Chapter 2

Literature Review

The main objective of this research is to propose a defensive protection system for Thai local traditional knowledge. The purpose is to provide the local communities a prototype of self management and protection from the misuse, and the misleading or loss of the community's traditional knowledge. Therefore, this chapter is the further exploration of existing literature from the perspective of the research objectives. All relevant subjects of this research are reviewed in order to understand their contexts so the research can investigate and apply them properly. Therefore, the literature review is divided into four categories; the background section, the policy section, the situation section and the instrumental section.

The background section includes traditional knowledge terminology, TK definition, TK characteristics, the reasons for protecting TK, and the infringement of TK. These materials are needed to be reviewed to provide some backgrounds of TK and its current environment.

The policy section includes scopes of TK protection at international level, UNESCO and WIPO frameworks, Thai legal protection on TK, Thailand cultural management and Thailand sustainable development framework. These materials are needed to be studied in order to understand the frameworks, policy and management at the international and national level. These materials will be used as a guideline to develop a defensive protection system for managing and protecting local traditional knowledge.

The situation section includes cultural diffusion and the development of Thailand and traditional knowledge. These materials are needed to be reviewed to understand the traditional knowledge situation in the Thai local community of the current environment.

The instrumental section includes intellectual capital, knowledge management, risk management and systems thinking. These several concepts and theoretical models are the foundation knowledge which will be combined and applied in the practice of research to develop a process and a defensive protection system for managing and protecting local traditional knowledge.

Finally, the expected result of the chapter is to use the reviews as a guideline to design a process and a method of the research to encounter proper methods and provide an opportunity to go into the right direction in this research.

2.1 Traditional Knowledge (TK) Terminology

Every country holds its unique culture, which is derived from various factors in the lifestyle and history. Culture succeeded from the result of intellectual activity and insight in a traditional context, and includes the know-how, skills, innovations, practices and learning that is embodied in the traditional lifestyle of community or people, or is contained in codified knowledge systems passed from one generation to another generation becomes a traditional knowledge which is very valuable cultural heritage for people of each nation.

Traditional knowledge (TK) is naturally cherished as an important part of cultural heritage and historical identity of many indigenous and local communities, as well as many nations and regions with a shared cultural history. For the last two decades, traditional knowledge has received increasing attention on the international level. Traditional knowledge has been discussed in a number of international forums namely the Convention on Biological Diversity (CBD), the Food and Agriculture Organization (FAO), the International Labour Organization (ILO), the World Health Organization (WHO), the United Nations Commission on Human Rights, the United Nations Permanent Forum on Indigenous Issues, the World Trade Organization (WTO), the World Intellectual Property Organization (WIPO), and the United Nations Educational, Scientific and Cultural Organization (UNESCO) (United Nations, 2004). Although each forum or agency focuses on a particular issue, there have been calls for analysis and exchanged of information. However, there is some risk of confusion or

lack of coordination among forums and agencies (Twarog, 2004). Developing country governments cannot be fully participated in all forums; thus, they focus on one or two forums where they find the pay-off will be the greatest.

Traditional knowledge is hereby recognized as an important source of innovation for improving local livelihoods of the world's population and sustainable resource used, which has been underutilized in the past. With the international attention, factors contributing to this include the conservation of TK; concerns about the rapid loss of TK and global cultural diversity. Many communities worldwide are considering how to best address this issue at the national, regional, and international levels. The concept about rights in traditional knowledge and the intangible cultural heritage have also been encouraged by several international organizations.

2.1.1 Traditional Knowledge Definitions

As many international organizations and related parties have been involved, the scope or definitions of wordings were so different up to that particular organization and each international law. Thus, there is on official or agreed definition of traditional knowledge. Many definitions have been proposed but all of them are incomplete because the concept is new and still evolving (Quiroz, 1996 and Berkes & Henley, 1997). The term traditional knowledge is used to mean different things by different organizations.

The terms in general use in international debate include (WIPO 2002):

- Indigenous Knowledge
- Community Knowledge
- Traditional Ecological Knowledge
- Local Knowledge
- Traditional Environmental Knowledge
- Cultural Heritage
- Folklore
- Expressions of Folklore
- Traditional Medicine
- Cultural Property
- Indigenous Heritage (Rights)

- Indigenous Cultural and Intellectual Property (Rights)
- Indigenous Intellectual Property
- Customary Heritage Rights
- Traditional Knowledge, Innovations and Practices
- Popular Culture
- Intangible Component

The WIPO Secretariat 2002 used the following all-encompassing and working concept of traditional knowledge:

Traditional knowledge' ... refer[s] to tradition-based literary, artistic or scientific works; performances; inventions; scientific discoveries; designs; marks, names and symbols; undisclosed information; and all other tradition-based innovations and creations resulting from intellectual activity in the industrial, scientific, literary or artistic fields. Tradition-based refers to knowledge systems, creations, innovations and cultural expressions which: have generally been transmitted from generation to generation; are generally regarded as pertaining to a particular people or its territory; and, are constantly evolving in response to a changing environment. Categories of traditional knowledge could include: agricultural knowledge; scientific knowledge; technical knowledge; ecological knowledge; medicinal knowledge, including related medicines and remedies; biodiversity-related knowledge; "traditional cultural expressions" ("expressions of folklore") in the form of music, dance, song, handicrafts, designs, stories and artwork; elements of languages, such as names, geographical indications and symbols; and, movable cultural properties. Excluded from this description of TK would be items not resulting from intellectual activity in the industrial, scientific, literary or artistic fields, such as human remains, languages in general, and other similar elements of "heritage" in the broad sense.

WIPO 2001 proposed the boundary of traditional knowledge as following:

Traditional knowledge is, in turn, a subset of the broader concept of heritage. Indigenous knowledge, being the traditional knowledge of indigenous peoples, is also a subset of traditional knowledge. As some expressions of folklore are created by indigenous persons, there is an overlap between expressions of folklore and indigenous knowledge, both of which are forms of traditional knowledge.
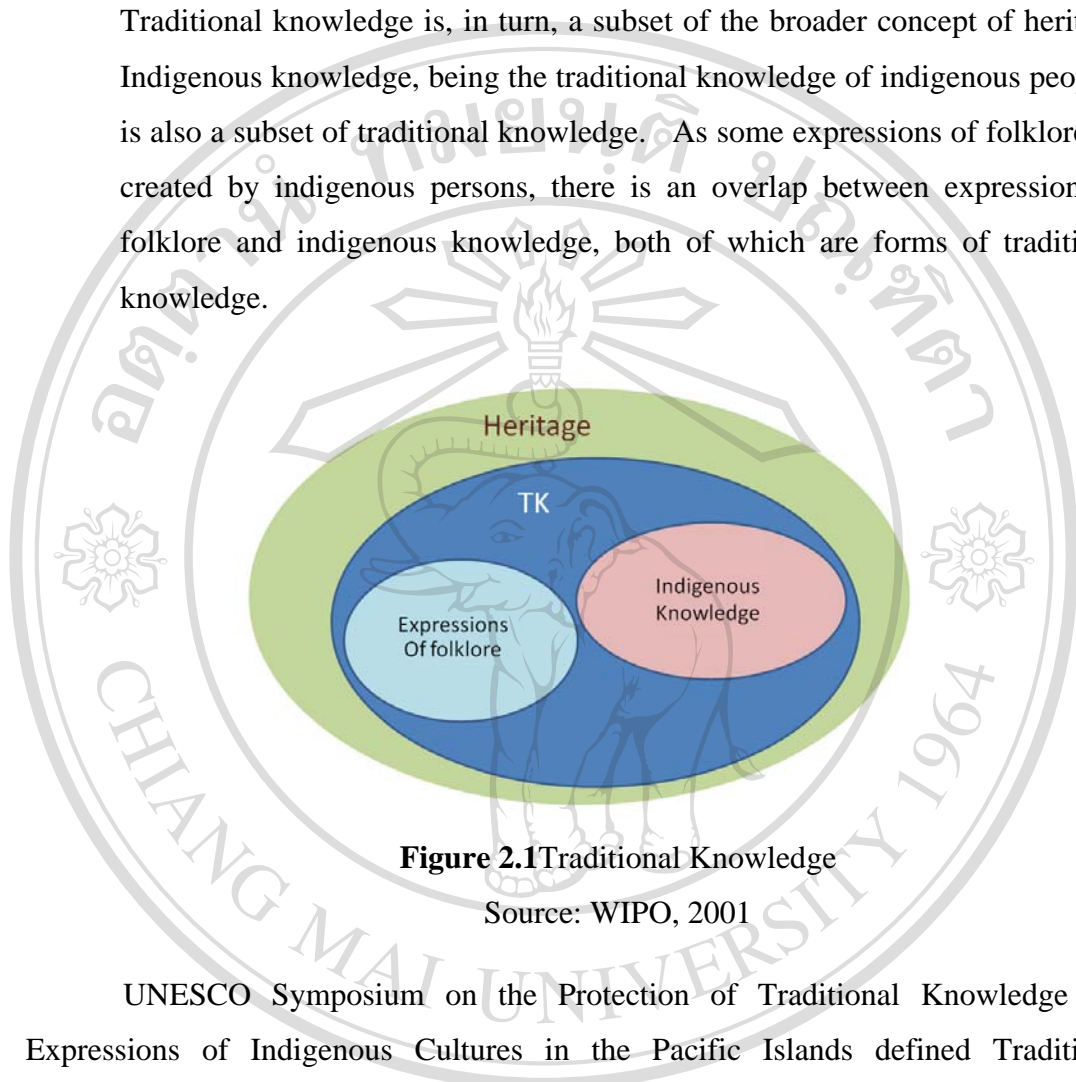

Figure 2.1 Traditional Knowledge

Source: WIPO, 2001

UNESCO Symposium on the Protection of Traditional Knowledge and Expressions of Indigenous Cultures in the Pacific Islands defined Traditional knowledge as following,

The traditional knowledge and expressions of indigenous cultures are defined as the ways in which indigenous cultures are expressed and which are manifestations of worldviews of the indigenous peoples of the Pacific. Traditional knowledge and cultural expressions are any knowledge or any expressions created, acquired and inspired (applied, inherent or abstract) for the physical and spiritual well-being of the indigenous peoples of the Pacific. The nature and use of such knowledge and expressions are transmitted from one generation to the next to enhance, safeguard and perpetuate the identity, well-being and rights of the indigenous peoples of the Pacific.

World Bank defines traditional knowledge as:

Indigenous Knowledge is local knowledge. IK is unique to every culture or society. IK is the basis for local-level decision making in: agriculture, health care, food preparation, education, natural-resource management, and a host of other activities in communities. IK provides problem solving strategies for communities. IK is commonly held by communities rather than individuals. IK is tacit knowledge and therefore difficult to codify, it is embedded in community practices, institutions, relationships and rituals (World Bank, 2006).

Indigenous Knowledge: Knowledge possessed by indigenous and other local peoples which is transmitted orally and often shows a sophisticated understanding of natural and other processes, typical examples are traditional medicinal plant, agricultural, ethno-veterinary, and other forms of knowledge. May also include such knowledge as usually related to broader cultural values and beliefs of indigenous and other traditional peoples.

Rahman 2004 defined traditional knowledge as "denoting mainly tacit knowledge that has evolved within a local community and has been passed on from one generation to another; it encompasses not only local or indigenous knowledge but also scientific and other knowledge gained from outside".

Ekpere 2004 defined traditional knowledge as "a body of knowledge built upon by shared values and aspirations of a group of people living in close contact with nature through generations."

Berkes 1999 defined Traditional ecological knowledge as "a cumulative body of knowledge, practice and belief, evolving by adaptive processes and handed down through generations by cultural transmission, about the relationships of living beings (including humans) with one another and with their environment."

Hobson 1999 defined traditional knowledge is "the accumulated knowledge and understanding of the place of human beings in relation to the world in both an ecological and spiritual sense."

2.1.2 Thai Traditional Knowledge

Changtavorn 2007 conducted a research to study the initiate framework for protecting Thai traditional knowledge. The study collected data from 35 cultural scholars and 10 organizations and analyzed the data by using thematic analysis and system theory as methodologies. The study found that Thai cultural scholars and organizations categorized Thai traditional knowledge into 9 categories which are:

- Language and literary

- Agriculture

- Believe, tradition and ritual

- Play, performance and music

- Arts

- Food, nourishment and domestic science

- Traditional medical science

- Industry and handicraft

- Natural resource and environment management

2.2 Traditional Knowledge Characteristics

While the term Traditional knowledge is sometime uses to mean different things, the following common feature show that traditional knowledge has certain characteristics. These approaches highlight certain key qualities of TK that distinguish it from general forms of knowledge.

The context of creation: traditional knowledge must clearly be traditional. It is cultural specific. Traditional knowledge is built upon shared value and aspirations of a group of people living in close contact with natural and surrounding ecosystem

through generation. Its creation is not necessarily undertaken through a formal, expressly systematic procedure. It has evolved in cumulative step over generations. TK covers different fields, in areas of cultural expressions and in technical domains. TK may appear less than formal in character and its full character and systematic nature may only be apparent with a greater understanding of the cultural contexts and rules that govern its creation. It tends to be transmitted orally form generation to generation; accordingly, it is usually undocumented (United Nation, 2004 and Mugabe, 2008). Its continued practice is vital to the identity and cultural survival of the local communal life support system.

Association with the community: TK must be associated with the traditional culture or community which preserves and transmits between generations. An important element of TK is the close relationship between culture, spiritual value, knowledge and the natural environment (Biber-Klemn, 2004). This indicates that there is a distinctive link to the community which originates the knowledge, and serves as means for their cultural identification. Traditional knowledge relates to local traditional lifestyle, the spiritual and practical elements of TK are intertwined and thus are inseparable (it is in this sense that every element of TK serves as an inherent factor of cultural identification of its holders). This highlights that TK is often part of everyday life of a community, and is generally not seen as a distinct body of knowledge separate from the community's culture and its identity as a community. Traditional knowledge is not static but dynamic, evolving over time as community respond to new challenges and needs (Pacon, 2004 and United Nations, 2004). Since traditional communities generate knowledge as a response to a changing environment, TK is in constant evolution and incrementally improving. It may become richer in one generation when there are adequate incentives, or it may become poorer or even disappear.

Link to the community through a sense of ownership or responsibility: Traditional knowledge is evolving with a specific community or subgroup within the community. It is a public domain which managed and exchanged according to the customs or laws of the community. TK is based on traditional beliefs, norms and practices accumulated experiences of trial and error, success and failures at the

household and local level. Thus, TK may be possessed by individual, by someone of the group, or be available to all the members (Quaker United Nations Office, 2001). TK can be freely accessible within a community and known to everybody. On the other hand, be regulated and restricted within the community because there is often spiritual components in the TK peculiar to each community. TK can also be distinguished by the way a community deals with it. The community can opt to keep it a secret known only to the community, or transfer it as a gift, emphasizing its spiritual character as opposed to its market value, or make it while insisting on the fairness of the transaction and the sharing benefit (Biber-Klemn, 2004). This can include a responsibility to restrict the distribution of or access to the knowledge in line with customary law.

2.3 Protect Traditional Knowledge

In recent years, traditional knowledge has received increased attention o the international agenda both in social and business sectors. This is due several factors (Dutfield, 2004). The followings present the reasons why protect traditional knowledge.

First, TK benefits national economies. Many activities and products are based on traditional knowledge. Food, medicinal plants, healthcare, agriculture products, handicraft and folklore are traded in both domestic and international markets and can provide substantial benefits for exporter countries. These TK-based products have become major source of income for the populations in many developing countries. The total value of the world non-wood forest products (NWFPs) trade is on the order of US$11 billion (FAO, 1995). For pharmaceuticals, the estimated market value of plant-based medicines sold in Organization for Economic Co-operation and Development (OECD) countries in 1985 was US$43 billion (Dutfield, 2004). That many of these medicines would have used TK leads in their R&D. The role of TK in several economic sectors was emphasized by many experts (United nation, 2004). It was indicated that TK has intrinsic value, which goes beyond its economic value to culture, linguistic, spiritual, ecological, and other spheres. Therefore, traditional

knowledge provides a base of information for R&D and used as an input of products to introduce innovations and which is governed by big companies (Dutfield, 2004). In most cases, firms based in developed countries that can harness advanced scientific, technological and marketing capabilities capture virtually all the value added. This situation needs to be addressed so that developing countries can capture much more of the value added. Distributors and/or producers of these products never share returns to the resource's owners or share at unreasonable rates. At the same time, it is important not to overestimate the economic potential of TK.

Second, TK improves the livelihoods of TK holders and communities. The local communities depend on TK for their livelihoods and well-being, as well as for enabling them to sustainably manage and exploit their local ecosystems. The World Health Organization (WHO) has stated that 80 per cent of the world's population depends on traditional medicine for its primary health care and that TK is indispensable for its survival (UNCTAD, 2000). The protection of TK would help local people to maintain livelihood security and physical well being and also provide opportunities for economic growth. TK is increasingly accepted as an important source of information useful for achieving sustainable development and alleviating poverty (Dutfield, 2004). The protection of TK also encourages the maintenance of practices and knowledge embodying traditional life styles. The preservation of TK is a key component of the right to self-identification, the existence of traditional people and the center element of the cultural heritage of humanity. According to the Quaker United Nations office (QUNO), around 90% of the 6,000 currently spoke languages may have become extinct or face extinction in the next 100 years. An appropriate conservation is suggested to protect TK and the right of TK holders needs to be implemented with dome urgency to mitigate the lost.

Third, TK conserves the environment. For centimes TK has enable local community to survive in balance with their natural environment. The local people and communities have a vital role in environment management and development because their knowledge and traditional practices (Hamwey, 2004). Because TK is related to local life style, it is involved in local decision making in agriculture and forest management and utilization ensuring the long-term useable of the natural

resources will be available to that the next generation. Several academic studies on traditional communities provide ample evidence that the protection of TK can provide significant environmental benefits (Clad, 1984; Hech & Posey, 1989; Oldfield & Alcorn, 1991). For example, in many forest areas, members of traditional societies plant forest gardens and manage the regeneration of bush fallows in ways that take advantage of natural processes and mimic the biodiversity of natural forests. The local communities also occupy community forest. Community forests are an important and growing opportunity for communities, supporting new options in recreation, wildlife and watershed management. TK has prevented land and soil degradation, biodiversity erosion and deforestation. With the globalization, the global market demands for local products which are sourced by locally resources. Moreover, global communications has attracted younger generations to modern life style (non-traditional livelihood); thus, TK and environmental benefits are threatened.

Fourth, to prevent TK piracy, under the globalization as well as new-era political concepts, which have influenced beliefs, perspectives, and culture with previous strong roles seems less important in the present society. Moreover, the economic perspective based on materialism with an emphasis on the best profit is now widespread around the world. Consequently, cultural heritage that has been viewed as value is turned to be a profit seeking with the highest price. The aforesaid factors may accelerate the decline or value inferiority of cultural heritage, cause the loss of value, and seek for profits from the cultural heritage until implementation purposes are deviated and certain violations occur; for example, exploiting culture with no concern about ideas or beliefs created and succeeded by ancestors, taking a culture to generate economic benefits without prior consent or to get personal sharing profits from the culture belonged to any race, community or group.

The issue of TK piracy has become highly contentious and seems to have played a catalyzing role in the introduction of access legislation in some developing countries (e.g. Brazil and the Philippines). Many TK-holding communities complain that their cultural heritages are treated as common property and as free for commercial use by anyone anywhere. These communities would like to have their claim recognized in national and international law (Twarog, 2004). However, the protection

of traditional knowledge does not seem to fall within the legal system because traditional knowledge is based on property right individually whereas TK is collective. In addition, protecting TK by law presents difficulties such as (Kaushik, 2004); TK is developed over period of time and may codified in oral traditions over generations; meanwhile, the current protection law emphasizes on things/products which have been invented and innovated, the conditions necessary for granting are not satisfied. Nonetheless, the development of appropriate mechanism of TK protection for local community is great interest to a country.

Summary

This section explores the contexts of traditional knowledge. Many organizations and academics have defined the scope and definitions of TK differently up to that particular party. However, the commonality of the definitions can be portrayed in several aspects. First, TK is a community's traditional intangible heritage which has its own unique public domain characteristics. It is managed and exchanged according to the customs or laws of the community. Second, TK is built upon shared value and aspirations of a group of people living in close contact with natural and surrounding ecosystem which preserves and transmits through generations. It is part of everyday life of a community. Third, TK benefits national economies, improves the livelihoods of the holders and communities and conserves the environment. Most importantly, TK needs to be managed and protected properly by the holders.

This section also presents that traditional knowledge is important to local communities. Because the research is interested in managing and protecting TK and the issue of TK piracy has become highly contentious, the next section will explore the infringements of TK in today's circumstances.

2.4 Infringement of the Traditional Knowledge: Case Study in Thailand and other Countries

2.4.1 Biological Resource

The traditional knowledge provides a base of information for researches and improvement of products to introduce innovations which is governed by the intellectual property control. While biological resource businesses have expanded to meet the increasing global demand, developing countries or owners of the biological resources realize the hazardous effects from unlimited access (Changtavorn, 2007). Their biological resources which become expensive materials for the production are latterly developed and extracted as active compounds and sold as expensive products. Distributors and/or producers of these products never share returns to the resource's owners or share at unreasonable rates. This phenomenon is called bio-piracy (Quaker United Nations Office, 2001).
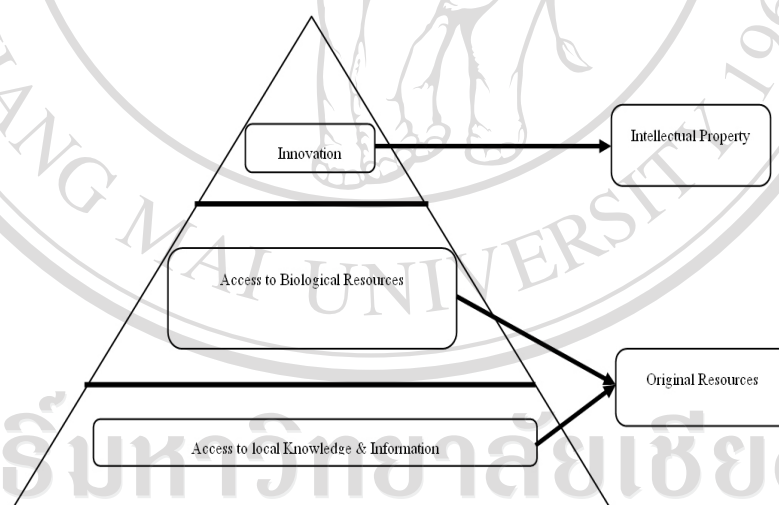

Figure 2.2 Bio-Prospecting element

Source: Changtavorn, 2007

Developing countries show their concerns on the imbalance concept in which the developed countries focus to register products extracted from biological resources as patents but ignore to promote protection of the resource as TK of developing

countries. Thus, the issue on generic protection of TK is raised among the developing countries (Victoria, 2005).

2.4.2 Case Study: Patent for Turmeric

Turmeric (Curcuma longa) is an age-old herb which its roots are buried underground. Its inner root is orange yellow in color and gives unique smell. The herb can be used as a remedy for rash or flatulence. In 1995, United States Patent and Trademark Office (USPTO) granted the patent over a use of turmeric as remedy to heal the wound to Mississippi University. The patent has raised argument among academics. The Scientific and Industrial Research Council of India requested for the cancellation of the patent by citing a reason that the herb is used to heal the wound and as remedy for flatulence in India for long time. There are records supporting its use in India written in both Sanskrit and English languages (WIPO publication No. 920E, n.d.). Indian medicine journals also publish the articles on turmeric and consider its use as traditional knowledge of the country (Setsirote & Donavanik, 2005). This record led to a cancellation of the patent due to a lack of novelty.

2.4.3 Case Study: Patent for Kwaw Khrua

Kose Tokyo: Shiratiori Pharmaceutical in Japan and Cheil Jedang Corporation in Korea could successfully register their patents for Kwaw Khrua at the United States. The patent gives them sole rights to manufacture and sell cosmetic products for external use to stop melanin and contains anti-aging properties and use of Kwaw Khrua with other extract or chemical as cosmetics (Changtavorn, 2007). Both countries also obtained patents for other materials and have requested for other patents.

Their development of Kwaw Khrua to nurture and whiten skins is an expanded research from Thai traditional knowledge. Kongkaew Weeraprajak, a specialist on ancient alphabet of the Department of Fine Arts testifies that there is a recipe of Kwaw Khrua remedy written by Luang Anusarnsunthorn. The recipe was published in 1931 in Thamma Lanna alphabets. It is indicated in the recipe that Luang Anusarnsunthorn studied, compound the remedy and illustrate how to compound the

remedy, how to use and how to select the herb (Pullpanich, 2005). The recipe describes the remedy as help soften and prevent skins from wrinkles (anti-aging) and brighten the skins (whitening properties).

2.4.4 Case Study: Hermit Posture

Hermit posture is a well-known posture of massage and Thai traditional physical exercise. King Rama I ordered the recipe on hermit posture to be issued and stored at Wat Phra Chetupon or Wat Pho in 1788. Thai Ministry of Public Health promoted the hermit posture as exercise postures to public and self remedial practice for muscle ache. Hermit posture is easy to practice and suitable for people at all ages (Changtavorn, 2007). When being widely promoted, hermit posture become domestically and internally recognized.

The case of hermit posture become the point of interest after a Japanese claim his patent right on hermit posture. The Japanese citizen once attended the courses on Thai massage and hermit posture at Wat Pho. When he returned to Japan, he opened his own business providing Thai massage, spa and Thai-styled yoga service and courses. He registered his trademark by using the word 'Ruesi Datthon' and named his business as 'Ruesi Datthon' partnership limited. He also registered his sole right to publish magazine, newspaper, trademarks, cosmetics, healthy food, video and tape recorders and other materials concerning the Thai-styled yoga (Lardkanok, 2006). Some of patent registrations on these materials are pending approval at the Japan Patent Office.

Ministry of Commerce in cooperation with Ministry of Foreign Affairs and Ministry of Public Health issued an official letter requesting for reconsideration and opposition against the patents. The three ministries expressed their concerns towards the situation. They cited reasons that hermit posture belongs to the Thai national heritage and it is inappropriate for other nations to approve the registration of hermit posture as the patents of their citizens. However, the Japanese requester cited the reason that hermit posture is a common name which is well recognized in Japan and he has introduced the hermit posture to Japanese people (Tungsubut, 2006). The matter is pending the approval and consideration by Japan Patent Office.

2.4.5 Case Study: Improper Exploitations of Cultural Property and Folklore in 4 Regional Parts of Thailand

Chiyasak et al., 2007 examined case studies in 4 regional parts of Thailand: north, northeastern, central and south. The results of the study showed that, at all regional parts, Thai cultural property and folklore have been exploited improperly, but the characteristics and forms of those problems were different; for example, problems about race, acceptance and social equality, problems about improper exploitation of cultural heritage such as cultural distortion, improper exploitation of cultural heritage for commercial purposes, and personal claims for the intellectual property right in cultural heritage that must be belonged to the community property; thus, community members face some problems about the exploitation of such cultural heritage.

Regarding case studies on improper exploitations of intellectual property, the researcher examined the case of registering the Hmong traditional embroidery as an intellectual property in the North and of constructing hotels at public areas of Cha-am Beach. According to such case studies, it is evident that such cultural heritage has been exploited improperly; individuals or business entrepreneurs claimed for the intellectual property right in the community cultural heritage. In the above cases, ones playing prominent roles in claiming for the community right were community members who actually own that cultural heritage. They formed a group requesting all related government bodies to solve their problem. This shows that the community takes a significant role in protecting its own cultural heritage. Therefore, the researcher conducted an additional study on the development direction and changes of a local community and practice of Muslim community for Zakat case at Lad Bua Luang Community, Phra Nakon Si Ayutthaya. The results confirmed that community power was essential for any movement to protect the cultural heritage in each area.

<u>Summary</u>

This section proves that global changes have led some people to adopt a new attitude in appreciating the concept of ownership and sole benefits of the ownership to cover the usage of the traditional knowledge of the community. In the past, people would commonly consider the traditional knowledge (TK) of the community as their

shared heritage. No one can claim to be the sole owner of this heritage. The case studies can conclude that nowadays, current disputes are caused by two main factors: first, misuse and mislead of the community's traditional knowledge (exploiting culture with no concern about ideas or beliefs created and succeeded by ancestors) which leads to the disrespect of the traditional knowledge; second, exploitation of community traditional knowledge (taking a culture to generate economic benefits without prior consent or to get personal sharing profits from the culture belonged to any race, community or group) without receiving any permission from the community or sharing it to the community.

2.5 Scopes of Traditional Knowledge Protection at International Level

In our research, the main objective of investigation is to create of a defensive protection system for Thai local traditional knowledge to provide local communities a prototype of self management and protection from misuse, misleading or loss of the community's traditional knowledge. Therefore, the scopes of traditional knowledge protection in international levels such as UNESCO, WIPO and other international organizations frameworks must be studied as background disciplines in developing the mechanism of conserving, protecting and transmitting the cultural heritage.

2.6 UNESCO Framework

UNESCO has involved in traditional knowledge and management since 1970s. Initially, UNESCO addressed traditional agro-piscicultural systems thought the Man and the Biosphere program (Nakashima, Prott, & Bridgewater, 2000). At the World Conference on Science in 1999, TK issue was received strong support. Over 150 countries approved on TK system and projects on TK should be proposed. Since then, strong interest in TK has been expressed through intangible cultural heritage. The calls to establish an international normative instrument in this domain, the issue of cultural rights and indigenous people are in the context of the on-going strategy. UNESCO has a clear relationship to the traditional knowledge domain. Recently, the

UNESCO International Convention for the Safeguarding of the Intangible Heritage was adopted in 2003. A new UNESCO convention on the promotion of the Diversity of Cultural contents and artistic expression is currently under discussion (United Nation, 2004).

2.6.1 Convention for the Safeguarding of the Intangible Cultural Heritage 2003

The convention considers the important of the intangible cultural heritage as a mainspring of cultural diversity and guarantee of sustainable development. The communities and individuals play an important role in the production, safeguarding, maintenance, and recreation of the intangible cultural heritage. The convention's objectives are:

- to safeguard the intangible cultural heritage;
- to ensure respect for the intangible cultural heritage of the communities, groups and individuals concerned;
- to raise awareness at the local, national and international levels of the importance of the intangible cultural heritage, and of ensuring mutual appreciation thereof;
- to provide for international cooperation and assistant.

According to the convention, safeguarding refers to "measure aimed at ensuring the viability of the intangible cultural heritage, including the identification, documentation, research, preservation, protection, promotion, enhancement, transmission, particularly though formal and non-formal education, as well as the revitalization of the various aspects of such heritage."

The importance context of the convention for this study is the Safeguarding of the intangible cultural heritage at the national level (article 13, 14 and 15) which associates with the role of state parties in national and society level:

Article 13 declares that states Parties shall take necessary action to ensure the safeguarding, development and promotion of the intangible cultural heritage is applied in its territory, and each party shall endeavor to:

(a) adopt a general policy aimed at promoting the function of the intangible cultural heritage in society, and at integrating the safeguarding of such heritage into planning programs;

(b) designate or establish one or more competent bodies for the safeguarding of the intangible cultural heritage present in its territory;

(c) foster scientific, technical and artistic studies, as well as research methodologies, with a view to effective safeguarding of the intangible cultural heritage, in particular the intangible cultural heritage in danger;

(d) adopt appropriate legal, technical, administrative and financial measures aimed at:

- fostering the creation or strengthening of institutions for training in the management of the intangible cultural heritage and the transmission of such heritage through forums and spaces intended for the performance or expression thereof;

- ensuring access to the intangible cultural heritage while respecting customary practices governing access to specific aspects of such heritage;

- establishing documentation institutions for the intangible cultural heritage and facilitating access to them.

Article 14 declares education, awareness-raising and capacity-building. Each party shall endeavor to:

(a) ensure recognition of, respect for, and enhancement of the intangible cultural heritage in society, in particular through:

- educational, awareness-raising and information programmes, aimed at the general public, in particular young people;

- specific educational and training programmes within the communities and groups concerned;

- capacity-building activities for the safeguarding of the intangible cultural heritage, in particular management and scientific research; and

- non-formal means of transmitting knowledge;

(b) keep the public informed of the dangers threatening such heritage, and of the activities carried out in pursuance of this Convention;

(c) promote education for the protection of natural spaces and places of memory whose existence is necessary for expressing the intangible cultural heritage.

Article 15 declares participation of communities, groups and individuals.

"Within the framework of its safeguarding activities of the intangible cultural heritage, each state party shall endeavor to ensure the widest possible participation of communities, groups and, where appropriate, individuals that create, maintain and transmit such heritage, and to involve them actively in its management."

2.6.2 Convention on the Protection and Promotion of the Diversity of Cultural Expression 2005

UNESCO realizes in the significance of sharing or mutual learning of the world's cultural diversity among mankind. The cultural diversity forms a common heritage of humanity and should be cherished and preserved for the benefit of all. Cultural diversity creates a rich and varied world, which increases the range of choices and nurtures human capacities and values, and therefore is a mainspring for sustainable development for communities, peoples and nations. Traditional knowledge is important as a source of intangible and material wealth, and in particular the knowledge systems of indigenous peoples, and its positive contribution to sustainable development, as well as the need for its adequate protection and promotion

UNESCO promotes equal prestige to all cultures and considers them as deserving equal protection, promotion and exchange in order to promote

understanding and respect to each culture. The convention intends to promote strength to cultures especially those of developing countries. The convention focuses main objectives including;

(a) to protect and promote the diversity of cultural expressions;

(b) to create the conditions for cultures to flourish and to freely interact in a mutually beneficial manner;

(c) to encourage dialogue among cultures with a view to ensuring wider and balanced cultural exchanges in the world in favour of intercultural respect and a culture of peace;

(d) to foster interculturality in order to develop cultural interaction in the spirit of building bridges among peoples;

(e) to promote respect for the diversity of cultural expressions and raise awareness of its value at the local, national and international levels;

(f) to reaffirm the importance of the link between culture and development for all countries, particularly for developing countries, and to support actions undertaken nationally and internationally to secure recognition of the true value of this link;

(g) to give recognition to the distinctive nature of cultural activities, goods and services as vehicles of identity, values and meaning;

(h) to reaffirm the sovereign rights of States to maintain, adopt and implement policies and measures that they deem appropriate for the protection and promotion of the diversity of cultural expressions on their territory;

(i) to strengthen international cooperation and solidarity in a spirit of partnership with a view, in particular, to enhancing the capacities of developing countries in order to protect and promote the diversity of cultural expressions.

The convention intends to promote strength to cultures especially those of developing countries. This Convention shall apply to the policies and measures adopted by the Parties related to the protection and promotion of the diversity of

cultural expressions. The importance contexts of the convention fort this study are article 6, 10, 11, and 13.

Article 6 declares right of parties at the national level. Each party shall endeavor to protect an promote diversity of cultural expression by;

- Provide opportunities for local cultural activities, goods and services available within the national territory for their creation, production, distribution, dissemination, access and enjoyment of cultural expression.
- Establish, support and encourage NGOs, public and private organization and artists to develop and promote the free exchange of ideas and stimulate the creative spirit inn their activities.

Article 10 declares education and public awareness by:

a) encourage and promote understanding of the importance of the protection and promotion of the diversity of cultural expressions, inter alia, through educational and greater public awareness programs;

(b) cooperate with other Parties and international and regional organizations in achieving the purpose of this article;

(c) endeavour to encourage creativity and strengthen production capacities by setting up educational, training and exchange programs in the field of cultural industries. These measures should be implemented in a manner which does not have a negative impact on traditional forms of production."

Article 11 declares participation of civil society by:

The party shall encourage the active participation of civil society in their efforts to achieve the objectives of this Convention.

Article 13 declares integration of cultural in sustainable development by:

"Parties shall endeavour to integrate culture in their development policies at all levels for the creation of conditions conducive to sustainable development and,

within this framework, foster aspects relating to the protection and promotion of the diversity of cultural expressions."

2.7 WIPO Framework

This section presents WIPO's existing work program on the protection of traditional knowledge. WIPO is a specialized agency of the United Nation system of organizations. WIPO's obligation is to promote the protection of intellectual property (IP) throughout the world. WIPO cooperates with states and organizations to promote IP. WIPO began to work on TK-related subjects matter with UNESCO in 1978. UNESCO and WIPO discussed on the sui generis protection of expressions of folklore. The result of the collaboration was the Model Provisions of National Laws on Protection of Expressions of Folklore against Illicit Exploitation and Other Prejudicial Actions (Bhatti, 2004). In 1998, WIPO conducted activities design to explore the IP process of the protection of TK. The main objective of these activities was to identify and explore the IP needs and expectations of the holders of TK in order to promote the contribution of the IP system to their social, cultural and economic development.

2.7.1 WIPO Positive and Defensive Protection of Traditional Knowledge

Two distinctions of legal protection of TK have been stressed by the work of WIPO, positive and defensive protections. The term positive protection refers to the TK holders use the existing IP or contractual rights or the development of sui generis rights to enable the protection their TK. This system provides right on behalf of the holder to restrict the way the TK is used by others. On the other hand, the defensive protection system refers to a measurement or mechanism aim at preventing the acquisition of IP rights over TK by parties other than the customary custodians of the knowledge or resources. In addition, the defensive protection system is not a substitute for the positive protection. Positive protection system is necessary to prevent the unauthorized or illegitimate use of TK. For a country that does not have any laws or regulations to protect TK, the defensive is impacted to preventing other parties from gaining rights of TK.

In 2006, WIPO conducted an Intergovernmental committee on intellectual property and genetic resources, traditional knowledge and folklore: Ninth Session: The Protection of TRADITIONAL KNOWLEDGE: Revised Outline of Policy Options and Legal Mechanisms in Geneva. The WIPO's traditional knowledge protection bill covers these following violations (WIPO, 2006):

1. To obtain traditional knowledge by stealing, bribing, forcing, intimidating, deluding, trespassing, violating or leading to violation of contract, breaking one's authorities, relation formed by reliability, deceive, preparing unfair or illegal information.

2. To obtain traditional knowledge or control over the traditional knowledge illegal as the law requires users to obtain for consent to access the traditional knowledge.

3. To claim their rights illegally over or take possession over or control the traditional knowledge even though the traditional knowledge can't be possessed or accessed as stated by the law.

4. To access the traditional knowledge or use the traditional knowledge for commercial or industrial purposes wand ignore to pay reasonable returns to its owners. The use of traditional knowledge shall render commercial and technological benefits to users and can provide its owners with reasonable and fair returns.

5. When the third party intentionally uses the traditional knowledge by disregard morality or spiritual values of its owners and the use indicate damages, distortion or deterioration of the traditional knowledge and go against public benefits.

Benefits earned from traditional knowledge in commercial or industrial ways should be equally and impartially shared. Use of traditional knowledge for noncommercial purposes is accepted such as an access to researches or community participation in traditional knowledge. Traditional knowledge should be applied in accordance with traditional customs and with reference to source of the traditional knowledge and should be applied with respect to its owners. The Bill also emphasizes significance of prior inform consent. Owners of traditional knowledge have the rights

to give consent to any users prior to their access to traditional knowledge or the authorized persons in their nations should have authorities to approve the consent to an access to traditional knowledge.

2.8 Others Related Scopes of Traditional Knowledge Protection at International Level

2.8.1 Berne Convention for the Protection of Literary and Artistic Works

Berne Convention was the first international Intellectual Property agreement that declared copy right Issue. The Berne Convention protects all kind of Literary and Artistic works including, play, dance, music, lyric, poem, painting, architect, crafting, photograph and scientific works which presented in any form. Therefore, Berne Convention protection framework is very broadly. Any kind of procedure of creating works is covered in the treaty and a country must provide a protection to member states fairly and squarely (Berne, 1971).

2.8.2 Convention on Biological Diversity

Environmental Project of the United Nations issued the Convention on Biological Diversity (CBD) to promote conservation of biological diversity as well as the use and equitable sharing of biological resources. So far, 189 countries across the world have declared their ratification of the convention. The convention is very beneficial for the countries which produce precious biological resources. The convention has altered opinion towards biological diversity as common heritage of mankind to become sovereign rights of each nation instead (Convention on Biological Diversity, 1992). This new notion has lessened disputes on access to biological resources.

The Convention on Biological Diversity (CBD) may help illustrate the range of different approaches to protection of traditional knowledge that may arise within the one policy context and within one legal document. Under Article 8(j) of the CBD, TK should be respected, preserved and maintained; its application should be promoted with the approval and involvement of its holders; and its utilization should lead to the equitable sharing of benefits arising from its utilization. These various complementary objectives illustrate the varying relationship between preservation and

protection, and the differing notions of protection that may be necessary to achieve an overall policy goal. This provision has been the subject of extensive discussions within the forums established under the CBD, and a wide range of regulatory and legal tools may be drawn on to achieve these various goals.

Summary

For the past decades, the protection of traditional knowledge has received attention in various international forums. This concept became clearer during 1960s and 1970s and it has also been encouraged by several international organizations especially the UN Education, Scientific and Cultural Organization (UNESCO), the World Property Right Organization (WIPO). Therefore, our research focuses on these two organization frameworks because these organizations have studied the protection of TK under the theme of public domain property and IP mechanisms to protect traditional knowledge (Cunha, 2004) which is related to the research interest.

UNESCO and WIPO began to work on TK-related subjects matter in 1978, discussed on the protection of expressions of folklore. They have addressed the protection of TK as part of organization's work. The plan of actions have adopted in particular appropriate analysis and consensus building with a view to identifying issues under the theme of public domain property that could be yield potential benefits. From 1999, UNESCO has expanded its protection scope to cover intangible properties and set up certain international criteria, e.g. Convention for the Safeguarding of the Intangible Cultural Heritage 2003. In the meantime, currently, IGC, a division of WIPO, still focuses on gathering comments from member countries, examining and summarizing various facts. However, the final conclusion of IGC is unclear; it proposes international obligations by means of convention up to the status of no obligation that may be a guideline, model provisions or mutual declaration.

UNESCO and WIPO encourage community to apply 2 protection measures: First, defensive protection system, including the widest possible participation of communities and individuals that create, maintain and transmit traditional knowledge, and to involve them actively in its management equally and disclosure of information about patent registration, setting-up of traditional knowledge database, amendment of

patent laws; and b) positive protection measures, including national sui generis system, use of model law on traditional knowledge protection as well as forming a central organization or society to be particularly assigned to collect fees subject to the exploitation of traditional knowledge and to fairly share profits among related parties.

2.9 Thai Legal Protection on Traditional Knowledge

This section addresses at national traditional knowledge protection. The section future explores related laws of Thailand in protecting countries' traditional cultural heritage and its' development.

Chiyasak et al., 2007 studies on related laws of Thailand which associate with traditional knowledge, have been set forth in laws; namely,

a) The Constitution of the Kingdom of Thailand, B.E. 2550 (A.D. 2007) in 3 Sections: Section 66, Section 86(2) and Section 289.

These provisions do not give explicit definitions, which possibly cause ambiguity while the scope of related wordings is based on different understanding among persons involving in drafting the Constitution and persons to be further enforced by such provisions;

b) Patent Act, B.E. 2522 (A.D. 1979).

c) Copyright Act, B.E. 2537 (A.D. 1994).

After closer examination, both laws Patent Act and Copyright Act are not designed for the traditional knowledge protection; hence, certain fundamental principles as well as their essence are different from those of traditional knowledge such as the right given to an individual and the community. As a result, it deems inappropriate to use those two laws to protect the traditional knowledge.

d) Plant Protection Act, B.E. 2542 (A.D. 1999).

e) the Protection and Promotion of Traditional Thai Medicine Act, B.E. 2542 (A.D. 1999).

These two acts contain specific qualifications and protection guidelines close to the traditional Thai knowledge; for example, establishing the exclusive right for intangible objects for an individual right holder or a particular group, or the authority is given to local organizations to take into account the commercial exploitation of plants as well as making agreements on profit sharing, etc.

2.9.1 Vague Status of Thai Traditional Knowledge and Traditional Culture Protection Laws

At present, Thailand has three laws concerning the protection of traditional knowledge including Plants and Wildlife Protection Bill (Year 1999), Traditional Thai Medicinal Wisdom Protection Bill (Year 1999) and Historical Sites, Materials, Arts and National Museum (Year 1961) (revision version; year 1992). The Department of Intellectual Property has determined that the three laws do not provide sufficient protection to Thai traditional knowledge. For example, there is no protection on body knowledge of culture, apart from plants and Thai medical sciences. Benefits from genetic resources are not shared to public. From a comprehensive study of intellectual property law, it is apparent that the intellectual property law intends to protect new and innovative ideas of mankind. On the other hands, traditional knowledge has existed for long time and the intellectual property right can't be applied on this area (Satesirote and Donavanic, 2005). The intellectual property law intends to give sole rights to individuals while traditional knowledge is public properties. The law also protects the innovative creation for a specified interval of time and after the interval ends, the creation will become public properties. This is totally different from the protection of traditional knowledge which promotes respect to the wisdoms and realization of the community rights over the wisdom at unlimited interval of time.

2.9.2 Intellectual Property Law & Traditional Knowledge Protection

It is perceived that the traditional knowledge can be categorized as a type of intellectual property. Pullpanich, 2005 compared the traditional knowledge and intellectual properties law:

1. Traditional knowledge was created for noncommercial purposes while the intellectual property laws such as patents or trademarks were created to promote and facilitate the commercial activities and industrial production.

2. By nature, traditional knowledge was passed on from generations to generations. Traditional knowledge is not new whereas intellectual property system focuses to provide sole rights over new or innovative products.

3. Traditional knowledge is public property, which is shared by members of each community. It is difficult to define a creator or inventor of the traditional knowledge. Intellectual property laws provide sole rights to an individual who created or invented the new and innovative products.

4. Traditional knowledge is not recorded in a written form. Traditional knowledge is transferred by oral communication and demonstration. Traditional knowledge is regarded as concepts or thoughts whereas the intellectual property laws protect expression of the thoughts.

5. Traditional knowledge can be passed on for a long period of time while protection by laws such as rights and patents is effective at a short interval. After the law's effective interval, the protected products will become public properties.

Summary

This section proves that Thailand does not provide sufficient protection to Thai traditional knowledge. Beside plants and traditional Thai medical sciences, there is other traditional knowledge that Thai laws do not cover. There is no protection on body knowledge of culture. Even Thailand has Traditional Thai Medicine Act and the Plants Protection Act; benefits from genetic resources are not shared to public. Moreover, current intellectual property laws also do not protect all traditional knowledge.

Accordingly traditional knowledge is easily pirated by other countries. Thus, in practice, some serious problems of protecting traditional knowledge must be considered (Pullpanich, 2005). Defensive protection system of traditional knowledge might be the method for solve this problem; that what this research is all about.

2.10 Cultural Management in Thailand

This section examines how a country owning a great amount of invaluable cultural heritage including tangible and intangible cultural heritage like Thailand manage her heritages. The management structure and the roles of cultural stakeholders in Thailand will be investigated.

In Thailand, government agencies play a major role to manage Thai culture and culture-related activities notably the Ministry of Culture. Thai Ministry of Culture was established on March 12, 1952. However, the cultural dimension during the late 50's did not seem to fall with the country's development plan. The cultural issue was not adopted as a general policy aimed at promoting cultural issues and failed to incorporate into in the social climate and economic development. The Ministry of Culture had slightly role in the development plan; thus, it was dissolved and its' personnel transferred to the Culture Division attached to the Ministry of Education.

On October 2002, Thai government announced the 2002 Restructuring of Government Agencies Act. The Ministry of Culture was reestablished. The new structure consisted of 6 departments and one specialized agency; 1) Office of the Permanent Secretary 2) Department of Fine Arts 3) The Religious Affaire Department 4) Office of the National Culture Commission 5) Office of the Contemporary Art and Culture 6) The Bunditpatanasilpa Institute and aside from that, one specialized agency, Princess Maha Chakri Sirindhon Anthropology Center (Minister of Culture, 2006). The structure of cultural ministry is present in the figure 2.3.
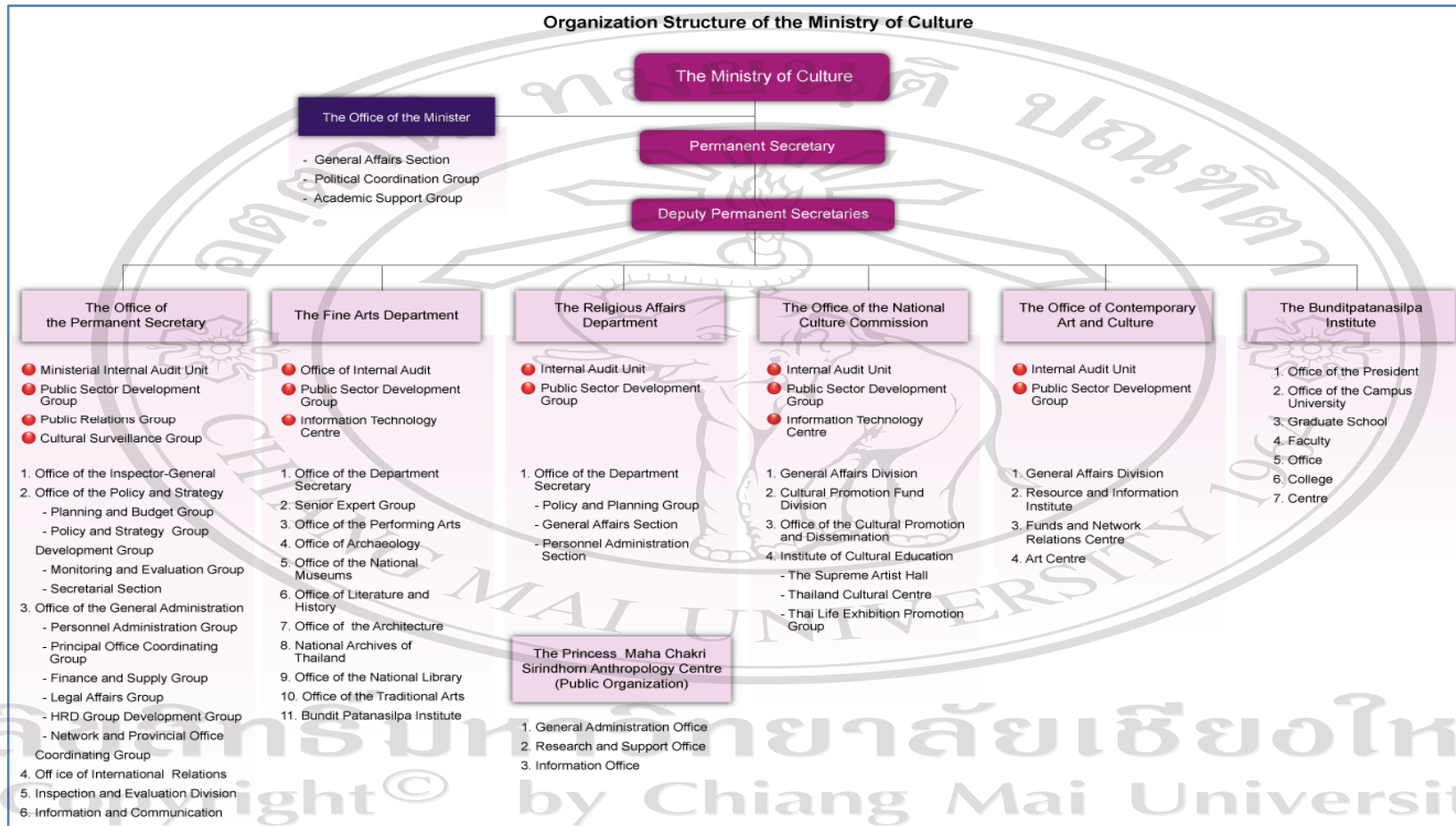
Organization Structure of the Ministry of Culture

The Ministry of Culture

The Office of the Minister
- General Affairs Section
- Political Coordination Group
- Academic Support Group

Permanent Secretary

Deputy Permanent Secretaries

The Office of the Permanent Secretary

- Ministerial Internal Audit Unit
- Public Sector Development Group
- Public Relations Group
- Cultural Surveillance Group

1. Office of the Inspector-General
2. Office of the Policy and Strategy
   - Planning and Budget Group
   - Policy and Strategy Group Development Group
   - Monitoring and Evaluation Group
   - Secretarial Section
3. Office of the General Administration
   - Personnel Administration Group
   - Principal Office Coordinating Group
   - Finance and Supply Group
   - Legal Affairs Group
   - HRD Group Development Group
   - Network and Provincial Office Coordinating Group
4. Off ice of International Relations
5. Inspection and Evaluation Division
6. Information and Communication

The Fine Arts Department

- Office of Internal Audit
- Public Sector Development Group
- Information Technology Centre

1. Office of the Department Secretary
2. Senior Expert Group
3. Office of the Performing Arts
4. Office of Archaeology
5. Office of the National Museums
6. Office of Literature and History
7. Office of the Architecture
8. National Archives of Thailand
9. Office of the National Library
10. Office of the Traditional Arts
11. Bundit Patanasilpa Institute

The Religious Affairs Department

- Internal Audit Unit
- Public Sector Development Group

1. Office of the Department Secretary
   - Policy and Planning Group
   - General Affairs Section
   - Personnel Administration Section

The Princess Maha Chakri Sirindhorn Anthropology Centre (Public Organization)

1. General Administration Office
2. Research and Support Office
3. Information Office

The Office of the National Culture Commission

- Internal Audit Unit
- Public Sector Development Group
- Information Technology Centre

1. General Affairs Division
2. Cultural Promotion Fund Division
3. Office of the Cultural Promotion and Dissemination
4. Institute of Cultural Education
   - The Supreme Artist Hall
   - Thailand Cultural Centre
   - Thai Life Exhibition Promotion Group

The Office of Contemporary Art and Culture

- Internal Audit Unit
- Public Sector Development Group

1. General Affairs Division
2. Resource and Information Institute
3. Funds and Network Relations Centre
4. Art Centre

The Bunditpatanasilpa Institute

1. Office of the President
2. Office of the Campus University
3. Graduate School
4. Faculty
5. Office
6. College
7. Centre

Figure 2.3 Organization structure of Ministry of Culture

Source: Ministry of Culture, 2006

Table 2.1 Thailand Ministry of Culture's vision, missions, goals and strategies

The Ministry of Culture		
Vision: *"to serves as an organization integrating religion, art and culture to the people, fostering pride in Thai identity with proper culturally based lifestyle that leads to sustainable and peaceful society."* (Minister of Culture, 2006).		
Missions	**Goals**	**Strategies**
Promotes national religions, art and culture and serves the requirement for major tasks of the country, religion and the monarch, fostering sustainable propagation and development.	To uphold nation, religion, monarchy and cultural identity.	To steadfastly preserve and propagate diverse national and local culture.
Integrates religions, art and culture to the people and communities.	The general public should be good and possess ethical values while taking pride in Thai culture and applying religious principles in their daily life. They should also possess creativity and appreciate aesthetics.	To create values, awareness and Thai wisdom.
Develops socio-economics with cultural dimension, at community, locality, national and international levels.	A harmonious society with ability for selecting and creating valuable products including culture-based socio-economic development is encouraged.	To bring about national cultural base to benefit social value and increase economic value.
Integrates co-operation in the administration of knowledge, art and cultural heritage for the benefits of the Thai people and the world community.	The body of knowledge on culture should be systematically managed and promoted among the general public.	To manage the body of knowledge on religion, art and culture.

Source: Ministry of Culture, 2006

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According to the vision, missions, goals, and strategies, the Ministry of Culture focuses to protect, sustain, enhance, disseminate, and promote the religious, art and cultural affairs of the nation in international, national and domestic level. It also encourages the Thais to be aware of and take pride in their own cultural roots and appreciate their cultural heritages through the development of learning resources both at local and national levels. To manage Thai culture, the Minister of Culture entrusts Office of the National Culture Commission with the task to promote and preserve Thai culture through studies, researches, rehabilitation, development, dissemination of information and supports to government and private agencies and the public engage in cultural works (Minister of Culture, 2006). There are province, district, and sub-district office of culture and each level parallels with cultural council to work on cultural issues. The cultural council of each level consists of the office of culture as a secretary and its' stakeholders such as government and private agencies.
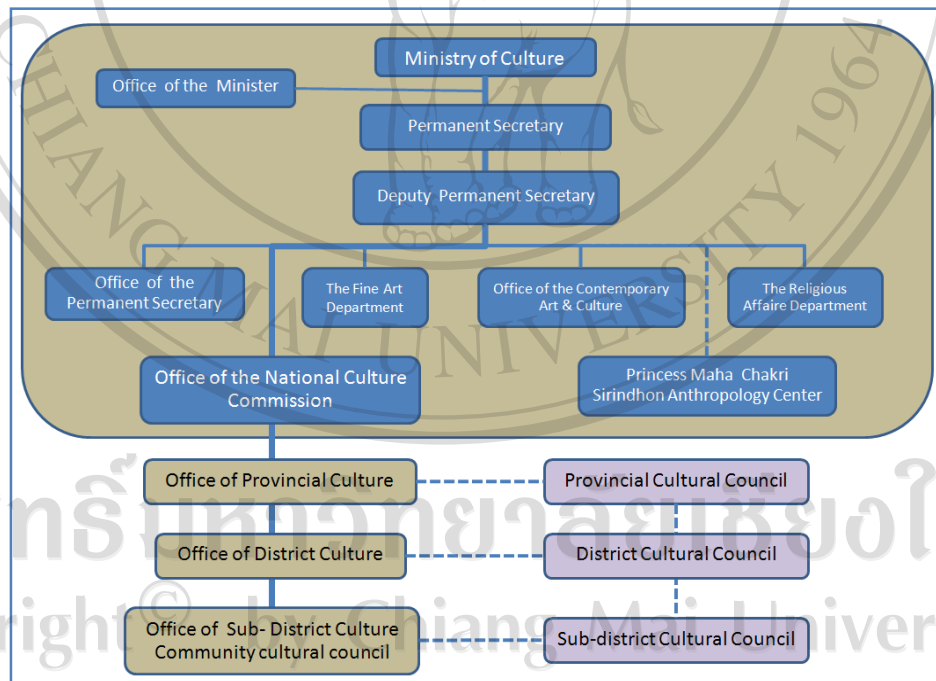
Figure 2.4 Thailand cultural management structure

A study on guidelines of intangible cultural heritage and folklore preservation, promotion, succession and protection by government bodies, private organizations, educational institutes and people conducted by Chiyasak et al., 2007, the result explain the cultural management feature in Thailand in the following.

Cultural agencies, including government bodies, private organizations and some departments in educational institutes, at present, play roles and hold various cultural activities in respect with promoting, succeeding, conserving and compiling cultural knowledge base. The dissemination of cultural knowledge by each agency contains some differences; the government entities give cultural funds to local communities for activity arrangements or continuing occupations from the traditional knowledge. For the private sector, the non-government organizations usually cluster networks of consult teachers, folk artists holding traditional knowledge and wisdom by arranging the training to disseminate the cultural knowledge from these groups to Thai youth and other interesting people. But, other profit-seeking organizations usually emphasize on trading and services from cultural products. For the departments supervised by educational institutes, they must conform to the mission of their educational institutes. These departments conduct researches and studies on culture, and they also compile the cultural knowledge. The cultural scholars had some viewpoints that Thailand's cultural agencies have not received the adequate budget allocations, confronted the manpower shortage, lacked skillful experts, and some agencies could not comprehensively understand real identities of folklore.

The network comprising the government sector, public sector, private business sector and private voluntary organization sector for cultural implementations. The results of the study showed that the area network is a core factor for their joint activities. The networking between these agencies may be a loose group forming, a specific group forming and an organization under a clear relationship structure. Cooperation for cultural activities is mainly in the multilateral form. The problems found from the study include the different concepts on activity arrangements and competition. In this study, there are several networks moving from the network forming stage to the expansion stage.

To seek for financial sources to support community cultures, community people may submit written applications to government bodies in charge of cultural activities, municipalities, local administrative organizations, cultural agencies under educational institutes, foundations or foreign financial sources. However, most agencies usually give supports for the arrangement of cultural activities only; they

have no supports for the knowledge base compilation, in-depth research and action research.

The stakeholders of cultural agencies' operation have the negative feedback to such agencies include: 1) various cultural agencies have no good cooperation to integrate their national, regional and local operations; meanwhile, they have never had good cooperation with the private sector; 2) insufficient legislation for cultural actions; and 3) cooperation from local cultural agencies. Nevertheless, there is a positive opinion that in arranging cultural activities in local communities, these stakeholders receive good coordination and cooperation from various agencies.

2.11 Sustainable Development

Societies do not refute the developments both in economic and social sectors. In spite of the fact that all developments are very welcome. The research's intention is to answer the questions of how to develop the economy and social without destroy the cultural heritage and how to live in the modern city life with new technology but in the same time still cherish our traditions. This section explores the concept of sustainable development. The vision of Thailand's 10th National Economic and Social Development plan (2007-2010) and the conceptual framework for formulation of Thailand National Sustainable Development Strategy (NSDS) 2007-2036 are reviewed in this section.

"Sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs." (UN Documents Cooperation Circles, 2006).

Since the 1987 Brundtland report sustainable development has become a popular and important concept to the world community. Sustainable development focuses on improving the quality of life for all mankind without using resources beyond the capacity of the environment to supply and promotes coordinated analyses on economic, environmental and social issues and long-term perspectives.

Sustainable development is not a new idea. Many cultures have recognized the need for harmony between the environment, society and economy. What is new is an articulation of these ideas in the context of a global industrial and information society. Many researchers in universities, NGOs, government agencies and international agencies have offered proposals for measuring sustainable development (UN 2007).

United Nations Development Programme (UNDP) disclosed the Human Development Report 1996 on Economic Growth and Human Development in 1996. The 1996 Report opens with a fundamental statement: Human development is the end - economic growth a means. The Report argues that economic growth, if not properly managed, the development leads to five major disadvantages; jobless, voiceless, ruthless, rootless and futureless, and thus detrimental to human development. The quality of growth is therefore as important as its quantity; for poverty reduction, human development and sustainability. The report point out that this kind of development should not continue and sustainably.

The vision of Thailand's 10th National Economic and Social Development plan (2007-2010) is to create the Green and Happiness society (Office of the National Economic and Social Development Board, 2007).

Thai citizen should have morality and wisdoms, strong family value, strong community, peaceful society, with equity, stable and fair economy. The country should have quality environment and sustainable natural resource management under the good governance principle, maintain the democracy under the King. It should be able to stay in the world community with dignity.

In the context of ever faster and more complex change under globalization, Thailand attempted to set appropriate strategies for national development in order to strengthen domestic structures for competitiveness, build a knowledge base for resilience in the face of change, spread equitable development, promote the equality of groups in society, strengthen local communities, and rehabilitate and conserve

natural resources and the quality of the environment as a foundation for secure development, and as the basis of livelihood for communities and society (Figure 2.5). To accomplish, sustainable development has been applied as a main concept of Thailand development planning. In addition, the most importantly, the philosophy of the Sufficiency Economy developed by His Majesty King Bhumibol Adulyadej has been the guiding principle for sustainable development pathways in Thailand. Hence the major development strategies of the Tenth Plan are presented in the Table 2.2.
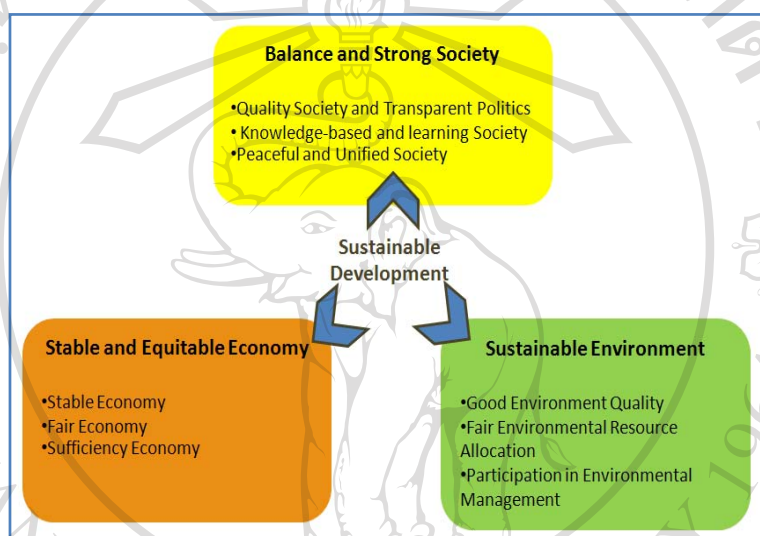
Figure 2.5 Vision of Thailand's 10th National Economic and Social Development plan (2007-2010)

Source: Office of the National Economic and Social Development Board, 2007

Table 2.2 Thailand's 10th National Economic and Social Development plan (2007-2010)

Strategies for development of human quality towards a knowledge-based and learning society	Strategies to strengthen community and society as basis of national security	Strategies to reform the structure of the economy for balance and sustainability	Strategies for development of biodiversity and conservation of the environment and natural resources	Strategies to promote good governance aiming at social justice and sustainability
1. To promote human development for integrity, knowledge, and resilience, 2. To promote health, both physical and mental, in a livable environment 3. To promotion peaceful coexistence in society,	1. To create strong communities, 2. To build secure community economies, 3. To enhance the capacity of communities to coexist peacefully with natural resources and the environment for mutual benefit,	1. To reform the production structure to increase productivity and enhance the value of products and services on a basis of knowledge and Thai-ness, 2. To build resilience into the economy, 3. To promote fair competition and fair distribution of the benefits of development,	1. To conserve the resource base and the ecological balance, 2. To create a good environment for the sake of the quality of life and sustainable development, 3. To develop the value of biodiversity and local wisdom,	1. To promote and develop a democratic culture and good governance as part of the way of life, 2. To strengthen the people's sector's participation in national administration, 3.To create a public administration that works with efficiency and good governance emphasizing service rather than control and working in cooperation with development partners, 4.To continue the decentralization of administration to the regions, localities, and communities, 5.To promote strength, honesty and good governance in the private sector, 6.To reform law, regulations, procedures, and processes relating to economic and social development for balanced distribution of the benefits of development, 7.To promote national security in administration aiming at balance and sustainability of the country,

Source: Office of the National Economic and Social Development Board, 2007

The office of National Economic and Social Development Board (NESDB) in close collaboration with Asian Development Bank, the United Nations Environment Programme, the Ministry of Natural Resource and Environment, and the Thailand Environment Institute developed a guidance manual for Thailand NSDS. The guidance manual provides a conceptual framework for implementation of the comprehensive sustainable development for Thailand. Thailand National Sustainable Development Strategy (NSDS) framework comprises 4 major strategies and twenty three actions. The first strategy: eliminate poverty through sustained and equitable economic growth, the second strategy: enhance environmental security and sustainability, the third strategy: create a knowledge-based society and ethical society and the fourth strategy: ensure good government at all levels of society.

Conceptual Framework for Formulation of Thailand National Sustainable Development Strategy (NSDS) 2007-2036 aims to promote balance development of social, economic and environmental aspect (NSDS, 2008). For the social development, NSDS plans to establishment of a balanced and strong Society, emphasizing on creation of quality society with transparent politics, knowledge-base and learning society and creation of peaceful and unified society. For the economic development, NSDS plans to establishment of the stable and fair economy, emphasizing on crating stable and fire economy and promoting sufficiency economy. For the environment development, NSDS plans to promote of the environmental sustainability, focusing on the management of environmental quality to be in a good status, promotion of natural resources allocation, and promotion of the participation in natural resource management of every sector. The means of implementation mechanisms as well as monitoring and evaluation process towards achieving the strategic objectives in Thailand has also been included.

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Table 2.3 Thailand National Sustainable Development Strategy (NSDS) 2007-2036

Society	Economy	Environment
1st Strategy: **Eliminate poverty through sustained and equitable economic growth**	**2nd Strategy:** **Enhance environmental security and sustainability**	**3rd Strategy:** **Create a knowledge-based society and ethical society**	**4th Strategy:** **Ensure good government at all levels of society**

Implementation	Implementation	Implementation	Implementation
1.Reduce vulnerability and improve likelihoods 2.Enhance national and household savings rate 3.Ensure fiscal sustainability and reduce public dept 4.Improve green productivity and economic competitiveness 5.Ensure energy security and renewable energy usage 6.Ensure food safety	1.Ensure water security 2.Manage hazardous substance and waste 3.Manage air quality 4.Conserve and manage natural resources and biodiversity 5.Ensure human and environmental biosafety	1.Support education and continuous learning 2.Improve public access to information & develop innovation system for science and technology 3.promote religious and cultural awareness and sensitivity 4.Improve public health services and access rights 5.Strengthen project and develop labor rights 6.Reduce crime and drug abuse	1.Improve transparency and accountability 2.Eliminate corruption 3.Strengthen law enforcement 4.Strengthen public participation process 5.Empower local government authorities 6.Promote regional and international cooperation

Source**:** NSDS, 2008

Summary

In this section, the sustainable development concept shows that the society can compromise and well connected between the globalization and localization. According to previous mention, societies are welcome new technology and modern life as well as conserve traditional knowledge. These two domains should come together. However, sustainable development requires an understanding that inaction has consequences and that must find innovative ways to change institutional structures and influence individual behavior. It is about taking action, changing policy and practice at all levels, from the individual to the international. The guidance manual is an implementation guideline which indicates existing policies and measures are related to sustainable development and will guide stakeholders, government agencies, NGOs, private organizations and communities on how to implement the development plan in order to achieve long-term sustainable development for Thailand. This research will consider this approach certainly.

2.12 Cultural Diffusion

In the Chapter 1, the paper mentioned that the way of life in Thailand has been constantly changing which brought upon a new attitude, lifestyle, and modern beliefs to the local people within their community (see page 3). This section explores the concept of cultural diffusion to verify our previous statement and provides a brief discussion of cultural diffusion has been responsible for cultural transmission.

Cultural diffusion can be defined as discrete culture traits are transferred from one society to another, through migration, trade, war, or other contact (Winthrop, 1991). It is a process of knowledge, skills, and technology being spread from one society to another, from one place to another place in a due course of time. During the process of cultural diffusion, a drift in the culture at the new place may occur, like change in style of living, change in style of clothing and change in style of transport and etc. The study of diffusion originated in the middle of the nineteenth century as a means of understanding the nature of the distribution of human culture across the world (King & Wright, 2008). The scholars had begun to study both advanced

cultures and non-literate culture which created a major issue among scholars (Kuklick, 1996).

Some researches demonstrated that social change involved both independent invention and diffusion. Recently there have been theoretical developments in anthropology among those seeking to explain contemporary processes of cultural globalization and transnational culture flows. The anthropology major approach is to understand and explain how dominant cultural forms are imposed, invented, reworked, and transformed and minor approach is to understand (Gupta & Ferguson, 1997) and explain how dominant cultural attempt to polarize autonomous local cultures against the homogenizing movement of cultural globalization. In order to do this, an ethnographic approach must be taken to study the inter-relations of culture, power, and place: place making, identity, and resistance. The diffusion study has its roots in anthropology, archaeology, and cultural geography. However, in modern research era, diffusion is involved agriculture business studies, education economic, geography history, political science, rural sociology and business and industrial (King & Wright, 2008). In all of these areas, research involves observing societies, how they can be influenced to innovate, and predicting the results of such innovation (Hugill 1996).

Research on the diffusion has been studied and documented in the business and industrial world. Business historians give credit to the role diffusion has played in the development of industrial societies in the U.S. and continental Europe. Japanese business historians have been very interested in the role diffusion has played in the industrial development of Japan. Cultural globalization supports the dominant cultural to expand industrial development to domestic and local cultures. Borrowing and using ideas are occurred. It is often easier to copy an invention, than to create a new invention which is a decidedly human practice (King & Wright, 2008). Thus, the creation of copyright and patent laws to protect individual innovations is formed.

The process of diffusion leads to the process of acculturation. The diffusion contributes to acculturation. Acculturation is the process of systematic cultural change of a particular society carried out by an alien, dominant society which is brought about under conditions of direct contact between individuals of each society

(Winthrop 1991). Individuals of a minority culture receive the content of a dominant culture by watching TV, listen to radio, and using products. Moreover, the dominant culture has become a part of the political, economic, and educational standards of the society. These locals automatically learn the habits of a foreign or dominant culture. They gradually change the way of living day after day. The process by which these individuals enter the social positions is called assimilation. These individuals, through the social process of assimilation, become integrated within the dominant culture (Thompson 1996). However, complete assimilation is not always possible for the minority culture to take over the complete way of life of the majority culture. Acculturation as changes produced in a culture because of the influence of another culture, the presence on an alien, politically dominant society. These changes may be reciprocal, which results in the two cultures becoming similar or may result in the extinction of one culture, when it is absorbed by the other.

There are three methods of cultural diffusion (Briney, 2008).

Direct diffusion: refers to direct contact of two distinct cultures. These two distinct cultures are very close together. The direct diffusion can be occurred through trade, intermarriage, and immigration. An example today would be the similar interest in soccer in some areas of USA and Mexico.

Forced diffusion: refer to force another culture to accept and custom its culture. As a result, people believe that their cultural beliefs are superior to those of other groups and in turn force their ideas upon those they conquer. An example here would be when British Empire took over lands in India and forced the original inhabitants to custom English culture in the 17 and 18 Centuries.

Indirect diffusion: refer to the expansion of a dominate culture through a media or middleman to another culture. An example here would be the popularity of Korean soap operas throughout Thailand and Asia or the popularity of soccer Thailand and England. Technology, mass media, and the internet are both playing a huge role in promoting this type of cultural diffusion around the world today. Technology advancement takes major responsible for the direct diffusion of culture

that is indicated in integration of the world political, economical, cultural, trading, and information system that makes the world interdependent of each other.

2.12.1 Modern Culture Hearths and Cultural Diffusion

In the modern world today, everything is faster, closer, and easier than the past. Communication is very easy for everyone. At a click of a button people are immediately able to exchange information cross the world. News can be disseminated to the world within minutes. Products and services can be delivered to buyers across the world within few days. Not only is the rate of information becoming faster, but also the rate of exchange of goods, services, and money. In this Globalization era, direct and indirect cultural diffusion has been expanded for many years from dominant culture such as the New York, London and Tokyo to countries around the world. World cities areas such as these are considered modern culture hearths because of the prevalence of their cultural aspects now present throughout much of the world. Take for instance the popularity of sushi in Bangkok, California and British Columbia or the presence of Starbucks in places like Paris, Frankfurt, Singapore, and even in Beijing.

One of the main elements in the diffusion of new ideas is the communication channel. A communication channel is the means by which messages get from one individual to another. Transportation, finance and telecommunications have made the world a smaller place. Mass media channels are more effective in creating knowledge of innovations, whereas interpersonal channels are more effective in forming and changing attitudes toward a new idea, and thus in influencing the decision to adopt or reject a new idea (Rogers, 1995). Most individuals evaluate an innovation, not on the basis of scientific research by experts, but through the subjective evaluations of peers who have adopted the innovation. So the diffusion process is essentially social in nature, driven by individuals talking to others and giving meaning to an innovation through a process of social construction. The internet and advertising through the many forms of mass media have allowed people worldwide to see what is popular in the U.S., Tokyo, London and Paris and as a result, blue jeans, sushi, Nintendo and Coca-Cola products can be found even in remote Himalayan villages (Briney, 2008).

In fact the worldwide internet population exceeded one billion in 2006 (internetworldstats.com, 2007). The internet has experienced phenomenal growth in the US and is now dramatically increasing in use around the world, especially in Asia (Gong, 2006). With millions of products now being available online, consumers worldwide are showing growing interest in new varieties besides the traditional good sellers on the internet such as books or digital products. Likewise, people living in small villages may be affected by import regulations from the other side of the world. Also, the way of living for the population has changed rapidly. Therefore, the ways people use to think and do are so much different when we compare it to the past.

2.12.2 Diffusion Concept: the Development of Thailand and Traditional Knowledge

Nowadays, world society cannot avoid cultural globalization and transnational culture flows. Cultural globalization supports the dominant cultural to expand industrial development to domestic and local cultures. With the advanced technology and development stream from developed countries, Thailand has embraced the globalization idea and been changing to correspond the idea constantly.

After World War II, during the 1960s, Thailand maintained close economic and security ties with the United States. With the development stream from developed countries, Thailand launched the First National Economic Development Plan in the early 1960s. Thailand's international trade expanded further in response to foreign demand. The government attempted in bringing new technology to the local community. The Thai village's economy gradually changed from a subsistence economy into a market economy (Pupphavesa, 2002). Agricultural production was more diversified and geared for exports. The single crop framings were carried nation wide to produce large amount of commodity to serve outside markets. The new technology from developed countries was introduced such as agricultural machinery and chemical fertilizer. The land was invaded and the natural resources were rapidly depleted and social division began.

Later in mid 70s, Thailand economic was rebounded from economical turmoil and the GDP was increasing every year. Thailand's the Fourth National Economic Development Plan, turned to export oriented industrialization, started with developing country's transportation system. Thai citizen in every province could reach Bangkok within twenty four hours. The main road was built pass through the center of the urban areas. This caused some major changes in the area. Big international company factories and department stores started businesses. Many local communities became a part of the urban city. Thailand government announced a rural development decade in the 1980s. Thailand was well prepared to take advantage of the recovery in the world economy and the pace of industrialization accelerated (Pupphavesa, 2002). Thailand has become new industry county with full speed ahead. Multinational companies from Japan, United States, and EU invested in Thailand continuously. During 1980– 1990, the industries sector showed strong growth rates. Thailand aimed to be a Newly Industrialized Country (NIC) to become the Fifth Tiger of Asia. Cities were modernizing rapidly and villages were forced to change that led to rapidly urbanization of provinces around the country. Capitalism economy was spread widely across urban and rural areas. The investments from foreign companies were supported by the government intensively. Industrial estates were built in every part of the country; three in the north, two in the northeastern, five in the central and three in the south (Industrial Estates Authority of Thailand, 2008).

Since 1970s, the situations led the people from the local community migrated to find work in the urban area. The term of occupation has changed when urban growth draws people to urban work. This development caused the young labor force migrated from rural areas to big cities to find jobs. Old people and children were left in the village. The idea of village life was without hope for the younger generation was spread. Some young people who did not have jobs in the city, saw no better future, made their life worse by drinking and gambling and various social problems emerged. These negative impacts of economic development have changed the landscape of Thai society greatly, especially at village level (Tinnaluck, 2005). The local community has now become more dependent on the outside market and on outside knowledge because the rapid urbanization of provinces around the country.

The way of life is not the same anymore. This trend has led to the loss of local original culture.   In this age, the people prefer to live in a modern city life with new technology and direct access to the media. The dignity and prestige of local culture have been diminished. Thus, some local communities have abandoned to conserve their local cultural heritage (Chiyasak *et al*., 2007).

The most important social transformations in those decades were the penetration of television into almost every rural household in Thailand and increasing number of rural children entering secondary education.   Thai students had more opportunity to study in the university. Higher education has expanded the career possibilities such as working in the industries. In the mean time, television has brought new attitudes, tastes, and customer habits. The change of culture to be the consumer culture is inevitable.   The obvious changes include the fraternity, immigration, spoken language and dressing. Thus, the waves of development have brought upon a new attitude, lifestyle, and modern beliefs to the local people within their community (Bager, 2003). With the continuation of development trend, the way of life has changed immensely in Thailand local community.

Summary

Cultural diffusion is the transmission of culture and economical and social development indicating in integration of the world economical, ecological, cultural, trading, and information system that makes each party interdependent of each other. Cultural globalization supports the dominant cultural to expand industrial development to domestic and local cultures. With the development stream from developed countries, Thailand turned to export oriented industrialization and became new industry county.   The negative impacts of developments have changed the landscape of Thai society greatly, especially at village level.

All those circumstances are what exactly happen to the Mea-hiya community (see page 9-11). The Mea-hiyas have rapidly developed their economic status and become a part of the urban city. The term of occupation has changed when urban growth draws people to urban work. People from the outside started moving to live

and work in the community. The way of thinking, behaving and believing is so much different now when it is compared to the past. The way of life in the Mea-hiya community has changed tremendously. Some people in the community prefer to live in a modern city life with new technology and direct access to the media. Most importantly, some of the cultural ritual has vanished from the community and some cultural ritual performances have changed the way of performing. The dignity and prestige of local culture have been diminished. Thus, some local communities have abandoned to conserve their local cultural heritage. Sadly, they even abandon the conservation of their local cultural heritage.

2.13 Intellectual Capital (IC)

Chapter 1 has labeled the contexts of traditional knowledge. Many organizations and academics have defined the scope and definitions of traditional knowledge as a community's traditional intangible heritage which is built upon shared value and aspirations of a group of people. It is a communities' property because it benefits communities' economy (see page 32-33). With its' unique intangible and public domain characteristics, we can yield traditional knowledge is communities' intellectual capital. Therefore, to understand more about intangible capital, the concept of intellectual capital is reviewed in this section.

2.13.1 Defining Intellectual Capital (IC)

Intellectual Capital (IC) can be defined as; structural and human capital, thinking and non thinking assets (Roos et al, 1997); intellectual material – knowledge, information, intellectual property and experience- that could be used to create wealth (Steward, 1997); consists of human, system and market component. Employees and managers in the organization represent human capital. Human capital refers to what people can do individually and collectively. The system component represents the knowledge in the firm which is independent of people and includes patents contracts, databases, and information and production technology. The market component consists of the relationship between the organization and outsiders (Edvinsson & Malone, 1997); a concept that classifies all intangible resources as well as their

interconnection (Bontis et al 1999); The group of knowledge assets that are attributed to an organization and most significantly contribute to an improved competitive position of this organization by adding value to defined key stakeholders (Marr, 2004). Therefore, intellectual capital is the sum of a company's knowledge that is contributed to an improved competitive position of the organization by adding value to the defined key stakeholders.

In the 1990s, the companies that represented the leading edge of the new economy, firms like Microsoft could be named as the pioneer of knowledge-based company. This knowledge-based company was asset-lite in the conventional accounting balance sheet sense. Clearly, this company was distinguished from manufacturing or natural resource-based and it leveraged other resources to create shareholder value. The phenomena in 1990s meant that managing for shareholder value was much more about managing capital that was not represented as tangible assets on the traditional balance sheet; in other words, managing what we now call intellectual capital (Stam, 2007). Thus, companies need a new management framework and tools that assist in identifying, quantifying, managing and reporting on all the capital forms and value creating activities that creates value for stakeholders in this new economy.

IC has become the newest hot topic in the business community since the 1990s when Skandia the Swedish company suggested an extension of intellectual capital statement to the company's report named the Navigator (McConnachie, 2007; and Chu, Lin, Hsiung & Liu 2006).
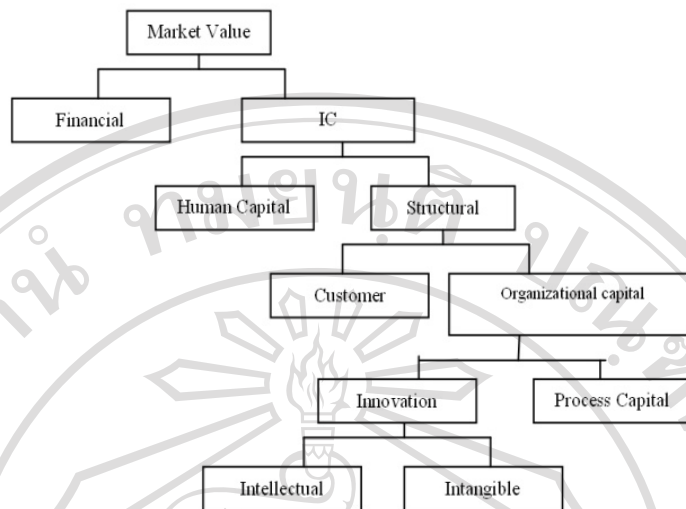
Figure 2.6 Skandia Model
Source: Roos et al, 1997

Skandia distinguished IC into two categories, the structural capital and the human capital. Structural capital includes customer capital (external) and organizational capital (internal). Organizational capital consists of innovation and process capitals. Process capital is the sum of a company's know-how. Innovation capital includes intangible assets and intellectual property which is the source of renewal for the company.

Structural capital is defined as infrastructure that organizations develop to commercialize their human capital. It includes both direct and indirect support, and for each there are both physical and intangible elements (Edvinsson & Sullivan, 1996). For example, competitive intelligence, formulas, information systems, patents, policies, processes, etc., that result from the products or systems the firm has created over time. It does not reside in the heads of the employees and remains with the organization even when they leave.

Human capital is defined as the collective capabilities of employees (the employees' competence, attitude and intellectual agility). This asset includes experience, skills, and know-how of the employees. This asset creates value for the organization. It is becoming the most important intangible asset for most organizations (Jacobsen, Hafman-Bang & Nordby, 2005).

Customer capital is defined as value of relationships that a firm builds with its customers, and which is reflected in their loyalty to the firm and/or its products. Customer capital is produced in the form of information about customer preferences and desires, as well as intangible assets such as customer loyalty, which become more information that the company can use (Matcaft, 1999). The value of customer capital is mainly determined by the extent to which an organization is able to maintain confidence in its reputation (Bontis, 2002). The more you know about your customers and the closer you are to them, the more difficult it will be for them to switch.

Organizational capital refers to infrastructure, processes, and culture. It consists of innovation and process capitals. Process capital is the sum of a company's know-how. It consists of embedded knowledge assets in the process and innovation areas. Innovation capital includes intangible assets and intellectual property which is the source of renewal for the company.

The process capital is perhaps the most encompassing box of the model. It consists of all internal processes (recruiting process, marketing process etc.) models (project models etc.), IT systems and documentation. It consists of the enterprise's value creating processes such as its organizational structure, management practices, systems and procedures, infrastructure computer systems and the like. The result of managing intellectual capital is intellectual property. The intellectual properties consist of patents, licenses, trademarks etc. These company's intellectual properties are the most refined part of the structural capital, as there could be a market for this and it can be bought and sold. This could provide the company with a temporary monopoly and give the company outstanding performance over a period of time.

Relational Capital refers to the relationship with customers, suppliers and other external stakeholders. This capital consists of a company's external relations such as suppliers, distributors, lobby organizations and all other important stakeholders (Jacobsen, Hafman-Bang & Nordby, 2005). The intellectual capital in an organization can be resented in general in Figure 2.7.
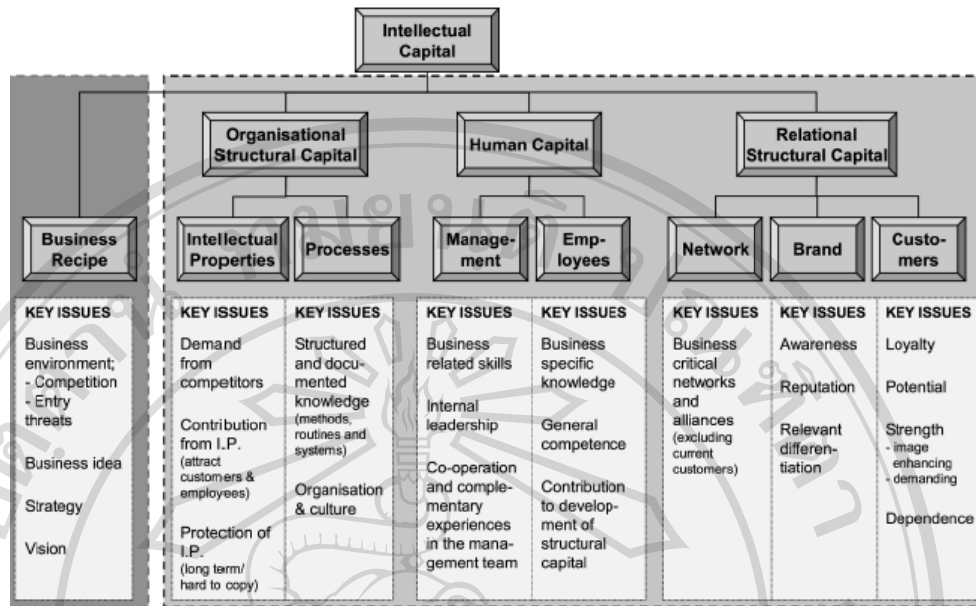
Figure 2.7 Intellectual capital key issues

Source: Jacobsen, Hafman-Bang & Nordby, 2005)

The IC literatures draw on the aspects of the resource-based perspective, the practical application and a pragmatic approach that provides a basis for practical managerial tools and methodologies to an organization (Roos et al, 1997, Bontis et al, 1999; Petty & Guthrie, 2000; and Peppard & Rylander, 2001b). The IC is extremely flexible and context specific (Bontis et al, 1999 and Peppard & Rylander, 2001a). It also provides a holistic picture and allows an organization to address the issues surrounding the true drivers of value creation (Edvinsson, 1997 and Peppard & Rylander, 2001a). IC approach responds to the frustration caused by traditional management's applicability to manage and leverage an organization intangible resource (Peppard & Rylander, 2001b).

Table 2.4 Summary of the intellectual capital tool box

Tool	Primary rationale	Advantages	Disadvantages
Intellectual capital	A good part of the value generated by a company comes from intangible resources need to be monitored like the physical ones are.	• Flexible • Dynamic model • Applicable also to non-for-profit organization • Providing a holistic view of the firm • Providing a basic for developing the understanding of nature of resources in action • Practical and actionable • Context specific	• Confusing literature • Metric development is still at early stages • Too much concentration on stocks at the expense of flow

Source: Adapted from Bontis et al, 1999 and Peppard & Rylander, 2001

Since the start of the Skandia model in mid 1990s, the model has been criticized for its failure for not taking into account a major component of intangible value called social capital. The IC model has been modified taking into account a major component of intangible value called social capital (McElroy 2002). Social Capital refers to connections within and between social networks (DeFilippis 2001). Social capital is also a part of IC because it facilitates the behavior rules of the organization or community: reducing transaction cost and promoting corporation. According to social capital concept, the speeding of the information transfer and the development of new knowledge depends largely on relationships. It focuses on the value of relationships between people forming an organization or community which is a core concept in business, economics, political science, and sociology. The Table 2.4 presents four main approaches to social capital.

Table 2.5 Main conceptual approaches of social capital

Social Capital Approach	Main Ideas
Economic development theories	Confidence, civic behavior and associativity strengthen the social networks, contributing to the sustainable economic development
Social responsibility and ethics	Social capital expresses the degree of social integration and responsibility with respect to the whole society and its agents and group. It is based on values and attitudes, such as confidence, corporation, safety, principles, ethics, and compromise
Corporate governance	Ethics and corporate governance codes have a positive impact on the creation of social capital, stimulating the solidarity and overcoming market imperfection
IC	Social capital is a component of IC. It is based on a set of values and the subsequent indicators such as confidence, royalty, sincerity, compromise, transparency, solidarity, responsibility, honesty and ethics

Source: Bueno, Salmador, & Rodriguez, 2004

Bueno, Salmador, & Rodriguez (2004), proposed the evolutionary IC model that had been modified with social capital. The model was based on three main intellectual capital components which were human capital, structure capital, and relational capital. The researchers paid special attention to the relational capital. The relational capital consisted of business capital and social capital. Social capital consisted of social integration, while capital referred to the relationship between the organization and its stakeholders. In addition, they categorized social capital into six areas which were first, solidarity and social cohesion; second, economic development of the environment; third, commitments of efficient corporate governance; forth, commitments acquired with the scientific and technological development; fifth environmental protection; and sixth *defense of cultural and artistic heritage.* Thus, IC process can be applied not only to the business domain, but also to the social domain; in particular to intangible traditional knowledge.
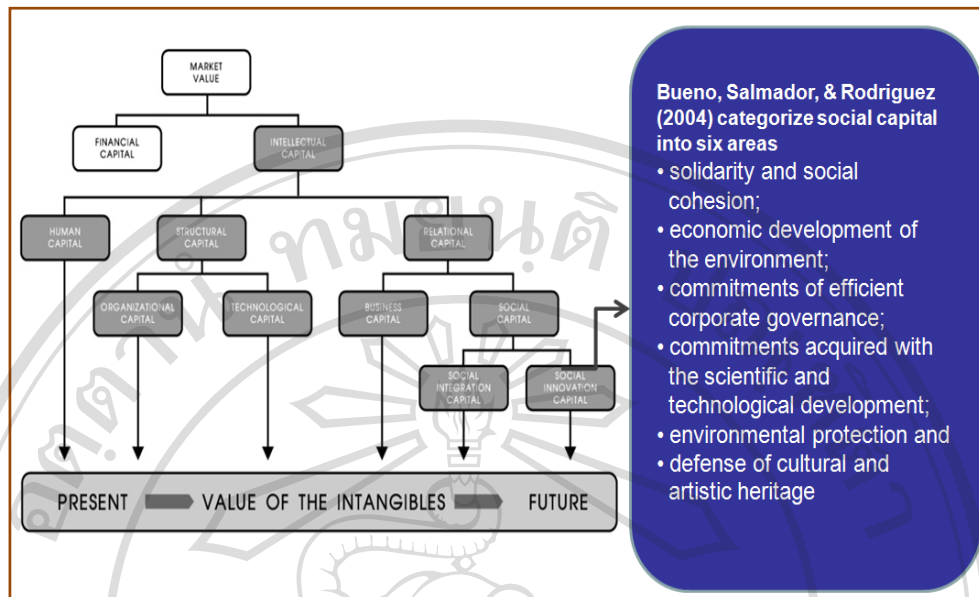
Figure 2.8 Evolutionary of intellectual capital model

Source: Bueno, Salmador & Rodriguez, 2004

2.13.2 Intellectual Capital: Beyond Business Approach

Since, Intellectual Capital (IC) started from a business oriented approach and it has been the most important factor for organizations to create competitive advantages. However, today, in the knowledge economy, IC concept is being developed to another level beyond business approach. The new perception is that IC is the basis for wealth in communities, regions, and nations. Social values such as connections, relations, and interactions in a networked society must be considered as value added for a community. In the late 1990s, the concept gained popularity, by serving as the focus of the World Bank research program and has become the main subject of several mainstream books. The new perception is that IC is the basis for wealth in communities, regions, and nations. A new political leadership agenda is evolving around intellectual capital of nations and other communities. In 2005, there was the 1st World Conference on IC for Communities in the Knowledge Economy: Nations, Regions and cities. The conference found that there were very few actual case studies that articulated how a knowledge economy was nurtured and operated on a region or local basis; therefore, the finding gap must be addressed. Social values such as connections, relations, and interactions in a networked society must be

considered as value added for a community (Jay 2006). Today, IC concept is being developed to another level beyond business approach.

Many countries in Europe, America and Asia are acknowledging and attempting to get basis to operate knowledge-based capability and intangible wealth especially in private sector, educational community and governments. These non-profit organizations start to study and research in the field to develop example framework of knowledge based community (Bueno, Salmador & Rodriguez 2004). Accordingly, the non-profit organization' nature makes it difficult to assess its' value. Unlike the private sector, in which performance can be evaluated by financial measures, public agencies have multiple objectives of a nonfinancial nature. Thus, effectiveness in attaining these goals rarely can be measured by quantitative amounts (Wall, 2005). It is impossible to use traditional financial report to measure cost efficiency. The way to validate the measurement model must be found for Public agencies. The solution for this problem is to be found in the body of knowledge gathered from performance measurement. With the unique characteristic, these organizations' value can be assessed and measured by the IC process while other methods cannot (Chu et al, 2005). One of the IC advantages is that this application is suitable for a non-profit organization (Bontis et al, 1999). Non-profit agencies start to study and research in the field to develop example framework of knowledge based community. The future conference will continue to cover these developments. Thus, IC can be applied not only to the business segment, but also to the social segment; in particular to the intangible traditional knowledge.

2.13.3 Intellectual Capital Process

To manage intangible resources for an organization, the intellectual capital process must be considered. The intellectual capital process starts with a business concept. The business concept includes the vision or mission of the organization. It has to be a statement that defines the organization's future and identity. The effectiveness of Intellectual capital management depends on their match with the organizational requirements. One of the key criteria for effective knowledge management processes seems to be the match with the organizational epistemology (Marr, Gupta, Pike, & Roos, 2003). The next step of the IC process is translation the

vision into strategies which are more quantifiable. The organizations must match the practices with the requirements. These organization strategies can be used to identify key success factors (KFS). The KFS is a list of must do activities to achieve the strategic goals. The next step of the process is to measure each KFS. The way to measure the achievement of each KFS is to put indicators to reflect the KFS. Moreover, the indicators will point out the form of capital. This step provides a common understanding between the theoretical thought behind the IC model and the practical indicators so everybody in the organization will have the same picture of doing business. Figure 2.9 resent the intellectual capital process.
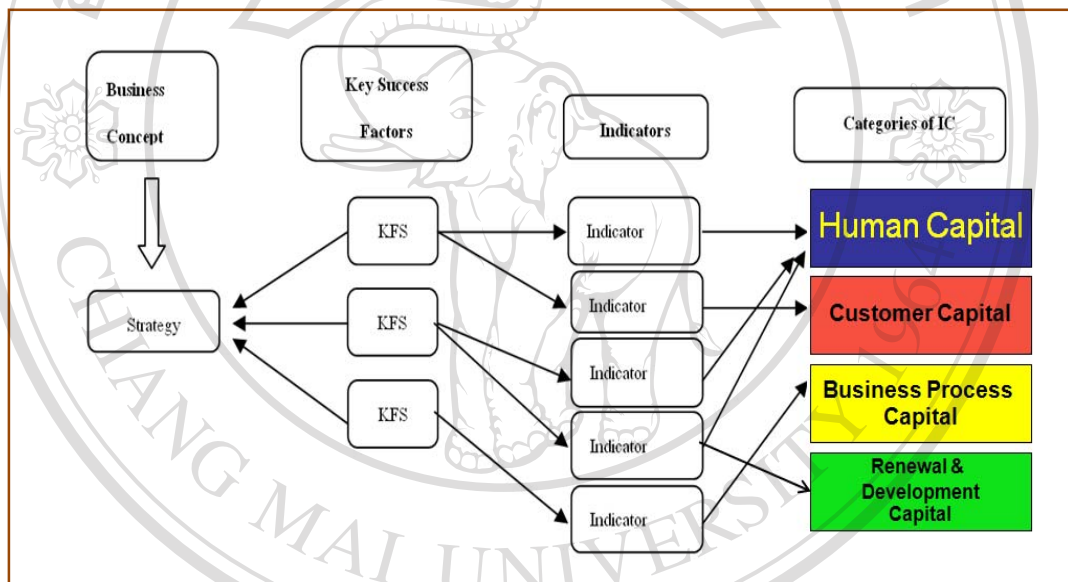
Figure 2.9 Intellectual Capital Process Model

Source: Roos et al, 1997

After receiving indicators, Ross et al, 1997 recommended consolidating indicators into smaller measure. The consolidation of all indicators into one smaller measure helps to improve the visualization of the value-creating processes of an organization so they can be managed comprehensively.

In the intellectual capital process, every level of an organization must be involved. Knowledge management systems must be conducted to provide an effectiveness of intellectual capital management. A shared space, which can be physical or virtual, is required. Individuals or group of individuals who are involved

in the intellectual process can share experiences and information to create new knowledge. With knowledge creation process, accurate information is disseminated in open system. Organization are considered as open system of knowledge circulation can produce accurate picture to employees. Nonaka, Toyama, & Konno, 2000 concluded that despite the widely recognized importance of IC as a vital source of competitive advantage, there was little understanding of how organizations actually create IC by dynamically managing knowledge.

Summary

This section future examines the concept of intellectual capital (IC). First, the meaning of IC and its' scope are explored. The new perception is that IC is the basis for wealth in communities, regions, and nations. One of the IC advantages is that this application is suitable for a non-profit organization. Next, the IC model has been modified taking into the relational capital which is one of the major components of IC. It consists of business capital and social capital. In addition, social capital can be categorized into six areas which are included the *defense of cultural and artistic heritage*. Thus, IC approach can be applied not only to the business domain, but also in particular to the intangible traditional knowledge

The IC literatures draw on the aspects of the resource-based perspective. The IC process is practical and quantifiable that provides a basis for practical managerial tools and methodologies to an organization. It responds to the frustration caused by traditional management's applicability to manage and leverage an organization intangible resource. The IC is extremely flexible and context specific. It also provides a holistic picture and allows an organization to address the issues surrounding the true drivers of value creation. However, the process requires knowledge management systems to provide an effectiveness of IC management.

IC application is allied to this research. The application is perfectly matched to traditional knowledge management in the Mea-hiya community. Traditional knowledge is a community's intellectual capital with very context specific (see page 26). The application is suitable for a non-profit organization like the Mea-hiya community's body. The IC concept is also pragmatic and quantifiable which requires

participatory from related stakeholders to share their knowledge and experiences which can be examined in the Mea-hiya community.

2.14 Knowledge Management

The previous section mentioned that intellectual capital process requires Knowledge Management process to provide an effectiveness of intellectual capital management. Consequently, the Knowledge Management is reviewed to gain more insight in this concept. In this section first describes the important of knowledge and the type of knowledge. Next, the concept of knowledge creation process is explored. Then the building a foundation for knowledge creation is explored.

The twentieth-first century knowledge economy stands on three characters (Steward, 2001). First, knowledge has become the most important factor of production. Second, knowledge assets have become more important than physical and financial assets for an organization (Drucker, 2001). Third, an organization needs new management approaches, new strategies, and new technologies to prosper in this knowledge economy because business competitive advantage relies on knowledge and innovation. In the last two decades, Knowledge Management (KM) and Intellectual Capital (IC) have become the hottest management approach for organizations. According to Koenig 1998 and Liebowitz 1999, Knowledge Management works with the process of creating value from an organization's intangible assets. Two major approaches can be highlighted. First, KM associates with the ways of generating, increasing, and exploiting knowledge. Second, KM pays attention on the value of the knowledge (measuring knowledge). To work on these approaches, the concept of IC represents the fusion between these two streams of thoughts. It is concerned with both managing and measuring knowledge and other intangible assets in the organization (Roos et al, 1997 & Chatzkel, 2002). According to Petty & Guthrie 2000, they suggested that KM & IC are fundamental building block. They must be interwoven with other management considerations to make a sound, balanced and competitive enterprise.

Nonaka et al, 2000 stated "Knowledge is a dynamic human process of justifying personal belief towards the truth". Knowledge consists of tacit and explicit knowledge. Tacit knowledge is a knowledge which is only known by an individual. It is subjective and experiential knowledge such as technical skill, cognitive skill, know how, belief or perspectives. This kind of knowledge is difficult to transfer to other people. On other hand, explicit knowledge is objective and rational knowledge such as manuals, database, or textbooks. It is easy to communicate. Explicit knowledge is codified knowledge transmittable in formal, systematic language whereas tacit knowledge is personalized knowledge that is hard to formalize and communicate and deeply rooted in action, commitment and involvement in context. Nonaka stated that tacit knowledge and explicit knowledge are not totally separate but are mutually complementary entities (Tinnaluck, 2005).

Nonaka and Takeuchi 1995 proposed the SECI process by explaining how knowledge can be transferred and created. SECI is a spiraling process of interactions between explicit and tacit knowledge. The interactions between the explicit and tacit knowledge lead to the creation of new knowledge. Nonaka and Takeuchi 1995 focused on people personality. Knowledge grows from the expertise and experience which is intuitive, ambiguous, non-linear and difficult to transcript. People whose minds are probed for insights are able to create new knowledge and distribute and retain through experience. To be able to convert implicit knowledge to explicit knowledge, an organization acquires employees becomes organizational knowledge shared among colleagues, and explicit knowledge is converted into tacit knowledge by individuals. Nonaka and Takeuchi referred to this interaction between implicit and explicit knowledge as knowledge conversion. They suggested four methods of knowledge conversion, otherwise known as the SECI process.

The SECI process explains the creation of innovation. The key to knowledge creation relies on exchanging conversion of knowledge. The core of the process consists of the four step of knowledge creation when tacit and explicit knowledge interacts with each other; socialization, externalization, combination and internalization.
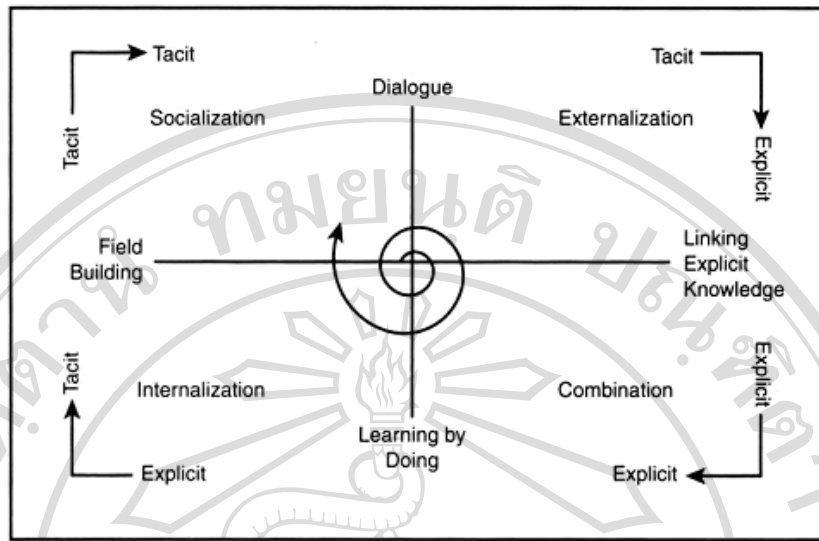
Figure 2.10 Knowledge Creation Process

Source: Nonaka and Takeuchi, 1995

Socialization: Tacit Knowledge - Tacit Knowledge

Socialization represents the interaction between individuals through mechanisms such as observation, imitation or apprenticeships. It is an exchange process of tacit knowledge takes place between people in meetings or in team discussions. Each person has different knowledge and experience and both are tacit. Socialization is a process of sharing experiences such as special technique or know-how. When people share their experience, and if they have the same situation or problem, sympathy is formed. However, acquiring tacit knowledge requires high experience. Without the form of shared experience, it is extremely difficult for one person to extract another person thinking.

Externalization: Tacit Knowledge - Explicit Knowledge

Externalization converts tacit knowledge into explicit knowledge. It is a process of extracting tacit knowledge into explicit knowledge such as an articulation among people trough dialog (e.g., brainstorming). This knowledge creation process is very crucial for the model. Concept is the output of the process. Before getting a concept, there is a process that tacit knowledge becomes explicit; taking the shapes of metaphors, analogies and then the concept will be formulated.

Combination: Explicit Knowledge - Explicit Knowledge

Combination involves combining explicit knowledge through meeting and conversation or using information system. It is a process to transform concept into a knowledge system. This process combines different contexts of explicit knowledge through media such as documents, conversation, or computerized communication network. Combination of explicit knowledge can lead to new knowledge such as job manual, application or working process. This transformation phase can be best supported by technology. Explicit knowledge can be easily captured and then distributed/transmitted to audience.

Internalization: Explicit Knowledge - Tacit Knowledge

Internalization converts explicit knowledge into tacit knowledge. It is a process to transform explicit knowledge into tacit knowledge. People have learned something new during the knowledge creation process. The output from the combination process has become general explicit. A person extracts the new knowledge into his/her brain. The new knowledge will become each one's tacit knowledge. For explicit to become tacit, documentation helps people internalize what they experienced, this increases their tacit knowledge as well as accommodate the transfer of explicit knowledge to others. This implies taking explicit knowledge (e.g., a report) and deducing new ideas or taking constructive action. One significant goal of knowledge management is to create technology to help the users to derive tacit knowledge from explicit knowledge.

Organizational knowledge creation takes place when all four modes of knowledge conversion form a continual cycle triggered by such actions as team interactions, dialogue, metaphors, coordination, documentation, experimentation, and learning by doing, etc. It can occur at various levels, e.g. individual, groups, organizational and inter-organizational. Knowledge creation can be viewed as an upward spiral process from the individual level to the collective group level, and then to the organizational level, sometimes to the inter-organizational level.

2.14.1 Building a Foundation for Knowledge Creation: the Concept of Ba

Knowledge creation processes take place in a shared context in motion called Ba (a Japanese word means place). Ba can be thought of as a shared space for emerging relationships and advancing individual and/or collective knowledge. This space can be physical (e.g., office, dispersed business space), virtual (e.g., email, teleconference), mental (e.g., shared experiences, ideas, ideals) or any combination of them (Nonaka and Konno, 1998). Ba provides a platform for advancing individual and/or collective knowledge. Ba is built and nurtured between two or more people. It is a group context where knowledge is shared, generated and put into practice through collaboration and characterized by trust, empathy, share, care, love, confidence and responsibility are required. To participate in a Ba requires one's own willing because it is an opens dynamic process that surpasses individual limits.

There are four categories of Ba (Nonaka and Konno, 1998):

Originating Ba (Face-to-face): It is the primary face-to-face and front-line interactions which the knowledge-creation process begins and represents the socialization phase. It is where individuals meet, share feelings, emotions, experiences, and mental models. Here, an individual sympathizes or further empathizes with others, removing the barrier between self and the others where problems and solutions/insights both emerge spontaneously in individual situations.

Interacting Ba (Peer-to-peer): the interaction is more constructed in this Ba. It is critical to have the right mix of people who have specific knowledge and capabilities. Individuals interact, share of anecdotes and stories, and recount daily experiences to each other and also reflect and analyze their own. This allows tacit knowledge to spread and influence organizational work is converted into common terms and concepts. It is the place where tacit knowledge is made explicit. Thus, it represents the externalization process.

Cyber Ba (Virtual collective): the combining of new explicit knowledge with existing information and knowledge generates and systematizes explicit knowledge throughout the organization. The context of evaluation and review, discovery that certain kinds of practices produced better outcomes, reflecting that information back

to the front line and decision makers, indicating successful approaches to tasks. Nonaka and Konno pointed that at this stage, the combination of explicit knowledge is most efficiently supported in collaborative environments utilizing information technology, the place of interaction is in a virtual world instead of real space and time, and it represents the combination phase.

Exercising (Virtual individual): This Ba facilitates the conversion of explicit knowledge to tacit knowledge. Using information about the better practices and comparing it to their own performance, people bring their behavior in line with more successful approach. The internalization of knowledge is continuously enhanced by the use of formal knowledge (in real life). Learning by continuous self-refinement through on-the-job-training or peripheral and active participation is stressed. Importance is given to learning by the use of formal knowledge.

Awareness of the different characteristics of Ba can facilitate successful support of knowledge creation. Each organization of the Ba possesses the dynamism to continually create new knowledge through a cycle of converting tacit knowledge into explicit knowledge and then reconverting it into tacit knowledge.

Summary

Nonaka and Takeuchi presented the important of knowledge creation and innovation in relationship to organizational success. Thus, the organization should enrich available knowledge, create new knowledge, and apply the new knowledge to gain competitive advantages (Stam, 2007). The key four steps of knowledge creation must be encouraged through proper Ba. Awareness of the different characteristics of Ba can facilitate successful support of knowledge creation.

Knowledge management process plays an important role in the intellectual capital process. In order to stimulate the knowledge creation process, all sub-processes should be activated. The intellectual capital process consists of verifying the business concepts, formulating strategy, selecting key success factors and identifying indicators. The whole process requires every level of an organization to be involved.

In this research, knowledge creation process should play an important role to assist the intellectual capital process investigation. The four modes of knowledge conversion will be managed at various levels, e.g. individual, groups within the Mea-hiyas to create new knowledge and innovation ideas to manage and protect the community traditional knowledge.

2.15 Risk Management

This section inquires risk management. First the risk and its management are defined and reviewed. Next, the concept of risk assessment process is reviewed. Then the designing an effective risk matrix is reviewed.

There are many definitions of risk. Risk can be defined as: a measure of the anticipated difference between expectation and reality (Egbuji, 1999); an exposure to the chance of injury or loss; a hazard or dangerous chance (Webster, 1989); the threat or probability that an action or event will adversely or beneficially affect an organization's ability to achieve its objectives (Luhmann, 1996). Thus, risk is a threat that an event, action or failure to act will adversely affect an organizations' ability to achieve its business objectives and execute its strategies effectively. The various definitions of risk imply that we expose ourselves to risk by choice.

In this a rapidly changing world, it is a crucial reason why risk management is becoming increasingly important for businesses. Risk is perceived differently in relation to gender, age, environment and culture. Many companies lost sums of money on poor management in the last two decades; these companies were run by experienced people who acted without knowing threats. As a respond, Code of Conduct on corporate government had been developed both in government agencies and private companies. For example, in the UK, the request of adoption of risk-based approach to establish an effective internal control system had been made to the London Stock Exchange listed company through Turnbull Report (Emblemsag and Kjolstad, 2002). In addition, in the USA, the push was triggered by companies' poor management and financial problems at the end of the last century. The legal actions had been taken against various top companies. The consequence forced all companies quoted on the US stock exchange to spend considerable sums of money in order to

have their control systems ready for the January 2005 deadline (Williams, Bertsch, Dale, Wiele, Iwaarden, Smith and Vusser, 2006). In non-financial companies, interest has not been so driven by external bodies but rather by the realization that for many of them the risks involved in doing business have multiplied in recent times. This has been because of the increased uncertainty in the environments in which they have to operate. Accordingly, today, more than thirty countries around the world are applying of risk –based approach arrangements to organizations as basis requirement operation today.

Risk management has many definitions, most of which are in broad terms. For example: an effective method for minimizing the adverse effects of risk and maximizing the benefits of incurring the risk (Egbuji, 1999); the systematic use of organization-wide processes to identify, assess, manage, and monitor risks – such that aggregated information can be used to protect, release, and create value (The European Foundation for Quality Management, 2005). Thus, risk management aims to provide decision makers with a systematic approach to coping with risk and uncertainty. The management of risk concerns the potential future effects of current decisions. Typically, risks have been managed mainly by intuition, experience and gut feel. What is new in the aforementioned definitions is the systematic approach. An effective risk management can enable companies' decision makers to increase their knowledge about their options in time of uncertainty and mitigate risks of business failure. Hence, there is a strong need to manage all risk in company.

Emblemsag and Kjolstad, 2002 proposed strategic risk analysis (SRA) approach consists of four steps; 1) define objectives: to clearly define business objectives to know where the company wants to go by reviewing the strategy and plan; 2) brainstorm risk and characteristics according to the SWOT axis. The participants are invited to express and elaborate their opinions. The facilitator reviews significant of the brainstorming in order to identify both risks and characteristics from the widest possible range of issues; 3) calculate possibilities and consequences of the risks to understand the risks' magnitude which leads to a risk ranking mechanism. The possibilities and consequences of the risks are analyzed by using ordinal matrices. The risks' value is calculated by multiplying the possibilities and consequences, the

risk values are then plotted on a curve; 4) combine risk with the characteristics in line with the SWOT principle to identify how the organization can manage the risks.

Table 2.6 SWOT matrix and four generic strategies

Internal factors / External factors	Internal Strengths (S)	Internal Weaknesses (W)
External Opportunities (O)	S - O Strategy: Maxi-Maxi Utilize one's strengths to capitalize on external opportunities	W - O Strategy: Mini-Maxi Develop one's weaknesses to be able to capitalize on external opportunities
External Threats (T)	S - T Strategy: Maxi-Mini Use one's strengths to cope with external threats	W - T Strategy: Mini-Mini Develop one's weaknesses to either defend from or avoid external threats

Source: Emblemsag and Kjolstad, 2002

Williams et al., 2006 suggested the risk management model which consists of three necessary steps; 1) risk recognition, to define what is at risk; and risk identification; 2) risk prioritization, to understand the nature and level of the risks, so that they can be managed in an appropriate manner. This step has two parts, first part is risk analysis, which is based on likelihood (probability of occurrence and the frequency of activity) and consequence (effects on results or on the enablers of results). The second part is risk evaluation. After an analysis has been undertaken, risks are evaluated against an appropriate risk-acceptance criterion to give a ranking (low, medium and high. Risk assessment is then made; 3) risk management, to manage risk by using EFQM's four Ts technique (terminate, treat, tolerate and transfer). This whole process has been developed by the European Foundation for Quality Management (2005) into what they describe as a risk assurance management system.
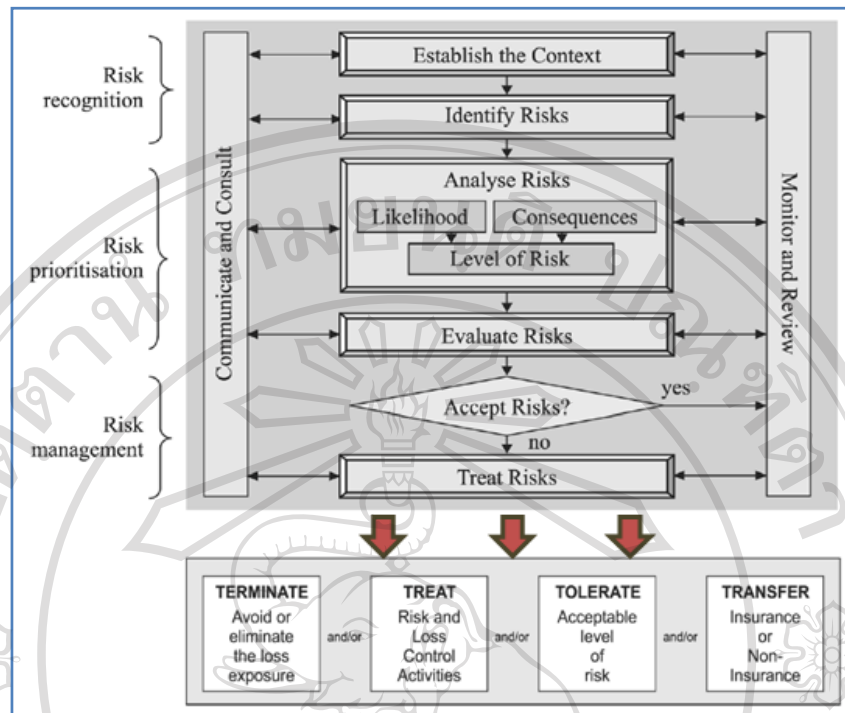
Figure 2.11 Risk assessment process
Source: adapted from Williams et al., 2006

Egbuji, 1999 recommended the two-phase approach of risk management. The first phase is the analysis and assessment of the risk and the second phase is the activities of planning, resourcing controlling and monitoring that are to be taken to reduce the risk. Together, these phases form five steps of an integrated process.

Risk identification: this involves discovering all of the risks and potential liabilities that relate to: the assets of the organization, legal and contractual obligations and associated personnel and third parties.

Risk estimation: this involves projecting a profile for each risk identified. This assessment phase is reviewed and described qualitative assessment (the source, cause and effect of the potential risk) and quantitative assessment (the likely effect of the risk) in order to understand and quantify the likely occurrence and effect of any potential risks

Risk Evaluation: to determine the significance or value of the hazards and estimated risks affected. It is necessary to assess the situation and see if the level of risk is acceptable or no based on the potential affects.

Risk management: to response/mitigation risks. During risk management, the information gathered from risk analysis is used to make decisions on how to eliminate or mitigate the identified risks. Major activities in risk management are: planning, resourcing, controlling, testing and monitoring risks.

2.15.1 Designing an Effective Risk Matrix

Many organizations recognize the need for risk assessment to identify process safety risks and determine the most cost-effective means to reduce risk. Therefore risk assessment tools must be designed properly to create liability issues and give a false sense of security (ioMosaic Corporation, 2002). Effective risk assessment characteristics should be: simple to use and understand, have clear guidance on applicability or not require extensive knowledge to use; accordingly, the risk ranking matrix has such characteristics.

Risk ranking is a matrix that has ranges of consequence and likelihood as the axes. The combination of a consequence and likelihood range gives an estimate of risk or a risk ranking. Likelihood is defined in terms of a probability that the potential consequences will be experienced during the life of the item. The following table can be used as a guide for determining likelihood.

Table 2.7 Example of likelihood ranking

Level	Likelihood	Description
1	Rare	•May only occur in exceptional circumstances •Simple process •No previous incidence of non-compliance
2	Unlikely	•Less than 25% chance of occurring •Could occur at some time •Noncomplex process &/or existence of checks and balances
3	Possible	•25–50% chance of occurring •Might occur at some time •Complex process with extensive checks & balances
4	Likely	•50-75% chance of occurring •Will probably occur in most circumstances •Complex process with some checks & balances
5	Almost certain	•More than 75% chance of occurring •Can be expected to occur in most circumstances •Complex process with minimal checks & balances

Source: Adapted from Clinical Risk Management in community health, 2007

Consequence is defined in term of an impact of the event, how bad it would effect to an organization if it happen. The following table can be used as a guide for determining consequence.

Table 2.8 Example of consequence ranking

Level	Impact	Description
1	Insignificant	Low financial loss, no injuries
2	Minor	Medium financial loss, injury or illness, first aid treatment, on-site release immediately contained
3	Moderate	High financial loss, occupational illness, medical treatment required, on-site release , restoration activities can be accomplished
4	Major	Major financial loss, extensive injuries, permanent part ail of disability, loss of production capability, off-site release with no detrimental effects
5	Catastrophic	Huge financial loss, death, permanent total disability, toxic release off-site with detrimental effect , violate law

Source: Adapted from Clinical Risk Management in community health, 2007

To construct the risk matrix, risks are evaluated against an appropriate risk-acceptance criterion to give a ranking the likelihood and the consequence is translated into the risk assessment matrix. The risks are prioritized to understand the nature and level of the risks, so that they can be managed in an appropriate manner. The benefit of using a risk matrix is that it identifies an organization's risks that need to be mitigated and therefore allows for more cost-effective risk mitigation (ioMosaic Corporation, 2002). This is becoming increasingly important as companies have reduced their operating budgets and have limited resources to manage risks.

Figure 2.12 Risk assessment matrix

Source: Adapted from Clinical Risk Management in community health, 2007

Although there are many risk matrices that have been developed and published, it does not matter which matrix is used as long as consistently using the same matrix. The development and application of risk matrices present their own challenges.

<u>Summary</u>

Risk management is a process to identify, assess, manage, and monitor future un-willing incident and uncertainty. With its' characteristic and capability, risk management provides two profits to the research. First, risk management process can be applied to consolidate indicators. The research can exam key successes factors (KSFs) to define the risks that links to related indicators. The research also can prioritize the risks and indicators. Second, an effective risk management can enable the Mea-hiya community s' decision makers to increase their knowledge about their options in time of uncertainty and mitigate risks of business failure. The community can create a risk monitor mechanism and contingency plan to manage the risks.

2.16 Systems Thinking

The main objective of investigation is to create of a defensive protection system for Thai local traditional knowledge to manage and protect the community's traditional knowledge. Thus, a system approach is required. This section examines the concept of Systems Thinking. First is to define the fifth discipline concept. Next is to explore the concept of Systems thinking, the five disciplines and their elements.

Peter Sange 1998 introduced The Fifth Disciplines: The art & practice of the learning organization. Sange presents a direction to create Learning Organization. Learning organizations can provide work environments that are open to creative thought, and embrace the concept that solutions to ongoing work-related problems are available inside each and every one of us. However, learning organization requires the knowledge management, which gives us the ability to think critically and creatively, the ability to communicate ideas and concepts, and the ability to cooperate with other human beings in the process of inquiry and action (Kenneth, 1993).

The Five Discipline includes Personal Mastery, Mental Model, Shared Vision, Team Learning and System Thinking. According to Sange, he pointed out that the fifth discipline, Systems thinking is the most important part, even if the previous four disciplines must be conducted under the idea of system thinking. There are five disciplines, which must be mastered when introducing such an organization:

1. Systems Thinking: the ability to see the big picture, and to distinguish patterns instead of conceptualizing change as isolated events. Systems Thinking needs the other four disciplines to enable a learning organization to come about. There must be a paradigm shift to inter-connected to the whole, and from blaming our problems on something external, to a realization that how we operate, our actions, can create problems (Senge, 1990).

2. Personal Mastery: Personal Mastery involves being more realistic, focusing on becoming the best person possible, and to strive for a sense of commitment and excitement in our careers to facilitate realization of potential (Senge, 1990). Therefore, companies have to create an environment to encourage

workers to improve themselves. Since the workers excel in their field, they will perform better job, create valued output and solve problem effectively.

3. Mental Model: One of the problems that organization has to concern is how to manage workers' knowledge and belief that come in the same direction with the organization's vision. To complete organization's vision, companies have to adjust people's attitudes. The preferred attitudes for learning organization are to share, to exchange and to learn as a team. The process begins with self-reflection, unearthing deeply held belief structures and generalizations, and understand how they dramatically influence the way we operate in our own lives. People's behaviors are based on what their belief (Senge, 1990).

4. Share Vision: People and organization have to create a partnership sense between them. Sharing vision between people and organization creates supporting environment. When people and organization understand each other's vision, people are willing to work with positive attitude to accomplish the organization's goals as well as their goals. What is needed is a genuine vision that elicits commitment in good times and bad, and has the power to bind an organization together (Senge, 1990).

5. Team Learning: it is a process of developing the ability to create desired results; to have a goal in mind and work together to attain it (Senge 1990). Learning organization needs people to work and learn as a team. Team spirit is the motto of the organization. Everybody must have the same work concept, mission statement and goal. In the team, each worker has to share knowledge and experience to improve task performance, at the same time each one receive new knowledge from team member during working in the team.

2.16.1 Systems Thinking: A shift of mind

This is the most important concept of the five disciplines. Everything in this world operates on system, including the other 4 disciplines as well. Systems Thinking provides the whole vision to look at a situation and to understand relationships between all factors that involved.

Systems Thinking is the cornerstone of how learning organizations think about their world which proposes to view in a holistic manner. It is a discipline for seeing

the structure that underline complex situations and for discerning high from low leverage change that is based on the belief that the component parts of a system can best be understood in the context of relationships with each other and with other systems, rather than in isolation. The only way to fully understand why a problem occurs and persists is to understand the part in relation to the whole by examining the linkages and interactions between the elements that compose the entirety of the system. This advantage helps companies to solve complex problems accurately because they know where the problem is. Thus, the essence of the discipline of systems thinking lies in a shift of mind, seeing interrelationships rather than linear cause-effect chains, seeing processes of change rather than snapshots.

The practice of System Thinking starts with understanding a simple concept called feedback that shows how actions can reinforce or balance each other. Feedback means any reciprocal flow of influence. In system thinking it is an axiom that every influence is both cause and effect. The feedback perspective suggests that everyone shares responsibility for problems generated by a system. There are two types of feedback processes, reinforcing loop and balancing loop.

Reinforcing loop (amplifying feedback) processes are the engines of growth. Small actions can grow into large consequences-for better or for worse. A reinforcing loop is one in which the interactions are such that each action adds to the other. Any situation where action produces a result which produces and promotes more of the same action is representative of a reinforcing loop. The behavior that results from a reinforcing loop is either acceleration growth or accelerating decline. Examples of reinforcing loops are population growth and decline or snow balls rolling down hill.
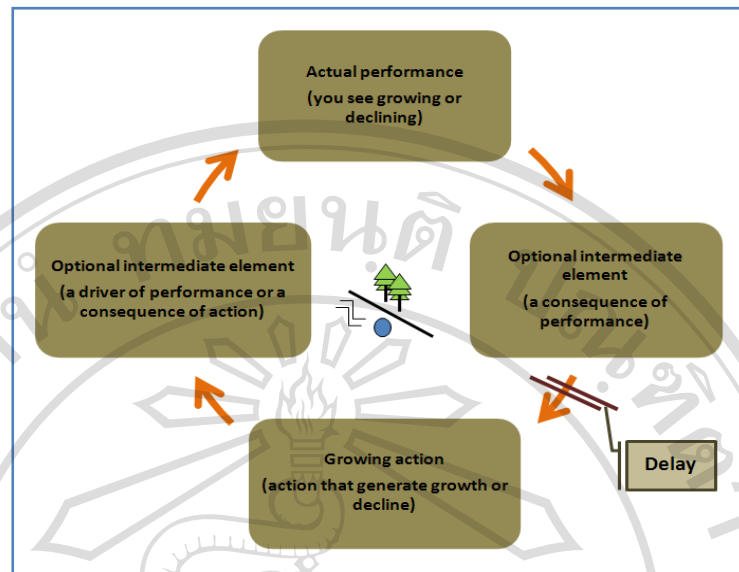
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Figure 2.13 Reinforcing loop template

Source: Senge, 1990

A balancing loop (stabilizing feedback) is one in which action attempts to bring two things to agreement. Any situation where one attempts to solve a problem or achieve a goal or objective is representative of a balancing loop. The balancing loop is seeking stability. It is operates whenever there is a goal-oriented behavior. The desired goal situation interacts with the current situation to produce a gap. The gap adds to the action and the action adds to the current situation. To fill the gap, an action must be performed to get the current situation closer to the desired goal situation. Once the action has moved the current situation to a point where it equals the desired situation the gap is zero, so there is no more action. Typical examples of balancing loops are driving from location A to location B, developing a skill, an ecosystem's balance of predator and prey or fixing a problem.
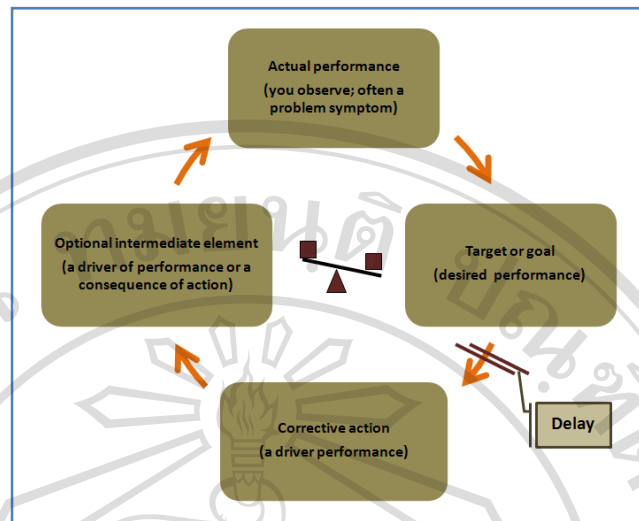
Figure 2.14 Balancing loop template

Source: Senge, 1990

In the system, both reinforcing and balancing loops, delays often occur. Delay is the time consuming between points where the link of current action and goal state indicates some time to play out. Delays happen because they are subtle and always under-estimated altogether. Delay can have enormous influence in a system, frequently accentuating the impact of other forces. Delays can make you badly overshoot your mark, or they can have a positive effect if you recognize them and work with them. For example, in reinforcing loops, delays can lower confidence, because growth doesn't come as quickly as expected. In balancing loops, delays can dramatically change the behavior of the system. People tend to react impatiently and skeptically when delays occur. In addition, removing delays is a key method for speeding up cycle time.

Systems Thinking illustrates that system is separated by distance and time and that small catalytic incident can cause large changes in complex systems. Acknowledging holistic picture of the system and an improvement in one area of a system can adversely affect another area of the system, it promotes organizational communication at all levels in order to avoid the silo effect. Systems thinking techniques may be used to study any kind of system: natural, scientific, engineered, human or conceptual.

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Summary

Systems Thinking provides ability to see an organizations in a holistic manner which is perfectly allied to IC approach (see Table 2.4, page 66). It is a discipline for seeing the structure that underline complex situations based on the belief that the component parts of a system can best be understood in the context of relationships with each other and with other systems, rather than in isolation. The research can gain the profit from the Systems Thinking by using its system archetypes (reinforcing and balancing loop) to presents a defensive system of the Mea-hiya community in a holistic picture. The sub-systems and their relationships can be seen so an organization can encourage the learning process and also solve problems in manner of holistic system. Systems Thinking supports a creation of a learning community. People are set free because they no longer have to be passive players in the equation. People will learn to express ideas and challenge themselves to contribute to an improved work environment by participating in a paradigm shift where there is on hierarchy. Learning organizations foster an environment wherein people can create the results they truly desire, and where they can learn together for the betterment of the whole (Rheem, 1995).