การศึกษาภูมินามในจังหวัดน่าน ประเทศไทย ด้วยระบบสารสนเทศภูมิศาสตร์

A GIS Study of Toponyms in Nan Province, Thailand

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บทคัดย่อ

ชื่อสถานที่มักจะมีความหมายที่เกี่ยวโยงกับลักษณะใดลักษณะหนึ่งของสถานที่ เช่น ลักษณะภูมิประเทศ สภาพแวดล้อมตามธรรมชาติ วัฒนธรรม หรือ ผู้นำ การศึกษานี้มีวัตถุประสงค์ที่จะค้นหาอิทธิพลของลักษณะทางภูมิศาสตร์ที่มีต่อชื่อสถานที่ในจังหวัดน่าน โดยในการศึกษานี้เป็นการเปรียบเทียบชื่อหมู่บ้านในจังหวัดน่านกับสภาพทางภูมิศาสตร์ ได้แก่ ระดับความสูง ความลาดเอียง และแหล่งน้ำ ณ ตำแหน่งที่หมู่บ้านนั้นตั้งอยู่ โดยใช้เทคนิคการซ้อนทับในระบบสารสนเทศภูมิศาสตร์เป็นเครื่องมือในการวิเคราะห์ ผลการศึกษาพบว่าร้อยละ 40 ของหมู่บ้านในจังหวัดน่านมีชื่อหมู่บ้านที่สัมพันธ์กับระดับความสูง ความลาดเอียง และแหล่งน้ำ ในจำนวนนี้ ครึ่งหนึ่งของหมู่บ้านที่มีชื่อสัมพันธ์กับระดับความสูงตั้งอยู่บนพื้นที่สูง หมู่บ้านทั้งหมดที่มีชื่อสัมพันธ์กับความลาดเอียงตั้งอยู่บนพื้นที่ที่มีความชันหรือล้อมรอบด้วย

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พื้นที่ที่มีความชัน และกว่าร้อยละ 80 ของหมู่บ้านที่ตั้งอยู่ในระยะ 1 กิโลเมตรจากแหล่งน้ำมีชื่อหมู่บ้านที่สัมพันธ์กับน้ำ จากผลการศึกษาแสดงให้เห็นว่าสภาพทางภูมิศาสตร์มีผลต่อการรับรู้และความรู้สึกของผู้คนซึ่งแสดงออกโดยการเลือกชื่อเรียกสถานที่ที่พวกเขาอาศัยอยู่ นอกจากนี้ในทางเทคนิค การศึกษานี้ยังแสดงให้เห็นว่าเทคโนโลยีทางภูมิศาสตร์ เช่น ระบบสารสนเทศภูมิศาสตร์ มีประโยชน์ในการวิเคราะห์ปรากฏการณ์ที่เกิดขึ้นบนพื้นที่

คำสำคัญ: ภูมินาม จังหวัดน่าน ระบบสารสนเทศภูมิศาสตร์ ชื่อหมู่บ้าน ลักษณะภูมิประเทศ

Abstract

Place names usually have meanings related to an aspect of the place; topography, natural environment, culture, rulers, etc. This study aims to determine the influence of geographical characteristics on place names in Nan province, Thailand. Nan was selected as the study area because of its wide variety in geographical characteristics. In this study, village names in Nan were compared according to their geography; i.e., elevation, slope, and water sources, at their own location. The analysis was performed by overlay techniques using a geographic information system (GIS) as a tool. The result shows that about 40 per cent of the villages were named in relation to elevation, slope, and water sources. Half of the villages with names related to elevation are located on related topographic heights. All villages with names related to slope are located on or surrounded by steep areas. More than eighty percent of villages located within 1 kilometer from water bodies were named in relation to water. The findings indicate that geography has its influence on people's perception and sense, which was expressed through the selection of names of the places where they live. Technically, the study also shows that geographical technology such as GIS is useful in performing analysis related to location-based phenomena.

Keywords: Toponyms, Nan province, GIS, Village names, Topography

Introduction

Toponym or place name comes from Greek words: topos and onoma. Topos means place and Onoma means name (Montello and Clark, 2010). Toponym is used as a general term for any place or geographical entity. According to Seidl (2008), toponym is a layer in space reflecting the link between surrounding characteristics and human perception. Toponyms are thought to be special names reflecting experiences of people (Radding and Western, 2010). For example, in Britain, city names were once claimed the city establishment. The city named with the element of –ingas such as Hastings, denoted that the city was established in the very earliest Anglo-Saxon age, while –ingaham such as Birmingham signified a later establishment (Gelling, 1997; and Gregory et al., 2009). However, modern use of place names is concerned with economic terms with political aspects (Gregory et al. 2009).

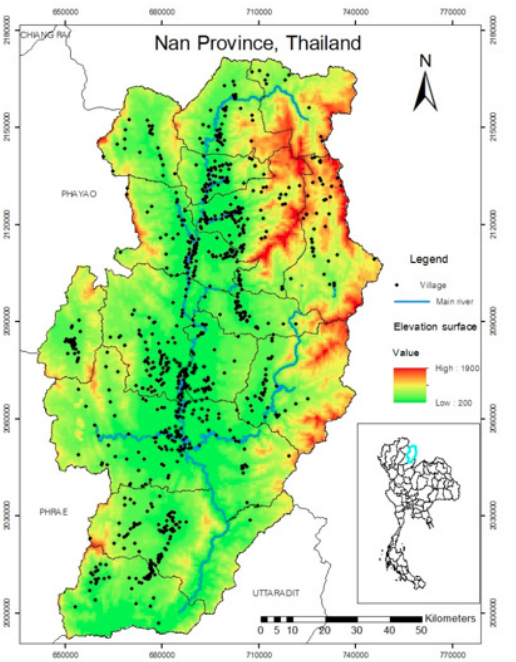

Figure 1 Village locations and topography of Nan province, Thailand.

As place names usually have meanings related to an aspect of the place: topography, natural environment, culture, rulers, etc., this leads to geographers' interest to explore if geographical characteristics influence human attitudes on giving place names. The study of toponyms in Thailand is mostly confined to linguistic terms. Previous researches concern only meanings and linguistic roots of Thai place names. Examples of such researches are a study of toponyms in Lampang province (Ratanapakdee and Klinbubpa, 2012), a report on local toponym in Nakhon Pathom (Nakhon Pathom Rajabhat University, 2009), or a study of linguistic structures of village names in Uttaradit province (Jirananthanaporn and Singnoi, 2005). This research aims to study toponyms from a geographers' point of view. Its objective is to determine the influence of geographical characteristics on place names in Nan province, Thailand by implementing GIS as an analysis tool.

Nan is a mountainous province in the northern part of Thailand, with cultural differences because of a variety of ethnicities. Nan was selected as the study area because of its wide variety in geographical characteristics (see Figure 1). The 803 village names in Nan were selected to study how their names were set in relation to their place. This research began with identifying origins of the village names, based on what kinds of perception that Nan people perceive and use to coin the name. Then, only village names with relation to geographic characteristics were focused in the analysis to explore if village names in Nan are signifiers for their place, and how they are related.

Analysis of Nan village names and their origins

Nan's village names were used as a case study in this research. The names were investigated to classify how many origins they were coined from, and what perceptions that Nan people used to create such village names. As a result, 803 village names of Nan were classified by their meanings into eight origins (see Figure 2).

The first origin is related to topographic characteristics, which is the most important in this research. It was found that almost 44 per cent of Nan village names were related to topographic characteristics. These names refer to topography such as rivers, mountain, or slope. For example, many of the village names in Nan begin with the word 'Don' such as 'Don Kaew', 'Don Phraiwan' and 'Don Fueang'. The word 'Don' means highland. Besides, several village names contain the word 'Nam' such as 'Nam Yao', and 'Hua Nam', where 'Nam' means water or water bodies.

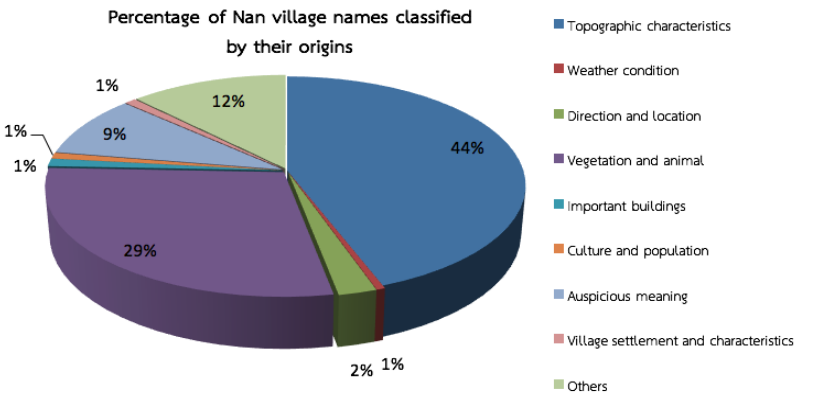

Figure 2 Percentage of Nan village names classified by their origins. This shows the proportion of eight main origins of Nan village names.

The second origin found is about weather conditions. As weather conditions may cause environmental problems such as drought or flood, people sometimes established their villages with names referred to those problems. The third origin is that some village names were created from their referenced location. These names are always composed of words related to directions; North, East, West, and South. Names of vegetation and animals are the fourth origin, which can be divided into two groups. The first group is names created from the main agriculture of the village, such as the names containing the word "field" or "farm". The other is names related to forest types around or nearby the village, such as teak forest, or beautiful banyan. The fifth origin is from

names of important constructions in their villages. Some village names are created from names of significant cultural heritage of the villages, such as temple or pagoda.

The sixth origin is from culture and ethnicity. It has been mentioned that Nan province comprises a variety of ethnicity and cultural differences. Many Nan people had migrated from other places. After several migrations, the migrants established their villages and coined the names according to their roots. The seventh origin refers to patterns of village settlement. The eighth origin is about people's expectation on a positive progress of their villages. Most of villages established less than 30 years have their names related to this origin. These names have auspicious meanings such as grow, new, development, happy, and wealthy, etc.

To conclude, it was found that Nan people coined their village names from eight major perceptions. However, it is still doubtful if these perceptions were actually related to their place. Are meanings of village names related to their village characteristics or is it just an arbitrary meaningless word? Are village names considered as signifiers to places? To answer these questions, GIS technology was chosen to analyze if Nan village names are related to their geographical characteristics.

Analysis of topographic-related village names

Village names related to topographic characteristics were selected and then classified into sub-groups. Only three sub-groups were chosen for this study: village names related to elevation, village names related to slope, and village names related to water bodies. Village locations of each sub-group were overlaid onto Nan topographic surface, and then values of their elevation above mean sea level (MSL), slope degree, and distance from water bodies were extracted. Their names and topographic values were then compared to find out their relationships and reveal if meanings of the names signify their places in terms of topography.

A work flow of the analysis of topographic-related village names is illustrated in Figure 3. To generate a layer of topographic surface of the study area, a set of contour lines was interpolated into a 3D continuous surface by using GIS, so that elevation and slope degree of any location in the study area can be easily extracted. Water bodies were stored in a separate GIS data layer. Locations of the village were represented by points, which can be displayed on top of the 3D surface layer and the water body layer. The elevation and slope degree of each village were then extracted by overlaying the village locations on the 3D surface layer. The distance of each village from water bodies was later calculated by a proximity function of GIS. After that, statistical information of the relationship between village names and their topography (elevation, slope degree, and distance from water bodies) were examined. The analysis of the results is discussed in the next section.

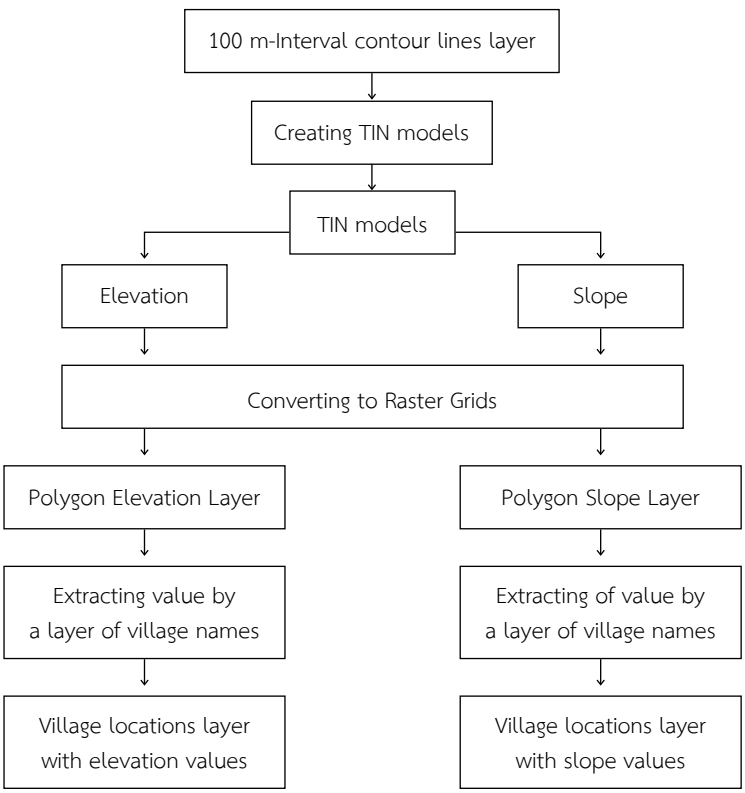

Figure 3 The process of deriving required information from contour lines, village-names, and village locations.

Analysis of results

1. Relationships between village names and their elevation

From 803 villages, there are 68 villages named in relation to elevation. These names are classified into 3 groups: names related to mountain, names related to highland, and names related to lowland. As there is no universally standard definition classifying elevation range of lowland, highland, and mountain, this research classified areas with height 600 m. above MSL or higher as mountain based on definition of the UK, while the remaining areas with height lower than 300 m. as lowland, and areas with height in between as highland (as shown in Table1). In order to demonstrate the relationships between village names and their elevation, the village layer classified into three groups of names was overlaid on the surface elevation layer (see Figure 4).

Table 1 The number and percentage of village classified by elevation value.

Elevation of villages	Village names related to lowland		Village names related to highland		Village names related to mountain	
	number	%	number	%	number	%
0-299 m. (lowland)	0	0	12	30.77	4	15.38
300-599 m. (highland)	3	100	26	66.67	20	76.92
600 m. and above (mountain)	0	0	1	2.56	2	7.69
Total	3	100	39	100	26	100

The results of village names related to elevation are shown in Table 1. For the villages whose names related to lowland, all of them are located on the elevation between 300-599 meters above MSL, which is considered highland. For the villages whose names related to highland, 30 per cent of them are

located on areas lower than 300 m. above MSL (lowland), while the other 70 per cent are located on the areas higher than 300 meters above MSL (highland). For the villages whose names related to mountain, almost 84 per cent of them are located on the areas higher than 300 meters above MSL.

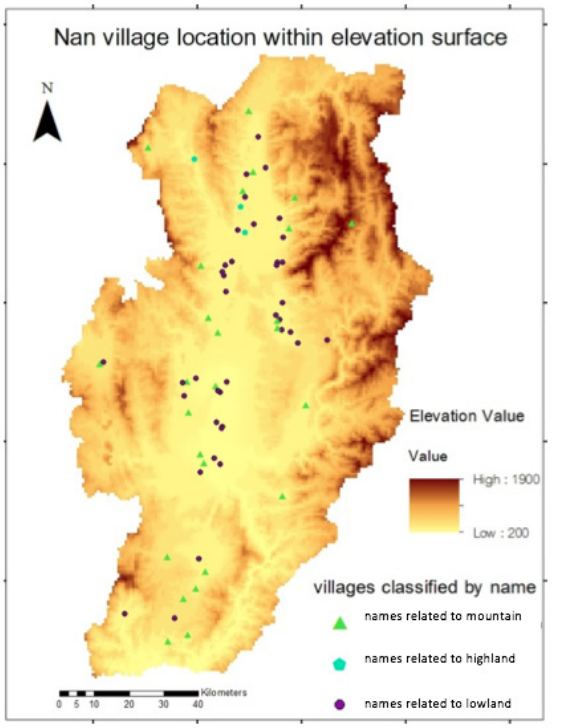

Figure 4 Village locations of village-names related to elevation within elevation surface.

The results show that, from human perception there are different definitions between the words “lowland” and “highland”. Some villages are located in lowland, but their names were established referring to highland. In the same way, all village names related to lowland are found in highland. These conflicts may occur based on three reasons. The first reason is that local people perceived their elevation by comparing to surrounding areas. So, it is

a relative elevation instead of an absolute measurement. As shown in Figure 5, all Nan villages whose names related to lowland are located in the areas surrounded by hills or mountains, thus they named their village as on lowland. The second reason is ambiguity in the definition of lowland and highland used in this research.

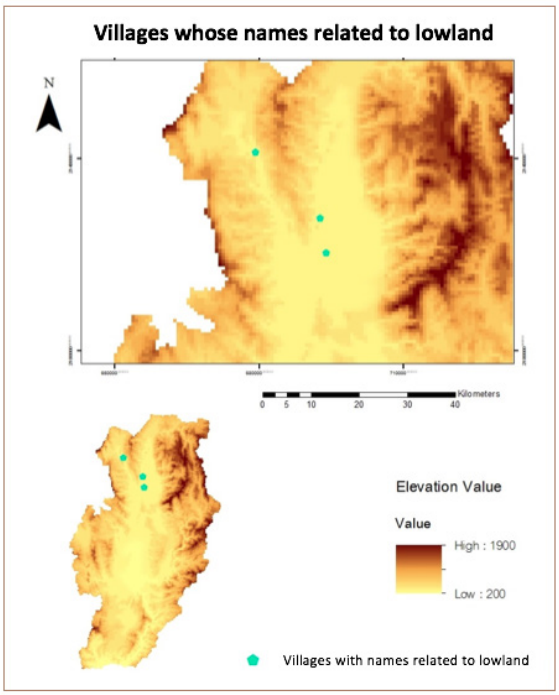

Figure 5 Relationships between village names related to lowland and their topography.

Various texts and organizations give the definition of lowland and highland differently. Not only the term “lowland and highland” is vague, but the term “mountain” is also obscure. For example, Whittow (1984) defined the mountainous area as the area higher than 600 meters, while Blyth et al. (2002) defined the mountainous environment as an area with the elevation at least 300 meters. The third reason is that establishers of village names might not be

concerned with any relative surrounding of their villages. In other words, a name is just a name; there is no relationship to topographic characteristics. For instance, 'Khao Noi' village is located on an elevation of 200 meters, even though 'Khao-' means mountain.

Although some irrelevances were found between village names related to elevation and their surroundings; more than half of them correspond with their height (see Figure 6). This means village names related to elevation mostly signify elevation of the village locations. Village names related to lowland signify that the villages are located on the area lower than their surrounding areas; and village names related to highland and mountain are mainly located on the areas higher than 300 meters above MSL.

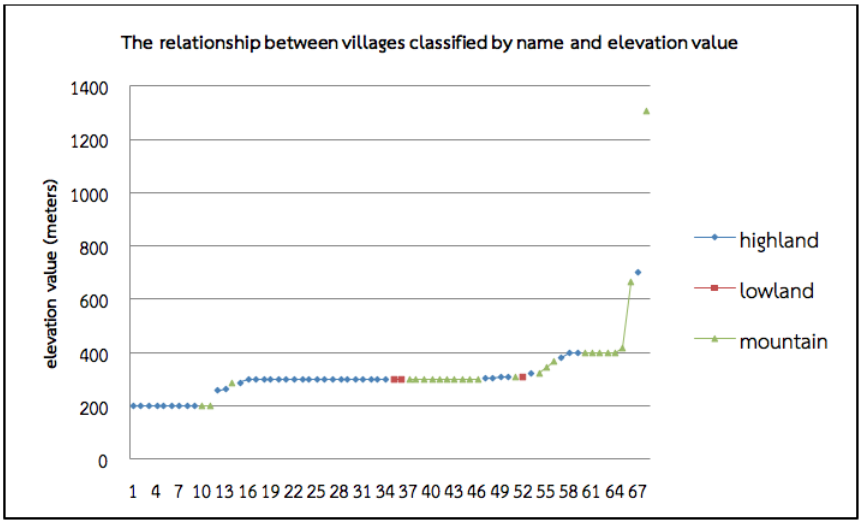

Figure 6 The relationship between villages classified by name and elevation value.

2. Relationships between village names and slope

From all Nan village names, there are only 15 of them related to slope (as shown in Figure 7). After extracting slope degree of the village locations by using GIS, it was found that 3 villages are on the surface of more than 5 slope degrees. Furthermore, 6 villages are on the surface of 1-5 degree slope, while the other 6 villages are on the surface of less than 1 degree slope (almost flat).

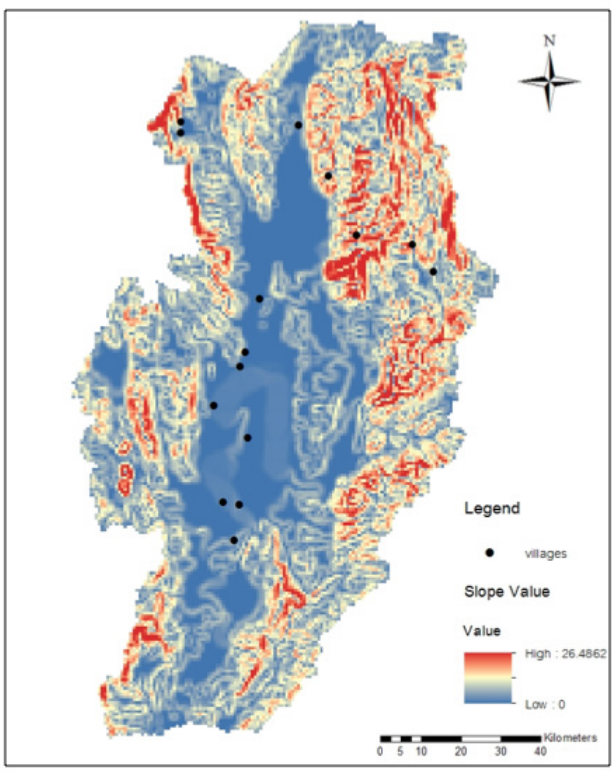

Figure 7 Villages whose name related to slope are displayed on top of the slope surface.

According to Figure 7, it was found that the 12 villages on 0-5 degree slope are all located close to steep areas. That is, 9 villages are located within 10 kilometers from surfaces with 15-25 slope degrees, while the other 3 villages

are located within 10-15 kilometers from the surface with 15-25 slope degrees. For that reason, village names concerning slope indicate the topographic characteristics of the villages. They signify either the village locations or their surrounding areas. The result shows that if they are not located in steep areas, they are close to steeper areas.

3. Relationships between village names and water bodies

There are 264 village names that are related to water bodies. It was found that more than 217 villages (80 per cent) are located within 1 kilometer from water bodies, and 26 villages (10 per cent) are located between 1-2 kilometers from water bodies. The others are located further than 2 kilometers from water bodies (as shown in Figure 8). It is obviously seen that village names related to water bodies signify water sources in or nearby the villages.

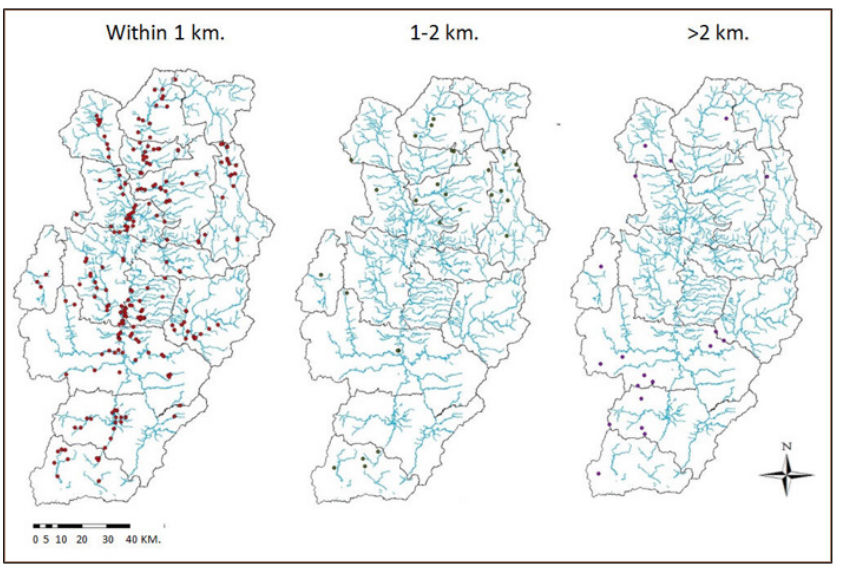

Figure 8 The map shows the relationship between village locations and main rivers in Nan province.

Conclusions

Name is more significant than a word; it possesses a specific connotation to a thing that is referred (Radding and Western, 2010). Similarly, toponym is not just an ordinary word, but a signifier to places. This has been proved through the case study of Nan topographic-related village names in this research. From 803 village names of Nan, there are 347 villages whose names are related to topographic characteristics; elevation, slope and water bodies. By using GIS in the analysis, the results reveal that villages whose name relates to specific topographic characteristics mostly match those topographic surroundings. The villages whose name relates to slope are located on or nearby slope areas. It was also found that most villages whose names are related to water bodies are located within 1 kilometer from water bodies. Although some irrelevances were found between names and topography of some villages, they were few. This leads to the conclusion that a place is generally signified by its name; hence a principle idea or characteristics of a place, including topographic characteristics, can also be understood through its name. However, this research focuses on only topographic-related village names in Nan, other kinds of village name origins still remain for further study.

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