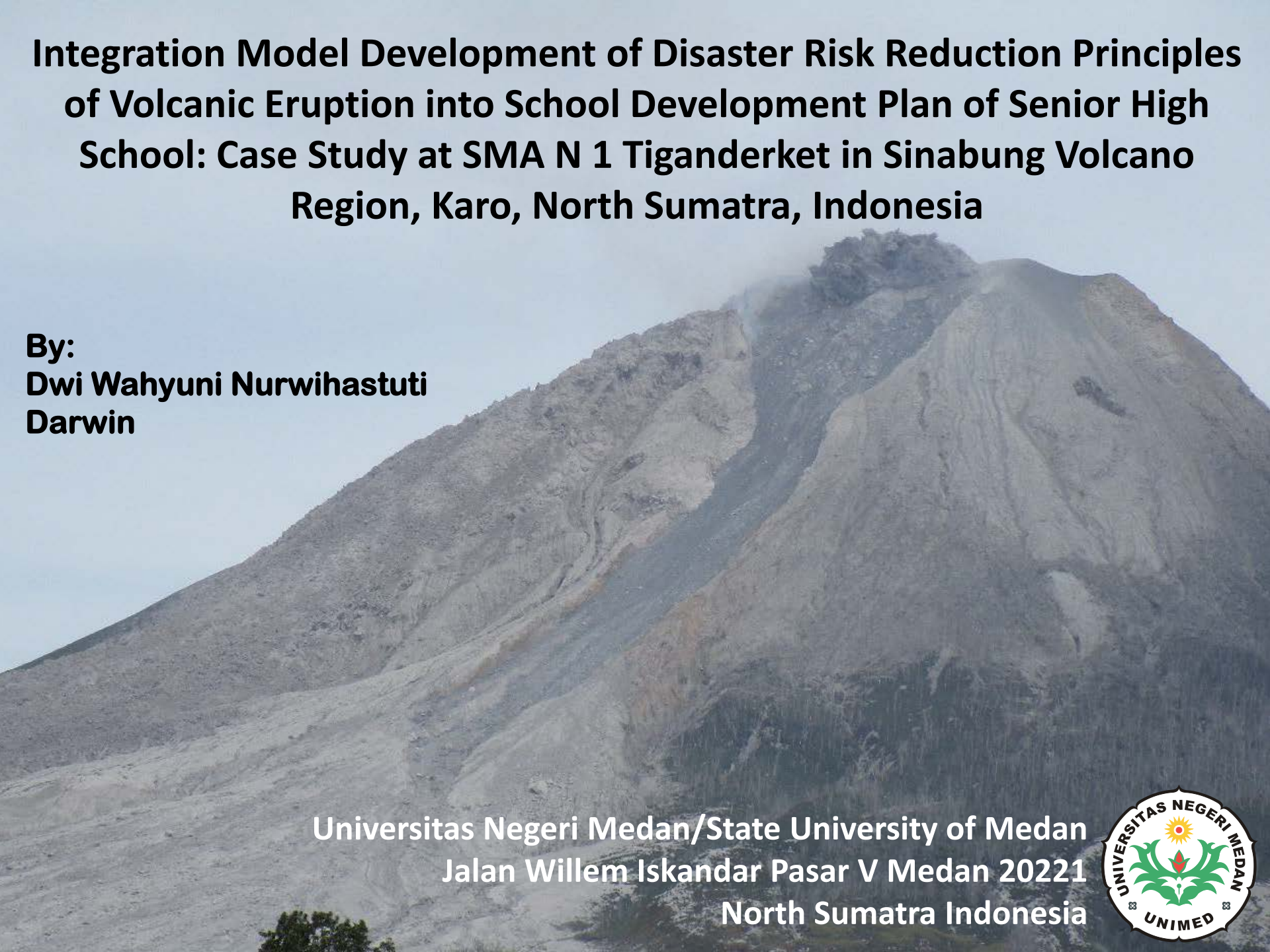
Integration Model Development of Disaster Risk Reduction Principles of Volcanic Eruption into School Development Plan of Senior High School: Case Study at SMA N 1 Tiganderket in Sinabung Volcano Region, Karo, North Sumatra, Indonesia



By:
Dwi Wahyuni Nurwihastuti
Darwin

Universitas Negeri Medan/State University of Medan
Jalan Willem Iskandar Pasar V Medan 20221
North Sumatra Indonesia

Major Volcanoes of Indonesia

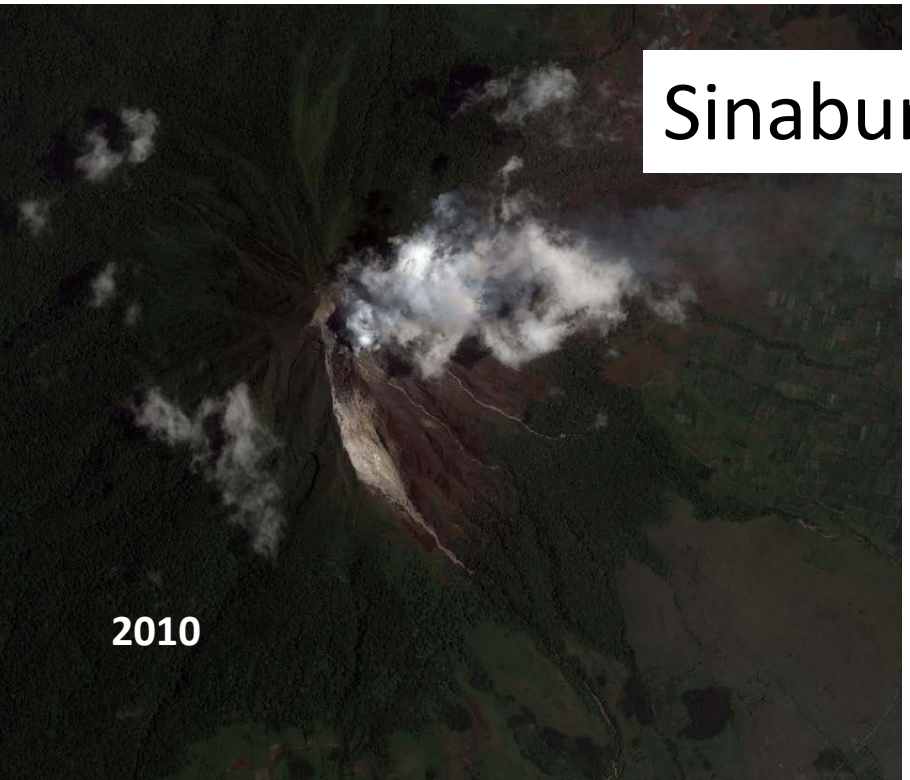
(with eruptions since 1900 A. D.)

USGS

Topinka, USGS/CVO, 2001; basemap modified from: CIA map, 1997; volcanoes from: Simkin & Siebert, 1994

Introduction

- Sinabung eruption which occurred on August 29, 2010 was an early activity of Sinabung volcano after 1600.
- Sinabung volcano started to erupt again in September 2013 with increasing intensity until now.
- There have been many casualties and property caused by the eruption of Sinabung volcano since 2010 until now and can not be predicted when the eruption will stop.
- **The impact of Sinabung eruption is very harmful for people living around the Sinabung volcano**. Agriculture land, settlement, school buildings, and infrastructure were destroyed.



Sinabung Eruption

Agriculture lands were destroyed by volcanic ash & pyroclastic material

Agriculture land & settlement were destroyed by volcanic ash

Location: Sigarang-garang Village, 24 January 2014

Settlements were destroyed by lahar flow

Settlements was burned by hot cloud

Lahar flow destroyed road

Location: Guru Kinayan & Sukameriah Village, 29 June 2014

The impact of Sinabung eruption into education sector

- School buildings were destroyed. **They are including serious impact on 61 schools, i.e. 51 elementary schools, 8 junior high schools and 2 senior high schools.**
- Student, teacher, and education staff **traumatized by the events of eruption**
- **The learning process is disrupted in the event of eruption**
- **The quality of education decreased**

School buildings were destroyed by volcanic ash & lahar flow

Case Study: Impact of 2013 eruption to SMA N 1 Tiganderket

Sinabung Volcano

Existing Situation (2017)

Consideration of choosing SMA N 1 Tiganderket as case study:

- SMA N 1 Tiganderket is just 4 km from the peak of Sinabung.
- The school building of SMA N 1 Tiganderket was destroyed by Sinabung eruption in 2013.
- The process of teaching and learning has been relocated 3 times during 1 – 3 months in elementary school buildings (Janji Meriah village) and junior high school buildings (Kutabuluh Sub District) when Sinabung erupted 2013 and 2014.
- Students of SMA N 1 Tiganderket are victims of Sinabung eruption.


Gn. Sinabung
4 km
SMA N 1
Tiganderket
Jl. Kutabuluh

Research aim

- to develop a model for integrating disaster risk reduction principles of volcanic eruption into School Development Plans of Senior High School that located in the Sinabung volcano region (case study in SMA N 1 Tiganderket)

Research objectives

- to identify DRR policy of Sinabung volcano from central and local government related to education,
- To identify disaster risk forms of Sinabung volcano eruption associated with the implementation of education,
- To know perceptions of student, teacher, education staff and community on DRR efforts of Sinabung volcano eruption for education sustainability,
- To integrate DRR principles of Sinabung volcano eruption into the components of School Development Plan.

DRR Principles → SDP Components

DRR Principles	SDP Components
1. Fast 2. Appropriate 3. Priority 4. Coordination 5. Integrated 6. Efficient 7. Effective 8. Transparency 9. Accountability 10. Partnership 11. Empowerment 12. Nondiscriminatives 13. Nonproletisi	1. Vision 2. Mission 3. Objectives 4. Target 5. Strategy 6. Activity

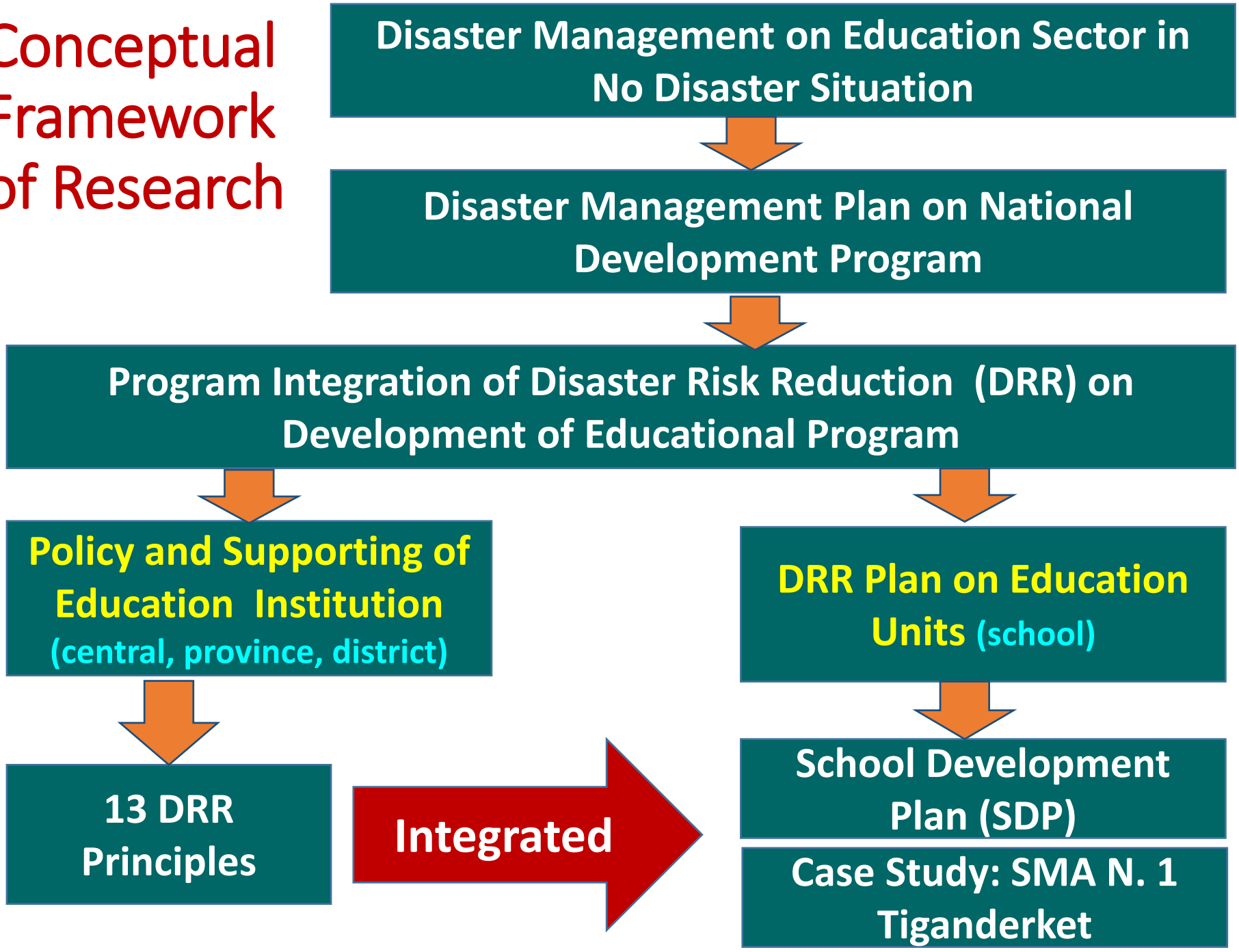
Methods

The research method used: survey methods; qualitative; and model development

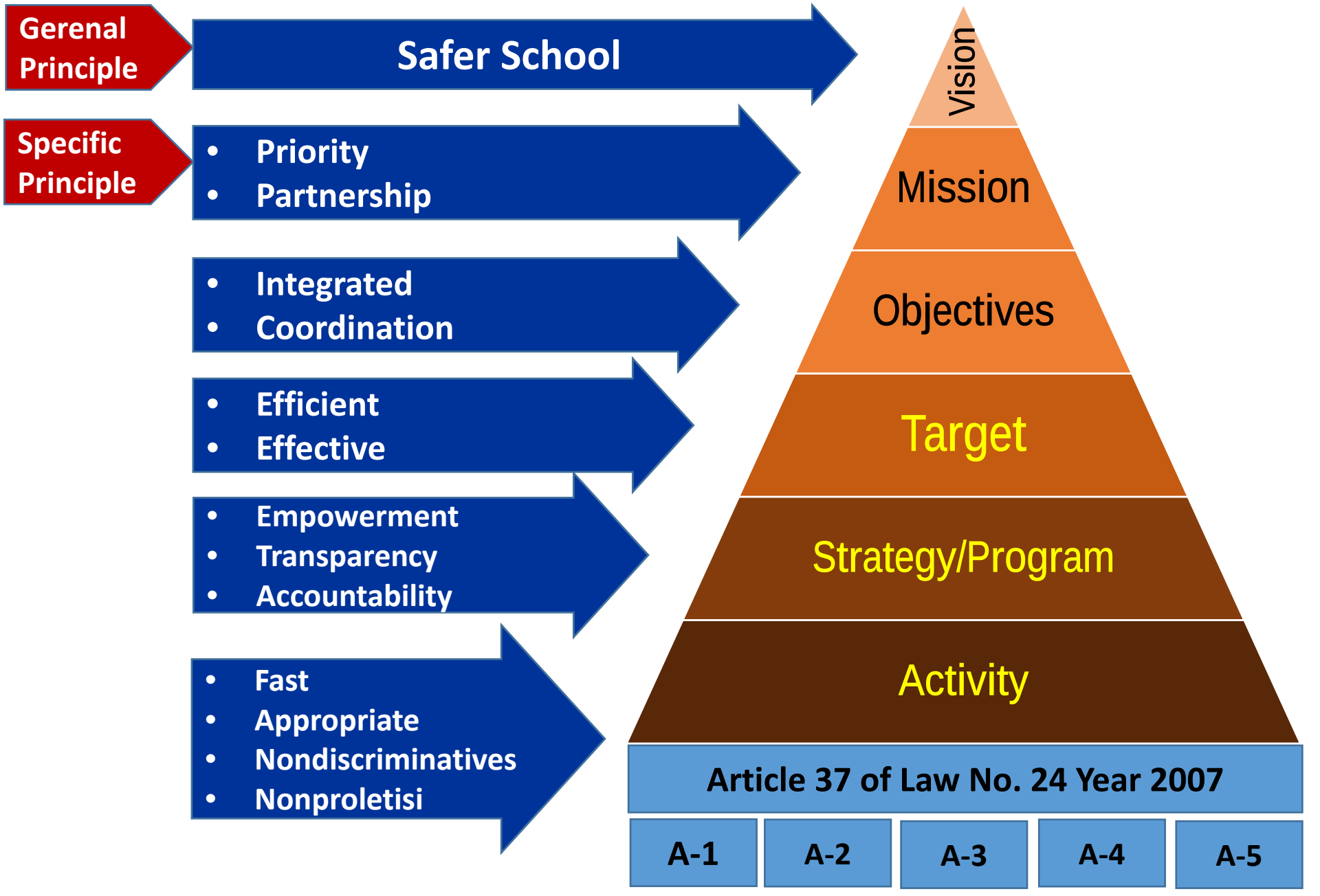
Data collection techniques were obtained through:

Data collection techniques	Data types
Observation	**Existing of school environment** **Impact of eruption into school**
depth interviews	**School community supporting** **Community supporting** **Government supporting**
documentation studies	**Existing of SDP document** **School resources document** **Reference & journal**
FGD	**Data validation** **Data complete & finishing**

Conceptual Framework of Research



Theoretical Model of DRR Integration into School Development Plan



The alternative of 5 School Activities of DRR that integrated to SDP:

1) **To know the kinds of disaster risk on school.**
2) **To increase the stakeholders participation on DRR Plan.**
3) **To develop of disaster awareness culture.**
4) **To increase the commitment togetherness in respecting human rights and religious belief in disaster management.**
5) **To provide disaster information and assistance.**

Significance and Expected Results

Expected Results

- the identification of DRR policy of Sinabung volcano from central and local government related to education,
- disaster risk forms of Sinabung volcano eruption associated with the implementation of education,
- perceptions of student, teacher, education staff and community on DRR efforts of Sinabung volcano eruption for education sustainability,
- School Development Plan that integrates DRR principles of Sinabung volcano eruption.

Research Benefit

1. to increase awareness and support of central and local government on DRR efforts,
2. to determine DRR effort that more appropriate to address risks of volcanic eruption in school management,
3. to identify the supporting and inhibiting factors in applying the principles of DRR in school management,

Research Benefit

4. to strengthen school management functions that integrate with DRR,
5. to provide school development targets that anticipate DRR (School Development Plan, human resources, facilities, evacuation routes),
6. To provide best practice of model integrated DRR principles into SDP to be lesson learn to another school in volcanic region,
7. to provide a basis for integrating DRR principles into curriculum development and learning process.

Thank you