

The Experiment on the Application of Sundanese Language in Earth and Related Sciences

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Abstrak

The colonialization era separated the local language from the scientific communication. In the first and second decades after the independence, the Dutch language continued to dominate. Further, the American English was used in the scientific communication, side by side with the Indonesian language. The opportunity to apply Sundanese language in scientific communication was therefore very limited. The local government issued various regulations to maintain the Sundanese language be spoken. The question rose on the ability of Sundanese language for the scientific communication. The present experiment attempted to apply the Sundanese language in the communication of earth and related sciences. The experiment directly used the Sundanese language in popular articles. The object on volcano was chosen considering the Sundanese are familiar with the volcano. At the same time the communication in Sundanese was effective to communicate with the people where Sundanese language was daily spoken. The communication was aimed to introduce the people with the impending danger of the volcano and the way to avoid. The popular article was then widened to the more scientific communication. The articles were regularly published in Sunda Midang magazine, whereas the in-depth scientific papers appeared in book format. The experiment began in 2010 and continued until present days. The Sundanese language proves to be able to use in the scientific communication of earth and related sciences. The scientific terminology in Sundanese language is supplementary to Indonesia language. In cases, the Sundanese language provides wider variation of the terminology. The availability of Sundanese media is highly recommended.

Kata kunci: Sundanese language, experiment, earth science, supplementary, Sundanese media.

Introduction

The scientific world in Indonesia seems to be separated from the root of the Indonesian culture. There are several reasons to put forward. The colonialization is at the top, followed by the lack of opportunity to apply the national as well as local languages in the scientific community. The educated people seem to be exclusive either in the scientific circumstances or in their own social circles. Take for example the words “ik” and “jij” were frequently used to express the personal pronoun at the first and second decades after the independence. The post-independence generation uses the Indonesian word “saya” or “sayah” in the conversation using Sundanese language.

The development closely relates to the treatment of the language in the succession of the prevailing era in Indonesia. At the colonial era, the local language was maintained as the prime communication for the general society. The colonial government established the institution among others Balai Poestaka to keep the local language alive. The lowest two year education was carried out in local language. The middle class schools for selected people used primarily Dutch language side by side with local language. The limited number of the Tertiary education in those days absolutely used Dutch language in the campus. This situation continued, at least at the class room, in the first and second decades of the post-independence era. The problem related to the availability of the lecturers which were mostly or in many cases completely, Dutch scholars. The scientific community therefore, used Dutch language to communicate.

The Dutch language era was abruptly terminated due to the political circumstances where all Dutch citizens were expelled. The disruption virtually provided a golden opportunity for the national language to come to the stage. Alas, the Indonesian human resources were not that ready to deliver the lectures. Instead, the Americans were imported replacing the Dutch. The English language then dominated the scientific communication.

Though Indonesian language survived thanks to the political situation unfavouring the Americans, the language was not ready to take over the scientific communication. This situation can be observed in the lack of the scientific terminology in Indonesian language. In the field of earth and related sciences the English-Indonesian dictionary has not been made available until early 1980's. The most recent dictionary was published in 2003.¹

Taking into account the development of Indonesian language in the scientific communication, the local language was yet far lacking behind. Nowadays, the question arises as to what extent the Sundanese language actually enables serving the scientific communication.

This article attempts to provide the basic results of the experiments applying the Sundanese language in the scientific communication. The experiment hopefully would be able to demonstrate the ability and in contrary, the limitation of Sundanese language to deliver the scientific communication.

A Flashback of Sundanese Language in Scientific Communication

In the field of earth science, the early application of Sundanese language was noted in 1921 with the publication of "Guguritan Laut Kidul" appeared in *Volksalmanak*.² This work which was written by Mustapa (et al.) described the distribution and the characteristics of volcanoes in Western part of Java. Gunung Gede side by side with Pangrango in the West was assumed the gate to Tatar Sunda. In the middle of Tatar Sunda stood majestically Cikuray claded in silky hanging cloud. Galunggung guarded the land in the East, whereas Ciremay stayed isolated in the North. The description of craters in Tatar Sunda was comprehensively written by Adna Widjaja (Kurnia, 2018).³

In the field of medicine and the science of human anatomy, the knowledge written in Sundanese was much earlier. In the ancient Sunda manuscripts, among others in *Kropak 47* and *Kropak 610* the description was given on the dwelling of the unhealthy creatures in the human body. Similarly in *Kropak 621*, *Sanghyang Sasana Guru* tabulated various diseases.

In the dictionary "Istilah Kesehatan dalam Kebudayaan Sunda" prepared by the Reseach Team of Universitas Padjadjaran (2009) as many as 595 entries concerning diseases appeared. The terminology

1 Purbo-Hadiwijoyo, M. M. 2013. *Kamus Geologi*. Badan Geologi. p. 229.

2 Rosidi, Ajip. 2011. *Guguritan*. Kiblat Buku Utama. p. 80-87.

3 Kurnia, Atép. 2018. Kawah di Tatar Sunda, Karya M.I. Adna Wijaya. *Pikiran Rakyat*. Bandung, Indonesia.

classified three groups of diseases, namely *panyakit* (disease), *bangbaluh* (unhealthy feelings) and *ciri* (indication, symptom). The number of entries respectively were 348 diseases, 39 unhealthy feeling and 143 indications. The dictionary included also 11 entries on medical treatment and 54 miscellaneous entries (Soemadipradja & Kurnia, 2011).⁴

The atmosphere for the development of Sundanese language was fortunately very conducive. In 1996 the local Government promulgated the Provincial Regulation No. 6/1996 concerning the Everlasting, Counseling and Development of Sundanese Language, Literacy and Sundanese Characters. The proceeding regulation No 5/2003 strengthened the Maintenance of Sundanese Language, Literacy and Sundanese Characters. The operationalization of the regulation was stated in the Governor Decree No.3 which was issued in 2004.

As the derivative of those provincial regulations, the Municipality of Bandung further in 2012 issued the Municipal Regulation no. 9 concerning the Application, Maintenance and Development of Sundanese Language and Sundanese Characters. The campaign to communicate in Sundanese language began with the social activities labelled as “Rebo Nyunda.” The local government hailed the citizens to use Sundanese language in daily communication on Wednesdays. The local government officials were given short courses on Sundanese culture and language.

In line with these efforts, Padjadjaran University proactively carried out short courses and socialization of Sundanese culture and language in many cities in West Java among others in Garut, Tasikmalaya and Kuningan. The courses were also held in the campus for the interest of public. Recently a series of public lectures on Sundanese culture were systematically and intensively presented by the Center of Sundanese Literacy Digitalization and Culture Development of Padjadjaran University under the Program called “Lopian”. The activities have drawn high interests and appreciation from the Sundanese community.

To boost the tourism applying local languages in public space was part of the campaign initiated by the Government. The lovely local language might add the specialty to the touristic taste. In Bandung railway station the announcement was aired both in Indonesian and Sundanese languages. The words “*wilujeng sumping*” and “*wilujeng angkal*” were frequently spoken. Similarly, in Husen Airport in Bandung, the announcement was delivered in English, Mandarin, Indonesia and Sundanese languages. The word “*sumangga lebet*” is the announcement to enter the gate for departure.⁵

Based on the progress of Sundanese language application in various daily activities, it is hypothesized that the language would be able to serve the scientific communication. The wealth of geological and natural phenomena in Tatar Sunda made the application of Sundanese language conducive in earth science communication.

Methods of the Experiment

The experiment is focused on the application of Sundanese language in earth and related sciences due to the following reasons:

1. The Sundanese people are very familiar with the natural phenomena of the earth, such as volcanic eruption, landslide, flash flood, erosion and earthquake. Hence the wordings are used in the daily life;
2. Sundanese people apt to use earth science terminology in the geographical name, such as those related to water. The prefix *Ci* at the geographic location is very typical Sundanese and therefore indicative;

⁴ Soemadipradja, Sam Askari & Kurnia, Atép. 2011. Awak jeung Unak-anikna. *Kertas kerja*. Kongrés Basa Sunda IX. Lembaga Basa jeung Sastra Sunda (LBSS). Cipayung, Bogor. p. 14.

⁵ Sudradjat, Adjat. 2018. Sumangga Lebet. *Majalah Sunda Midang*, No. 157, p. 58-59.

3. The geological phenomena directly relate to human activities, as demonstrated among others by the availability of water and fertile soils which were produced by the volcanoes;
4. In socialization of natural hazard in the area where Sundanese language is dominantly spoken, the Sundanese wordings are needed;
5. Finally, the availability of media to publish the experiment. The Sundanese journals are available.

At first the experiment deals with the articles of popular aspects of earth phenomena such as volcanic eruption, landslide and earthquake. The article aims to introduce the knowledge on earth characteristics particularly those endangered the inhabitants. The terminology was translated from Bahasa Indonesia to Sundanese. The availability of Sundanese dictionaries was a great help.

In some cases the translation was made directly from English into Sundanese. This was partly due to the limited availability of the Indonesian terminologies. The evidence of shortage was depicted in the accompanying English words that usually follow the translated words within the brackets.

The next step was to insert the scientific wordings in the story telling format, framed within popular articles. The scientific expression of plate tectonic theory for instance, was inserted in a novel entitled “*Didodoho Lahar*” (The impending lahar danger). The inserted scientific materials composed of magma dynamics and ore generation in magma chamber. This book was published by Kiblat Buku Utama in 2010.⁶

The comprehensive version of scientific wordings was inserted in “*Rusiah Gunung Rakata*” consisting of 613 pages which was published by the Galeripadi publishing house. The chapter on the previous investigation in this book was presented in the format of conversation. The Englishers, Dutch, Japanese, American and Indonesian volcanologists talked in Sundanese language discussing the phenomena of the 1883 Rakata volcano gigantic eruption.⁷

The experiment continued with the publications of articles in “*Sunda Midang*” monthly magazine concerning the earth phenomena, the wealth of minerals, the survey, exploration and exploitation of minerals and other aspects related to the earth. As many as 160 articles had been published within the last ten years. The selected articles were compiled in three books respectively entitled “*Wanoh ka Lakuning Jagat (Acquainted to the Earth Phenomena)*”, “*Dalit jeung Lakuning Jagat (Familiar with the Earth Phenomena)*” and “*Wanoh ka Jaman Milenium (Acquainted to Millennium Era)*”.

The findings of the experiments were presented in various forums among others in regular 18 hour-course held by the Academy of Sundanese Culture, Pasundan University. The course had provided the opportunity to discuss the findings. The participants who came from various disciplines and backgrounds contributed to the enrichment of the findings. As many as 20 classes had been organized involving approximately 400 participants. Parts of the findings were also presented in a half day seminar held in The Indonesian Embassy in London

Beside appeared in *Sunda Midang Magazine*, the articles were also published in *Cupumanik Magazine* and *Pikiran Rakyat Daily Newspaper*. The preliminary presentation was delivered earlier at the talk show held by Universitas Padjadjaran in the commemoration of the 31th Anniversary (2008). The results of the experiment was also presented at the Indonesian Conference on Sundanese Culture held in Bogor (2010), the IX Sundanese Language Congress held in Cipayung (2011) and the Local Language Conference held in Bandung (2012). The conferences were organized by Local Government and Sundanese Cultural Associations.

The findings were finally presented in short courses held by Padjadjaran University respectively in Garut, Tasikmalaya, Kuningan and in the campus. The program entitled the Development of Sundanese

6 Sudradjat, Adjat. 2010. *Dididoho Lahar*. Kiblat Buku Utama. p. 246.

7 Sudradjat, Adjat. 2017. *Rusiah Gunung Rakata*. Penerbit Galeripadi.

Language and Culture. The courses were attended by local government officials and public figures. In total as many as 150 participants attended the courses.

Results and Discussion

The opportunities to deliver both the scientific and semi scientific lectures have proven that the Sundanese language enabled to accommodate the communication. The translation of terminologies from English to Sundanese was much easier than through Indonesian language. This in particular relates to similar orientation of Sundanese language and English. Both languages are spoken by people living in the inlands. The languages therefore are land oriented. The geologic map of England appeared in 1815 was the most earliest map of this sort in the world.⁸

The publication of articles and presentation in seminars and conferences had furnished the evidences of the ability of Sundanese language in the scientific communication. The terminology of earth's surface configuration seems to have more options compared to Indonesian language.

The naturalization of earth science terminology into Indonesian language at first took place through Dutch language. Later the American English was dominant due to the easy availability of references concerning the geology of American continent. The earth science initially developed in Germany in early centuries and entered the golden age of 18 and 19 centuries. The Dutch terminology oriented to German language. Many scientific works in earth science were published in German language. The development of earth science in Germany was conducive because the terrain is mountainous. The famous Alps were the field laboratory for geologists. The science on geomorphology therefore, was oriented to the mountain.

Similarly, the geological science in America described the characteristics of the continent. This is the reason of easy translation from Dutch and English to Sundanese, because the languages are land oriented. The Indonesian language, on the other hand, is sea oriented following the derivation of Melayu language. The Sundanese language is therefore advantageous in the terminology of geomorphology.

The description of the geomorphology of a volcano for example, demonstrates such advantage. The Sundanese language describes the morphology of a volcano into three classes, namely *gunung* (the biggest), *pasir* (moderate size) and *bunyur* (the smallest). Similarly, concerning the slope of a volcano which describes three categories namely *congcat* (the uppermost), *lamping* (the middle) and *tutugan* (the lowest). Further down, the slope becomes *lebak* showing the most negative topography.

The Sundanese language typically concerns with water. It seems that water is the most important source called the elixir of life. Therefore, the geographic name compulsarily needs the prefix *ci* which means water. The terminology of geological phenomena in river courses is very intensive. There are at least 16 names describing the morphology of a river. Those terminologies demonstrate the advantages of Sundanese language in the description of a river (Table 1).

Table 1. Example of the advantages of Sundanese language in the description of river

Description	Sundanese	English	Indonesia
River sediment	Bantar (babantar, parung, péréng)	Bar	None
River sediment at the river's mouth	Beber	Delta	None (delta, English)
The U shape of the river's bank	Bojong, bobojong, ancol	Meander	None
Hard rock at the meander	Karéés	None	None

⁸ Winchester, Simon. 2001. *The Map that Changed the World*. Penguin Books. p. 338.

The deep part of a river	Leuwi	Deep (not specific)	Lubuk, kedung (local language)
The distribution of water	Parigi	Distributary	None
The cliff at the river's side	Rahong	Gorge	Ngarai (local language)
The cave under the waterfall or at the eroded river's side	Sodong	Cave (not specific)	Gua (not specific)
The size and length of a river	Walungan (biggest)	River (big)	Sungai (big or small)
	Wahangan (moderate)	Ditch (small, man made)	Sélokan (small, local language)
	Susukan (small, man made)		
	Sélokan (smaller, man made)		
	Balungbang (less smaller, man made)		
	Kamalir (smallest, man made)		

The intimate relation of geographic name and water was noted. In Bandung basin. As many as 80 localities bring name of *Bojong* and 96 others of *Ranca*.⁹ Bandung basin is the location of Bandung City, where the standard Sundanese words are referred.¹⁰ In the case of earth science, the Sundanese wordings therefore, are very familiar and readily applicable.

In the history of earth science, it is noted that the earliest books on mineral was written in Latin language. In spite the author George Bauer (1494–1555) was a Germany, the book was written in Latin. The book consisted of 12 volumes entitled “*De re metallica*”. Bauer even changed his name to be Geogius Agricola as the translation of George Bauer.

Simialrly with Niels Stensen (1638–1686) a Denmark who changed his name to be Nicolaus Steno. He wote the book entitled “*The solido intra solidum naturaliter contento dissertationes produmus*”. This book laid the principles of stratigraphy called the Steno’s law. Those books were written in Latin language.

It is noticed that in 19th century and in the first half of 20th century, German language in sciientific communication replaced the Latin language. It demonstrates that the ability of the language has changed in the course of time. It depends very much on various variables of circumstances. Further, with the development of the earth science in American continent, English holds the leader in the scientific communication.

Analogous to such development it is not impossible that in scientific communication the Sundanese would be able to strengthen the Indonesian language. With the wealth of Sundanese words describing the earth phenomena, it is quite probable that the Sundanese language would be able to accommodate the scientific communication. The experiment has proven that Sundanese language is convenient in the expression of wordings in scientific articles, books and conferences. The Sundanese language is in the position to uphold and enrich the Indonesian language.

Conclusions and Reccomendation

Experiment reveals that most of the terminology in earth and related sciences can be accomodated in Sundanese language. The wealth of Sundanese words in the description of the earth’s surface enable the language to enrich the Indonesian language in the scientific communication. The Sundanese language therefore, might be supplementary to the Indonesian language.

⁹ Bachtiar, T and Stafitri, Dewi. 2016. *Bandung Purba, Panduan Wisata Bumi*. Masyarakat Geografi Indonesia. p. 239-241

¹⁰ Wibisana, Wahyu. *Ngamumulé Basa Sunda*. Kiblat Buku Utama. 2011. P 22-24.

The conducive circumstances have been made available by the government such as the promulgation of law and regulation concerning the local language. The Rebo Nyunda program launched by Bandung Metropolitan is very effective in the acceleration of the development of Sundanese language.

More experiment is needed in various disciplines. The medicine science has been advancing in the application of Sundanese terminology in the scientific communication. It is highly recommended to carry out some more experiments in the application of Sundanese language in earth science communication to strengthen the present achievement. The Sundanese media are needed for the publication of the scientific communication in Sundanese language.