OVERVIEW

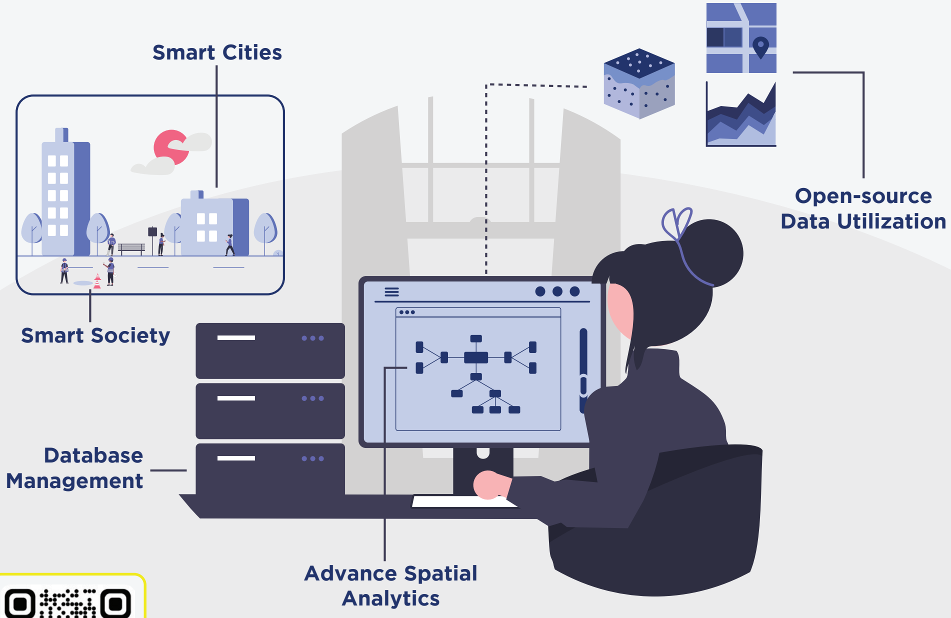
Resilience Development Initiative

ABOUT

Smart System Center (SSC) is a center under Resilience Development Initiative (RDI) that focuses on utilizing GIS technology and data management to generate knowledge and understanding regards of resilience and sustainable development for supporting all clusters and centers in RDI.

The Smart System Center also accommodates collaboration among researchers, stakeholders, and institutions across various disciplines, focusing on technology usage for disaster risk assessment, management, energy sustainability, social welfare, circular economy, and relevant topics in an attempt to strengthen people's resilience in responding to diverse threats.

The Smart System Center has been and continues to support RDI's research through several research focuses, including:



SCAN HERE

Our Partners

C40 CITIES · WORLD RESOURCES INSTITUTE · Coventry University · BGS · ADB · TETRA TECH · MAP ACTION · BGR Bundesanstalt für Geowissenschaften und Rohstoffe

PUBLICATIONS

Lutfiananda, F., Azhari, D., Anandhini, N., Sagala, S., Engwell, S., Hussain, E., Arnhardt, C., Crummy, J., Duncan, M., Novellino, A., Tappin, D., Winson, A. (2022). *Understanding geological hazards to support disaster risk assessment in Indonesia: a report on a collaborative workshop between Resilience Development Initiative and the British Geological Survey*. British Geological Survey, 55pp. (OR/22/081)

Sagala, S., Prawira, M.P., Avila, B. E., Rinaldy, T. K., Liman, G. L., Sari, I. C., Lutfiananda, F., Azhari, D. (2022). *Implementation of Nature-based Solution in Optimizing Urban Resilience for Flash Flood Recovery Garut, Indonesia*. submitted to Eco-DRR perspectives and practices from the Global South. Book Chapter Springer.

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Teo, H. C., Lechner, A. M., Sagala, S., & Campos-Arceiz, A. (2020), *Environmental Implications of Indonesia's New Planned Capital in East Kalimantan, Borneo Island*. Resilience Development Initiative Policy Brief Series No. 6, Dec 2020.

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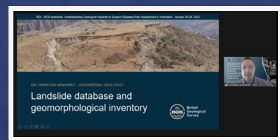
Sagala, S., Saraswati, S., (2013). *Spatial Analysis of Open Space Availability for Evacuation after Earthquake Aftershock in Dense Settlements*

Sagala, S., & Saraswati, S. (2013). *Spatial Analysis of Existing Public Open Space for Evacuation Area During Secondary Earthquake; A Case Study: Sukahaji Village, Bandung*. In Forum Geografi (Vol. 27, No. 2, pp. 119-130).

NOTABLE PROJECTS (SELECTED)

1 RDI-British Geological Survey (BGS) Workshop: Understanding Geological Hazards to Support Disasters Risk Assessment in Indonesia (2022) | Network: British Geological Survey (BGS)

The main aim of the workshop was to learn, discuss, and offer a forum to explore research needs in terms of understanding, measuring, mitigating, and modeling multi-geological hazards in Indonesia. The analysis process utilized open data pipelined and the documented analysis process was also highlighted for better reutilization of the analysis.



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2 **Urban Community Resilience Assessment (2023)**
Network: World Resources Institute WRI Indonesia

This research aims to develop and implement assessment methods that incorporate Urban Community Resilience Assessment (UCRA) and mobility patterns as part of the instrument specifically in Makassar City and Mamminasata Metropolitan Area (MMA). The assessment formulated consists of aspects related to urban vulnerability, community resilience, and individual capacity which are contextualized with the existing conditions of the city and community. Aside from that, an analysis of movement patterns was carried out, and how they changed as a result of disaster disturbances. These findings are then used as a basis for formulating resilience solutions with the community. Both community and mobility characteristics are discussed side by side to generate the discussion regarding both resilient factors in the study area inclusively.

3 **Network Analysis for Waste Collection Routes Efficiency (2023)**
Network: Tetra Tech

Routes efficiency is one of the important aspects of the household waste collection process. Even the slightest change in the process can lead to bigger consequences for city services as a whole. The project is conducted to analyze waste collection and transportation process efficiency in Biringkanaya District, Makassar City, as well as provide recommendations on waste transportation routes and fuel budget accommodation.

The process includes detailed observation and measurements regards to the waste production points, GIS utilization for mapping current vehicle routes, conducting network analysis based on constructed indicators, suggesting alternative routes, and notable adjustments.

4 **The Future is Public Transport Campaign (2022)**
Network: C40 Cities, International Transport Workers' Federation (ITF), DKI Jakarta, PT TransJakarta, PT MRT Jakarta, PT Jaklingko,

RDI was tasked to design a campaign with the International Transport Workers' Federation (ITF) to demonstrate support for public transport as an essential service that underpins climate action and creates jobs and to assist mayors in securing additional support for mass transit and sustainable transport from targeted national and regional governments.

This campaign aims to:

- Develop a targeted campaign in Jakarta to support city climate action and just transition at the local level
- Leverage Jakarta's leadership of U20 and Indonesia's G20 Presidency to influence countries on supporting and resourcing public transport as a climate and equity solution
- Develop sustainable funding principles to support cities facing budget challenges on public transport
- Showcase successful sustainable transport climate action at the global level, inspiring others

5 **Jakarta Air Quality Monitoring Plan & Transport Analysis Project (2023)**
Network: C40 Cities

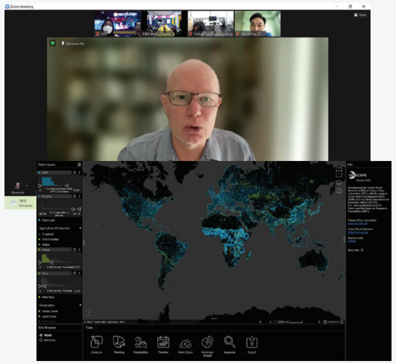
The project consists of tools development that provide measurement and calculation of transportation emissions and health impact assessment. The first tool notable recommendations are Low Emission Zone (LEZ) and Ultra Low Emission Zone (Ultra-LEZ) implementation that will impact the emission production by vehicle. Then it feeds to the second tool where the emission reduction is assessed in terms of health impact in the area. The tools development consists of the audience to related stakeholders regards the data training, tools improvements, and recommendations options.

6 **Geo-Risk Sensitive Spatial Planning and Smart City for Disaster Management Training (2016)**
Network: BGR (Federal Institute for Geosciences and Natural Resources)

RDI provided risk-sensitive-spatial planning guidelines and held Training of Trainers (ToT) on geo-sensitive spatial planning and smart city topics and led smart city excursions to Singapore to groups of Geology Training Center and Geology Agency of Indonesia.

RDI provides geology-sensitive spatial planning modules, curriculum development, and training on elements of (1) spatial planning, (2) participation in spatial planning, and (3) smart cities for disaster management.

7 **Spatial Planning Tool Workshop using ur-scape with Future Cities Laboratory (FCL) Singapore in Cirebon City (2022) | Network: Asian Development Bank (ADB)**



RDI supported the development of ur-scape, an open-source spatial planning tool designed to support sustainability and address the difficulty in accessing data by bringing diverse kinds of data and encouraging people to explore the data. Developed by the Urban-Rural Systems (URS) team at Future Cities Laboratory (FCL), ur-scape is supported by the ADB and the Swiss Secretariat for Economic Affairs (SECO).

The "ur-scape" workshop focused on increasing knowledge and handing over ur-scape data files to Cirebon. The training workshops complemented the ur-scape spatial data analysis used to support the Urban Resilience Assessment of Cirebon City as part of TA support to Indonesia's Livable Settlements Investment Project (LSIP).

8 **Nusantara Capital City Authority (IKN) Forest City (2022) | Network: Deloitte**

The IKN Forest City Planning Activity (IKNACT) conducts technical experience and training to enable the Government of Indonesia (GOI) to better implement its Forest City Principles for IKN, particularly with respect to biodiversity conservation, land-use and landscape planning, financing, and governance.