

Terms of Reference

“Luma” Mapping Platform Launching Workshop

Data Democratization for Sustainable Landscapes: Mapathon *Gotong Royong* for Collaborative Land Use and Land Cover Mapping

Jakarta, 20 May 2026

Background

Sustainable landscape management, forest restoration, and avoided deforestation remain central to Indonesia’s development agenda and climate commitments, as reflected in the Nationally Determined Contribution (NDC) and the 2030 FOLU Net Sink operational strategy. Achieving these targets requires high-quality, accessible spatial data to identify priority areas, guide appropriate land-use options, and monitor the outcomes of interventions over time.

High-quality, widely accessible map data is one of the crucial requisites to the achievement of those targets, particularly for identifying priority areas and determining appropriate landscape intervention and restoration efforts.

However, a key challenge often faced is the limited availability of data and the high level of technical barrier, which can make access to land use and land cover maps somewhat exclusive. The Epistem initiative (Evolving Participatory Information System for Nature-based Climate Solutions) is built on the belief that collaboration is key to the creation and wider dissemination of accurate land use and land cover data. Through a partnership between the International Institute for Applied Systems Analysis (IIASA), the National Research and Innovation Agency (BRIN), the Centre for International Forestry Research and World Agroforestry (CIFOR-ICRAF), and the World Resources Institute (WRI) Indonesia, we believe that effective nature-based climate solutions are rooted in the availability of practical mapping technologies—tools that help strengthen connections among the people who directly manage and interact with these landscapes.

As part of this initiative, Epistem has developed a web-based mapping platform called “Land Use Mapping for All”, or “Luma,” which has been developed along through extensive stakeholder engagement in South Sumatra and has attracted communities of practices through outreach activities in South Sulawesi and East Nusa Tenggara. With strategic support from BRIN and partners across these three provinces, Epistem is introducing an innovation ecosystem that includes an online participatory mapping tool, a library of open-source mapping methodologies and reference data, and a mapathon (*rembuk peta*) mechanism for analysing land use and land cover. This approach draws on global best practices to enable collaborative mapping that meets a wide range of thematic needs while producing up-to-date and reliable data.

Commemorating National Awakening Day, the Epistem initiative aspires to instil the spirit of this national movement milestone into its vision of “data democratization for sustainable landscapes.” This moment marks a revival of collective stewardship in land use governance through mapping *gotong royong*—bringing together practitioners, government, and local communities to advance nature-based climate solutions. Through the *gotong royong* mechanism, we are not only mapping landscapes but also fostering a shared sense of responsibility to safeguard the future of Indonesia’s landscapes. The event will combine technical introduction sessions, hands-on practice, and collaborative discussions to build a common understanding of the goals, methods, and expected contributions of the mapathon. At the same time, it aims to align stakeholders on the future direction of Luma’s development and use.

Objectives

This workshop aims to introduce the Luma mapping platform and the concept of modular mapping, build a national collaborative network for land use and land cover mapping, and initiate a land use and land cover mapathon mechanism to strengthen synergies in support of Indonesia’s climate change mitigation agenda. The specific objectives of this activity include:

1. Build a shared understanding of open-source participatory tools for land use and land cover mapping that are relevant and useful for a diverse range of users.
2. Build a shared understanding on how to use Luma to produce land use and land cover maps that meet diverse thematic needs.
3. Gather feedback on potential improvements to Luma’s design and features to better accommodate the mapping needs of different user groups.
4. Introduce the concept of modular mapping and modular reference data to support a collaborative approach to land use and land cover mapping.
5. Present the Epistem initiative’s collaborative mapping plans and the co-development of land use and land cover reference data, including data creation, validation, and integration into mapping workflows.
6. Introduce and collect feedback on the concept, objectives, and planned stages of upcoming mapathon activities, as well as potential participation and contributions from communities of practices.

Schedule and Venue

This workshop will be held both in person and through online participation:

Day/Date	: Wednesday, 20 Mei 2026
Venue	: Majapahit Room, A. A. Maramis Building, Jl. Lap. Banten Timur, Central Jakarta 10710
URL	: https://epistem.io/RembukPeta
Time	: 08:30 – 16:30 WIB

Session Description

The workshop will begin with a series of keynote presentations, the launch of Luma, and in-depth discussions on the upcoming mapathon activity series:

1. Keynote Speech: Toward a People-Centered Sustainable Landscapes

This session will feature BRIN leadership and a senior Epistem advisor from Brazil's National Institute for Space Research (INPE), discussing the urgency of participatory approaches in landscape management. Participants will gain strategic insights into how collaboration across sectors can strengthen national policy, as well as learn from Brazil's success in building the technology infrastructure to democratize forest monitoring data.

2. Keynote Speech: Participatory Mapping Technology

IIASA representative will present the philosophy behind the development of the Epistem ecosystem, including the rationale for why collaborative mapping solutions require the integration of mapping technology, shared reference data, and mapathon mechanisms. This session will provide an overview of the currently developed mapping technology and how it is designed to address challenges in spatial data accessibility in Indonesia.

3. Luma Launch and Demonstration: From Theory to Practice

This session will combine a technical introduction to the Luma platform with hands-on trial for workshop participants. It will be enriched by testimonials and demonstrations from communities of practices in South Sumatra, South Sulawesi, and East Nusa Tenggara, who have successfully begun their journey in using Luma for their mapping work—demonstrating its effectiveness in harnessing local knowledge and delivering field impact.

4. National Mapathon: Shared Data for Collaborative Mapping

This session will present the concept of modular land use and land cover mapping—designed to be flexible while remaining interoperable. The approach aims to enable different stakeholders to integrate their thematic data into a coherent, shared ecosystem.

5. Mapathon *Gotong Royong*: Building a Collective Movement

Most importantly, this segment will focus on the planned series of mapathon activities. Through collaborative discussions and demonstrations of the mapathon process, participants will co-define implementation stages, contribution targets, and participation mechanisms that enable all stakeholders to actively engage in generating national land use and land cover data in a collaborative manner.

Agenda

Time	Activities and Speakers
08:30 – 09:00	Registration
09:00 – 09:25	Opening session • Andree Ekadinata (Indonesia Country Program Director, CIFOR-ICRAF)

	• Asep Hidayat, M.Agr., Ph.D. (Head of Ecology Research Center, BRIN)
09:25-10:15	SESSION 1 Keynote Speech: Toward a People-Centered Sustainable Landscapes • Andes Hamuraby Rozak, Ph.D. (Head of RO Life Sciences and Environment, BRIN) • Prof. Gilberto Camara (Senior Researcher, INPE)
10:15-10:45	SESSION 2 Participatory Mapping Technology Ping Yowargana (Senior Research Scholar, IIASA)
10:45-12:15	SESSION 3 Luma Launch and Demonstration: From Theory to Practice • Harry Aksomo (Researcher, CIFOR-ICRAF) • Perwakilan Karsa Bentala Sumatra Selatan, Nusa Tenggara Timur dan Sulawesi Selatan
12:15-13:15	<i>Ishoma</i>
13:15-14:15	SESSION 4 National Mapathon: Shared Data for Collaborative Mapping • Dony Indarto (Researcher, CIFOR-ICRAF) • Maria Adelia Widijanto (Researcher, IIASA)
14:15-16:15	SESSION 5 Mapathon Gotong Royong: Building a Collective Movement • Arga Pandiwijaya (Geoinformatics Specialist, CIFOR-ICRAF) • Nurhayatun Nafsiyah (Researcher, CIFOR-ICRAF)
16:15-16:30	Closing

List of Participants

No.	Name/Institution
Ministry of Forestry	
1.	Sekretaris Direktorat Jenderal Konservasi Sumber Daya Alam dan Ekosistem
2.	Sekretaris Direktorat Jenderal Pengelolaan Daerah Aliran Sungai dan Rehabilitasi Hutan
3.	Sekretaris Direktorat Jenderal Planologi dan Kehutanan
4.	Sekretaris Direktorat Jenderal Pengelolaan Hutan Lestari
5.	Sekretaris Direktorat Jenderal Penegakan Hukum Kehutanan
6.	Sekretaris Direktorat Jenderal Perhutanan Sosial
7.	Sekretaris Badan Penyuluhan dan Pengembangan Sumber Daya Manusia
8.	Kepala Biro Perencanaan
9.	Kepala Pusat Data dan Informasi
10.	Kepala Biro Humas dan Kerja Sama Luar Negeri
11.	Kepala Pusat Pengembangan Sosial Ekonomi Masyarakat Hutan
12.	Kepala Pusat Pengembangan Kehutanan Berkelanjutan
13.	Direktur Bina Rencana Pemanfaatan Hutan, Ditjen PHL
14.	Direktur Rehabilitasi Hutan, Ditjen PDASRH
15.	Direktur Pengembangan Usaha Perhutanan Sosial, Ditjen PS

16.	Direktur Konservasi Spesies dan Genetik, Ditjen KSDAE
17.	Direktur Pemanfaatan Jasa Lingkungan, Ditjen KSDAE
18.	Direktur Pengendalian Kebakaran Hutan, Ditjen Gakkum
19.	Direktur Pemulihan Ekosistem dan Bina Areal Preservasi, Ditjen KSDAE
20.	Direktur Inventarisasi dan Pemantauan Sumber Daya Hutan, Ditjen Planologi
21.	Direktur Penanganan Konflik Tenurial dan Hutan Adat, Ditjen PS
22.	Direktorat Jenderal Kerja Sama Multilateral (Ditjen KSM) Kementerian Luar Negeri RI
Ministry of Environment	
23.	Direktur Penyelenggaraan Sumber Daya Alam Berkelanjutan
24.	Direktur Perlindungan dan Pengelolaan Ekosistem Gambut
25.	Direktur Perlindungan dan Pengelolaan Ekosistem Perairan Darat
26.	Direktur Pengendalian Kerusakan Lahan
27.	Direktur Pengendalian Pencemaran dan Kerusakan Lingkungan Pesisir dan Laut
28.	Direktur Pencegahan Dampak Lingkungan Kebijakan Wilayah dan Sektor
29.	Direktur Adaptasi Perubahan Iklim
30.	Direktur Mitigasi Perubahan Iklim
31.	Direktur Pengendalian Kebakaran Lahan
Ministry of National Development Planning/Bappenas	
32.	Direktur Kehutanan dan Konservasi Sumber Daya Air
33.	Direktur Lingkungan Hidup
Indonesian Environment Fund	
34.	Kepala Badan Pengelola Dana Lingkungan Hidup
National Research and Innovation Agency	
35.	Kepala Organisasi Riset Hayati dan Lingkungan
36.	Kepala Organisasi Riset Kebumihan dan Maritim
37.	Kepala Organisasi Riset Pertanian dan Pangan
38.	Kepala Organisasi Riset Tata Kelola Pemerintahan, Ekonomi dan Kesejahteraan Masyarakat
39.	Kepala Organisasi Riset Penerbangan & Antariksa
40.	Kepala Organisasi Riset Elektronika dan Informatika
41.	Direktur Kebijakan Lingkungan Hidup, Kemaritiman, Sumber Daya Alam, dan Ketenaganukliran
42.	Kepala Pusat Riset Ekologi
43.	Kepala Pusat Riset Sistem Biota
44.	Kepala Pusat Riset Lingkungan dan Teknologi Bersih
45.	Kepala Pusat Riset Botani Terapan

46.	Kepala Pusat Riset Kebencanaan Geologi
47.	Kepala Pusat Riset Iklim dan Atmosfer
48.	Kepala Pusat Riset Limnologi dan Sumber Daya Air
49.	Kepala Pusat Riset Sumber Daya Geologi
50.	Kepala Pusat Riset Oseanologi
51.	Kepala Pusat Riset Holtikultura
52.	Kepala Pusat Riset Tanaman Perkebunan
53.	Kepala Pusat Riset Peternakan
54.	Kepala Pusat Riset Pemerintah Dalam Negeri
55.	Kepala Pusat Riset Kebijakan Publik
56.	Kepala Pusat Riset Kesejahteraan Sosial, Desa dan Konektivitas
57.	Kepala Pusat Riset Teknologi Satelit
58.	Kepala Pusat Riset Geoinformatika
59.	Kepala Pusat Riset Sains Data dan Informasi
BPS/Statistics Indonesia	
60.	Achmad Fauzi Bagus Firmansyah, Data scientist and GIS specialist
61.	Wida Widiasuti, Senior Statistician, Geospatial Specialist
62.	Fawcet Jenusdy Makay
Other Institutions	
63.	Karsa Bentala Sumatera Selatan
64.	Karsa Bentala Nusa Tenggara Timur
65.	Karsa Bentala Sulawesi Selatan
66.	Ambassador George Monteiro Prata, Embassy of Brazil
67.	Rodrigo Alexandre Oliveira de Carvalho, Minister Counsellor, Embassy of Brazil
68.	Marcelo Koiti Hasunuma, Counsellor, Embassy of Brazil
69.	Maike Elizabeth Lorenz, Head of Climate & Environment, German Embassy
70.	Alice Birnbaum, Head of Development Cooperation, Embassy of Canada
71.	Kusuma Wijaya, Senior Economic Research Officer, Australian Embassy
72.	Trio Wisudantho, Sector Advisor for Environment and Circular Economy, Embassy of Denmark
73.	Anja Lillegraven, Counsellor (Forest and Climate change), Embassy of Norway
74.	Embassy of The Republic of Suriname
75.	Dutch Embassy Indonesia
76.	Novita Sari, Programme Manager Cooperation Section, European Union Delegation
77.	Hani Abdelkader Elsadani, Head of MCO and Country Director (Indonesia & Mekong), IFAD

78.	Yuliana Wulan, Forestry Technical Expert for Land Based NAMAs Developmeny, GIZ Jakarta
79.	Sara Ferrer Olivella, Resident Representative, UNDP Indonesia
80.	Dechen Tsering, Director Regional Office of Asia Pacific, UNEP
81.	Carolyn Turk, Division Director Indonesia and Timor-Leste, East Asia and Pacific, World Bank
82.	Dr. Dindo M. Campilan, Asia Regional Director, IUCN
83.	Ruslandi, Direktur Program Terrestrial, YKAN
84.	Chandra Panjiwibowo, Senior Director, Asia Pacific Rainforest Alliance
85.	Gamma Galudra, Director Indonesia Country Program, RECOFTC
86.	Meizani Irmadhiany, Senior Vice President & Executive Chair, Konservasi Indonesia
87.	Thomas Oni Veriasa, Direktur Eksekutif, LATIN
88.	Retno Utaira, Direktur Finansial dan Operasional, KEMITRAAN
89.	Ristika Putri Istanti, Kepala Sekretariat, Lingkar Temu Kabupaten Lestari
90.	Yus Rusila Noor, Direktur, Wetlands International Indonesia
91.	Cahyo Nugroho, Country Director, Fauna & Flora Indonesia Programme
92.	Martua T. Sirait, Direktur, Samdhana Institut
93.	Dewi Sulistioningrum, Head of Operation, Perkumpulan Open Street Map Indonesia
94.	Burhanuddin Zein, Fisheries and Aquaculture Program Manager, Konservasi Indonesia
95.	Dewi Suralaga, Lead Consultant for Indonesia Coordination, CLUA
96.	Putra Agung, Direktur, SNV Indonesia
97.	Riki Frindos, Direktur Eksekutif, Yayasan Keanekaragaman Hayati Indonesia (KEHATI)
98.	Mukhammad Thoha Zulkarnain, Department Head of Nature Capital Management, Nusantara Climate Initiative
99.	Ahmad Arif, Jurnalis, Kompas
100.	Hans Nicholas Jong, Jurnalis, Mongabay
101.	Jerome Wirawan, Jurnalis, BBC News Indonesia
102.	Dewi Safitri, Jurnalis, CNN Indonesia
103.	Melvinas Priananda, Jurnalis, Society of Indonesian Science Journalist (SISJ)
104.	Fira Abdurachman, Jurnalis, Society of Indonesian Environmental Journalist (SIEJ)
105.	Ikhsan Raharjo, Jurnalis, Al-Jazeera
106.	Fakhrido Susilo, Executive Director, Ph.D, Katadata
107.	Widdi Fatima, jurnalis, IDN News
108.	IIASA
109.	Periset Pusat Riset Ekologi BRIN (10 Orang)
110.	ICRAF Indonesia
111.	WRI Indonesia

Academia/Universities	
112.	Departemen Konservasi Sumber Daya Hutan dan Ekowisata, Fakultas Kehutanan, IPB University
113.	Pusat Penelitian Lingkungan Hidup, IPB University
114.	Departemen Ilmu Tanah dan Sumberdaya Lahan, Fakultas Pertanian, IPB University
115.	The Center of Remote Sensing, Institut Teknologi Bandung (CRS-ITB)
116.	Sekolah Ilmu dan Teknologi Hayati, Institut Teknologi Bandung (ITB)
117.	Program Studi Sarjana Rekayasa Kehutanan, Institut Teknologi Bandung (ITB)
118.	Program Studi Sarjana Perencanaan Wilayah Kota, Institut Teknologi Bandung (ITB)
119.	Fakultas Teknik Geologi, Universitas Pajajaran (UNPAD) Bandung
120.	Sekolah Ilmu Lingkungan, Universitas Indonesia (UI)
121.	Fakultas Matematika dan Ilmu Pengetahuan Alam, Universitas Indonesia (UI)
122.	Program Studi Geografi, Universitas Indonesia (UI)
123.	Program Studi Sains Informasi Geografi, Universitas Pendidikan Indonesia (UPI)
124.	Sekolah Ilmu Komputer, Bina Nusantara Jakarta
125.	Bidang Studi Information Technology, Monash University Indonesia
126.	Program Studi Pendidikan Geografi, Universitas Muhammadiyah Jakarta

List of Online Participants

No.	Nama/Lembaga
Local Government	
1.	Badan Perencanaan Pembangunan Daerah Seluruh Provinsi, Kabupaten, dan Kota di Indonesia
2.	Dinas Lingkungan Hidup dan Kehutanan Seluruh Provinsi, Kabupaten, dan Kota di Indonesia
3.	Dinas Pertanian / Dinas Tanaman Pangan dan Hortikultura Seluruh Provinsi, Kabupaten, dan Kota di Indonesia
4.	Dinas Perkebunan Seluruh Provinsi, Kabupaten, dan Kota di Indonesia
Academia/Universities	
5.	Universitas Sriwijaya
6.	Universitas Indo Global Mandiri
7.	UIN Raden Fatah Palembang
8.	Universitas Muhammadiyah Palembang
9.	Politeknik Negeri Sriwijaya
10.	Universitas Nusa Cendana Kupang
11.	Universitas Muhammadiyah Kupang
12.	Politeknik Pertanian Negeri Kupang

13.	Universitas Timor
14.	Politeknik Negeri Kupang
15.	Universitas Katolik Widya Mandira
16.	Universitas Hasanuddin
17.	Universitas Negeri Makassar
18.	Universitas Muhammadiyah Makassar
19.	UIN Alauddin Makassar
20.	Politeknik Negeri Ujung Pandang
21.	Universitas Bosowa
22.	Universitas Andi Djemma Palopo
23.	Politeknik Pembangunan Pertanian Gowa
24.	Universitas Muslim Indonesia Makassar
25.	SMK Kehutanan Makassar
Other Institution	
26.	TaniYuk
27.	Perkumpulan Hutan Kita Institute (HaKI)
28.	Forum DAS Sumatera Selatan
29.	Plantari Institute
30.	Forum Pengurangan Risiko Bencana NTT
31.	Yayasan Relung Indonesia
32.	Krisna Foundation
33.	Tim Layanan Kehutanan Masyarakat (TLKM)
34.	Sulawesi Community Foundation (SCF)
35.	Yayasan Hutan Biru (YHB)