



#1 Peta
Data
Nusantara



Regional Seminar on Integration of Geo-Spatial and Statistical Information
Session 1: Integrating Geospatial and Statistical Data for National Development
UN-GGIM-AP Conference on Geo-Enabling Data Economy for Sustainable Development
26 November 2024, Bharat Mandapam, New Delhi

Integrating Geospatial Statistics: A Strategic Approach to National Challenges

Muh. Aris Marfai

Chair of Geospatial Information Agency - Indonesia



www.big.go.id



Badan Informasi Geospasial



@infogeospasial

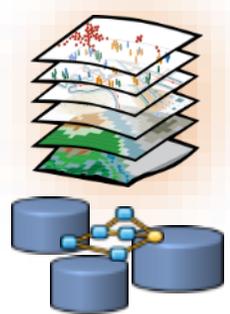


Introduction

The Role & Function of BIG: to carry out government duties in the field of Geospatial Information

BIG has wider duties and functions, not only coordinate and implement activities in surveying and mapping, but also produce the Geospatial Information that can be accounted, accurate, reliable, and easily accessible.

REGULATOR
Formulate policies and prepare laws related to the implementation of development Geospatial Information



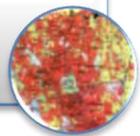
EXECUTOR
Single Provider for Basic Geospatial Information (IGD), Article 22.

COORDINATOR
Coordinate the development and integration of Thematic Geospatial Information.



• IGD is a geo-reference frame for IGT to ensure the alignment of National Geospatial Information

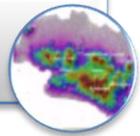
IGD Development



Reference of Thematic Geospatial Information Development

• BIG coordinate the preparation of integrated IGT based on the norms, standards, and guidelines set by BIG

IGT Development



Fostering and Integration of Thematic Geospatial Information

• To fulfill the mandate that the Geospatial Information is easily accessible, BIG build JIGN as an umbrella law that strengthens Presidential Decree

IIG Development



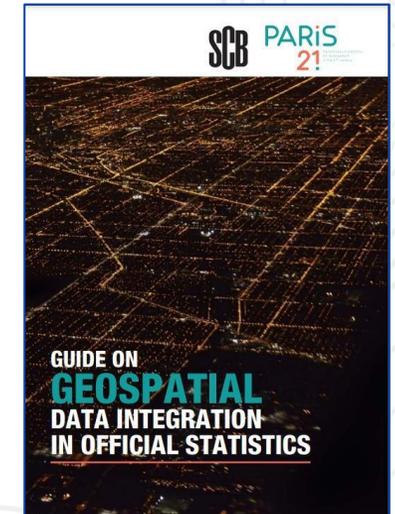
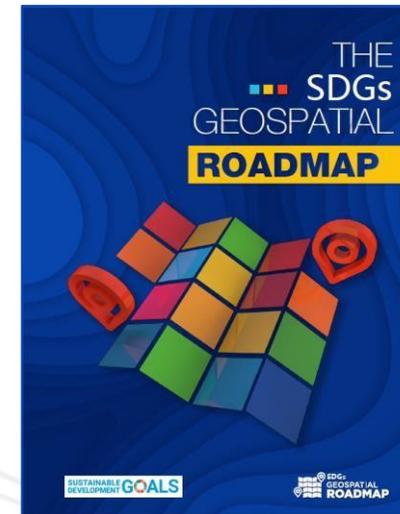
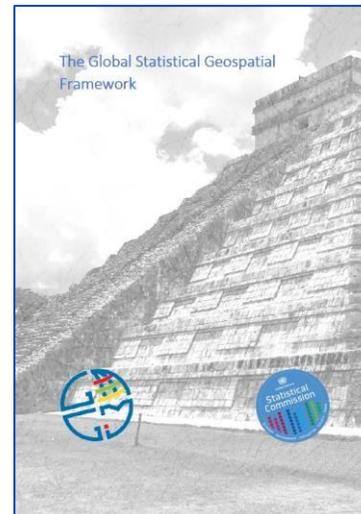
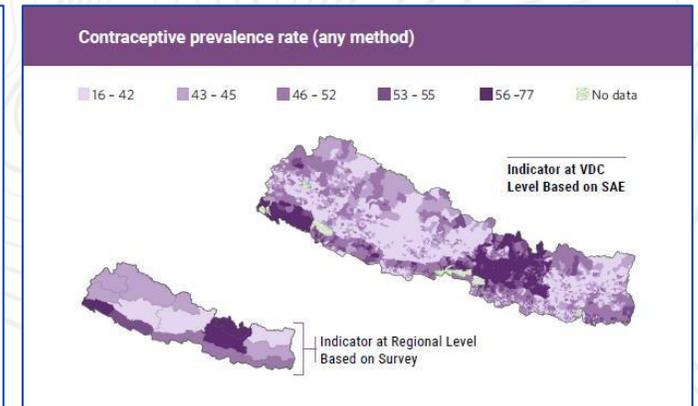
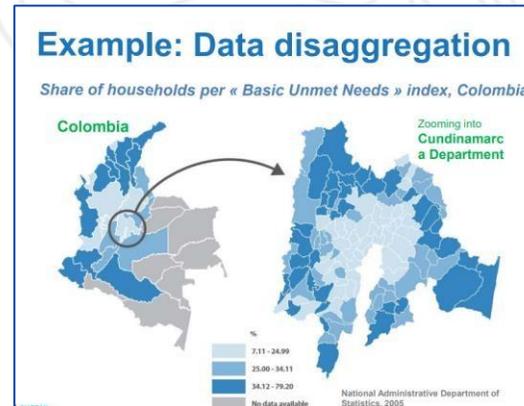
Sharing and Dissemination of Geospatial Information



Background

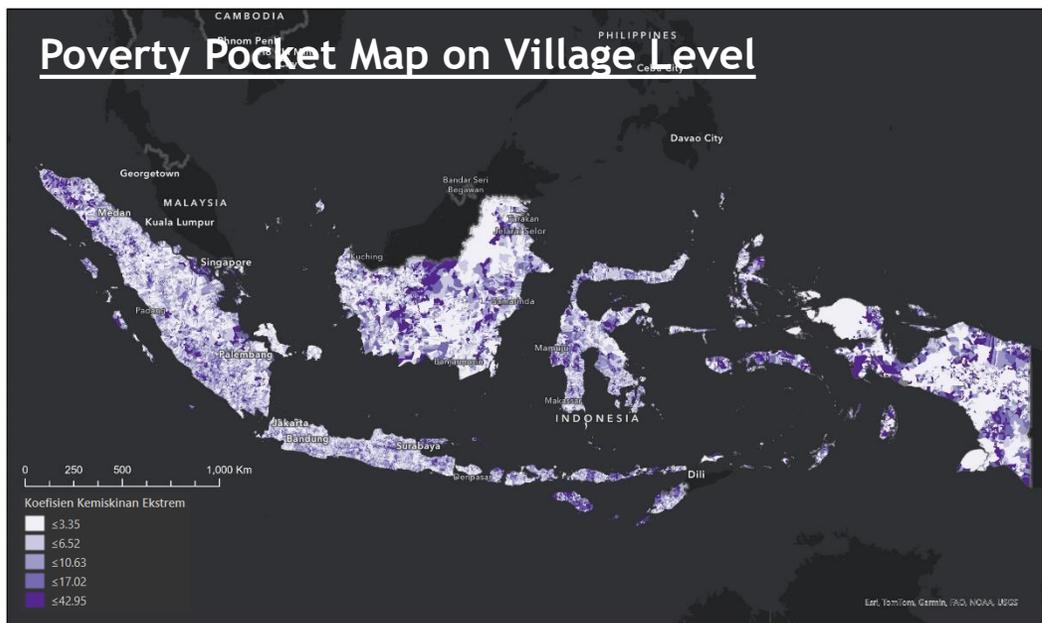
The disaggregation of statistical data into small geographical units which is related to the principle of Leave No One Behind, has become a global issue in the measurement of SDGs indicators.

The statistical spatial integration activity was held to support the provision of SDGs indicator data in village administration units in Indonesia.

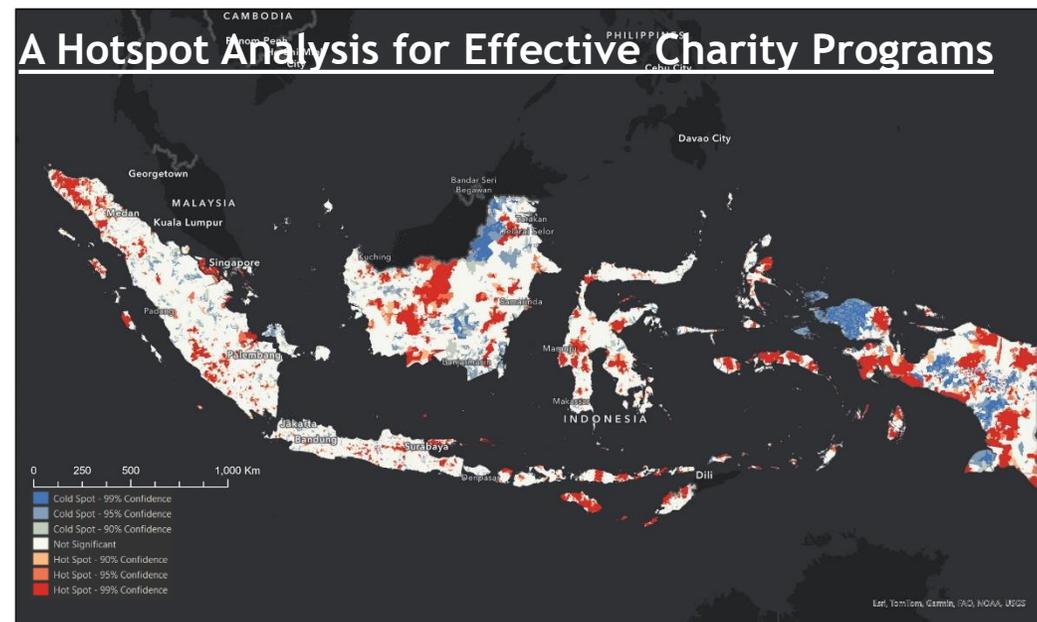


Dokumen-dokumen UN-GGIM terkait integrasi data statistik dan informasi geospasial

Spatial Distribution of Extreme Poverty Levels at the Village Level



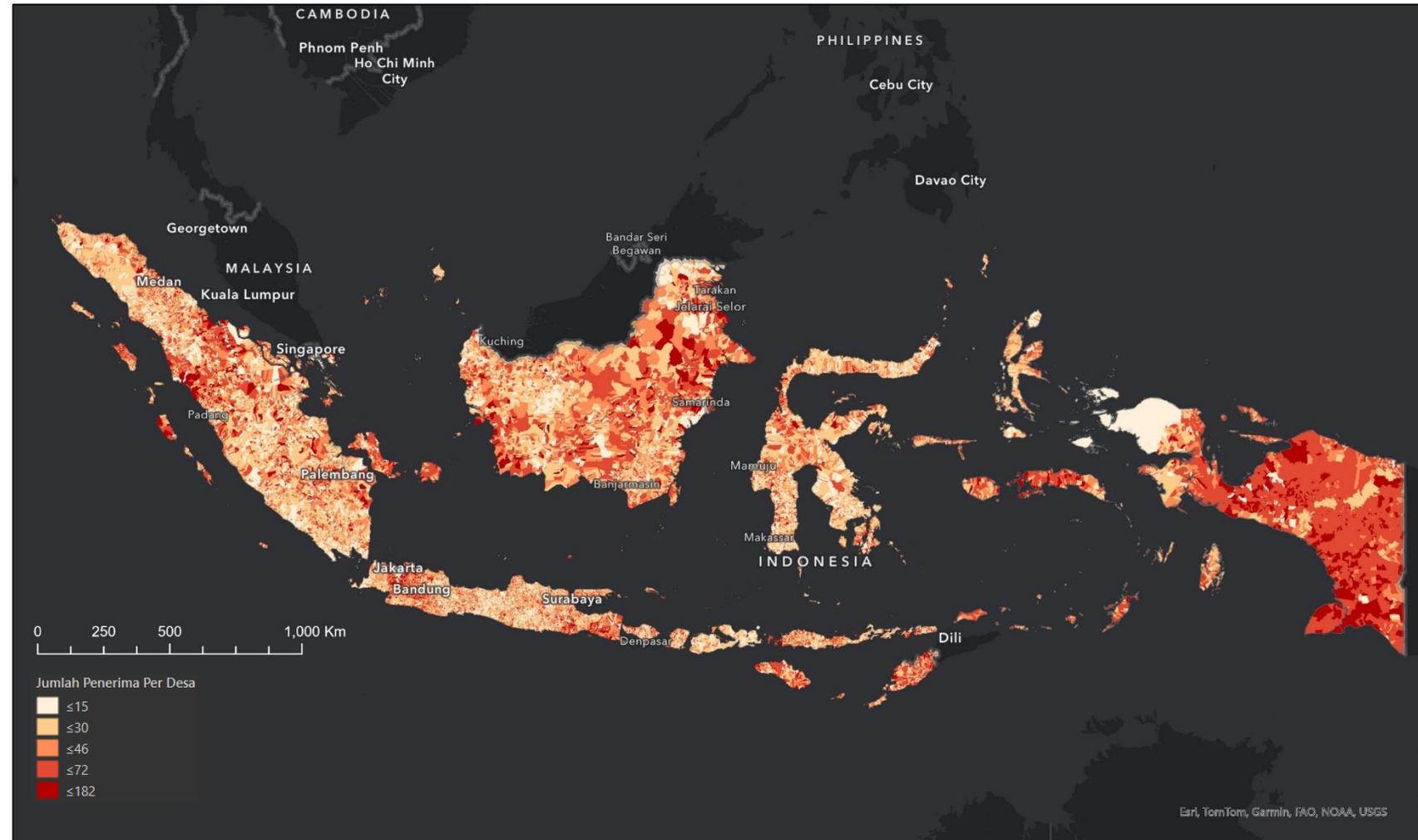
- Villages with a deep purple color represent those with a high extreme poverty coefficient compared to other villages with lighter colors.
- Assistance is prioritized for villages with high coefficient values as well as those that have the nearest neighboring relationships.



- The Extreme Poverty Hotspot Map clusters priority villages for aid recipients (in red) so that the distribution of assistance is more efficient.

Map of Beneficiary Families of Direct Cash Assistance at the Village Level

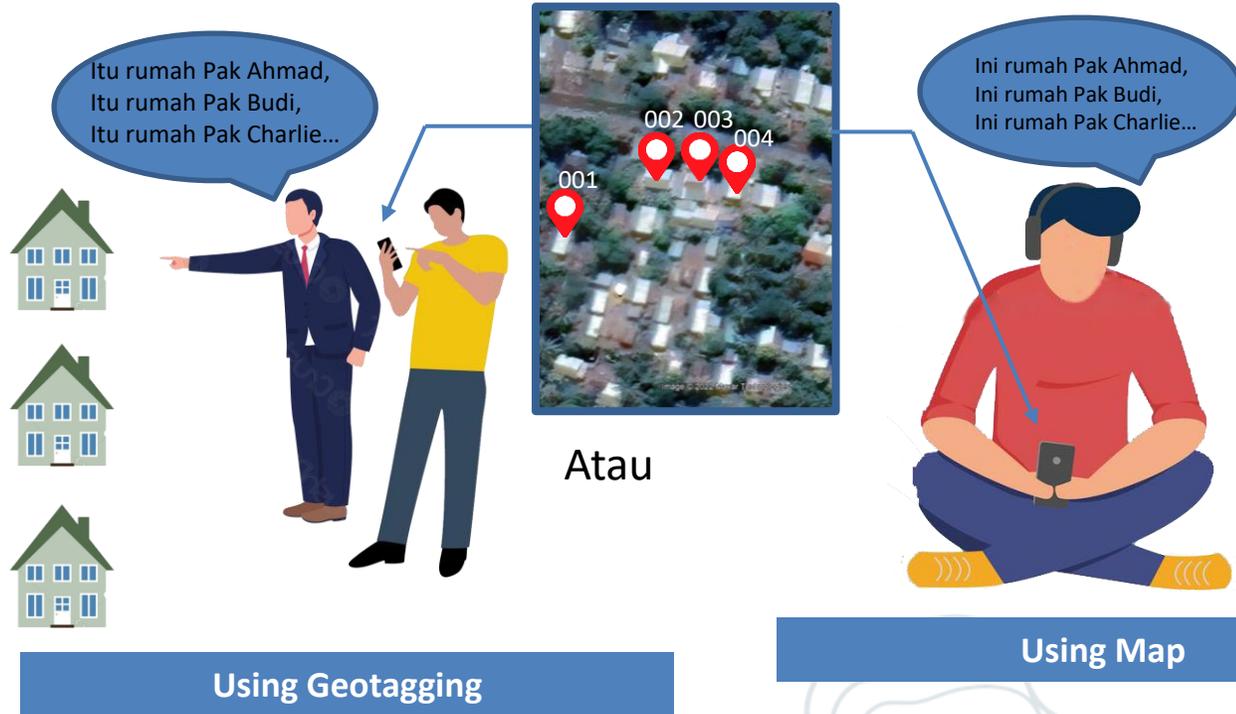
- Villages with a deep red color represent those with a higher number of Beneficiary Families of Direct Cash Assistance (KPM BLT) compared to other villages with lighter colors.
- A comparative analysis between the Extreme Poverty Pocket Map and the KPM BLT Map can be used as one way to evaluate the assistance program.



Geospatial-Based Family Data Collection

Build Family Database

“by Name by Address by Coordinate”



“Updating”



Data for assistance program

“Verification”



Social Assistance Program

SPATIAL ANALYSIS IN THE PROVISION OF SOCIAL ASSISTANCE IN PARAKAN VILLAGE, CIOMAS DISTRICT, BOGOR REGENCY

Spatial Analysis of Social Status in Parakan Village

Data:

- a. Population: 9.740 people
- b. Non-Poverty Household: 4.344 Families
- c. Poverty Household : 1.344 Families

Through this spatial analysis, it can help the government determine the right targets in the provision of social assistance.



Keterangan:

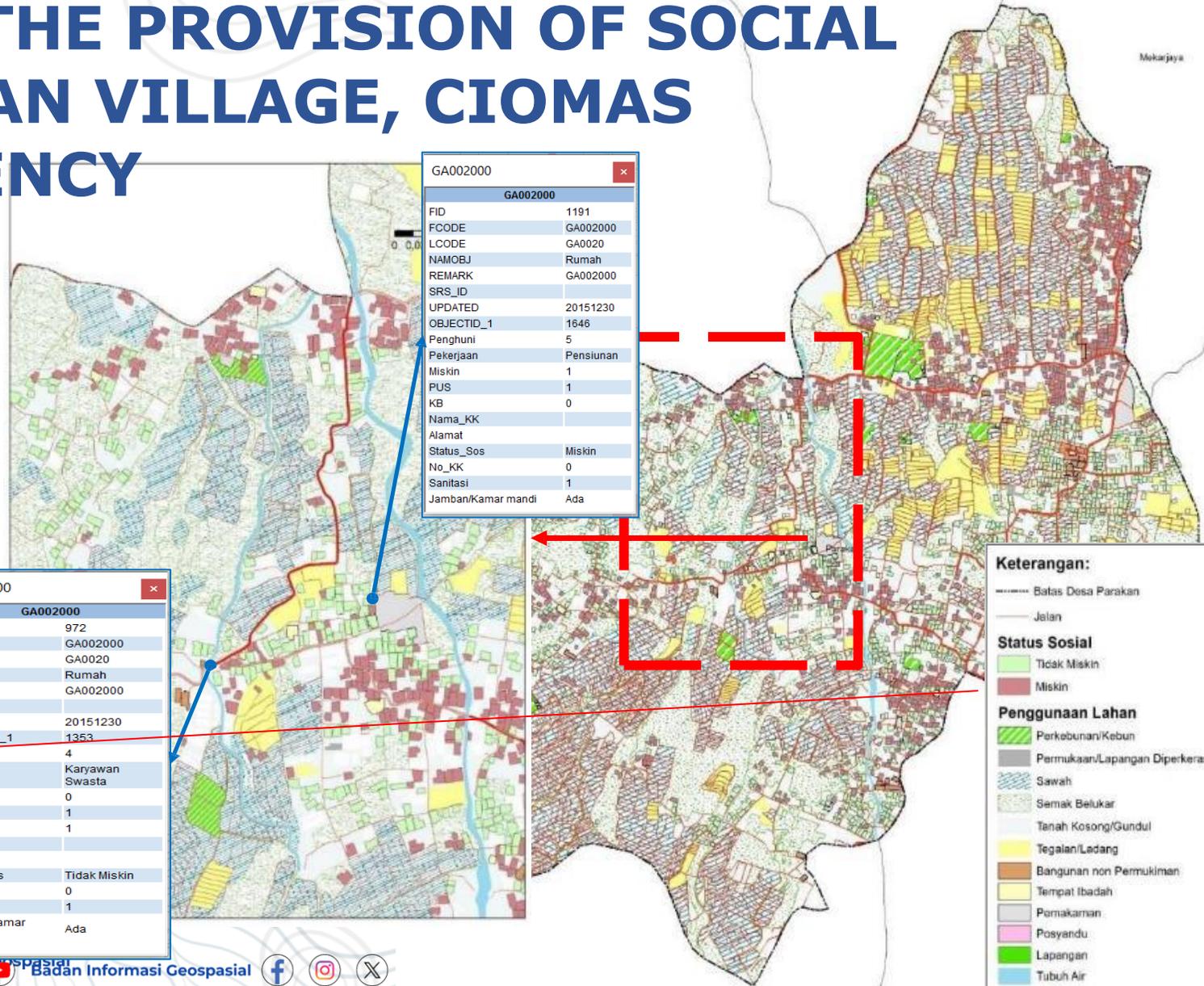
- Batas Desa Parakan
- Jalan

Status Sosial

- Tidak Miskin
- Miskin

GA002000	
FID	972
FCODE	GA002000
LCODE	GA0020
NAMOBJ	Rumah
REMARK	GA002000
SRS_ID	
UPDATED	20151230
OBJECTID_1	1353
Penghuni	4
Pekerjaan	Karyawan Swasta
Miskin	0
PUS	1
KB	1
Nama_KK	
Alamat	
Status_Sos	Tidak Miskin
No_KK	0
Sanitasi	1
Jamban/Kamar mandi	Ada

GA002000	
FID	1191
FCODE	GA002000
LCODE	GA0020
NAMOBJ	Rumah
REMARK	GA002000
SRS_ID	
UPDATED	20151230
OBJECTID_1	1646
Penghuni	5
Pekerjaan	Pensiunan
Miskin	1
PUS	1
KB	0
Nama_KK	
Alamat	
Status_Sos	Miskin
No_KK	0
Sanitasi	1
Jamban/Kamar mandi	Ada



Keterangan:

- Batas Desa Parakan
- Jalan

Status Sosial

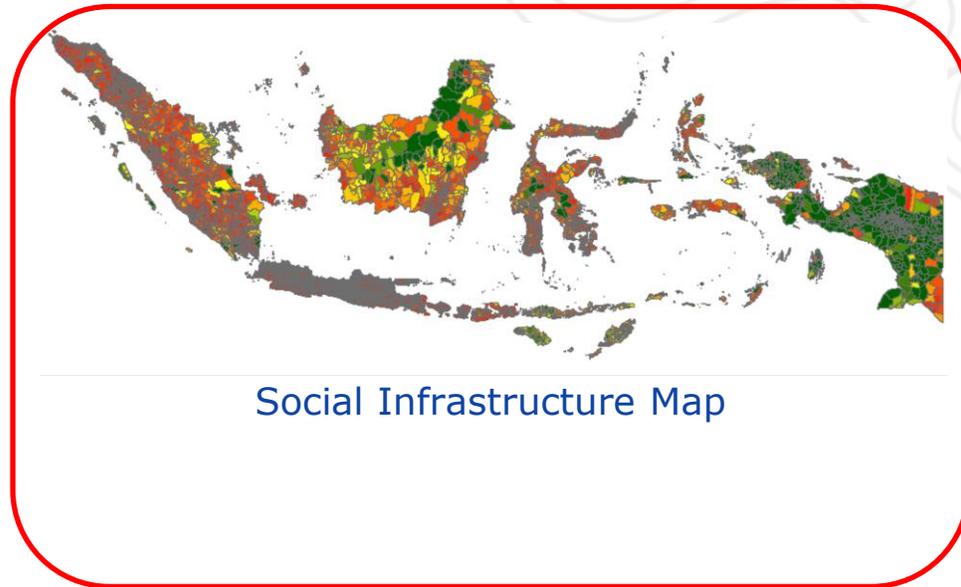
- Tidak Miskin
- Miskin

Penggunaan Lahan

- Perkebunan/Kebun
- Permukiman/Lapangan Diperkeras
- Sawah
- Semak Belukar
- Tanah Kosong/Gundul
- Tegalan/Ladang
- Bangunan non Permukiman
- Tempat Ibadah
- Pemakaman
- Posyandu
- Lapangan
- Tubuh Air

Utilization of GI for the Distribution of Educational Scholarships

- Integration of Geospatial Statistics and Geostatistics can produce IGT Analysis for location-based scholarship needs.
- For future proposals should include projections or modelling of spatial dynamics for education.



Schools Geotagging



Scholarship Program



School Age Statistics by Village



Integration Data for Reducing Family Stunting Prevalence Potential Risk

Capturing Data (Spatial and Statistics)

- Recording Stunting Data Indicators
- Household-based data Census
- Geocoding data (coordinates, address, administration)



x- and y- coordinates



Addresses



Functional Areas



Dashboard on Stunting Indicators



Dashboard Stunting dan Keluarga Beresiko Stunting

Indikator: Persentase Keluarga Beresiko Stunting | Wilayah: Indonesia

Daftar Indikator [12]

Pilih Indikator

Persentase Keluarga Beresik...

TAMPILKAN

Pilih Wilayah

Provinsi

Semua

Kabupaten/Kota

Semua

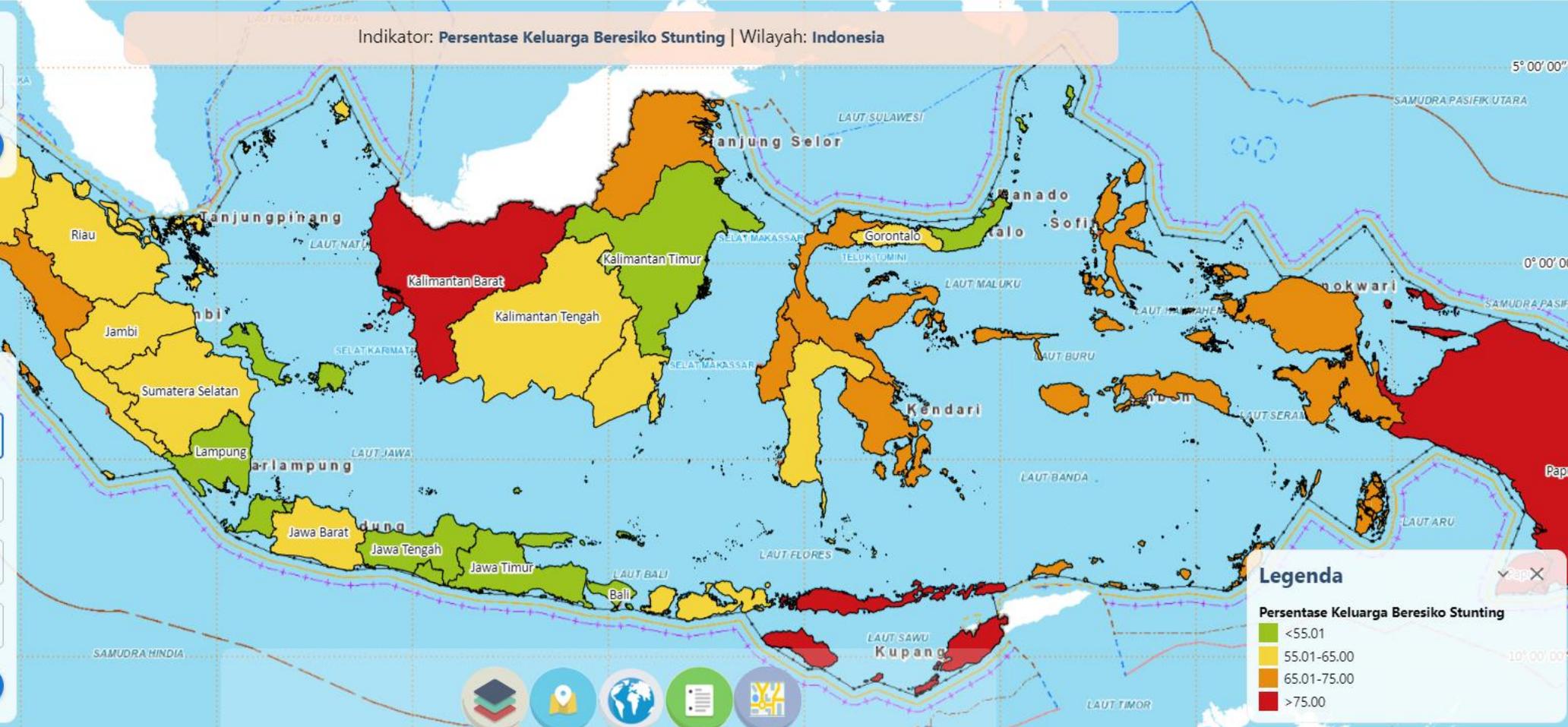
Kecamatan

Semua

Desa

Semua

PERBARUI

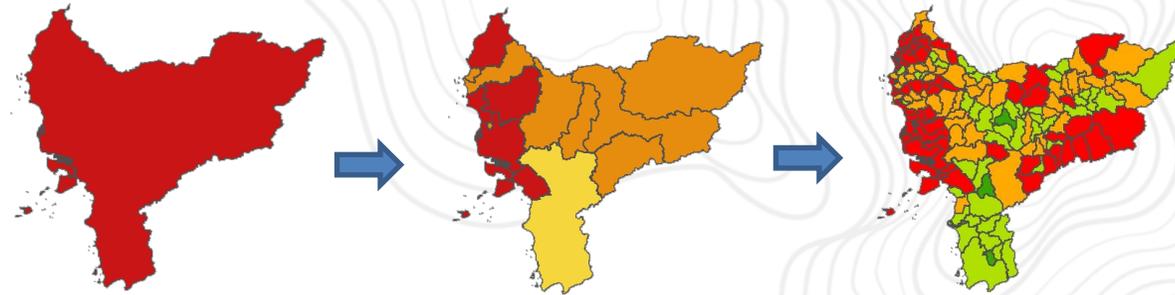


Legenda

Persentase Keluarga Beresiko Stunting

- <55.01
- 55.01-65.00
- 65.01-75.00
- >75.00

SDGs Mapping



- To obtain data that can be used to compile village-level SDGs indicators, BIG is trying to build cooperation with several related ministries/agencies, one of which is with the National Population and Family Planning Agency (BKKBN).
- Family Data Collection activities organized by BKKBN, produce statistical data in household units so that aggregation can be carried out to the village administration level.

Enhancement Data Accuracy



Houses with inaccessibility for clean water

The Spirit “**No One Left Behind SDGs**” are adopted to improve the family census 21 (PK21) data in more detail unit, **Village** and **household levels**

Mapping for SDGs Indicator



"Integration of Geospatial and Statistical Data has enabled the reporting of 22 indicators for the Sustainable Development Goals (SDGs)."

1. Indicator 1.2.2.
2. Indicator 1.4.2.
3. Indicator 3.7.1.
4. Indicator 3.8.2.
5. Indicator 4.1.2.
6. Indicator 4.1.2. (a)
7. Indicator 4.3.1.
8. Indicator 4.3.1. (a)
9. Indicator 4.5.1.
10. Indicator 5.2.1.
11. Indicator 5.3.1.
12. Indicator 6.1.1.
13. Indicator 6.2.1.
14. Indicator 7.1..
15. Indicator 7.1.2. (b)
16. Indicator 8.3.1.
17. Indicator 8.6.1.
18. Indicator 11.1.1. (a)
19. Indicator 11.2.1.(a)
20. Indicator 11.3.1. (a)
21. Indicator 17.8.1
22. Indicator 8.6.1.

Calculation for Indicator 11.2.1.(a)

Perform the calculation of the 11.2.1 indicator. (a) Percentage of the population with convenient access to public transportation as a follow-up to the UN-HABITAT Workshop

METODE PERHITUNGAN

Cara perhitungan:

Jumlah penduduk yang memiliki akses transportasi umum yang nyaman dibagi dengan jumlah penduduk di wilayah yang dilayani dikali dengan seratus, dinyatakan dengan satuan persen (%).

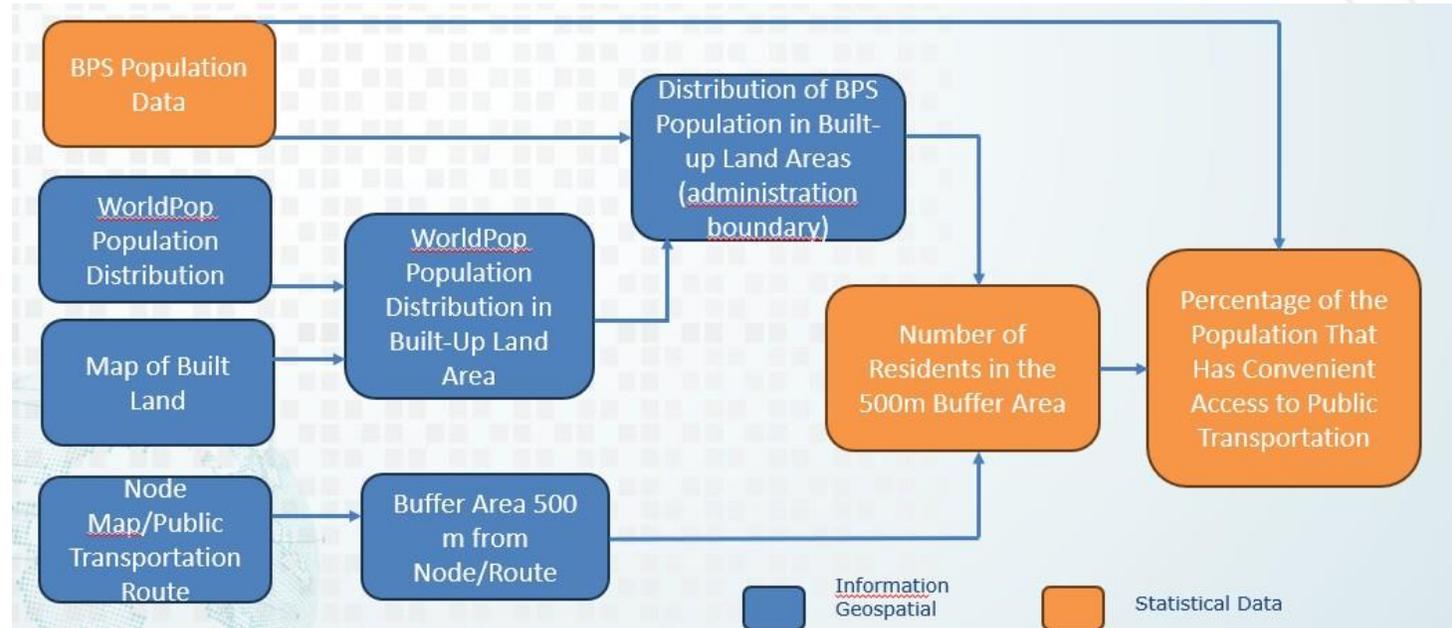
Rumus:

$$PPTUN = \frac{JPTUN}{JP} \times 100$$

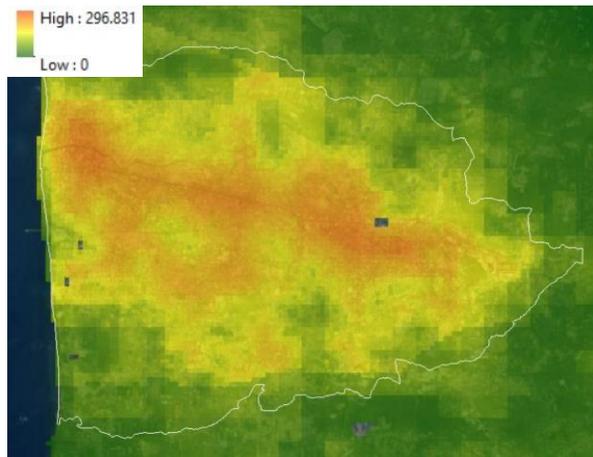
Keterangan:

- PPTUN : Persentase penduduk yang memiliki akses nyaman (jarak 0,5 km) ke transportasi umum
- JPTUN : Jumlah penduduk yang memiliki akses nyaman (jarak 0,5 km) ke transportasi umum
- JP : Jumlah penduduk di wilayah yang dilayani

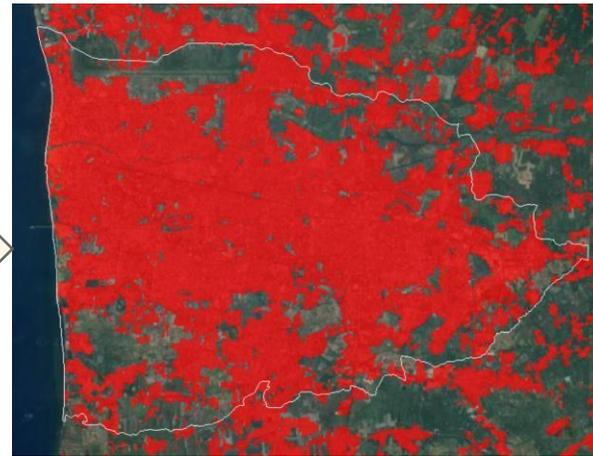
Data Processing Methods



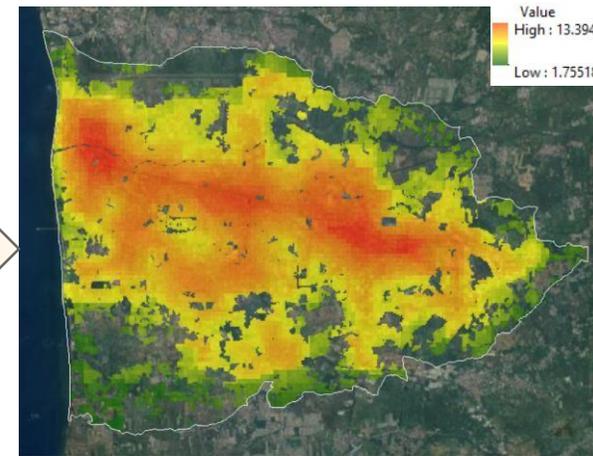
Indicator Measurement Data Processing Method 11.2.1. (a)



Worldpop Population Distribution



Land Built 2020



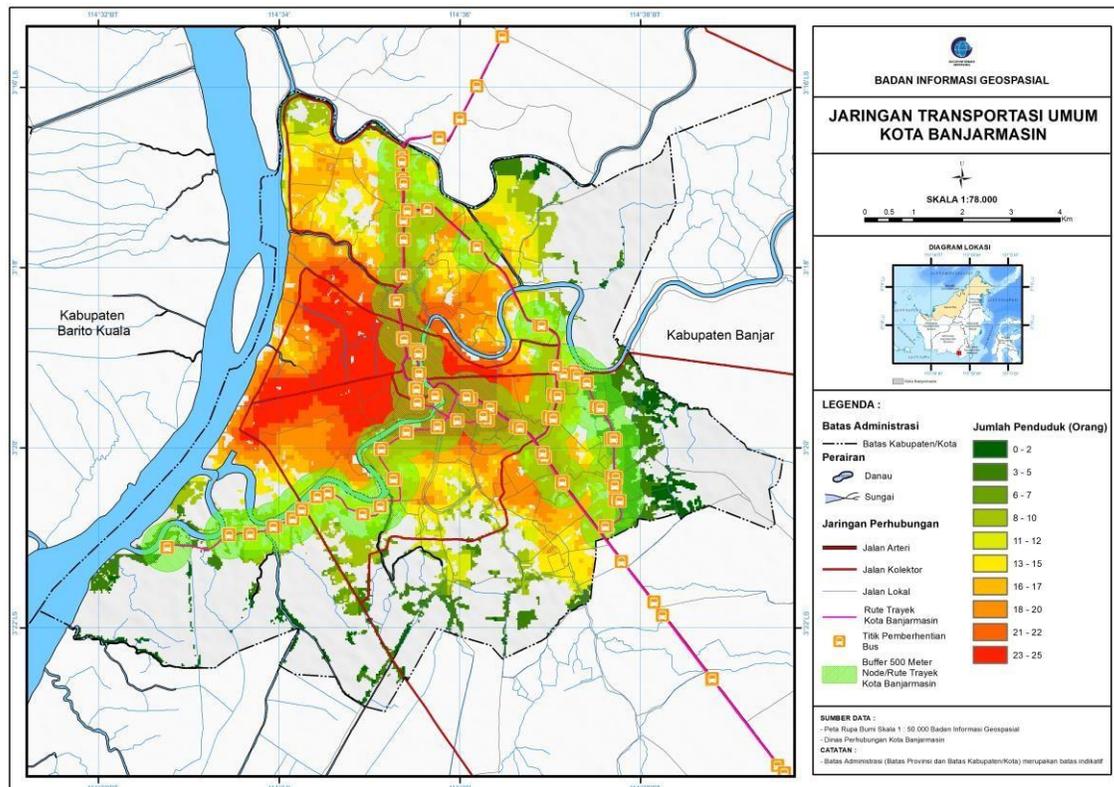
Population Distribution Adjusts BPS Data and Built Land



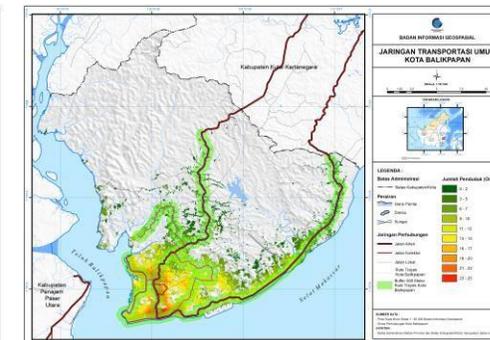
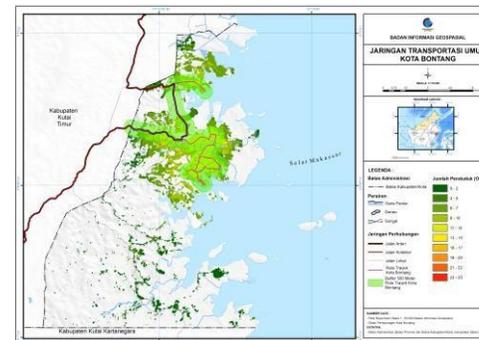
Buffer 500 meters from Node or Public Transport Route

Results of IGT Activities of Spatial-Statistical Integration Related to Statistical and Geospatial Data Analysis

Perform the calculation of the 11.2.1 indicator. (a) Percentage of the population with convenient access to public transportation



No	City	Popula tion	Number of Population Served	Percentage of Population Served
1	Kota Banjarbaru	253440	94.977	37,48
2	Kota Banjarmasin	657660	558.305	84,89
3	Kota Pontianak	658685	573.514	87,07
4	Kota Singkawang	235064	143.637	61,11
5	Kota Palangkaraya	293457	126597	43,14
6	Kota Bontang	178900	93985	52,53
7	Kota Samarinda	828000	412147	49,78
8	Kota Balikpapan	688300	420568	61,10
9	Kota Tarakan	242800	193.874	79,85



Indicator 11.3.1. (a) Ratio of the rate of expansion of built land to the rate of population growth

**KEMENTERIAN PERENCANAAN PEMBANGUNAN NASIONAL/
BADAN PERENCANAAN PEMBANGUNAN NASIONAL
REPUBLIK INDONESIA**

DIREKTORAT PEMBANGUNAN DAERAH

NOTA DINAS
NOMOR 200/PP.10.01/02/2023

Yth. : **(Daftar Terlampir)**
 Dari : Direktur Pembangunan Daerah selaku Ketua Sub Pokja Tujuan 11 SDGs
 Hal : Permohonan Data Sektoral Capaian SDGs 2022 untuk Penyusunan Laporan Tahunan Pelaksanaan TPB/SDGs 2022
 Tanggal : 15 Februari 2023
 Lampiran : 3 (tiga) berkas

Lampiran III Nota Dinas
Nomor : 200/PP.10.01/02/2023
Tanggal : 15 Februari 2023

Daftar Indikator TPB/SDGs 2022 untuk Tujuan 11. Kota dan Permukiman yang Berkelanjutan

No	Kode Indikator	Nama Indikator SDGs	Tahun	Disregresi Wilayah	Sumber Data	Keterangan
11.3 Pada tahun 2030, memperkuat urbanisasi yang inklusif dan berkelanjutan serta kapasitas partisipasi, perencanaan Penanganan permukiman yang berkelanjutan dan terintegrasi di semua negara.						
1	11.3.1.(a)**	Rasio laju perluasan lahan terbangun terhadap laju pertumbuhan penduduk	2015 - 2022	<ul style="list-style-type: none"> Nasional Provinsi Kabupaten/Kota 	Badan Informasi Geospasial (BIG)	Dit. Tata Ruang, Pertanahan, dan Penanggulangan Bencana
11.4 Mempromosikan dan menjaga warisan budaya dunia dan warisan alam dunia.						



CALCULATION METHOD

The rate of land expansion built in a certain period of time is divided by the rate of population growth in the same period

Formula

$$RLTPP = \frac{LPLT}{LPP}$$

Information

RLTPP : Ratio of the rate of land expansion built up to the rate of population growth

LPLT : The rate of land expansion was built in the period XXXX-YYYY

LPP : Population growth rate in the period XXXX-YYYY

BENEFIT

Monitoring the effect of population growth on urban land conversion as a way to see whether land use is carried out efficiently or not

DATA SOURCES

Badan Informasi Geospasial.

DISAGREGATION

- Administrative area: national, provincial and regency/city.
- Land cover map 1:50k scale Java, Bali, Nusa Tenggara, Sulawesi, Maluku, Papua

FREQUENCY OF DATA COLLECTION

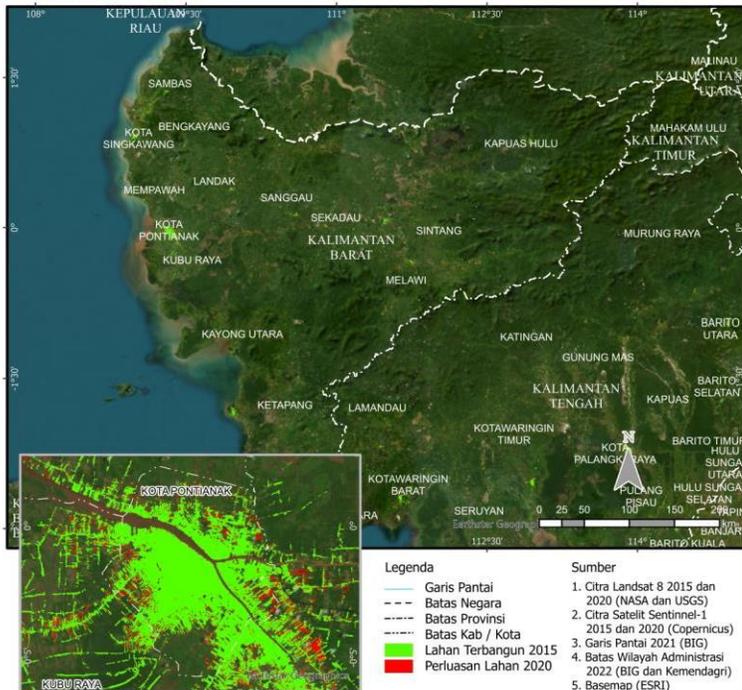
Every 5 years



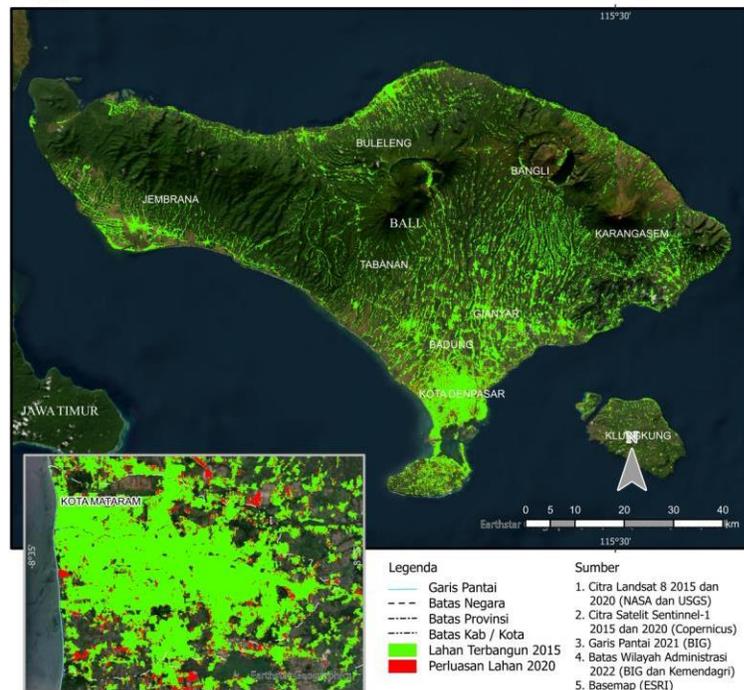
Analysis of the Built Land Expansion Map using:

1. Landsat (NASA & USGS)
2. Sentinel-1 (Copernicus)
3. Coastline Map (BIG)
4. Administrative Area Boundaries Map (Ministry of Home Affairs and BIG)
5. Basic Map of Indonesia's Terrain (BIG)

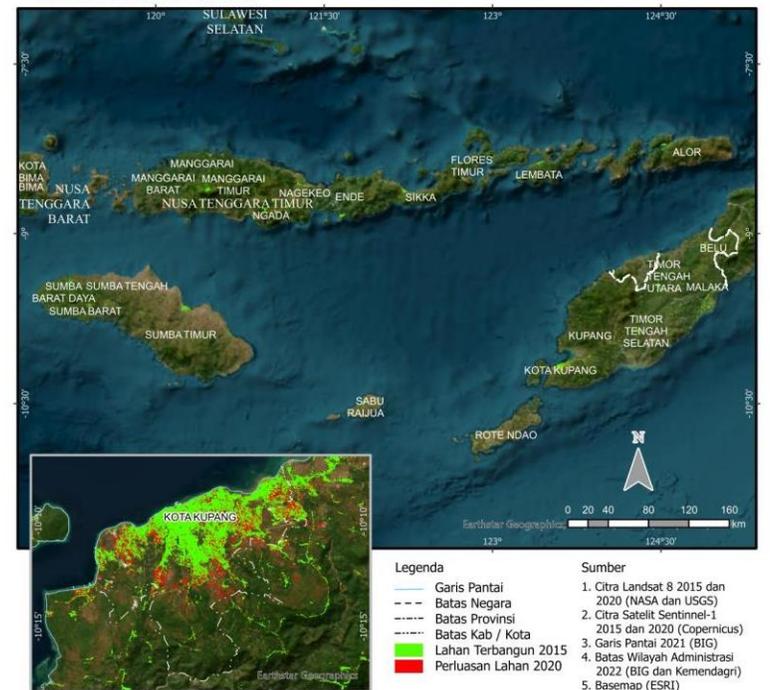
**PETA PERLUASAN LAHAN TERBANGUN
KALIMANTAN BARAT**



**PETA PERLUASAN LAHAN TERBANGUN
BALI**



**PETA PERLUASAN LAHAN TERBANGUN
NUSA TENGGARA TIMUR**



Subsequent Spatial-Statistical Integration?

1. Base map as a reference in determining the location of a phenomenon

3. Framework of the same region to analyze or disseminate statistical data



Indonesia Data Hub (INDAH)

Indonesia Data Hub merupakan *one stop collaboration platform* yang bertujuan untuk mendukung interoperabilitas data dan kolaborasi eksplorasi terhadap data.

Standar Data Statistik

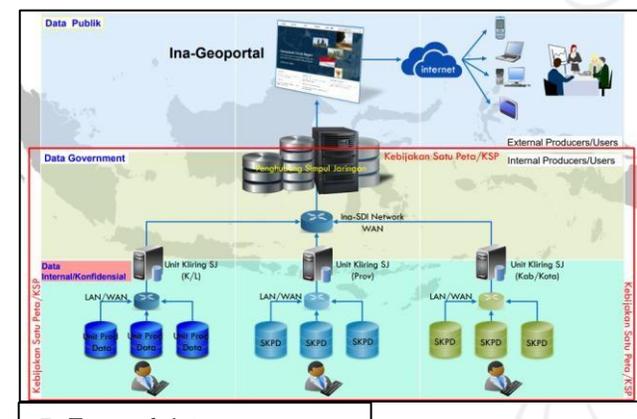
Metadata Statistik

Katalog Unsur Geografi Indonesia

Katalog Unsur Geografi Indonesia (KUGI) adalah pemberian kode dan struktur kode, penetapan tipe, operasi, atribut, asosiasi, dan aturan-aturan pendokumentasian atas unsur yang direpresentasikan dalam data geografis sesuai dengan Peraturan BIG Nomor 12 Tahun 2013. (Disusun berdasarkan SNI ISO 19110)

4. Statistical and spatial data standards to support the integration of the two data

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#1 Peta Data Nusantara



Terima Kasih



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