

# "Smong" as local wisdom for disaster risk reduction

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**Abstract.** The province of Aceh is located in the northern tip of Sumatera Island, Indonesia, highly vulnerable to the disasters, the so-called earthquakes and Tsunamis. This is due to the geological location of Aceh, which is located where the Indo-Australian and Eurasian plates meet. Many people learned this just after the devastating earthquake and tsunami on December 26, 2004 that killed thousands of people and also caused countless material losses. Before 2004, people in Aceh did not even notice what a tsunami was. Yet, after the earthquake in 2004 which had a magnitude of 9.2, Aceh continues to experience earthquake with magnitudes of 5-6, just as it did in Pidie Jaya on December 2016. Due to these conditions, the people of Aceh need to be informed of the real and serious threats that these disasters can cause in order to reduce the impact of these potential tragedies. Local wisdom could be an early warning for preventing risk disaster. Local wisdom could be easy to understand, adapt, and use by the society. The purpose of this paper is to publish "Smong" as local wisdom to reduce the risk of potential earthquake and tsunami disasters. The word is referred to Tsunami was adopted from Devayan Language. It is part of the Simeulue indigenous culture, transmitted through songs, short poems, lullabies, and stories. It is fascinating to note that the earthquake and tsunami catastrophe of 2004 resulted in only seven casualties in Simeulue, which has approximately 86.735 inhabitants. *Smong* is a key word understood by the entire population of Simeulue that describes the occurrence of giant waves after a major earthquake. During the terrible event that plagued Aceh on December 26, 2004, there was a massive evacuation of the entire Simeulue beach area within a few minutes after the earthquake. Therefore, "Smong" is an appropriate term to be used in order to reduce the impact of disasters, viz. earthquakes and tsunamis in high risk areas.

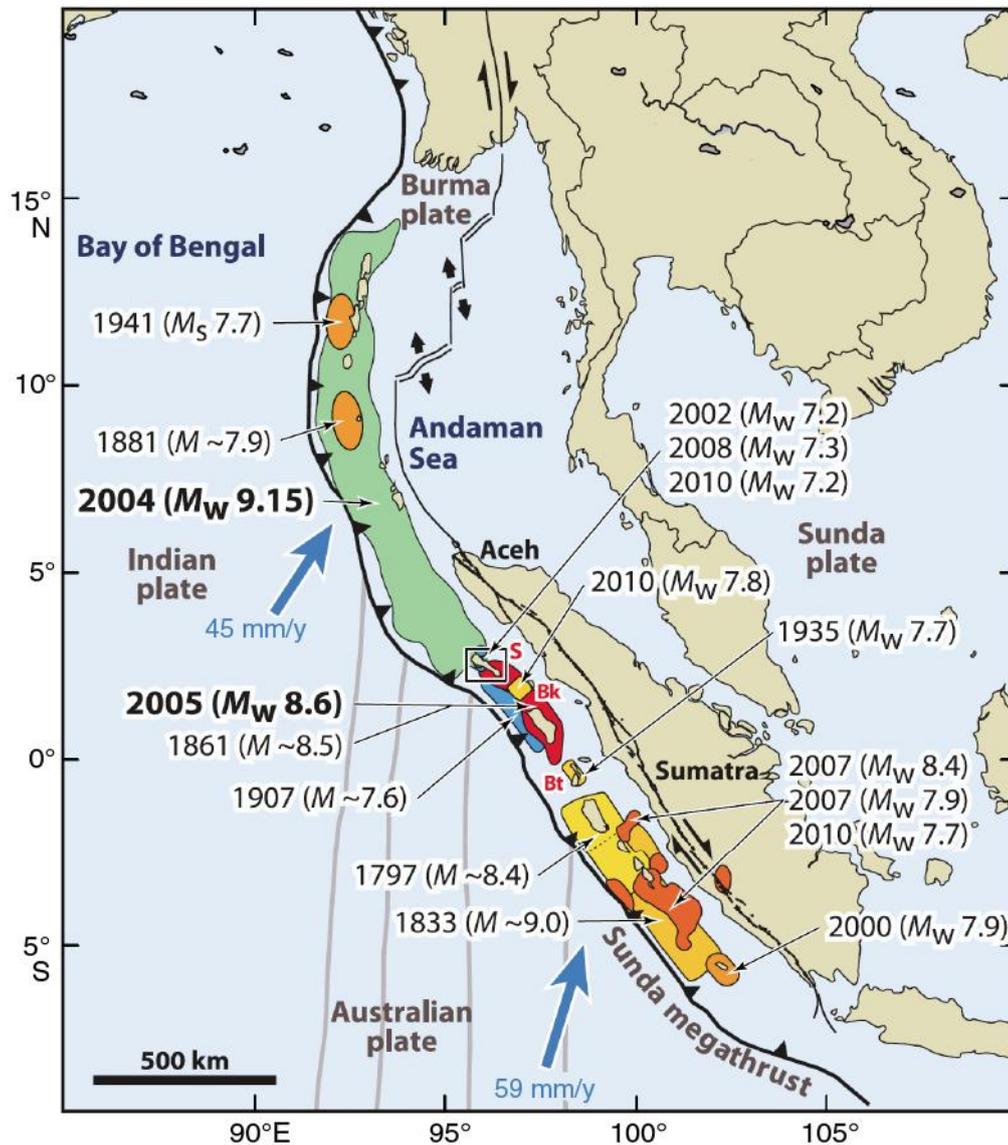
## 1. Introduction

According to the 1945 constitution no.24 year 2007, disaster was an event or series of events that threatened and disrupted the livelihood of the community. It was caused by both natural and/or non-natural factors, which resulted in the occurrence of human casualties, environmental damage, property loss, and psychological impact. Disasters can be caused by natural events or by man-made factors. Disaster-generating factors are: natural hazards and man-made hazards. According to the United Nations International Strategy for Disaster Reduction (UN-ISDR) these hazards can be grouped into geological hazards, hydro meteorological hazards, biological hazards, technological hazards and environmental degradation.

The geological location of Aceh is in the subduction area where the Asian and Australian plates meet. It is also at the end of the big fault/transform fault. This fault divides Sumatra island from Aceh



all the way to the Sunda Strait. The active fault zone found in the Aceh region is the central region of Aceh Besar, Pidie, Pidie Jaya, Central Aceh, Gayo Lues, Southeast Aceh, West Aceh, Nagan Raya, Aceh Barat Daya and South Aceh. This can cause Aceh to suffer a repeated geological disaster. The most common geological disasters in Aceh are earthquakes and tsunamis that the causes described in the following figure 1.



**Figure 1.** The active tectonics of Sumatra Island show the major sources of earthquakes in the Subduction zone. Many large earthquakes occur in subduction zones or collisions this plate. The colored ellipse shows the source of the quake and the number next to it shows the year and magnitude of the magnitude of the earthquake that occurred including the 26 December 2004 earthquake (Magnitude 9.15)<sup>[13]</sup>.

Tsunami-prone areas are located along the coast of the Aceh, which face potential damage from the Indian Ocean in the west (Aceh Jaya, West Aceh, Nagan Raya, Aceh Barat Daya, Aceh Selatan, Aceh Singkil and Simeulue). Based on geological disaster records, tsunamis have occurred in 1797, 1891, 1907 and 2004. The December 26, 2004 magnitude 9.15 Sumatra, Indonesia earthquake (3.316

N, 95.854 E, depth 30 km) generated a tsunami that was observed worldwide and caused tremendous devastation and deaths throughout the Indian Ocean region. The tsunami tragedy was caused by tectonic earthquake that occurred around 160 km west of Aceh. The UN estimates that 186,983 people were killed in the quake and tsunami. The United States Geological Survey states, the death toll reached 283,100 inhabitants. Victims in Indonesia, especially Aceh, reached 167,000 inhabitants, 130,000 were killed and 37,000 are missing.

Disaster is unavoidable by human. After several disasters occurred, the sustainability of society to survive from the hazard of future disasters. This modern era, protecting indigenous knowledge of one region is the main factor for the sustainability of society in reducing disaster risks. Indigenous knowledge is dynamic and continually influenced by the creativity, experiences and practice. According to Baumwoll, indigenous knowledge originated within the community that contrasts from scientific knowledge which unrelated to the local culture. Indigenous knowledge could be easy to understand, adapt, and use by the society.

Early warning is an crucial factor in disaster risk reduction. Indigenous knowledge could be an early warning that is easy to adapt in society. However, the value of indigenous knowledge is getting known globally but it almost can not be seen in the practice. The International Decade for National Disaster Reduction (IDNDR) from 1990-2000 agreed for using indigenous knowledge to be developed for disaster risk reduction. This development was held and applied in disaster risk reduction policy, so that the risk of death, injuries, damage and loss can be minimized.

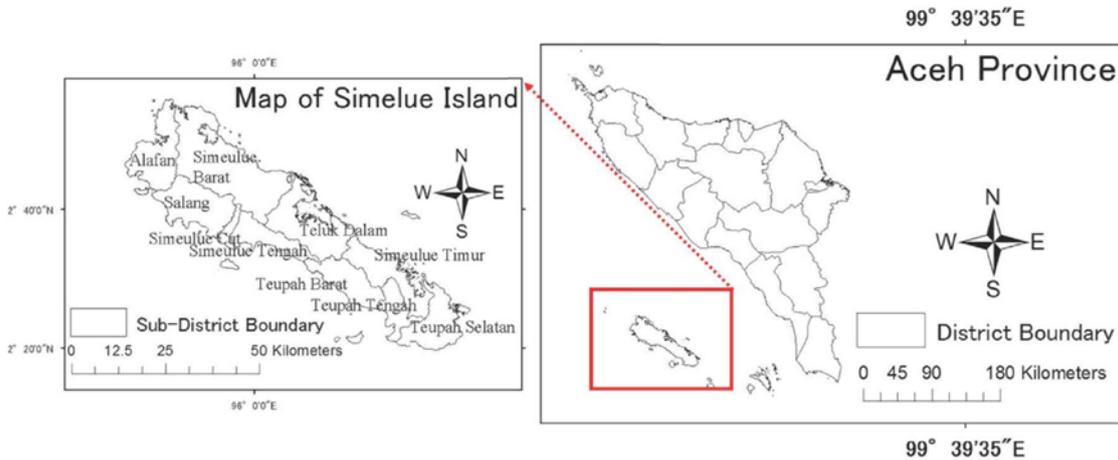
The effectiveness of indigenous knowledge practice for disaster risk reduction shown from the 26 November 1999 tsunamis in Baie Martelli (Pentecost Island, Vanuatu, Pacific Island) caused only five fatalities from threatened population of about 300 persons, most of whom fled inland and upslope before the waves struck. Some people who experienced it say that their Indigenous Knowledge involved in their survival which known as *kastom*. *Kastom* defined as cultural product that become folk knowledge was about natural hazard that told by story telling.

The recent understanding of Indigenous Knowledge for Disaster Risk Reduction emerges from a series of events organized and publications brought out during 2007-08 by UNISDR, Kyoto University, European Commission, DRH Asia, SEEDS and other Asian role players. Some of the main events in this regard are:

- Transferable Indigenous Knowledge meeting in Delhi in February 2007: initial discussion and case study experience sharing
- Transferable Indigenous Knowledge meeting in Delhi in February 2008: Indigenous Knowledge action agenda discussion
- Indigenous Knowledge Good practices document: November 2007 to June 2008: Provide key emphasis areas
- Transferable Indigenous Knowledge for DRH and Beijing workshop in February 2008: Discussion on Indigenous Knowledge usage, practice and documentation
- Indigenous Knowledge workshop in July 2008 in Kyoto University: Policy discussion on thematic Indigenous Knowledge sectors
- SAARC Disaster Management Centre study on Indigenous Knowledge for Disaster Risk Reduction in South Asia
- Third Ministerial meeting in December 2008: Indigenous Knowledge Side event to discuss the policy note

Simeulue Island and the other small islands around it are situated to in the Southwest Aceh Province; the island has been devastated from earthquakes and tsunamis. Simeulue is located on the arc of the subduction zone in western Sumatra and was so close to the source of the earthquake. Similarly, the islands of Nias, Siberut, Mentawai and Enggano are located close to the subduction zone. Tectonic earthquake shocks occur frequently due to Eurasian and Indo-Australian plate collisions. This caused several tsunami tidal waves to occur in 2004. There were seven deaths in Simeulue. Without diminishing the meaning of life, seven souls are small in comparison to the

hundreds of thousands of souls that were lost in other areas. The following figure 2 describe the location of Simeulue Island.



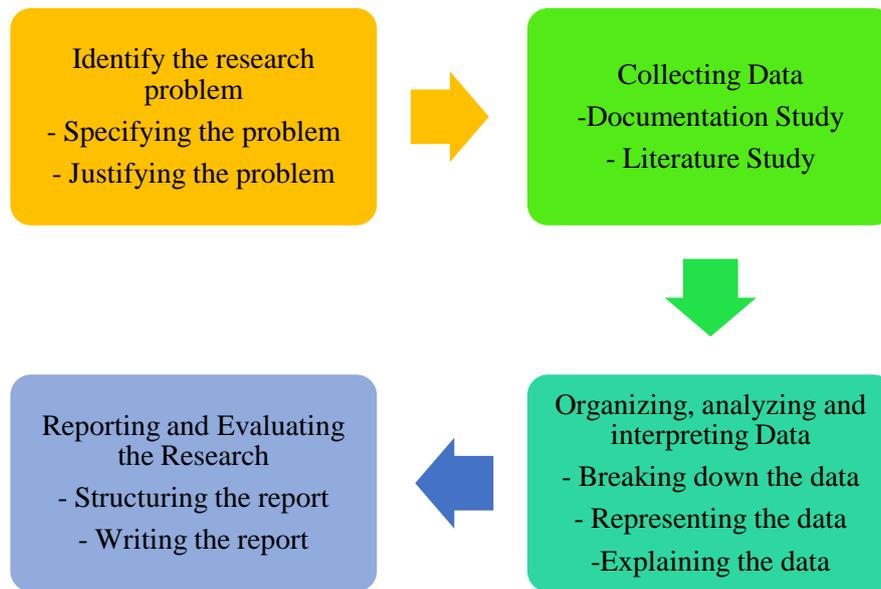
**Figure 2.** Map of the Island of Simeulue and the Aceh Province.<sup>[14]</sup>

The potential for disasters in Aceh will not decrease significantly in the years to come. Given the geographic, geological, hydrological and demographic conditions of Aceh, a comprehensive effort is needed to overcome these threats. This applies to when the disaster first occurs, after it has occurred, and against potential disasters in the future. The geomorphological, climatological, and demographic conditions, create hazards in Aceh that include geological, hydro-meteorological, social, and health threats.

Almost two decades after the 2004 Indian Ocean Tsunami, the world has been progressing to focus on sustainable disaster risk reduction concepts. The great story of *smong* is a practical example of indigenous knowledge of disaster risk reduction. Realizing this fact, the purpose of this study was to analyze how the *smong* story as local wisdom successfully alerted the Simeuluean people of the impending danger.

## 2. Method

This research uses descriptive qualitative research method. The data collections were done through documentation, study, and analysis of relevant literature. Documentation study was conducted to obtain information about local values of the *smong* in regards to the disaster mitigation efforts. The literature study was conducted by researching information about *smong* from books and journals. The data analysis technique is done by organizing, analysing, and interpreting the data obtained in the form of scientific explanation so that it can be understood by the reader.



**Figure 3.** Data analysis technique.

### 3. Result and discussion

Local wisdom lately is very often discussed. Discussions about local wisdom are often associated with local communities and with varying insights. Local wisdom is local ideas that are wise, full of wisdom, good value that is embedded and followed by members of the community. Local wisdom is contained in local wisdom refers to knowledge that comes from the experience of communities and individuals that the accumulation of local knowledge.

The prevention of earthquake and tsunami disaster based on local wisdom in Simeulue community originated from earthquake and tsunami experience that occurred in 1907. Based on the Dutch record and from the story of some parents Simeulue mention the incident with the term *smong07* consists of word *smong* means wave and *07* means 1907. The story can be seen as starting from the earthquake of Magnitude 7.6 that hit off Aceh on Friday, January 4, 1907. The quake developed a giant wave that reached the land, and more than 50% of (some estimates go up to 70%) the Simeuluean people were killed. The disaster happened on Friday when most of the people were gathering in mosques for Friday prayers.

The worst impact of the 1907 tsunami was its pain that resonated in the hearts of Simeuluean people. The survivors tried to deal with the disaster by recounting the story of Smong. When the earthquake of Mw of 9.2 occurred on December 26, 2004, the Smong story successfully alerted the Simeuluean people of the impending danger, and they ran away from the coastal areas to higher places. Three people were reportedly killed, showing the success of the *Smong* story.

Indigenous story of the earthquake and tsunami that hit Simeulue in 1907 passed from generation to generation. *Smong's* storyline is sung in poetic form that contains natural phenomena that can be a tsunami. The verse that is often sung to take a child's sleep is a poem of advice to devote to both parents, and a piece of the story about the departure of parents because of the tantalizing wave of *Smong* sea. In addition, an invitation to run to a higher place if there is a strong earthquake. So it becomes the habit of Simeuleu society to run to the mountain if it feels earth shaking earthquake.

**Table 1.** An example of *Smong* lyrics to tell of tsunami risk from *Nandong*.

<i>Devayan</i>	English
<i>Enggel mon sao curito</i>	Please listen to this story
<i>Inang maso semonan</i>	One day in the past
<i>Manoknop sao fano</i>	A village was sinking
<i>Uwi lah da sesewan</i>	That's what has been told
<i>Unen ne alek linon</i>	Starting with earthquakes
<i>Fesang bakat ne mali</i>	Followed by a giant wave
<i>Manoknop sao hampong</i>	The whole country was sinking
<i>Tibo-tibo mawi</i>	Immediately
<i>Anga linon ne mali</i>	If the strong earthquake is
<i>Uwek suruik sahuli</i>	Followed by the lowering of seawater
<i>Maheya mihawali</i>	Please find in a hurry
<i>Fano me singa tenggi</i>	A higher place
<i>Ede smong kahanne</i>	This is called Smong
<i>Turiang da nenekta</i>	A story of our ancestors.
<i>Miredem teher ere</i>	Please always remember
<i>Pesan dan nafi da</i>	This message and instruction
<i>Smong dumek-dumek mo</i>	Smong is your bath
<i>Linon uwak-uwakmo</i>	Earthquake is your swing bed
<i>Elaik keudang-keudangmo</i>	Thunderstorm is your music
<i>Kilek suluh-suluhmo</i>	Thunderlight is your lamp

The tragedy on 1907, becomes a valuable learning and experience for their generation to be more careful and vigilant. Through their grandparents and their parents, they continue to tell the heartbreaking story of a century ago. This became a valuable stock for the Simeulue community. When the tsunami in 2004, people already know what steps to take when the tsunami comes.

The ancestral message of the poem mentions that, if there is a strong earthquake, followed by low tide, do not go to the beach to pick up fish that have sprung up by the beach, because soon Smong will come. If that happens, run to the mountain to save yourself. Bring the children, the elderly, and the women running away from the beach. Shout, Smong ... Smong ... Smong .... It continues to this day.

*Smong* poem was able to minimize casualties in Simeulue. This hereditary poetry, which in the form of advice is a local wisdom that should be maintained and preserved considering Aceh is an area prone to earthquake and tsunami disaster. However, this Smong Poem is not enough to protect the people from the disaster. To that end, the Regional Disaster Management Agency must cooperate with relevant agencies to provide a good and accessible evacuation route.

#### 4. Conclusion

*Smong* is a key word understood by the entire population of Simeulue that describe the occurrence of giant waves after a major earthquake. It is part of the Simeulue indigenous culture, transmitted through songs, short poems, lullabies, and stories. During the terrible event that plagued Aceh on December 26, 2004, there was a massive evacuation of the entire Simeulue beach area within a few minutes after the earthquake. Therefore, "*Smong*" is an appropriate term that used in order to reduce the impact of disaster, viz. earthquakes and tsunamis in high risk areas.

Stories or poems like *smong* is always repeated told will always be remembered because the story or poem can be easily accepted by the public. In disaster risk areas other than earthquakes and tsunamis, stories or poems can be made based on true stories that occur in the area and make them as local wisdom. Learn from the *smong* story, can be used as a reference knowledge about disaster and policy. So that can be one of help to reduce disaster risk in disaster prone area.

## 5. Acknowledgement

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