



HAZE GAZER

A CRISIS ANALYSIS AND VISUALISATION TOOL

Forest and peatland fires in Indonesia continue to affect many parts of Southeast Asia on what is now an annual basis, resulting in extensive environmental destruction, increasing health problems, school closures and transport cancellations.

Fires begin and spread for many reasons, so it is misleading to think of 'fires' as the problem, or even as a single problem. Complex socio-economic, ecological and governance factors are involved, meaning that the drivers, and the

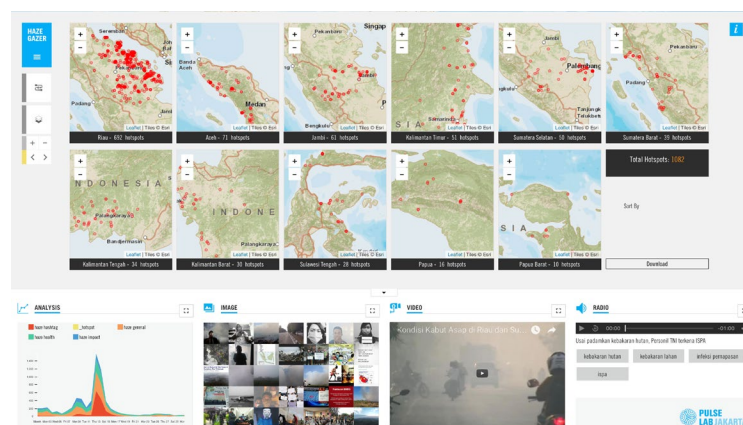
solutions, go beyond who actually lights the match.¹

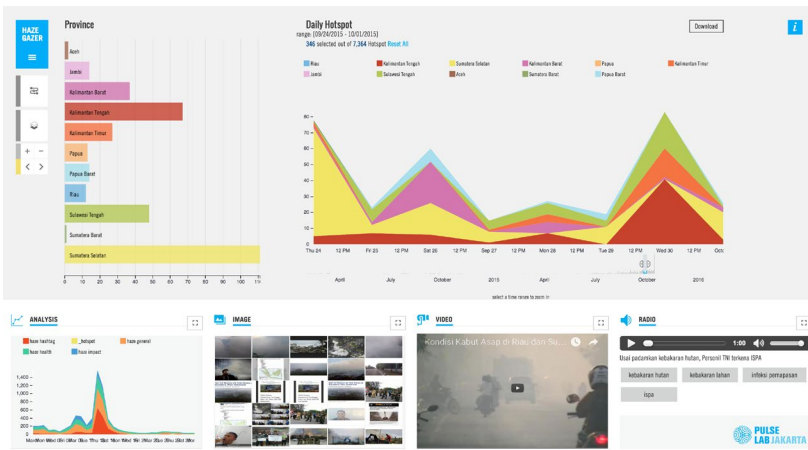
At present Indonesian disaster management authorities manage peatland fire and haze events based on hotspot data from satellites as well as static data on population density and distribution. But to support affected populations better, the Government is looking for more timely data and more information on the dynamics of the disaster, especially the situation on the ground.

ENHANCED DISASTER MANAGEMENT

Based on our previous feasibility studies on understanding haze crisis dynamics,² Pulse Lab Jakarta has developed 'Haze Gazer', a crisis analysis and visualisation tool. The platform enhances disaster management efforts by providing real-time insights on the:

- Locations of fire and haze hotspots;
- Strength of haze in population centres;
- Locations of the most vulnerable cohorts of the population; and most importantly,
- Response strategies of affected populations, including movement patterns and in-situ behavioural changes.





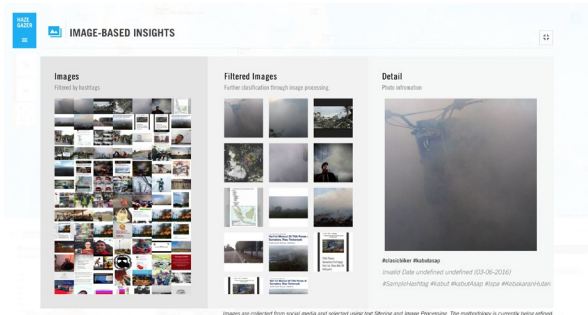
“This more targeted and agile approach by national and local disaster management authorities is expected to increase community resilience.”

For easy adoption, the dashboard integrates the existing functionalities of the current information system used by the Indonesian disaster management authorities, namely insights on the locations of hotspots, and adds new functions and insights based on multiple digital data sources.

Haze Gazer uses advanced data analytics and data science to mine open data, such as fire hotspot information from satellites and baseline information on population density

and distribution, as well as citizen-generated data, including the national complaint system in Indonesia called LAPOR!, citizen journalism video uploads to an online news channel, and real-time big data such as text-, image- and video-oriented social media.

The dashboard is being tested with and improved based on feedback from disaster management practitioners. It enables Indonesia’s local (BPPD) and national (BNPB) disaster management authorities to target their interventions and to align their efforts with those of affected populations. This more targeted and agile approach by national and local disaster management authorities is expected to increase community resilience.



NEXT STEPS

Alongside the testing and improvement of the tool, PLJ is continuing to search for alternative digital data sources that can be analysed for greater insights into haze crises.

The tool itself has four areas in which it can scale. First, because haze affects many countries in Southeast Asia, the platform has strong potential to scale as a regional tool to inform haze-related humanitarian efforts and to improve regional resilience. Second, it can scale in terms of insights, based on the integration of richer data sources, such as data from sensors.

Third, if Indonesian disaster management authorities agree to publish their operational practices, the platform will capture insights on both operational potential and real-world haze crisis dynamics. Finally the underlying mechanism of Haze Gazer, that is, to collect and mine new digital sources and visualize the insights generated, can be applied to other types of disasters or sustainable human development themes.

1. CIFOR (2014) Fire and Haze: Context, Bogor: CIFOR, accessed on 15th March 2016 [http://www.cifor.org/fire-and-haze/research/context/].
 2. See http://www.unglobalpulse.org/blog/tracking-hidden-impact-indonesia's-forest-and-peatland-fires

