# Rinjani Digital Services: Creating an Integrated AI Public Service and Online Database for Lombok's Crown Jewel

**By Diemas Sukma Hawkins | Kuartal Institute**

## Why Rinjani matters

Few places in Indonesia carry as much weight, physical, cultural and economic, as Mount Rinjani. At 3,726 metres, it is the second-highest volcano in the country and the highest point in West Nusa Tenggara (NTB). Its caldera, roughly 6 by 8.5 kilometres, holds the crater lake Segara Anak, a place of deep spiritual importance to the Sasak people. The caldera itself is the scar of the 1257 eruption of Samalas, considered one of the most powerful volcanic events of the last two thousand years.

The mountain is protected by Gunung Rinjani National Park, established in 1997 and covering about 41,330 hectares. In April 2018, UNESCO recognised the Rinjani caldera as part of the Global Geoparks Network. Today the landscape carries two international designations: the Rinjani-Lombok UNESCO Global Geopark, reported at 2,850 km², and the Rinjani-Lombok UNESCO Biosphere Reserve, reported at 4,590.97 km² for the whole island (both figures to be verified by a named human researcher). The two designations overlap, so their areas must not be added together.

Rinjani is also an economy. In 2024, according to ANTARA, the national park recorded 93,796 climbers, 47,716 of them foreign and 46,126 domestic, while a further 95,295 visitors came for non-climbing activities. IDN Times put total park visitors that year at 189,091. Tempo has since reported 80,214 climbers in 2025.

That economy comes with real risk. Rinjani is an active volcano, and the trails are steep and exposed. After a widely reported fatal fall in June 2025, the Ministry of Forestry instructed the park office to draft new climbing procedures, and the park reopened on 11 August 2025 under a revised SOP covering trail grading, guide ratios, insurance and safety contingencies.

## The problem of scattered data

A landscape this important generates a great deal of information. The trouble is that it lives in many places, under many owners.

Climbers book through the eRinjani app, which handles quotas, tickets, payment and rescheduling. Researchers, educators and journalists who need to enter the conservation area apply separately through e-SIMAKSI, at least fourteen days ahead. Volcano status is published by MAGMA Indonesia. Tourism, disaster and rainfall tables sit on the provincial open-data portal, Satu Data NTB, published by different agencies. Geosite information lives in its own map database.

Each of these systems does its job. But a resident, a student, a visiting researcher or a village official who wants a single picture of the landscape has to know where every piece is, who publishes it, and how current it is. The Rinjani-Lombok landscape spans the province and five local governments, and no single front door has brought their published data together around the Geopark and Biosphere Reserve.

That is the gap Rinjani Digital Services is designed to close.

## What the portal does today

data.rinjanilombok.org is the public front door of the Rinjani-Lombok MIDAS, the agency that holds both the UNESCO Global Geopark and the UNESCO Biosphere Reserve. Kuartal provides web development and hosting; the site and its content belong to the Rinjani-Lombok MIDAS Management Agency. The portal works in English and Bahasa Indonesia and is organised into five desks.

### OneData: an open-data hub for the landscape

OneData is the open-data portal for the Geopark and Biosphere Reserve. Its core is a "Lombok Satu Data Federation": an indexed catalogue of datasets from the provincial government and five local governments, each attributed to its original publisher. The portal is candid about its limits: it states that coverage "is not necessarily complete", and that "nothing here is a new official statistic."

That honesty is a design principle. Tourism destination lists, tourism businesses by type, disaster events and casualties, and daily and monthly rainfall series are not copied or redrawn. Each card links back to the official table on Satu Data NTB. Charts appear only where the data is licensed and machine-readable.

Where OneData does chart its own figures, they come from the MIDAS map catalogue: 53 mapped sites, of which 26 are geological, 9 natural and 18 cultural. By regency, 13 are in East Lombok, 13 in West Lombok, 11 in North Lombok, 2 in Central Lombok and 2 in Mataram, while 12 have addresses that do not name a regency. Rather than guessing, the chart keeps those 12 in their own bar. The portal is explicit that this is a map catalogue, not a new geosite designation.

OneData is meant to serve researchers, officials and communities alike: a place to find what has already been published, and to see who published it.

### Publishing a dataset: being prepared

An agency desk on OneData is being prepared so that offices can publish their own data. The design is simple: a CSV or GeoJSON with names and coordinates becomes a map, and a CSV with a label and

a number becomes a chart. Templates are provided. For now, uploaded files stay in the visitor's browser until an agency server is connected, so this desk is not yet an operational publishing channel.

### Dashboard: what is happening on the mountain

The Dashboard brings together news, warnings and the figures that residents, visitors, businesses and investors need, with a section for each audience. It is deliberately modest about safety: "This desk is not the warning." For volcano status, it sends users to MAGMA Indonesia before they walk. An event calendar is being prepared; the current calendar is a sample, not a published programme.

### OneMap: one map, many layers

OneMap places the published MIDAS map locations, the Geopark boundary, trails and Geosafe hazard information on a single map where layers can be stacked and removed. It complements, rather than replaces, the existing visitor map at map.rinjanilombok.org. Where a boundary is a working study shape, such as the Biosphere Reserve outline, the map labels it as illustrative rather than official zonation.

### Rinjaniku: report and respond

Rinjaniku is a channel being prepared for whistleblowing, complaints and feedback, covering hazards, environmental damage, misconduct, complaints and ordinary feedback, with anonymity as the default. Reports are intended to reach a Rinjani Digital Command Center so that the responsible body can answer. Until a real intake is connected, reports stay in the user's browser, and the page reminds users not to use it for an emergency on the mountain.

### Academy: learning in the landscape

Rinjani Academy sets out courses the agency could run itself, rooted in the villages around the mountain: a Geopark interpreter certificate, porter and guide safety built on the Geosafe briefing, an introduction to reading lontar leaves, homestay hosting, a caldera field school and a geosite steward apprenticeship. It reflects a simple idea: a field school still happens in a village, not only in a browser.

## The AI public service: the next phase

The title of this article speaks of an integrated AI public service. It is important to be clear: **no AI features are live on the portal today.** What exists now is the foundation an AI service needs: a source-attributed catalogue, a structured map database, and desks designed around real users.

That order is deliberate. An AI assistant is only as trustworthy as the data beneath it. A public service that answers questions about trails, hazards, permits or village programmes must be able to show where each answer comes from, and must know when to say "check the official source." OneData's

habit of linking every record to its publisher, and of refusing to invent statistics, is the groundwork for that.

The direction for the next phase follows Kuartal's approach to sovereign, self-hosted AI. Public data about Rinjani, and any reports or questions from residents and visitors, should be processed on infrastructure that is accountable in Indonesia, rather than passed by default to opaque foreign services. Any AI component that touches personal information, such as a Rinjaniku report, must be designed to comply with Indonesia's Personal Data Protection (PDP) law: collecting only what is needed, protecting anonymity where it is promised, and keeping people in control of their data.

What that service will do in practice is a question for the agency, the communities it serves and the data owners, not one to settle in advance. The principles are already set: grounded in published sources, honest about uncertainty, sovereign in where it runs, and respectful of the people whose landscape it describes.

## Looking ahead

Rinjani has never lacked for data. What it has lacked is a single, honest front door. Rinjani Digital Services begins to provide one: it gathers what the province and local governments already publish, maps 53 sites across the island, and prepares channels for reporting and learning. Its AI public service will be built on that foundation, carefully and in the open.

*Related reading: Diemas Sukma Hawkins, "Global Youth Engagement in Promoting Community Empowerment in Indonesian Geoparks Development: Prospects and Challenges for Indonesia Geopark Youth Forum", JSDS (doi:10.22146/jsds.3737).*

**Methods note.** This article was AI-assisted and human-led. Research drafting used an AI assistant working only from sources it opened, including the live portal, its project documentation and the public sources linked above. The author directed the work and is responsible for its content. Figures marked for verification are being checked by a named human researcher.