

First Expert meeting of the UN-GGIM & IHO Joint Working Group on Marine Geospatial Information
with the theme “Advancing Integrated Marine Geospatial Information Management”

Chiang Mai, Thailand
4 – 8 May 2026



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INDONESIA

GEOSPATIAL INFORMATION AGENCY



**BADAN INFORMASI
GEOSPASIAL**



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Indonesia

Indonesia has a **vast maritime territory** consisting of territorial waters, internal waters, archipelagic waters, and an exclusive economic zone. However, **only about 3% of Indonesia's total maritime territory has been mapped (on a large scale).**

Challenges:

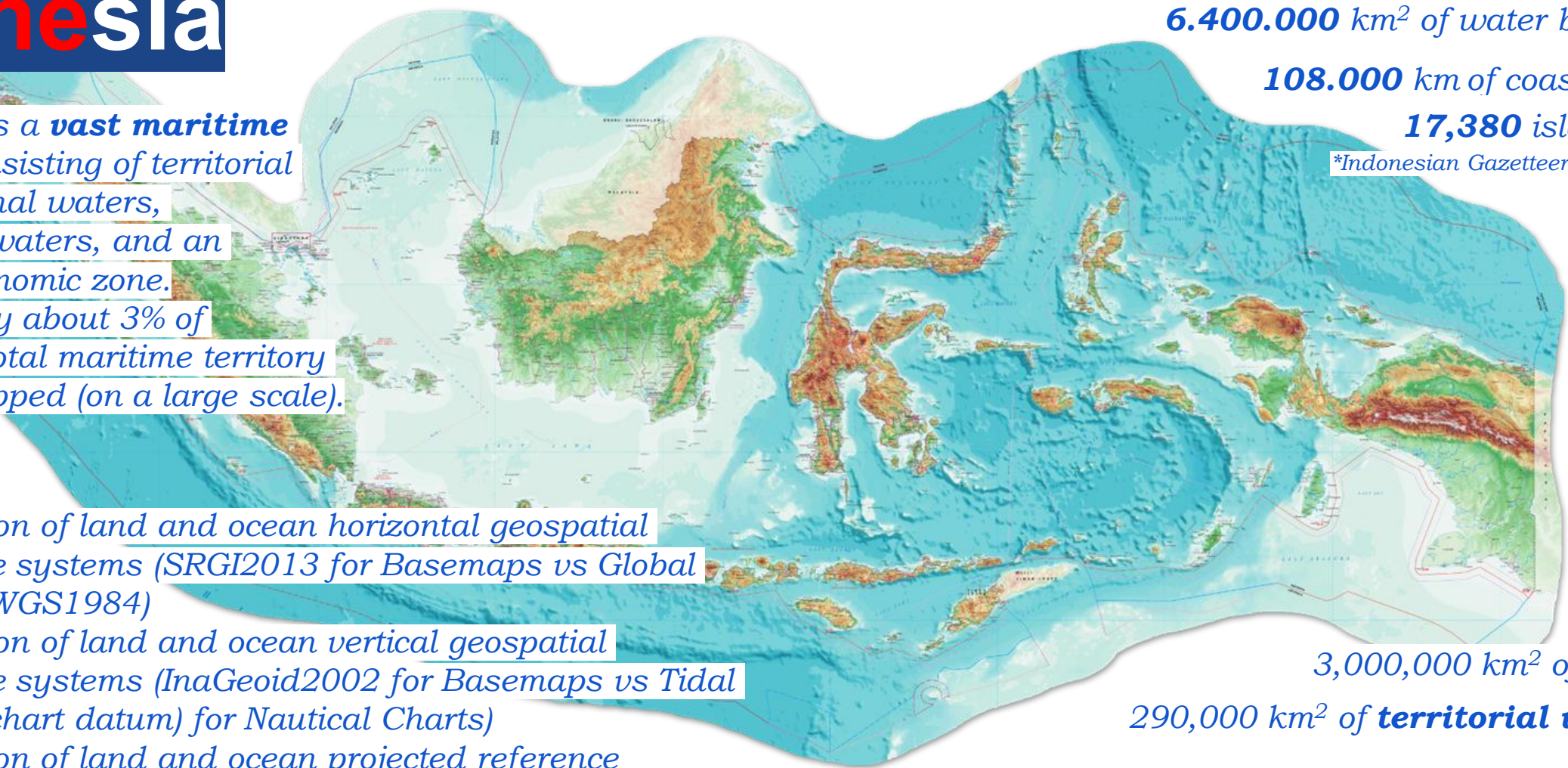
- Integration of land and ocean horizontal geospatial reference systems (SRGI2013 for Basemaps vs Global Datum/ WGS1984)
- Integration of land and ocean vertical geospatial reference systems (InaGeoid2002 for Basemaps vs Tidal Datum (chart datum) for Nautical Charts)
- Integration of land and ocean projected reference systems (UTMs, TM3s, Normal Mercator)

6.400.000 km² of water bodies

108.000 km of coastlines

17,380 islands*

*Indonesian Gazetteer of 2025



3,000,000 km² of **EEZ**

290,000 km² of **territorial water**

2.800.000 km² of **continental shelf ext.**

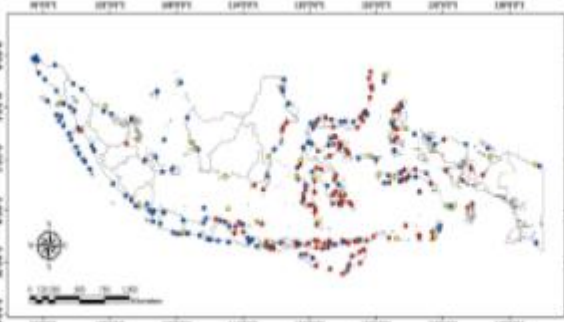
3.110,000 km² of **archipelagic waters**



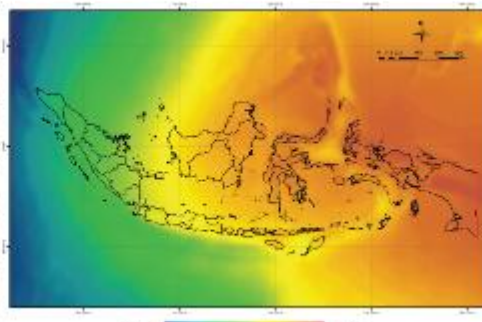
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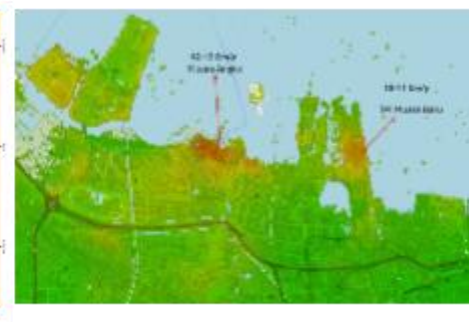
Ina-CORS



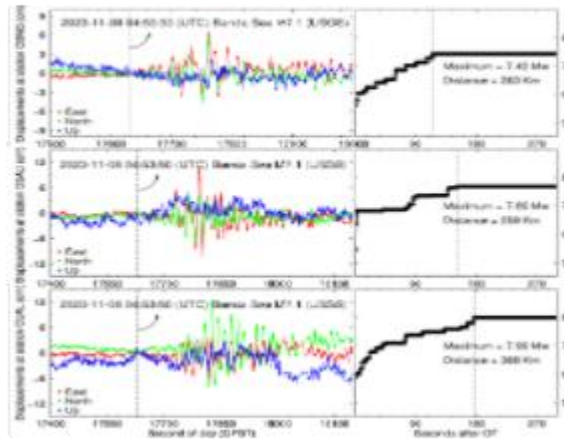
Ina-Tide



Ina-Geoid



Ina-GDMS



Earthquake magnitude detection and volcanic activity monitoring using real-time based displacement provided by CORS stations.



Monitoring of sea level rise and land subsidence in coastal areas to provide warnings to local communities.



Gravimetry key roles in natural resources management, geological hazard (geohazard) mitigation, infrastructures monitoring.



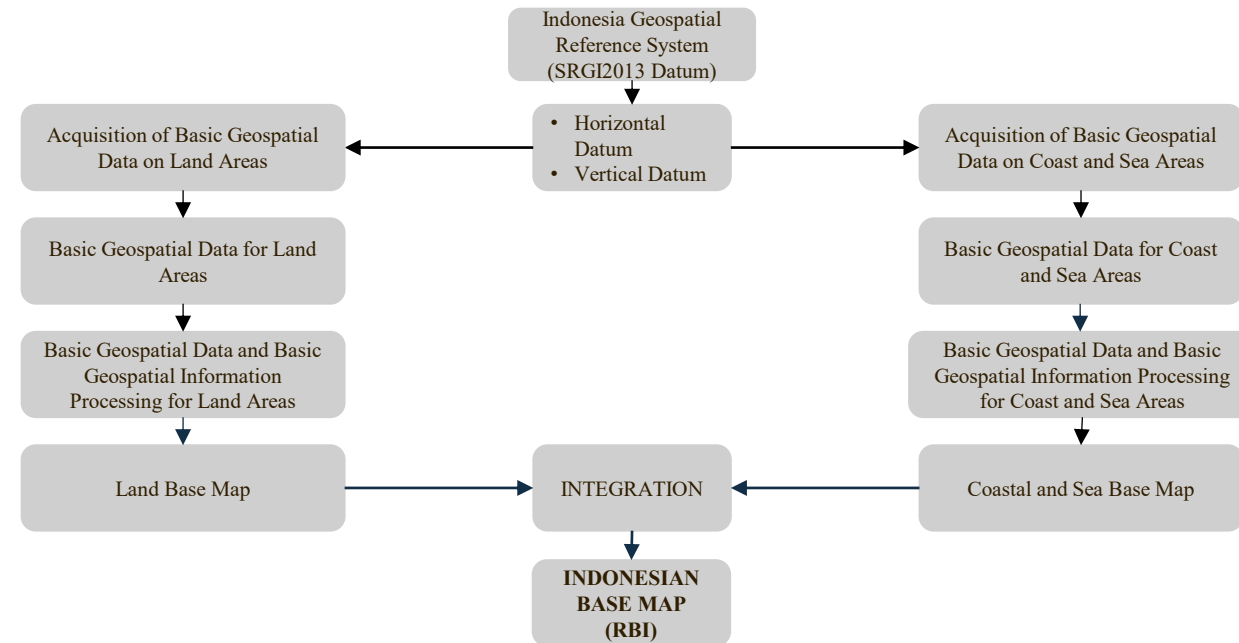
Ground deformation monitoring-induced geohazards mitigation such as earthquake, land subsidence, etc.



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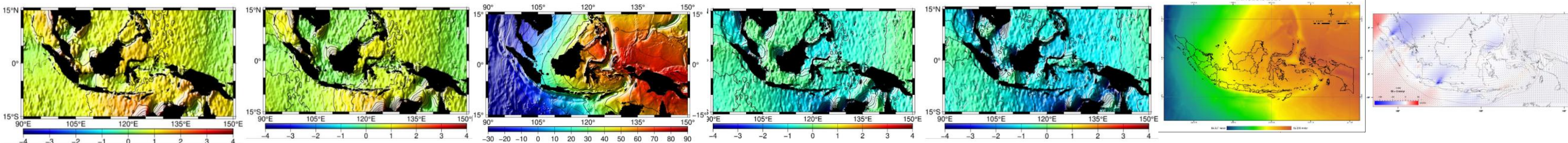
Solution:

One Single Indonesia Geospatial Reference System (SRGI2013)



Solution:

- Providing user specific requirements for:
 - horizontal geospatial reference systems to Indonesia Geospatial Reference System (SRGI2013): SRGI2013 2021.0 epoch
 - vertical geospatial reference systems to Indonesia Geospatial Reference System (SRGI2013): InaGeoid2002
 - projected reference systems (UTMs, TM3s, Normal Mercator)
 - Other specific datum and epoch transformation parameters



Tidal Datum/Chart Datum: HAT, MHW, MSL, MLWS, LAT to Indonesia Vertical Geospatial Reference Systems (InaGeoid2002)

Horizontal and Vertical Deformation Model and projected/global datum transformation to SRGI2013 2021.0 epoch

Geospatial Reference System Integration



IHO

International
Hydrographic
Organization

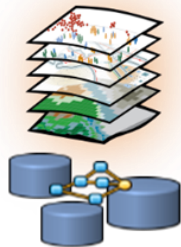
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The Role & Function of BIG:

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

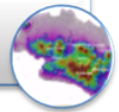
IGD Development



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

Indonesian Base Map Peta Rupabumi Indonesia (RBI)



Indonesian Base Maps:

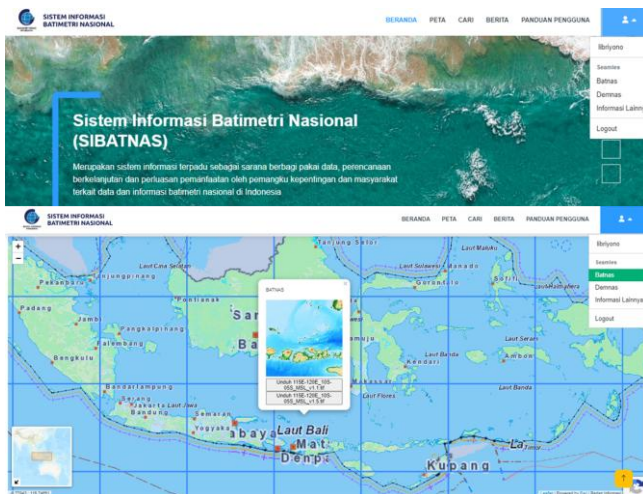
- covers land area, coastal area, and marine area in an integrated manner.
- Coastline is represented at high water level (MHWS), mean sea level (MSL), and lowest water level (LAT)
- Geoid is used as universal height reference system for both land and marine.
- Systematic Scale of 1:5.000; 1:25.000; 1:50.000; 1:250.000; and 1.000.000 throughout Indonesia region.



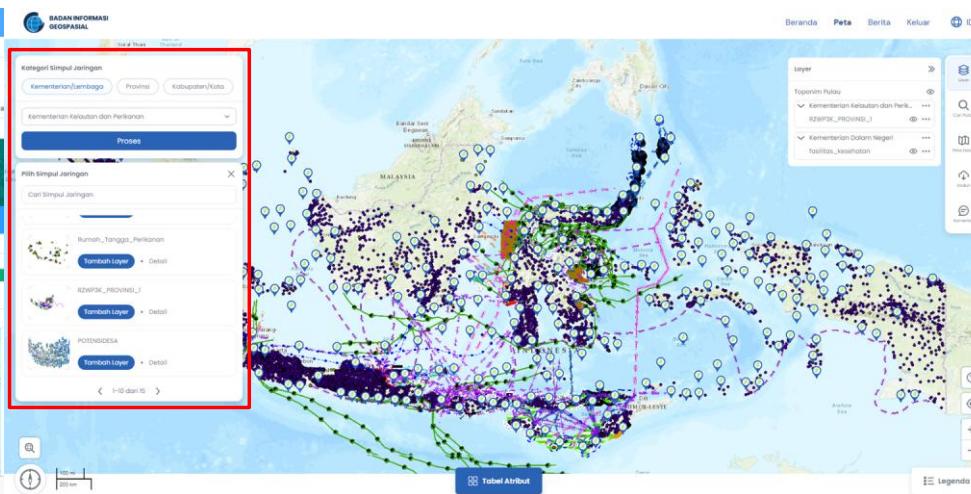
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THE IMPORTANCE OF MARINE GEOSPATIAL INFORMATION

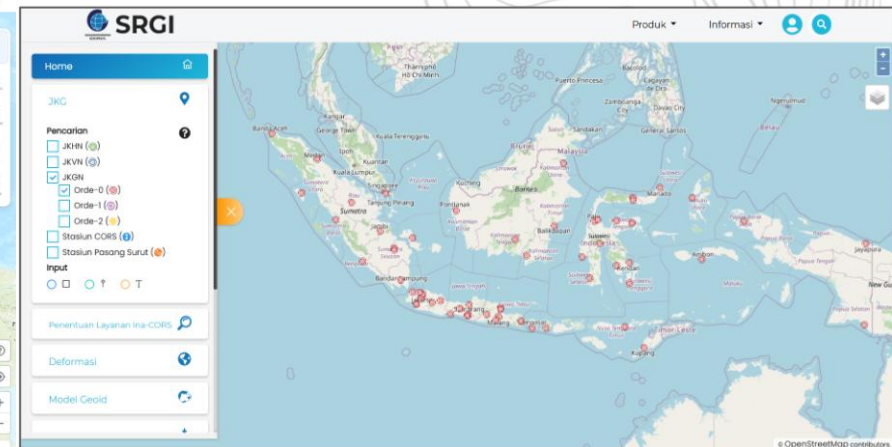
- Increased global reliance on water requires marine geospatial information for data-driven, evidence-based management.
- UN-GGIM recognizes marine environment as crucial in national geospatial information management.
- Marine geospatial information is needed by governments to support data-driven, evidence-based management and administration of seas, oceans, coastal zones, and inland waters.



Indonesia National Bathymetry Information System (SIBATNAS) for collection, management, visualization and dissemination of marine geospatial information



Indonesian Island Information System (SIPULAU) for Indonesia's islands data integration with Ina-Geoportal capabilities that are partners of the National Geospatial Information Network (JIGN) and Indonesian Hydrographic Data Center (IHDC) interoperability



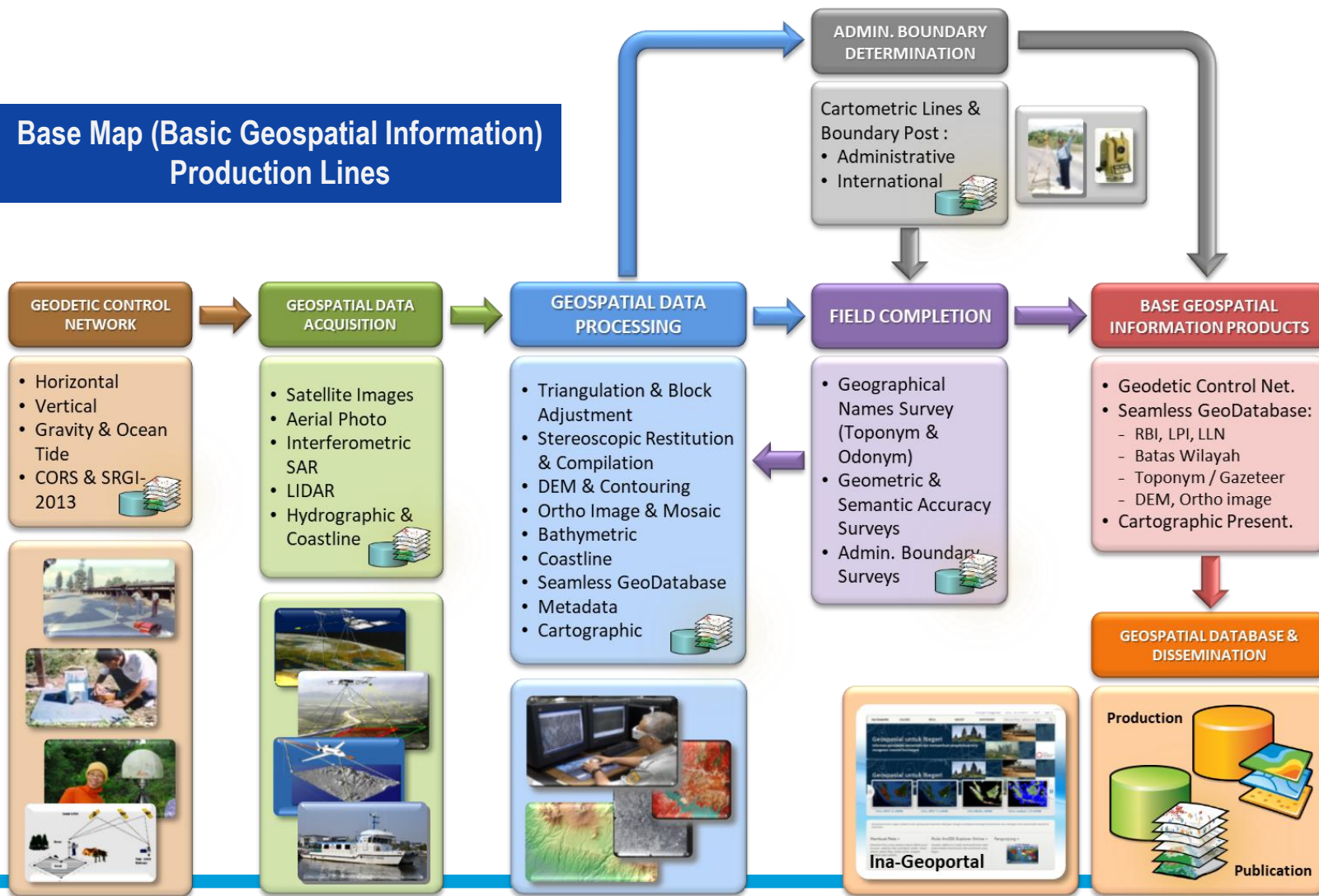
Indonesia Geospatial Reference System (SRGI): one solution for horizontal and vertical geospatial reference system, one geospatial reference system



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Marine Geospatial Information in Indonesia

Base Map (Basic Geospatial Information) Production Lines



Marine Geospatial Information Integration

Data and Geospatial Information

- Hidrograpy (bathymetry)
- Marine Geodesy
- Marine Geology
- Oseanography
- Marine Meteorology
- Ecology and Environmental
- Maritime Governance
- Transportation
- etc

Ina-Marine-SDI

Integrated
Marine Geospatial
Information



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Strategy Of Fulfillment In Marine Geospatial Information

Conditions

- **Largest archipelagic country**
17,380 islands, 108.000 km of coastlines, 6.400.000 km² of water bodies
- **Various water condition**
- **Various Technology and method in coastal and sea mapping**

Strategies

- Categorizing Indonesia's sea and coastal areas
- Utilizing a combination of technologies
- Integrating the processing methods of various data obtained from the combination of acquisition technology with global depth data
- implementing the infrastructure development of a cloud-based base map production system

Marine Geospatial Information Integration

Data and Geospatial Information

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Ina-Marine-SDI

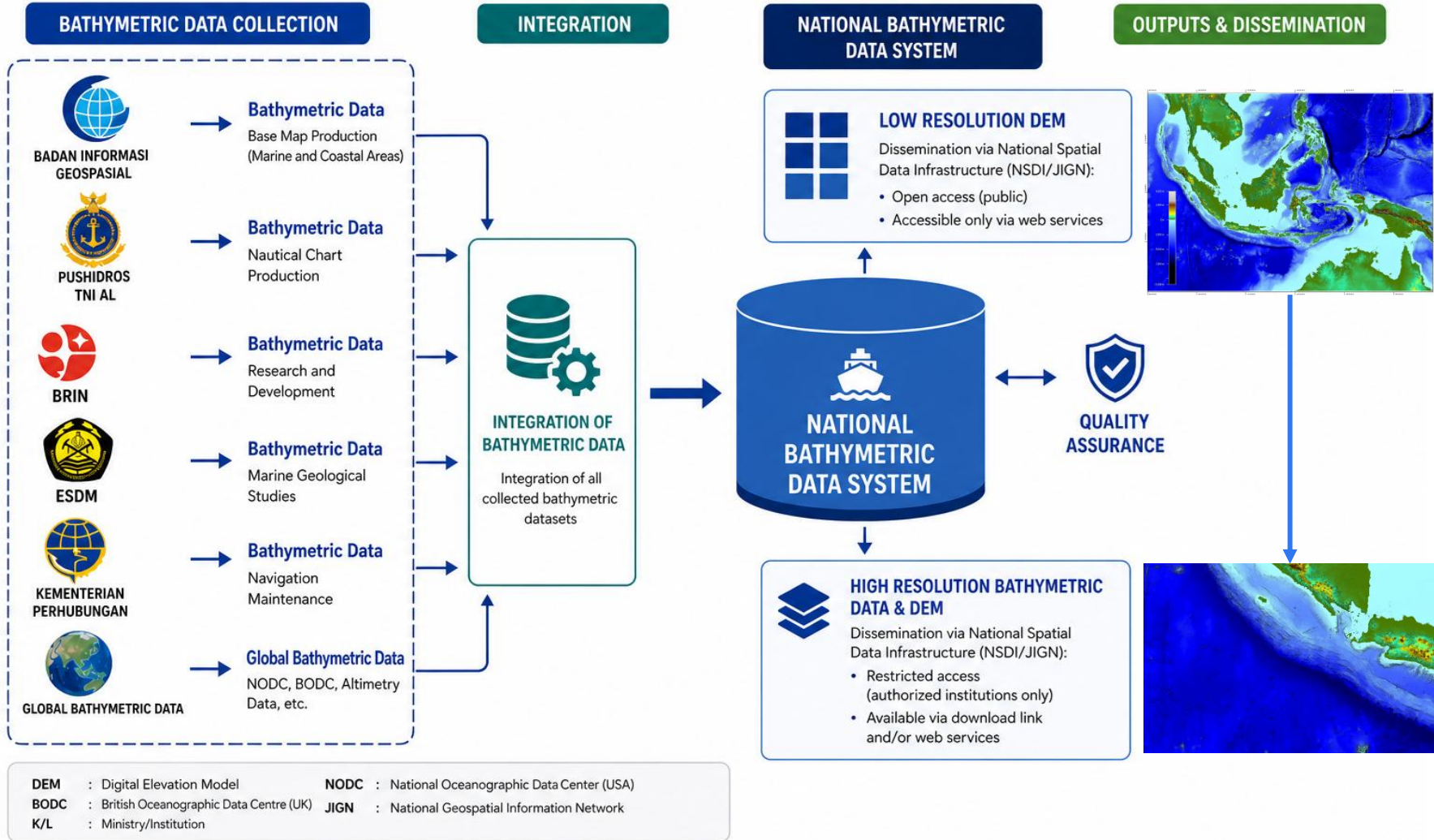
Integrated
Marine Geospatial
Information

- **Indonesia has strong vision and interest** on marine geospatial data and information.
- **The national bathymetric data and DEM** plays an important role as a basic geospatial information where any other thematic information can be overlaid and integrated for analysis.
- the needs of national bathymetric data can be fulfilled by **collaboration between institutions** who has task and function related to bathymetric data collection.
- **Integrating** marine geospatial information is crucial to maximizing the benefits.



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SYNERGY MECHANISM IN THE PROVISION OF NATIONAL BATHYMETRIC DATA



DEM : Digital Elevation Model
 BODC : British Oceanographic Data Centre (UK)
 K/L : Ministry/Institution
 NODC : National Oceanographic Data Center (USA)
 JIGN : National Geospatial Information Network

- **Indonesia has strong vision and interest** on marine geospatial data and information.
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Strategic Foundation:

Harmonizing national long-term development with advanced geospatial data infrastructure

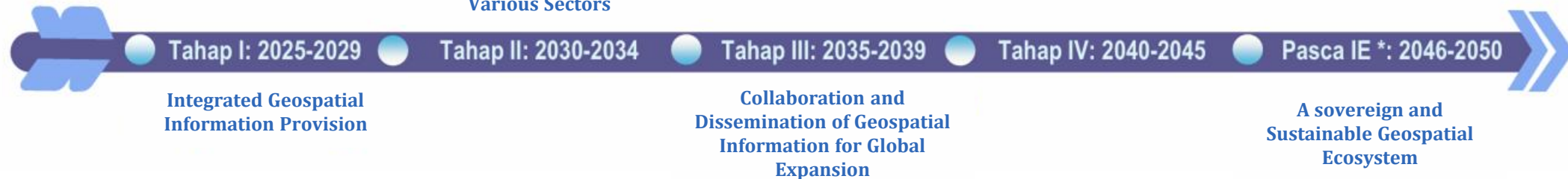
Law No. 58 of 2024 on the National Long-Term Development Plan for 2025-2045



Master Plan for Geospatial Information Management

Accelerating the Improvement of Access to and Utilization of Geospatial Information Across Various Sectors

A Reliable Geospatial Ecosystem to Realize Golden Indonesia 2045



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#1Peta
Nusantara

BerAKHLAK
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BerAKHLAK BerAKHLAK BerAKHLAK BerAKHLAK

Terima Kasih

Khop Khun



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[INDONESIA] [PUSHIDROSAL]



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the Management and Use of Marine Geospatial Information

- Current Institutional Setup: Pushidrosal establish Indonesian Hydrographic Data Centre as Indonesian MSDI. Link <https://ihdc.pushidrosal.id>
- Platform: Arcgis
- Main Datasets: Nautical Chart & ENC Catalog, basemap ENC, Tidal Prediction, Nautical Publication Catalog, Marine Data Sharing with other National Institution, Maritime Safety Information, and Undersea Feature Names.
- Existing Coordination Mechanism: Data sharing from all marine national institution can be implemented through cooperation agreement.
- Current progress or achievement: Better understanding among marine national institution regarding respective function, reduce duplication of spatial data collection activity, better support for marine national project development such as management of undersea pipe and cable.



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Aim to be in the Next Five Years

- Expected Policy or Governance Improvement: Continue the Existing National Policy on Management and Use of Marine Geospatial Information.
- Integration across Institution: S-100 IHO Data Standards implementation for marine geospatial information data production and storage not only within Pushidrosal but also in other national marine institutions.



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the Main Challenges in Reaching the Aim

- Less information regarding the S-100 IHO Data Standards outside IHO environment.
- Required funding or investment for S-100 production software and visualization software are quite high and usually more than planned institution routine operational budget.
- Lack of standardized training on MSDI within national, regional and global level.



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Opportunities to Address the Challenges

- Joint Working Group MGI could endorse the use of IHO S-100 standards within UN environment.
- The establishment of Official Global MSDI and Regional MSDI under UN Organization.
- Endorse more hydrographers and cartographers to work within related UN bodies.
- Conduct more MSDI and S-100 training on technical and strategic level to prepare the technician and aspire the decision maker.
- Endorse the software developers to consider more affordable licensing schema for the developing countries.



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How familiar with the UN-IGIF and IHO C-17?

- Pushidrosal is familiar with IHO C-17 and UN-IGIF and use both documents as reference for the establishment of IHDC.
- Pushidrosal also support and actively participate IHO MSDI WG.
- Geoportal IHDC is the real example that Pushidrosal has already support the access of marine spatial data within its database by the public and government official for the development and innovation.



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Expected Support from UN-GGIM-IHO Joint Working Group

- Training
- More exposure of hydrography within UN organization
- Invite Software Developers to support developing countries for maintaining their MSDI Geoportal



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