NATIONAL DISASTER MANAGEMENT AUTHORITY

Social Media & Crowd Source Disaster Monitoring System:
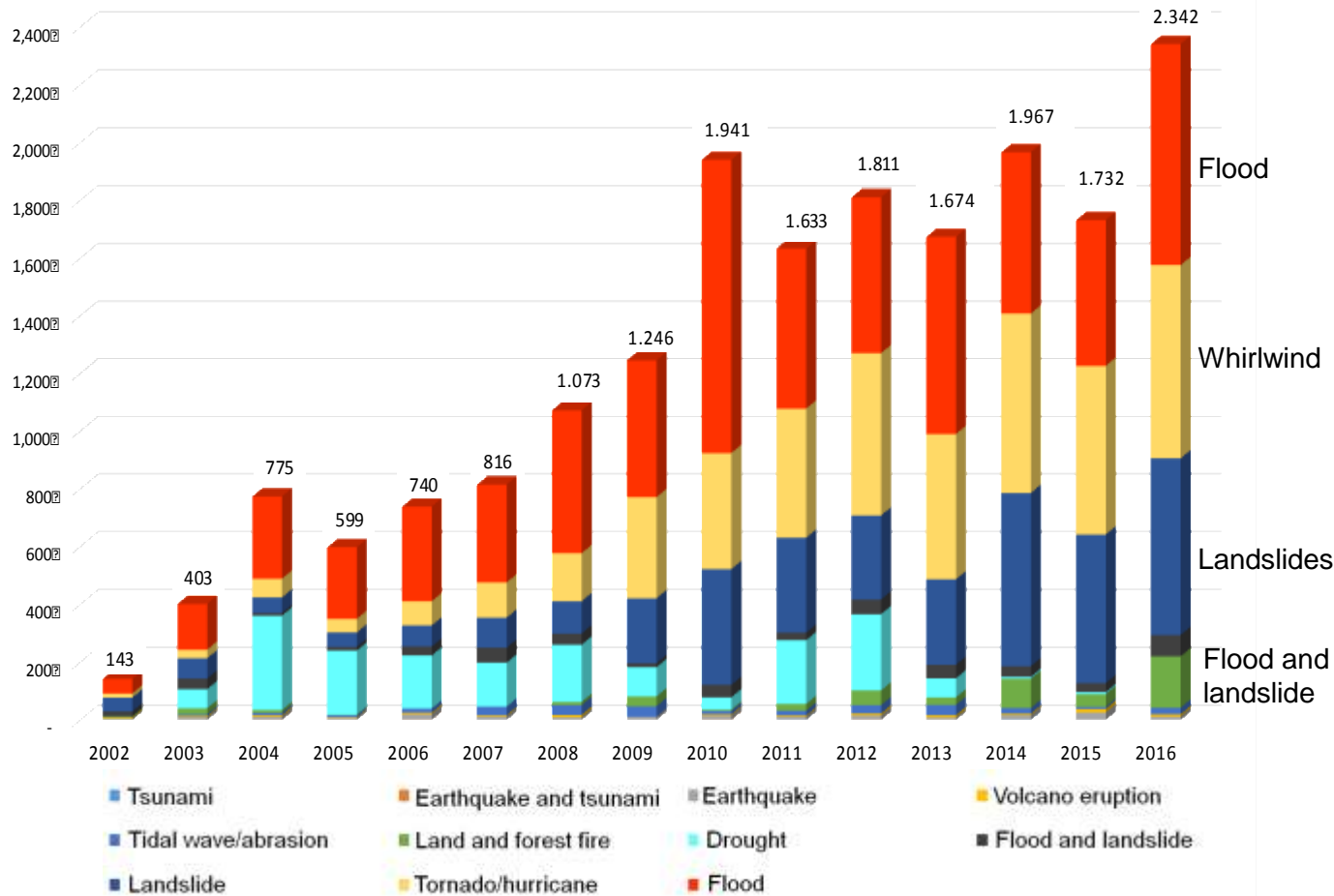## Lessons Learned from Jakarta's Flood, February 21, 2017

Dr. Sutopo Purwo Nugroho
Head of Data, Information and Public Relation
Center BNPB

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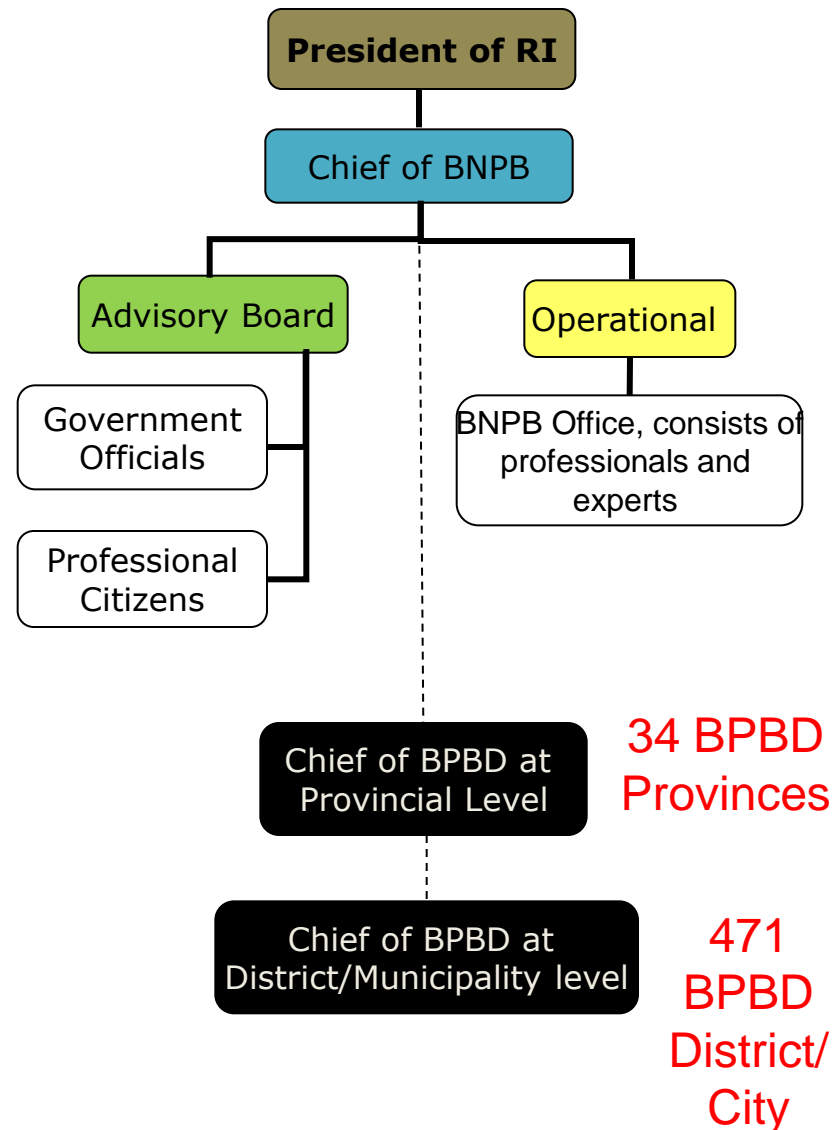# Disaster Trend and Impacts in Indonesia (2002-2016)

- In general, the trend of disaster in Indonesia is increasing.
- Most of the total disaster events per year is approximately 95% hydro-meteorological disasters (floods, landslides, droughts, forest and land fires, whirlwind).
- 5% are geology and biology disasters.

- Each year, average of total damages and losses due to the disasters is 30 trillion IDR (2.5 billion USD), not included big disasters.
- Economic loss due to forest and land fire in 2015 reaches 221 trillion IDR (17 billion USD) equal with 1.9% of Indonesia GNP.

Organization for Implementation of Disaster Management in Indonesia

- The government established a **National Disaster Management Authority** (**BNPB**) responsible for disaster management at the national level and Local Government established **Local Disaster Management Agency** (**BPBD**) in Provincial/District/City Level.
- BNPB is a non-ministerial institution operating at ministry level and **directly responsible to the President** of Republic of Indonesia.
- Main functions of BNPB and BPBD are: **Coordinate, Command, and Execute**.

President of RI

Chief of BNPB

Advisory Board

Operational

Government Officials

BNPB Office, consists of professionals and experts

Professional Citizens

Chief of BPBD at Provincial Level

34 BPBD Provinces

Chief of BPBD at District/Municipality level

471 BPBD District/City

Principles in disaster management

(Law No.24/2007 regarding Disaster Management article 3 (2)):

Quick and Precise

What meant by "principle of quickness and precision" is that disaster management/handling should be implemented as fast and precise as possible in accordance to what being demanded from the situation.

crisis : the first 24 hours

How information spreads/disseminated?
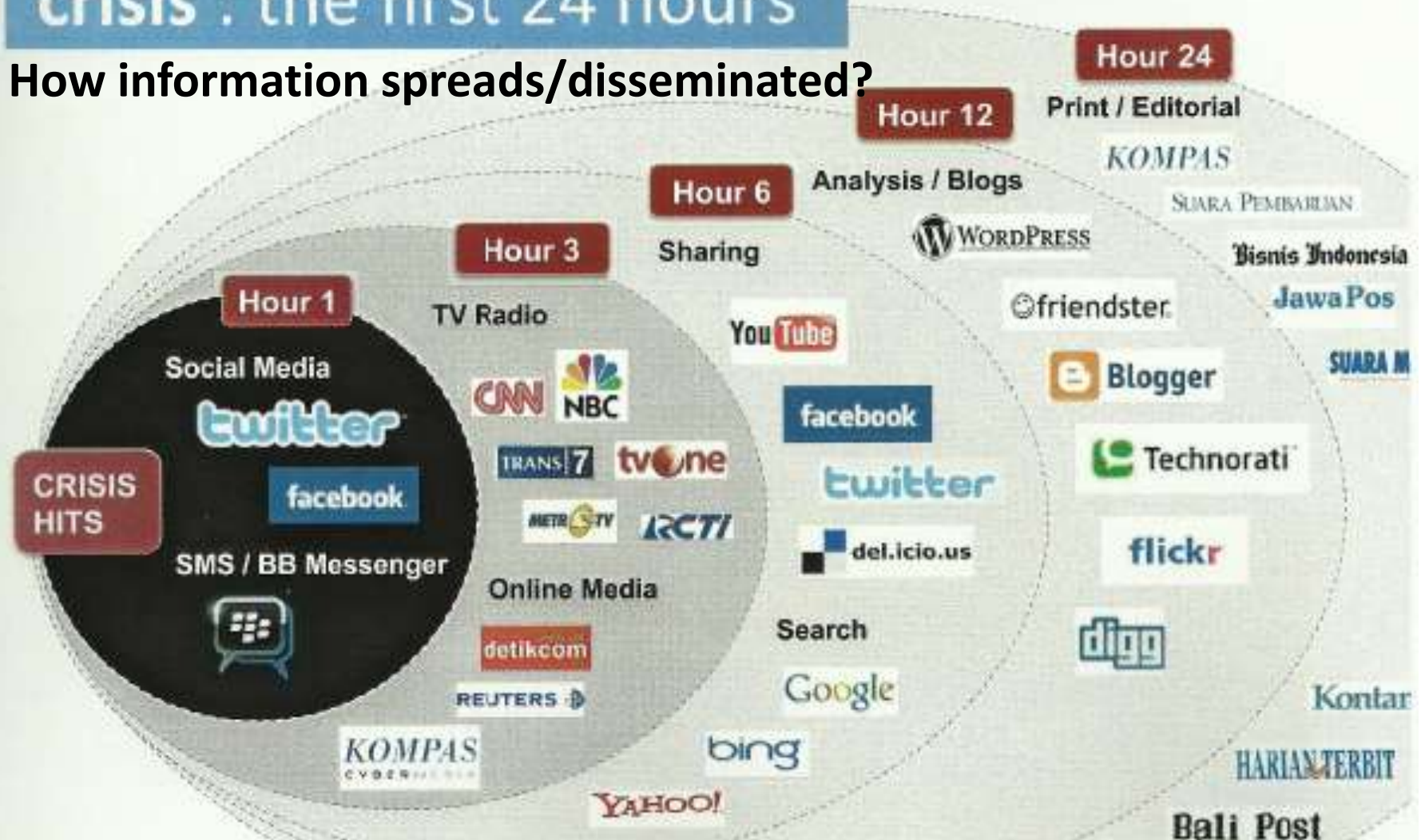
When disaster occur, information develops rapidly through conventional and modern social media. Information transcends administrative boundaries, authorities, and difficult to control. Political decision and public opinion can be influenced by these information.

Social Media and Lanscape Internet in Indonesia
Social media delivers disaster information rapidly

- 71.6 million Facebook active user (rank 4th in the world).
- 20 million Twitter active user (rank 5th in the world).
- 1.3 million tweets per day.
- 19.9 million Instagram users.
- 14.5 million YouTube users.

In Indonesia, people in large cities often take photos and selfies then upload into the internet even during disasters. These internet uploads are useful and can be used as a mean of real-time disaster situation report.

PetaBencana.id – a location-based platform that allows users to actively provide real-time reports on flood situation using social media and instant messaging applications. This platform is being built by BNPB in collaboration with MIT, USAID, HOT, and PDC. Applications to input information include: Twitter, Telegram, Qlue, Zurich, and Smart City.

Developed since 2014 under the Cognicity Open Source Software. This software can gather, sort, and visualize tweets from social media onto map format. This platform has been in use by BNPB and BPBD Jakarta to get precise disaster report from the people.

PetaBencana.id: Real-time Reports from the People

106 Million People using Social Media in Indonesia, 2016

66 Million accessing Social Media using Mobile Devices 2016

Massachusetts Institute of Technology

PetaBencana.id
Bersama Kurangi Risiko

Number of Population who is benefitting for Flood Monitoring (incident notification): 50 million

Metro Jakarta ~ 31 Million

Surabaya ~ 10 Million

Bandung ~ 9 Million

1. **PetaBencana.id is developing Flood monitoring system for 3 major cities in Indonesia, using social media such as crowd source to gather information of Flood incidents.**
2. **Applications to input information: Twitter, Telegram, Qlue, Zurich and Smart City.**

USAID
FROM THE AMERICAN PEOPLE

BNPB

Jakarta: February 21, 2017

- Heavy rain had caused flooding in Jakarta on morning of February 21st, 2017. Thousands of residential homes flooded and massive traffic jams.
- People and mass media looking for information and inquire disaster impacts and its response/handling from BNPB and BPBD DKI Jakarta.
- Server at BPBD Jakarta's Emergency Operation System was overloaded and overwhelmed by high access from the public.
- Disaster update reports from field personnel and local government were slow and could not be coordinated fast enough resulting in data mix-ups.
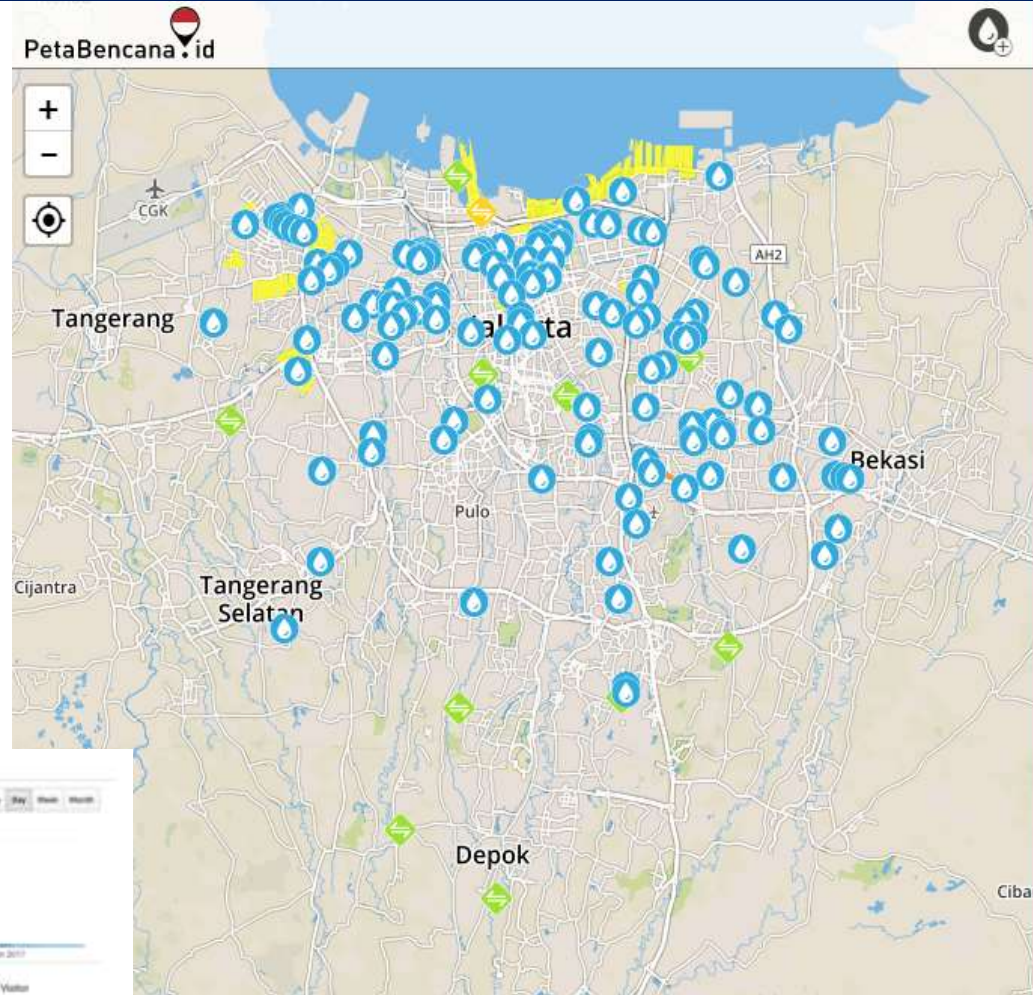
Screenshot of flood map from February 21st, 2017 indicated more than 1,000 reports and more than 500,000 access to the flood map within 24 hours.

Back to back, InAWARE system instantly maps the flooded areas and their impacts

Infographic from BNPB regarding the flood incident: February 21, 2017

Based on the above information, many organization, NGO created and tweeted their report February 21, 2017

After attaining rapid flood data including exposures, impact, and efforts, official statement were addressed to the mass media. Approximately 2,000 journalists received the same official release from BNPB.

PURNO NEGROHO
Kepala Humas Badan Nasional Penanggulangan Bencana (BNPB)

HANDLING MEDIA VIA BLACKBERRY

Setiap tiga bulan sekali mengganti BlackBerry karena hang atau rusak. Dan hingga saat ini sudah mengganti simcard sampai 3 kali. Itu semua karena tugasnya sebagai Humas BNPB.

Handling Media Utilizing the Social Media

Blackberry Messenger is the most used social media in Indonesia between 2011 to 2014.

Since 2014 until now, Whatsapp has become most used social media by media dan people of Indonesia.

In each medium to large disasters, about **2.000 reporters** in Indonesia receive press release through Whatsapp about BNPB's disaster emergency management daily. News, photos, and videos of emergency management are quickly published based on analysis using InAWARE and reports of BPBD in affected location.

Official statement through Press Conference conducted at BNPB Jakarta headquarters soon after the disaster occurred. Press Conference in disaster emergency management always conducted using InAWARE.

Why is **Media** Important in Disaster Management?

1. The media can influence **political decisions, change behavior and save lives** (UNISDR, 2011).

2. Communication is **the key to success** in mitigation, preparedness, response, and rehabilitation of disaster (Haddow, 2009).

3. Media can demonstrate the **existence**, **images**, and **organization symbols** towards the community related to humanitarian works in disaster management (UN, 2009).

Massive Flooding Hits Indonesian Capital

ASIA THE STRAITS TIMES
Jakarta hit by floods due to heavy overnight rain

TheJakartaPost
54 areas in Jakarta hit by floods

BBC Sign in News Sport Weather Shop
NEWS
Home Video World US & Canada UK Business Tech Sci
Indonesia floods: Rains causes chaos in Jakarta

News Middle East Documentaries Shows Investigations Opinion
NEWS | INDONESIA 21 FEBRUARY 2017
Indonesia: Widespread flooding hits Jakarta
Many days of torrential rain have brought floods to Indonesia's capital, closing schools and causing travel disruption.

The Sydney Morning Herald World
— NEWS SITE OF THE YEAR —
Jakarta floods prove a political hot potato

Utilizing Petabencana.id as source official statement enable all media to report accordingly. Local, national dan international media reports uniformly. No varied data and finger-pointing blames. This reporting are positive to the government that is presence in the disasters

InAWARE (Indonesia All Warning and Risk Evaluation)
Disaster information system that became national standard at BNPB and BPBD. Integrated with inter-agency information systems. Global and regional. Monitors real-time, near-real-time, and historical.

The integrated system between PetaBencana.id with InAWARE has proven its merits in increasing the ease and efficiency of rapid disaster response and management. In future, crowd-source and social media will be utilized to report other types of disasters in Indonesia, such as: earthquakes, tsunamis, volcano eruptions, landslides, and others.

24/7 Emergency Operation Center (EOC) in BNPB

BNPB's EOC has been connected to servers from various ministries and agencies that enable to collect early warnings and to monitor disaster occurrences in regions; including real-time, near-real-time and disaster history data. All systems are integrated in **InAWARE (Indonesia All Warning and Risk Evaluation)**

NATIONAL DISASTER MANAGEMENT AGENCY

Graha BNPB - Jl. Pramuka Kav. 38 Jakarta Timur 13120

+62 (21) 21 28 12 00

+62 (21) 21 28 12 00

contact@bnpb.go.id

www.bnpb.go.id

Infobencana BNPB

@BNPB_Indonesia

BNPB Indonesia

BNPB_Indonesia

+62 (812) 95 59 00 90

+62 (812) 123 75 75