

Taxonomy of Folktales from the Greater Mekong Sub-region †

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Tuamsuk, Kulthida, Nattapong Kaewboonma, Wirapong Chansanam and Sunee Leopenwong. 2016. "Taxonomy of Folktales from the Greater Mekong Sub-region." *Knowledge Organization* 43: 431-439. 29 refermces.

Abstract: This research contributes to the development of a taxonomy of folktales from the Greater Mekong Sub-region (GMS) countries. A qualitative research method composed of two approaches was used in this study: 1) a hermeneutic study of existing documents, literature and databases on GMS folktales; and, 2) a taxonomic organization of the identified folktales. Content analysis and classification of GMS folktales from the reviewed resources combined with comparisons with existing folktale classifications using a concept-centric approach resulted in a taxonomy structure comprised of three main concepts and 13 sub-concepts: types (7 sub-concepts), motifs (4 sub-concepts), and origins (2 sub-concepts) of the folktales. In each sub-concept, the terms were assigned and ordered based on their occurrences in GMS folklores. There are 92 total terms in the developed taxonomy. The taxonomy is different from existing classification systems because GMS countries share similar cultures, beliefs, customs, traditions, and religions that are different from the other parts of the world. The taxonomy will be useful for knowledge organization in digital libraries as well as for future research on GMS folklore and related cultural information that may need to be preserved in other areas.

Received: 27 March 2016; Revised: 27 April 2016; Accepted: 25 May 2016

Keywords: folktales, Greater Mekong Sub-Region, GMS, taxonomy, folklore

† This research was funded by the Center for Research on Plurality in the Mekong Region, Faculty of Humanities and Social Sciences, Khon Kaen University, Khon Kaen, Thailand.

1.0 Introduction

Digital Humanities is a research area that emerged from the integration of computer science and humanities. The field of digital humanities covers research related to the compilation and systematization of knowledge as well as the storage of compiled knowledge in digital formats, both for writing and mixed media. Digital humanities also expresses knowledge through semantics, statistics, and visualization related to interesting topics in the humanities and related areas. Study methodologies (Schreibman et al. (2004) include both conventional approaches, such as methods used in history, philosophy, linguistics, art, music, and cultural studies, as well as computer-based tools, such as digital archiving, ontology, the semantic web, data mining, text analysis, multi-media presentation, and data visualization. Digital humanities work responds to knowledge management needs in humanities disciplines, and this work is important for the study of human records that are gradually being lost. The knowledge can be retained in digital formats using advanced technology and then can be utilized in research studies or exchanged among humanities researchers and other interested individuals.

Folklore captures the knowledge and cultural phenomena that are gradually disappearing from a community. Folklore helps in maintaining and understanding cultures and people's way of life in the past and in recording cultural development in both the past and present (Atthakorn 1984). Folklore knowledge is divided into three types (Leopenwong 2009):

- 1) verbal knowledge is knowledge in the form of words, such as folktales, songs, and riddles;
- 2) nonverbal knowledge is knowledge that does not use words to convey the content, such as artworks, handicrafts, and architectures; and,
- 3) a hybrid of verbal and nonverbal knowledge, such as performing arts, rituals, and rites.

Because virtue folklore is important for the study and understanding of lifeway and culture, interest in folklore studies using the concept of digital humanities is increasing, especially in European countries. Parts of Europe, including Denmark, Bulgaria, Portugal, and Sweden, as well as Asian countries, including China and Japan, are recognized as the origins of famous world folktales.

Research on folklore that has embraced digital humanities concepts include, for example, in Europe, the

digital library of traditional Bulgarian folklore, which had several sub-projects, such as Luchev et al. (2008), the "Use of Knowledge Technologies for Presentation of the Bulgarian Folklore Heritage Semantics," and Nisheva-Pavlova and Pavlov (2012), the "Ontology-based Search and Document Retrieval in a Digital Library with Folk Songs." Digital research on folklore in Asia includes the work of Tian et al. (2013), which developed the metadata standards for Chinese traditional music, and the research of ZainalAbidin and Abd. Razak (2003) on the development of multimedia storytelling of Malaysian folklore. Chansanam and Tuamsuk (2013) wrote the "Development of Intangible Cultural Heritage Knowledge Framework for Ontology Construction," focusing on the Greater Mekong Sub-region (GMS). Based on the literature review, there has not been any research on the digital folklores in the GMS.

The GMS is a natural economic area united by the Mekong River; the area covers 2.6 million square kilometers and has a combined population of approximately 326 million people. The Mekong River is 4,880 miles long; it originates in the Himalayas and flows through Qinghai, China, and the Tibetan plateau into the South China Sea through China, Laos, Myanmar, Thailand, Cambodia, and Vietnam (Asian Development Bank 2015). The Mekong river basin was settled by people from many ethnicities and countries. Therefore, it is the origin of past and present cultures that continues to affect the lives of people in this area today. Humanities knowledge related to this area is an asset and has been of interest to researchers from all over the world. In addition, the introduction of digital humanities research in the study of folklore in the Mekong region will enable the research in this area to be more systematic and useful for scholars.

This research aims to use digital humanities research as a preliminary foundation for the study of GMS folklores. This paper will present a study of the knowledge organization of GMS folktales by using an original taxonomy developed as a part of the research. The taxonomy of GMS folktales will be used for ontology development and a semantic search for GMS folktales in the next phase of this research.

2.0 Literature review

The researchers studied the related literature to develop a conceptual framework for the research as follows.

2.1 Folklore studies

Folklorists traditionally have held the idea that folklore must be the stories that are directly verbally transmitted. However, Dandes (1965) argued that data from the memory of the transmitter are unreliable in comparison with recorded data. The transmission of data from one generation to another requires a long time, resulting in the modification of transmitted data and the gradual disappearance of some details. Therefore, the study of folklore now combines information from humans' memories and from written records. Leopenwong (2009) has divided the sources of folklore research into three categories according to the data collection method: field study, documentation study, and museum study. This research will mainly rely on documentation study and then verify the information with relevant folklorists.

This study will focus on verbal knowledge and, within the folklore of the GMS, will focus specifically on folktales. In the literature and media, there are folktales about the origin of the Mekong River that have expressed similar beliefs of different groups living along the river basin. One example is the story of "Sa Khu Lu Giant," who is believed to live in the vicinity of China, Myanmar, Laos, Thailand, Cambodia, and Vietnam. Because the giant was so large, its movement created a thundering sound and caused a landslide and crack in the earth. Later, the crack became the Mekong River (Traiyatha 2010). Additionally, there are beliefs in the countries of GMS about the "Naga" (a giant snake) written about in the book "The Naga Trails" by Cheigee Wong (2003). These beliefs relate to the origin of the Mekong River and include the legend of Laos, the SuvanKhomKham legend, and the KhamChaNode legend, among others. There are more folktales about the GMS, both recorded and unrecorded. The authors believe that research on knowledge acquisition and organization of GMS folktales will be useful for knowledge organization systems in digital libraries in the future.

2.2 Folktale classification

Folktales are a part of folk literature in folklore. Scholars define a folktale as a kind of literary story-telling produced from peoples' imaginations and ideas. Classification of folktales is not an easy task. It can be said that the quality of folktale classification systems is difficult to evaluate because the terminology used to define these systems varies significantly among researchers. In addition, each researcher uses a different approach to classify the folktales based on the themes, performances, functions, fields, forms, and other characteristics.

There are many folktale classifications or categorizations available in the literature. At the international level,

the Aarne-Thompson (AT) Classification System (1961) is a multivolume listing allowing folklorists to identify recurring plot patterns in the narrative structures of traditional folktales and thus organize, classify, and analyze the folktales they research. In the AT index, international folktales are divided into five categories: animal tales, ordinary folktales, jokes and anecdotes, formula tales, and unclassified tales. However, the AT motif index is limited (Tormod 2009) mainly to European and European-derived tales that are known to have been told by mouth at the time they were published. At the regional level, a classification example is the African Intellectual Property Organization (OAPI) Memorandum on African Folklore; Article 67 defines folklore as the literary, artistic, religious, scientific, technological, and other traditions and productions as a whole created by communities and handed down from generation to generation. There is no specific classification of folktales (Blavin 2003), but literary works include stories, legends, proverbs, epics, chronicles, myths, and riddles. Another regional example, the "Motif-Index of Southeast Asian Folk Literature," (Lindell n.d.) contains hundreds of Southeast Asian folk stories organized using AT. At the national level, Lopez (2006) classifies folktales in the Philippines into six types: animal tales, fables, ordinary tales, trickster tales, numskull tales, and formula tales. Abbot and Han (2000) classify folktales of Burma (Myanmar) into four categories: human origin tales, phenomena tales, religious tales and compound tales. Macdonald (1994) categorizes Thai folktales into seven groups: lying tales, humorous tales, animal tales, Jataka tales, tales to make you think, local legends, elaborate tales, and tales of helpful gods and spirits. Romayanond (1979), in the *Thai Encyclopedia of the Royal Society*, categorizes Thai folktales into eight groups: tales before Thai history, Jataka tales (both Buddhist and non-Buddhist origin), moral tales, proverb tales, local tales, tales about heroes, and tales about kings or queens.

The classification of GMS folktales draws on the content, the socio-cultural context, the research approach of GMS folklorists, and the relationships with the knowledge and information available in existing databases. This research aims to develop the domain concepts and a related taxonomy of folktales in the GMS, which will be used for further phases of the project, including ontology development and the development of a semantic digital library of GMS folklore.

2.3 Taxonomy

For present day information management, the term taxonomy is used both in the narrow sense, to mean a hierarchical classification or categorization system, and in the broad sense, in reference to any means of organizing concepts of knowledge. In the broader sense, a taxonomy (Hedden

2010) may also be referred to as a knowledge organization system or knowledge organization structure. Souza et al. (2012) categorized taxonomies as a type of “concept and relationship structure” in a knowledge organization system. A taxonomy can be an organized set of words or phrases used for organizing information and primarily intended for browsing. In this sense, taxonomy does not require its components to be connected by a specific type of relationship; it simply requires its components to be organized. The defining characteristics are its purpose, prioritizing browsing, and, therefore, the application environment, i.e. in this case a digital environment. In its basic conception, linked to the experimental sciences, a taxonomy (Centelles 2005) applies a mono-hierarchical criterion in the establishment of the classification system; that is, each one of the groups or types in a taxonomy can have only one place in the hierarchical structure. In this research, taxonomy will be used in its broader meaning and not limited to hierarchical structures.

Much effort has been devoted to using taxonomic structures to organize knowledge for ontology development. In this regard, “concepts” are the core for knowledge organization. Concepts are important because by being able to place something into its proper place in the taxonomy, one can learn a considerable amount about it. Recently, there has been a surge of interest (Wu et al. 2011) in using concept-centric approaches to enhance web text understanding and web searches. In addition, taxonomies created for specific domains (Menard and Dorey 2014) have become essential tools for a growing number of applications. This research, therefore, will use the concept-centric approach to develop a GMS folktale taxonomy. This is different from most existing taxonomies, which believe that a knowledge base should provide standard, well-defined and consistent reusable information, and therefore the concepts and relations included in these taxonomies have little or no ambiguity. However, the concept-centric approach argues (Wu et al. 2011) that human language is intrinsically diverse, ambiguous, and sometimes inconsistent, and consequently cannot be effectively understood with only black-and white knowledge.

Steps in the construction of taxonomies include (Centelles 2005):

- 1) limitation of the knowledge area;
- 2) extraction of the group of terms or categories that represent the area;
- 3) terminological control of the terms or categories (the terms making up a same concept are identified; in the event that there are two or more, it is necessary to specify an order of preference); and,
- 4) establishment of the structure of the terms or categories, including the criteria used to divide and group

the categories (e.g., the most widely used criteria are: by subject, matter/discipline, people, location, process, task/function, and type of documents).

3.0 Research methodology

A qualitative research method was used to develop the taxonomy of GMS folktales. The method consisted of two approaches: 1) a hermeneutic study of existing documents, literature, and databases on GMS folktales; and, 2) a taxonomic organization of the identified folktales.

The study was conducted using the following steps:

1. A survey and selection of existing resources on GMS folktales and folklore classification. The selected resources included:
 - a. two published encyclopedias, the *Encyclopedia of Folklore and Literature* (Brown and Rosenberg 1998) and *Folklore: An Encyclopedia of Beliefs, Customs, Tales, Music and Art* (Green 1998);
 - b. textbooks or other books about GMS folktales. However, books on the topic are quite rare; there were only a few books found on Thai folktales and Myanmar folktales and one book on Southeast Asian folk literature;
 - c. existing resources on folktale classification or categorization, such as the AT tale index (Tor-mod 2009), Thai folktale classification (Romanonond 1979; Macdonald 1994), and Philippines folktale classification (Lopez 2006); and,
 - d. internet resources that provided GMS folktale contents;
2. Content analysis of the GMS folktales from the mentioned selected resources according to the types, motifs, and origins of the folktales. Existing folktale classifications were used as guidelines and as resources for comparison;
3. Organization of the GMS folktales using a taxonomic approach in preparation for ontology development in the future. The concepts of GMS folktales were term-assigned, categorized, and structured;
4. Consultation with four experts in GMS folktales and modification of the taxonomy based on their feedback; and,
5. Taxonomy construction using an open source taxonomy program called PoolParty Taxonomy & Thesaurus Management Software, licensed by the Semantic Web Company (Semantic Web Company. 2015. “PoolParty Taxonomy & Thesaurus Management Software.” Available <https://www.poolparty.biz/taxonomy-thesaurus-management/>).

The last process was conducted to try out whether the developed taxonomy was suitable for use with an automated program, because the taxonomy was found to be suitable; it will be used for ontology development in the next phase of this project.

4.0 Results and discussions

The content analysis and classification of GMS folktales from the study resources and the comparison of the concepts found in the GMS folktales with those in the existing folktale classifications provided the data for the taxonomy of GMS folktales as described below.

4.1 The concepts

In this research, concept refers to the characteristic features of an element in the GMS folktales that would be useful for folktale classification and online retrieval environments. Based on the content analysis, the taxonomy of GMS folktales is divided into three main concepts: types, motifs, and origins (Table 1). Because the taxonomy is based on domain content analysis, the terms are not necessarily mutually exclusive.

Concept 1	Concept 2	Concept 3
Types	Motifs	Origins (GMS)
Didactic tales	Characters	Countries
Fairy tales	Objects/things	Provinces
Formula tales	Behaviors	Watershed
Jokes	Events	
Legends		
Myths		
Religious tales (Jakata)		

Table 1. Taxonomy of GMS folktales.

4.1.1 Concept 1: Types

Folktales in the GMS can be categorized into seven types according to the purpose of the tales and/or characteristics of the literature:

1.1 Didactic tales. A story with the purpose of explaining morals or teaching proper or moral behaviors. Most of the tales are for teaching children or women what to do and what not to do. Didactic tales are very closely related to social traditions and customs.

1.2 Fairy tales. A story involving fantastic forces and beings (such as fairies, wizards, and goblins) as well as

magic. Most of the tales are based on people's imaginations and include happy endings.

1.3 Formula tales. A story in which the storyline and plot have been reused to such an extent that the narratives are predictable. Formula tales incorporate plots that have been reused so often as to be easily recognizable.

1.4 Jokes. A story that displays humor in which words are used within a specific and well-defined narrative structure to make people laugh. It takes the form of a story, usually with dialogue and ends in a punch line.

1.5 Legends. A semi-true story that has been passed on from person to person and has important meaning or symbolism for the culture in which it originates. A legend usually includes an element of truth or is based on historic facts, but with "mythical qualities." A legend usually involves heroic characters or fantastic places and often encompasses the spiritual beliefs of the culture in which they originate.

1.6 Myths. A story based on tradition or legend and that has a deep symbolic meaning. A myth "conveys a truth" to those who tell it and hear it, rather than necessarily recording a true event. Although some myths can be accounts of actual events, they have become transformed by symbolic meaning or shifted in time or place. Myths are often used to explain universal and local beginnings and often involve supernatural beings.

1.7 Religious tales (Jakata). A story based on religious history, events, or doctrines. In the GMS, most religious tales are based on Buddhism. Tales about the previous births of Gautama Buddha are also known as the "Jakata tales" or "Dhamma tales."

In most existing classifications, such as the AT Tale Index (Tormod 2009), Philippine folktale classification (Lopez 2006), and Thai folktale classification (Romayanond 1979; Macdonald 1994), "animal tales" is considered to be one type of folktales. However, the researchers observed that stories about animals appeared in all types of folktales. Therefore, "animals in the tales" should be considered a motif rather than a type. This categorization in the taxonomy allows for the examination of potential relationships between animal motifs and types of tales.

It was interesting to find that there were a number of GMS folktales that aimed to teach about morality and goodness, called "didactic tales." The principles of morality and goodness in the folktales were based on regional culture, customs, and traditions. In addition, there were also a number of folktales that originated from Bud-

dhism, called “Jataka tales” or “Dhamma tales.” There were 547 tales found about the previous births of Gautama Buddha that were derived from the Tripitaka scriptures (Phramahasuthorn 2001), and these tales were widely known in most countries of the GMS. Most of the “myths” type of tales were stories about the origins of the area, e.g., stories about the origin of the Mekong River, such as *Sa Khu Lu Giant*, *SuvanKhomKham legend*, and *KhamChaNode legend* (Traiyatha 2010), and about the governance and the wars under the pre-historic monarchies that have been told from generation to generation for years (Leopenwong 2009).

4.1.2 Concept 2: Motifs

Motifs refer to the smallest elements that appear in the contents of folktales. The researchers divided the motifs of GMS folktales into four groups based on the most frequently occurring explicit elements in the tales. The motifs are characters, objects or things, behaviors, and events. Figure 1 shows the details of the motif concept in the taxonomy of GMS folktales in a screen shot from PoolParty Taxonomy & Thesaurus Management Software.

2.1 Characters. Characters in GMS folktales can be divided into three groups: animals (mythical, magic, terrestrial, aquatic, poultry, reptiles, wilds, and others), imaginary beings (monsters, ogres, giants, ghosts, gods, angels, and deva), and human beings (monarch, knights, heroes, priests, monks, nuns, and ordinary people).

2.2 Objects or things. Objects or things in GMS folktales can be divided into two groups: movable objects/things (foods, fruits, household items, and weapons), and immovable objects/things (buildings, places, and trees).

2.3 Behaviors. Behaviors can be divided into two groups based on the behaviors of the main characters or the behaviors found in the content of the GMS folktales: positive behaviors (behaviors that are humble, brave, generous, good, honest, kind, merciful, sacrificial, and suffice), and negative behaviors (behaviors that are arrogant, cowardly, stingy, bad, tricky, heartless, cruel, selfish, and greedy).

2.4 Event. Events can be divided into five groups by the phenomena that appear in the folktales: daily life, natural phenomena, supernatural phenomena, religious functions, social functions, and wars or battles.

On the analysis of the contents of GMS folktales and the resulting motif grouping, animals were the most common “characters” in the folktales; they were found in all types

of folktales. This is not different from folktales in other parts of the world; we found that “animal tales” appeared in the literature of most cultures. Of the imaginary beings characters, the Naga (Giant snake), a mythical creature believed to live under the Mekong River, was the most common character in GMS folktales from the source of the Mekong River in China to its mouth in Vietnam. Another type of character frequently found in GMS folktales was ghosts, the spirits or disembodied souls of dead persons that sometimes appear among the living as vague, shadowy, or evanescent forms. In Thailand, Laos, Cambodia, and Myanmar, folktales shared the stories of ghosts called Tu-yul, small children’s spirits invoked by a shaman or witch doctor from dead human fetuses.

As mentioned earlier, didactic tales were found in most GMS countries due to the strong beliefs in the cultures, customs and traditions of the people in the GMS; unsurprisingly, the behaviors motif appeared in didactic tales of the GMS countries. The positive and negative behaviors were reflected in the characters or the plots of the tales, conveyed orally from one generation to the next.

4.1.3 Concept 3: Origins

This concept is the classification of folktales by their origin location in the GMS; the countries and the watershed areas, based on the literature on the GMS by Asian Development Bank (2015) (Table 2).

3.1 Countries. There are six countries located in the GMS along the Mekong River, listed from upstream to downstream: China, Myanmar, Laos, Thailand, Cambodia, and Vietnam. Provinces are listed under each country as a sub-division. There are eighteen provinces (or districts or prefectures) including: Qinghai and Yunnan in China, Mandalay in Myanmar, Luang Prabang, Bolikhamxai, Vientiane, Savanakheth, and Champasak in Laos, Chiang Rai, NongKhai, Nakhon Phanom, Mukdahan, and Ubon Ratchathani in Thailand, Stoeng Treng, Kampong Cham, and Phnom Penh in Cambodia, and Ho Chi Minh and Can Tho in Vietnam.

3.2 Watersheds. There are seventeen watersheds along the Mekong River, listed from upstream to downstream: Lancang (China), Nam Ou (Myanmar), Nam Mae Kok (Thailand), Nam Ngum (Laos), Nam Cadin (Laos), Nam Songkharm (Thailand), Se Ban Fai (Laos), Nam Chi (Thailand), Se Bang Hieng (Laos), Nam Mun (Thailand), Se Kong (Laos), Se Sreng (Cambodia), Se San (Cambodia), St. MongkolBorey (Cambodia), SrePok (Cambodia), St. Sen (Cambodia), and Mekong Delta (Vietnam).



Figure 1. Screen shot of motifs concept in Taxonomy of Folktales in the GMS.

Although this study cannot cover all the folktales in the GMS because of limitations in identifying and accessing resources, we did find relationships between folktales in the different countries of the GMS, especially based on their similar cultures, beliefs, customs, traditions, and religions. In addition, most of the folktales derive from storytelling in local communities, which are linked to the region's ethnic groups. The same ethnic groups were found living in different areas in the GMS. For example, the various communities of the ethnic group Dai Lu living in

southern China, Myanmar, Laos, Thailand, and Vietnam all have the same story of the group's hero who built the Dai Lu's kingdom, with different versions in different countries. Additionally, the communities of Hmong living in China, Vietnam, Laos, and Thailand tell similar stories of their customs including birth, ordination, marriage, child-rearing, and death. Figure 2 shows a screen shot of the *Legends of Naga tail*, a tale about the origin of the Mekong River, including its relationships within the type, motif, and origin concepts in the taxonomy of GMS folktales.

Origins (GMS)		
Countries	Provinces	Watershed
China	Qinghai	Lancang (China)
	Yunnan	Nam Ou (Myanmar)
Myanmar	Mandalay	Nam Mae Kok (Thailand)
Laos	LuangPrabang	Nam Ngum (Laos)
	Bolikhamxai	Nam Cadinh (Laos)
	Vientiane	Nam Songkhram (Thailand)
	Savanakhet	SeBan Fai (Laos)
	Champasak	Nam Chi (Thailand)
Thailand	Chiang Rai	Se Bang Hieng (Laos)
	NongKhai	Nam Mun (Thailand)
	NakonPhanon	Se Kong (Laos)
	Mukdahan	Se Sreng (Cambodia)
	UbonRatchathani	Se San (Cambodia)
Cambodia	StoengTreng	St. MongkolBorey (Cambodia)
	Kampong Cham	SrePok (Cambodia)
	Phnom Penh	St. Sen (Cambodia)
Vietnam	Ho Chi Min	Mekong Delta (Vietnam)
	Can Tho	

Table 2. The “Origin” concept in taxonomy of Folktales in the GMS.

5.0 Conclusions

The taxonomy of GMS folktales developed in this study was developed through systematic research composed of a hermeneutic study of existing documents, literature, and databases on GMS folktales as well as a taxonomic organization of the identified folktales. The taxonomy was constructed by using a concept-centric approach and will be used for ontology development and semantic web searching in the future. The study found that the concepts of GMS folktales in this developed taxonomy are different from the existing classification systems for folktales because the countries of GMS share similar cultures, beliefs, customs, traditions, and religions that are different from those in other parts of the world. The researchers believe that the developed taxonomy of GMS folktales will be useful for knowledge organization systems used in digital libraries and for future research and studies of GMS folklore as well as cultural information that may need to be preserved in other areas. It will also be useful for ontology development and the development of semantic digital library of GMS folklores in the next phase of this research.

The screenshot displays a web-based taxonomy interface. On the left, a hierarchical tree structure shows the organization of folktales, with 'Folklore' at the top, branching into 'Motifs', 'Origins', and 'Types'. The 'Origins' section is expanded, showing 'Countries' and 'Watershed'. The 'Types' section is also expanded, showing 'Legends' and 'Myths'. The 'The Naga tail' concept is highlighted under 'Legends'. The main panel shows the details for 'The Naga tail' (SKOS), including 'Broader Concepts' (Legends), 'Narrower Concepts', 'Related Concepts' (Animals, Laos, Mekong Delta, Nong Khai, Religious functions, Thailand, Vientiane), 'Preferred Label' (The Naga tail), 'Alternative Labels', 'Hidden Labels', 'Scope Notes', and 'Definitions'.

Figure 2. Screen shot shows the Legends of Naga tail related concepts.

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