



Practical utilization of Value-added products (VAPs) for JICA operations

15th Nov. 2022

Disaster Risk Reduction Group,
Global Environment Department, JICA

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- Utilization of VAPs for our actions
e.g. Volcanic Eruption in Indonesia, Flood in Pakistan
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About JICA

- The centralized implementing agency for Japanese ODA
- International cooperation for developing countries
 - Human security
 - Quality Growth



“Leading the world with trust”



Technical Cooperation



Grants



Loan

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Disaster Risk Reduction (DRR) at JICA

Comprehensive efforts to reduce loss of life and economic losses so that **a disaster does not set back a country's development** we are working under following initiatives ...

① 

Promote structural measures to support nation's development foundation

② 

Strengthen overall governance for DRR, including non-structural measures

③ 

Promoting "Build Back Better" Accelerating ①&② in the reconstruction process

We would like to utilize the information from Sentinel Asia for BBB actions and future cooperation

Utilization of VAPs for our actions

Case of Mt.Semeru Volcanic Eruption in Indonesia

Emergency Obs. Request Information



Disaster Type: Volcano eruption
 Country: Indonesia
 Occurrence Date (UTC): 04 December, 2021
 SA activation Date(UTC): 07 December, 2021
 Requester: Japan International Cooperation Agency (JICA)
 Escalation to the International Charter: Yes
 GLIDE Number: VO-2021-000194-IDN

**JICA long-term expert
In PUPR, Indonesia**

**PUPR, JICA project team and
related organizations**

Request for emergency observation

- On-site survey in only accessible are
- Limited information about a distribution of volcanic products etc...
- Difficulties to understand overall image of damage, and to predict secondary risks

JICA HQs

Request for emergency observation

**JAXA
lots of
Advice**

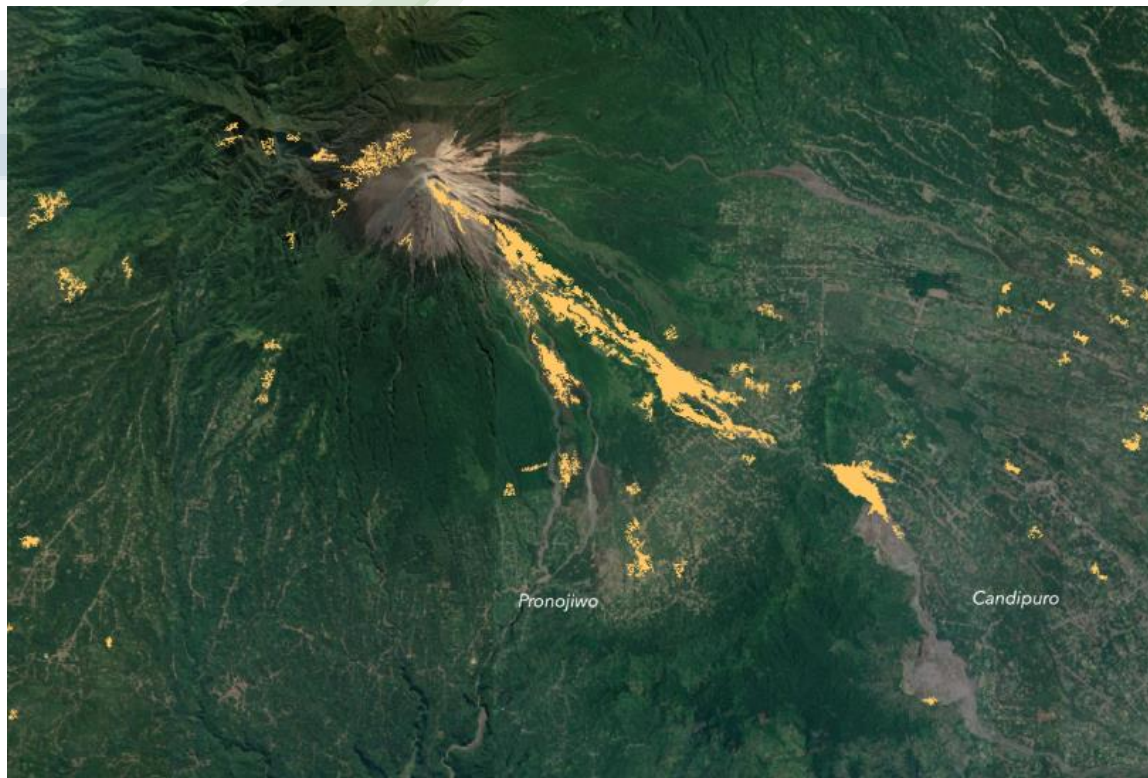
ADRC (Sentinel Asia) Accept the EOR

**VAPs from
Sentinel
Asia Portal**

JPT members Observation & Analysis

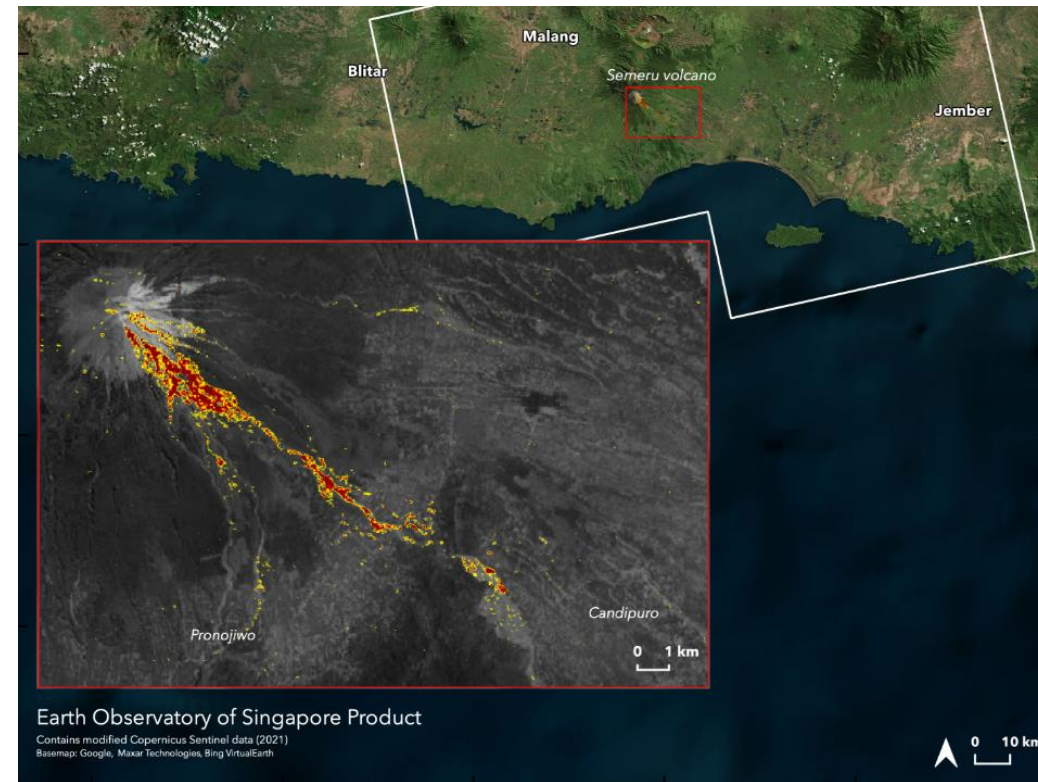
Utilization of VAPs for our actions

Case of Mt.Semeru Volcanic Eruption in Indonesia



VAP 1

Comparing 27 Oct 2019 and 5 Dec 2021 (including the effect both previous eruption in 2020 and this eruption in 2021)



VAP 2

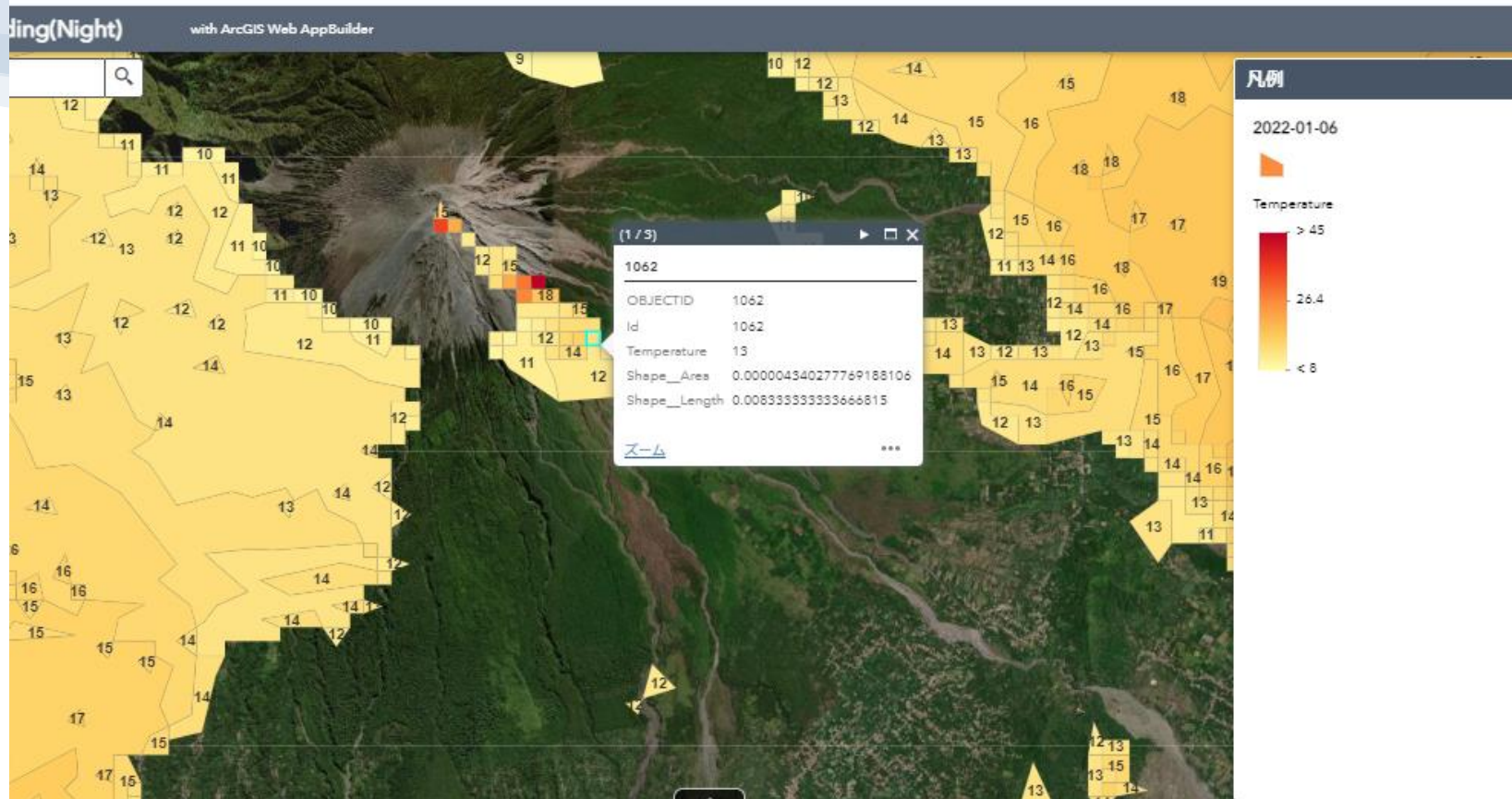
Comparing 7 Dec. 2021 and set of images from 9 Aug. 2021 through 25 Nov. 2021. (without the effect of previous eruption)

Utilization of VAPs for our actions

Case of Mt.Semeru Volcanic Eruption in Indonesia

GCOM-C_Ascending(Night)

GCOM-C_Descending(Day)



Additional Material which shows the temperature

In the case of volcanic eruption Information about temperature is useful

Utilization of VAPs for our actions

Case of Mt.Semeru Volcanic Eruption in Indonesia



JICA long-term expert in PUPR

Other Comments

- During the field survey, the VAP analyzed by EOS-RS was provided, and it was utilized to decide the survey site and route to get there.
- Volcanic lahar in Glidik river, which is after a certain period passed from the volcanic eruption, could be predicted by utilizing the VAPs, because they show the distribution of volcanic products.
- Arc GIS improved the convenience and effectiveness of VAPs as well as lots of thanks

Volcanic eruption disaster affects large area and parts of its feature are continuity and frequent change. Therefore, information from satellite images are effective to get wide range of disaster information rapidly.

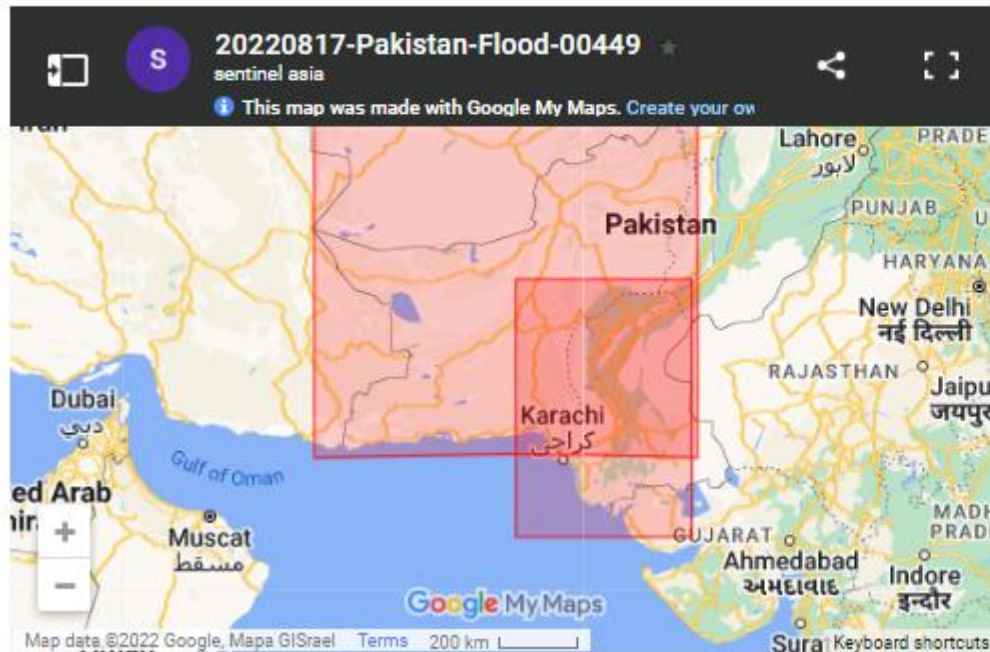


Consultant of JICA Project

Utilization of VAPs for our actions

Case of flood in Pakistan

Emergency Obs. Request Information



Disaster Type: Flood

Country: Pakistan

Occurrence Date (UTC): 17 August, 2022

SA activation Date(UTC): 18 August, 2022

Requester: Asian Disaster Reduction Center (ADRC)

Escalation to the International Charter: No

GLIDE Number: FL-2022-000254-PAK

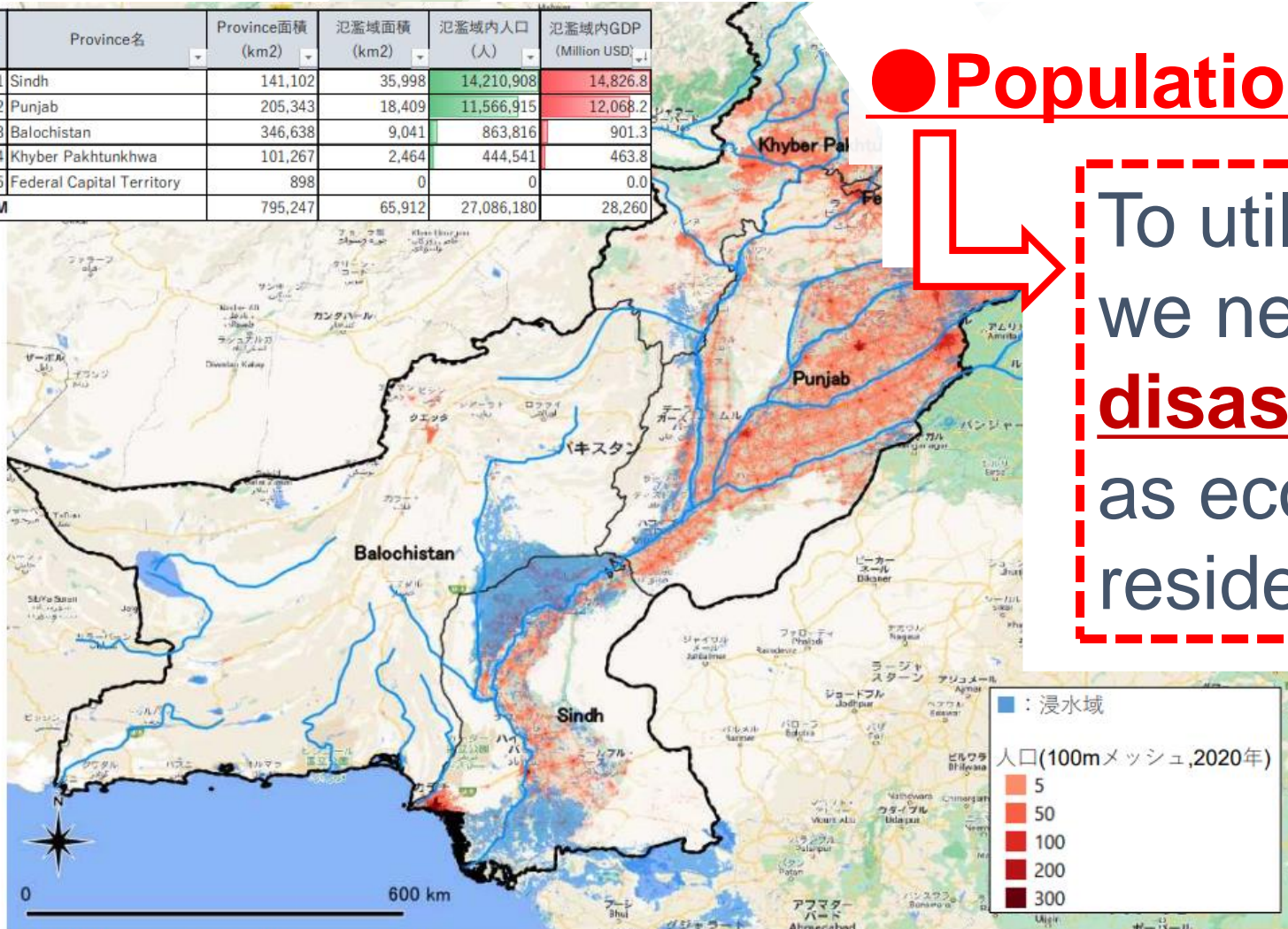
We are still thinking how we could cooperate ...

Utilization of VAPs for our actions

No.	Province名	Province面積 (km2)	氾濫域面積 (km2)	氾濫域内人口 (人)	氾濫域内GDP (Million USD)
1	Sindh	141,102	35,998	14,210,908	14,826.8
2	Punjab	205,343	18,409	11,566,915	12,068.2
3	Balochistan	346,638	9,041	863,816	901.3
4	Khyber Pakhtunkhwa	101,267	2,464	444,541	463.8
5	Federal Capital Territory	898	0	0	0.0
SUM		795,247	65,912	27,086,180	28,260

● Population in flooded area

To utilize damage information, we need to know how the disaster affects society, such as economic loss and affected residents.



- : Inundation area (provided UNOSAT)
- - ■ : Population (provided WorldPop)

【出典】 浸水域：UNOSAT (2022/8/26時点)
人口：WorldPop (2020年)

GDP：全国GDPをWorldPopで振り分け (2020年)

Other Comments in internal discussion

Overall

- **Time lag**
- To utilize both analysis data and on-site information such as SNS
- **Accuracy of analyzed data**
- **Limited resource** who can understand satellite data in JICA HQs, JICA Offices and C/P organizations. (For them, data from optical satellite seems easier to understand than SAR image)

Case of Sediment disaster (including heavy rain and earthquake)

- In mountainous area, earthquake could cause sediment disaster. **To identify a potential hazard**, satellite data were used

Case of Flood

- To show analyzed non flooded area
- **How to identify the maximum inundation area** and inundation depth
- Efficiency could link to characteristics of each river. e.g. a steep river where inundation period is shorter could be difficult to identify maximum inundation area.
- **Immediacy of information** is important. Therefore, for large countries which need longer time to gather on site information, satellite data could be more useful.
- The satellite information could be utilized to identify the isolated area by flood and operation of water drainage.
- To continue observing flooded area could be needed, especially about long-term flood

Expectations to Sentinel Asia

Providing a wide range of disaster information rapidly is **really valuable**, especially to understand the whole image of the disaster.

For future BBB activities and DRR cooperation,

- Identifying affected social capital such as population, GDP, important infrastructures and so on is also necessarily.
- To understand accuracy of products is needed, when we use them.

For instance, accuracy of data could depend on when it was shot and user without specific knowledge about satellite data cannot understand the accuracy of analysis ...

What kind of future collaboration can be done

for DRR & BBB?

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Thank you for Listening!!

Q&A