

# Sentinel Asia

Strategic Plan

2017-2027

-Value Added Product (VAP)-



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# Introduction

The document describes potential input for Sentinel Asia Action Plan 2017-2027, based on the issues and opportunities discussed and identified on October 2018.

- I. Satellite Data Provisions and Systems
- II. Value Added Product (VAP)
- III. End-user Enhancement
- IV. Step-3 Activities (Complete DRR cycle)
- V. Communication, Collaboration and Cooperation

# Main Topics

## II . Value Added Product (VAP)

### 4.2.1 Research and Development (R&D)

4.2.1-1-S Standard Operation Procedure (SOP)

4.2.1-2-S Standardization of VAP.

4.2.1-3-L Researches on Urban Flood Mapping

### 4.2.2 Product Development

4.2.2-1-M VAP through University Network

4.2.2-2-M Review Data Policy and Data for R&D

4.2.2-3-M Identify the potential use case of VAPs in disaster

4.2.2-4-M In-situ data collection through GNSS

4.2.2-5-M Pre-disaster image repository and access

## 4.2.1-1-S Standard Operation Procedure (SOP)

(Yamaguchi University, UT, AIT, other universities)

DANs can support the operation of users through VAP produced by themselves. However, all DANs cannot make any kind of emergency maps. The procedure to create VAPs for each disaster is necessary for DANs as well as users.

**Goal: Everybody can create VAP for quick disaster response.**

## 4.2.1-2-S Standardization of VAP

(Yamaguchi University, UT, AIT, other universities)

Currently, the format of analyzed products is decided by DANs. These formats, templates, legends of maps, colors of maps, copyright descriptions, etc. are sometime not standardized confusing users. Therefore, the standardization of format (and/or analyzing method) corresponding to each disaster is investigated by referring to the IWG-SEM (International Working Group on Satellite-based Emergency Map) activity. Development of SOP for each kind of disaster and share with DANs and user-agencies is targeted.

**Goal: Common understanding for quality and meaning of VAP.**

## 4.2.1-3-L Researches on Urban Flood Mapping (YU, UT, AIT, other universities)

A SAR sensor can provide data in all weather and during day and night collecting both amplitude and phase data compared to an optical sensor. Particularly, it can be used to obtain satellite-based emergency map, such as flood inundation map during cloudy condition that could directly contribute to flood relief operation. However, it is found that improvements to data analysis should be conducted and researched to make use of SAR data effectively, specifically in an urban environment. Also, it is necessary to make evaluation of VAP in urban areas using field surveys etc.

**Goal: Development of new flood mapping techniques for urban area.**

## 4.2.2-1-M VAP through University Network (Yamaguchi University)

The network of universities in Asian region is organized by Sentinel Asia network. University students study remote sensing technology through actual case studies and create new technologies to contribute to disaster relief operation through Sentinel Asia. The satellite observing imagery from DPNs are provided to those academic activities to develop new mapping technologies for effective use of satellite images.

**Goal: Establish a network of University students who can join data analysis activity for emergency case.**

## 4.2.2-2-M Review Data Policy and Data for R&D (YU, UT, AIT and others)

Satellite data which provide through Sentinel Asia data provision system are available for R&D purpose. However, it is necessary to discuss about copyright issue with DPNs. Only Sentinel Asia member can use those satellite data and need to add acknowledgement for research publication. Also, DPNs provide sample satellite data for preparation of for quick disaster response.

**Goal: Identify and list up available satellite data to use for R&D and define the copyright.**



### 4.2.2-3-M Identify the potential use case of VAPs in disaster (Yamaguchi University)

It is necessary to discuss with actual end users, such as local government and its residence the above matter. Here the factors like quick response, by using AI technology, combination with UAV, utilization of open public data are evaluated and studied.

**Goal: Create a repository of success cases of the use of VAPs and make available for SA community.**

## 4.2.2-4-M In-situ data collection through GNSS

(Yamaguchi University, UT, AIT and others)

In-situ data is collected with GNSS. Currently, there are various in-situ data is opened to public. Those data can be utilized for evaluation of VAP.

**Goal: List up and collection of in-situ data and make available for SA community.**

## 4.2.2-5-M Pre-disaster image repository and access (Yamaguchi University, UT, AIT and others)

Pre-disaster image is prepared and DANs can request images to DPNs. It is necessary to explain about importance of pre-disaster images by disaster historical data, hazard map, information about disaster prone area, etc. when DANs request to DNSs. If DPNs agree, pre-disaster image is provided.

**Goal: Preparation of pre-disaster images and data for SA community.**