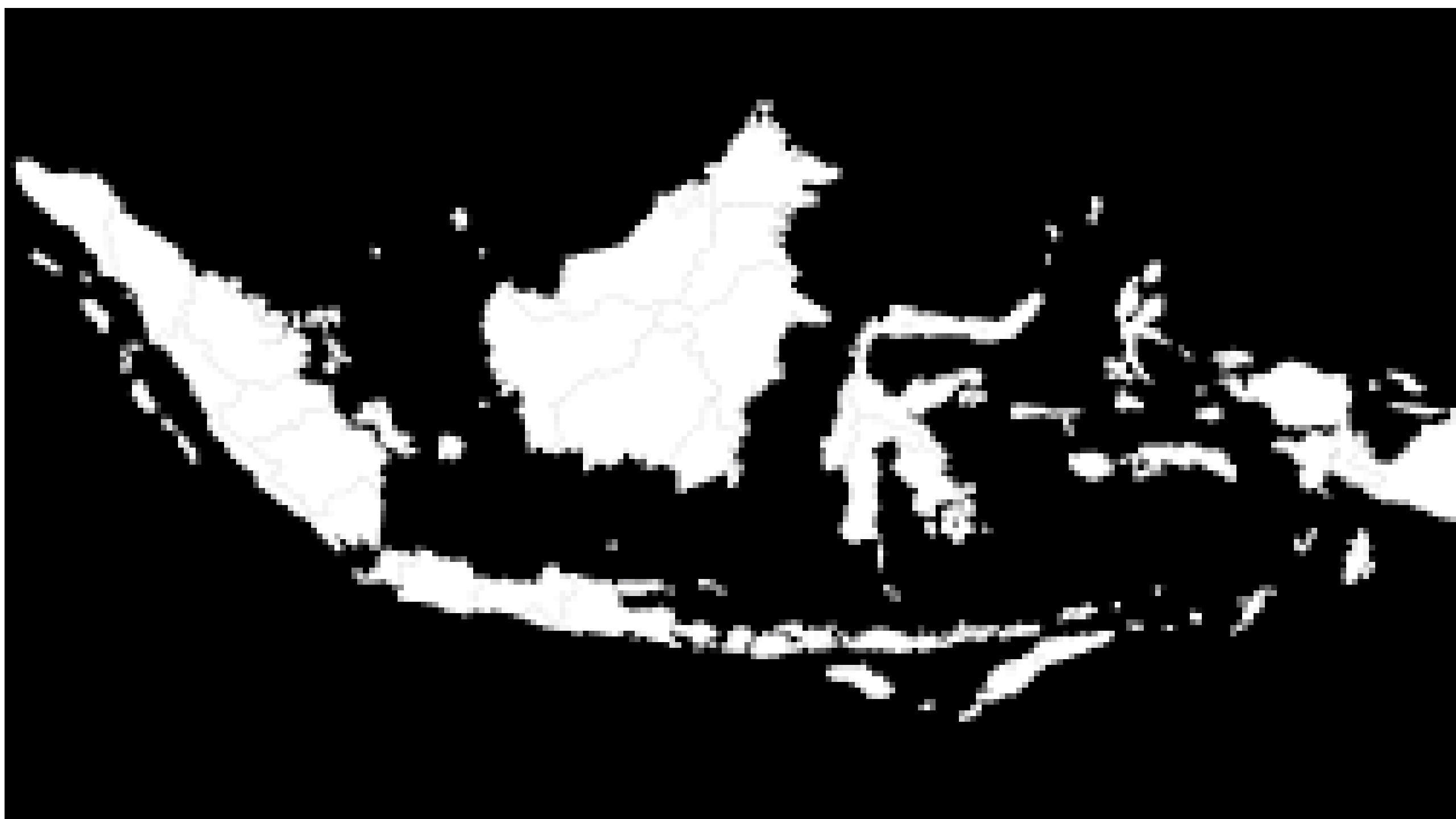


The team that will manage the EWS data message

// ANDROID SIREN EVACUATION WARNING



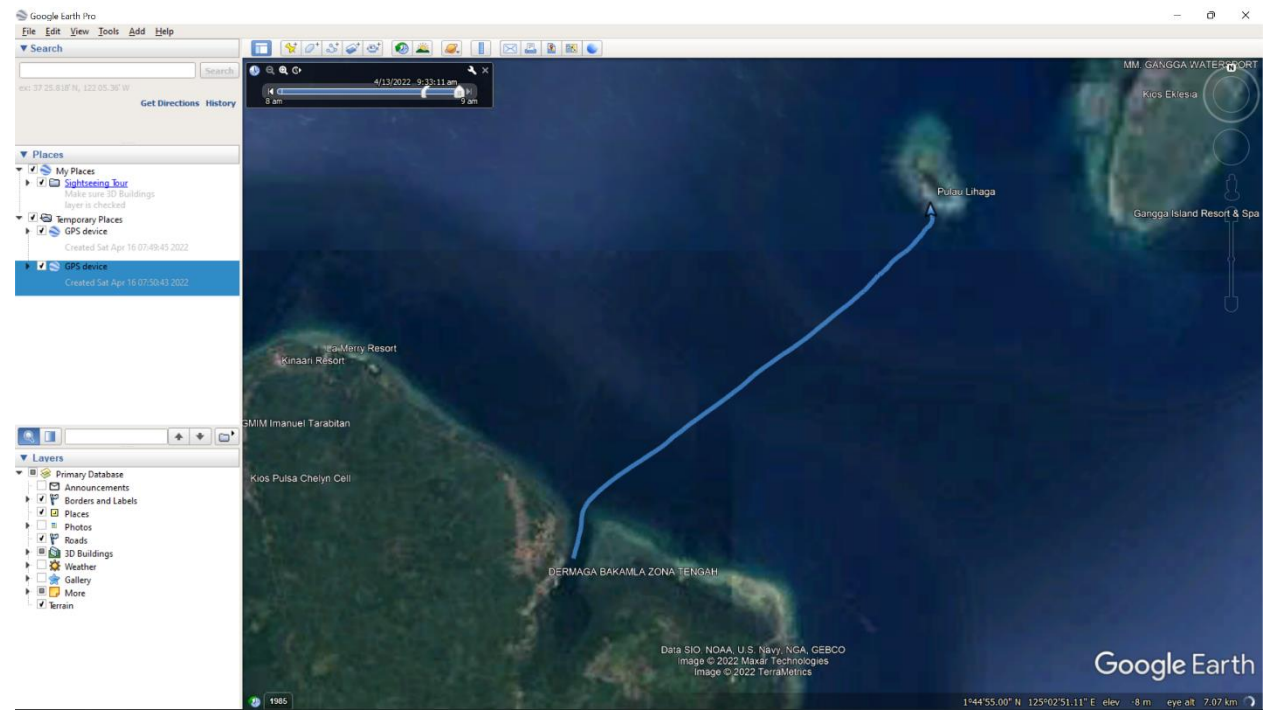
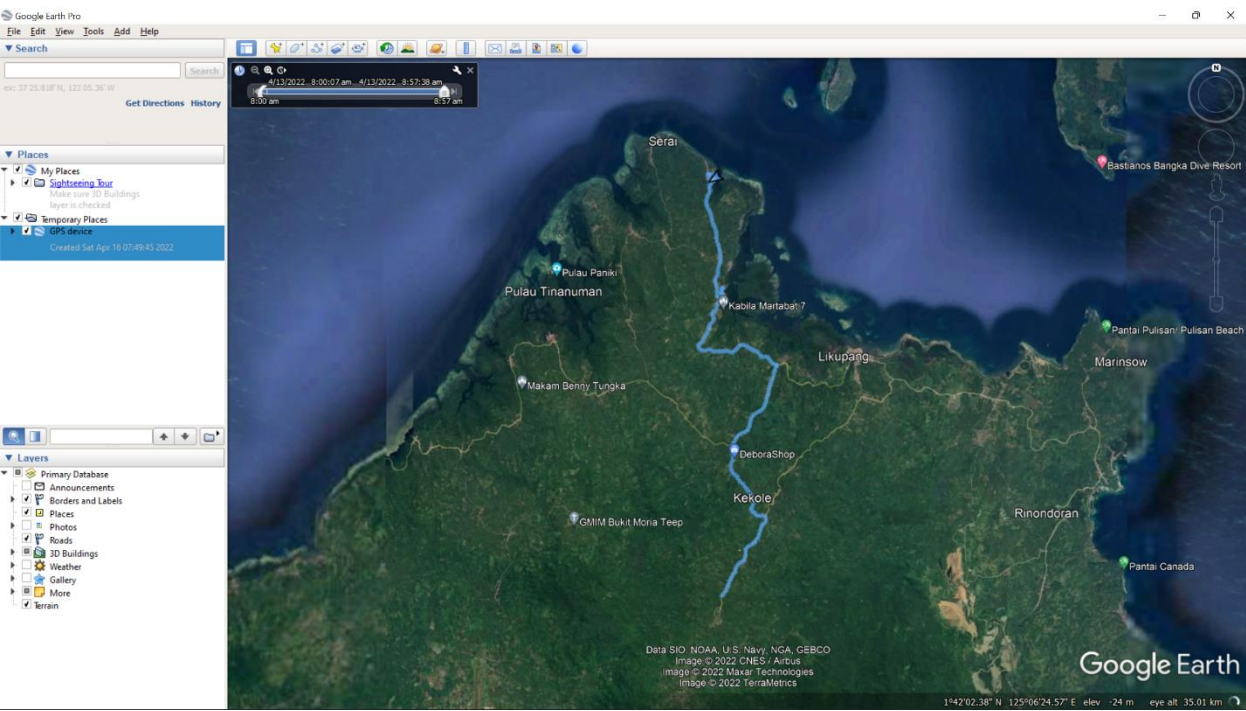
Evacuation alert through the digital application installed in android for larger users



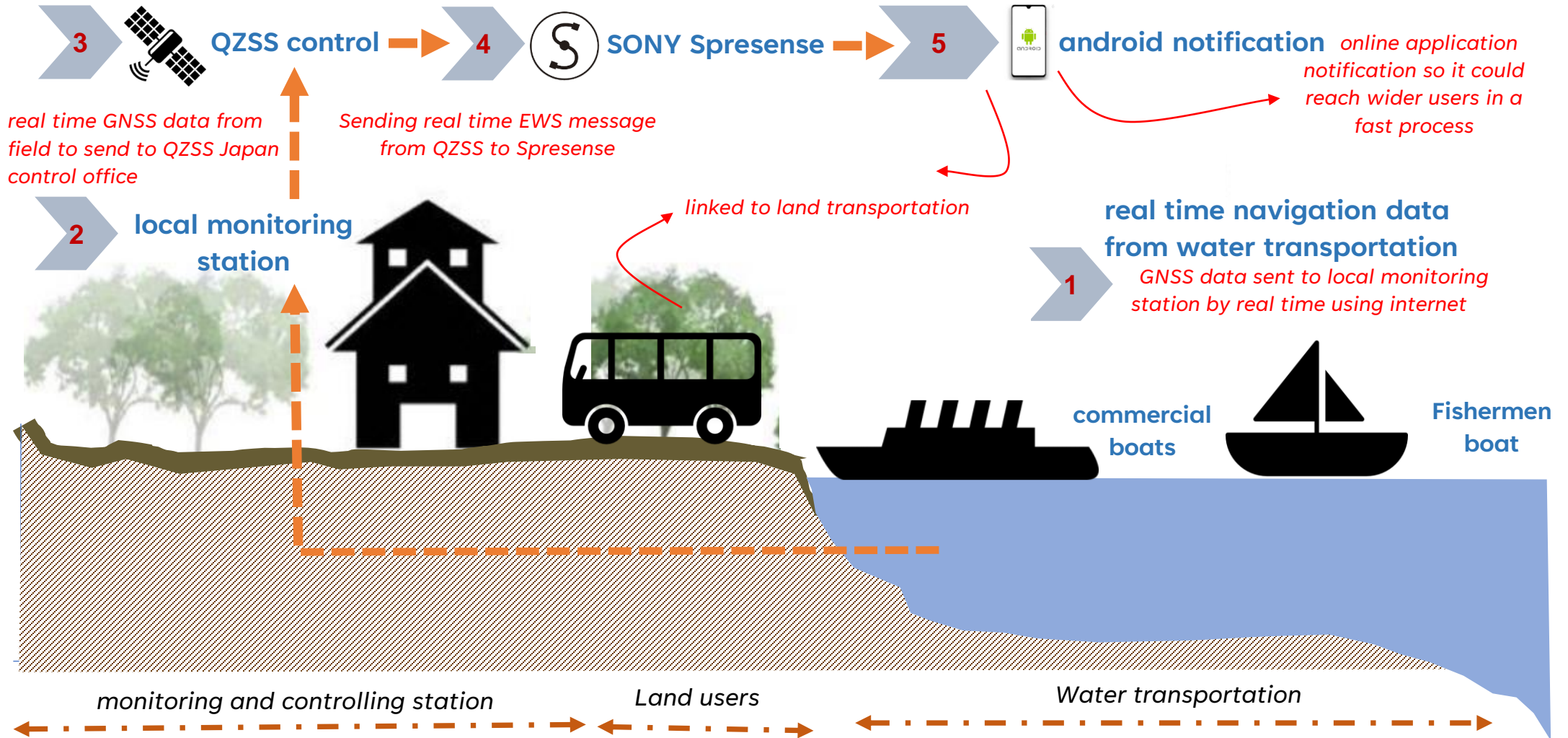








INTEGRATED WATER TRANSPORTATION NAVIGATION





FEASIBILITY



USER/ COMMERCIAL



TECHNICAL/ EXPERTS



COLLABORATION



SOCIETY IMPACT



thank you

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