

# Pearl Raising in Guangxi Province and Its Importance to the Local Economy

Wang Yangming<sup>1</sup>

Sastra Laoakka<sup>1</sup>

Boonsom Yodmalee<sup>1</sup>

<sup>1</sup> Faculty of Cultural Science, Mahasarakham University, Thailand

## **Corresponding Author:**

Wang Yangming, Faculty of Cultural Science, Mahasarakham University,

Maha Sarakham 44150, Thailand

E-mail: [wyangming250@gmail.com](mailto:wyangming250@gmail.com)

## **Abstract**

This research adopted a cultural qualitative research method and had three aims: (a) to study the background of pearl raising in Guangxi Province, People's Republic of China; (b) to study the current conditions and problems with pearl raising in Guangxi Province, People's Republic of China; and (c) to study pearl raising and its effects on the economy of Guangxi Province, People's Republic of China. The research area was selected using a purposive sampling method and three sample groups were chosen to provide data for the investigation: six key informants, six casual informants and 68 general informants. Data was collected by observations, interviews, focus group discussions and a workshop. All collected data was validated using a triangulation method and the results are presented here as a descriptive analysis. The results show that China is considered a world leader in the cultivation and production of pearls. Pearls are white, pink and gold gemstones derived from oysters and may be considered the only gemstones to come from animals. The environmental conditions for pearl raising are crucial because any variation may have a disastrous effect on the oysters. Current problems with the pearl industry in Guangxi Province come from a lack of knowledge and understanding of technology. Pearl oysters are animals that have a positive effect on the economy by creating jobs and generating income. They thus have a huge economic and commercial value to the people of Guangxi Province, People's Republic of China.

***Keywords:*** economy, pearl raising, People's Republic of China

## บทคัดย่อ

งานวิจัยนี้ใช้การวิจัยเชิงคุณภาพทางวัฒนธรรมที่มีความมุ่งหมายเพื่อศึกษา (1) ประวัติความเป็นมา ของการเพาะเลี้ยงไข่มุกที่กวางสี สาธารณรัฐประชาชนจีน (2) ปัญหาและสภาพปัจจุบันของการเพาะเลี้ยงไข่มุกที่กวางสี สาธารณรัฐประชาชนจีน (3) การเพาะเลี้ยงไข่มุก และ ผลต่อเศรษฐกิจที่กวางสี สาธารณรัฐประชาชนจีน คัดเลือกพื้นที่วิจัยแบบเจาะจง กลุ่มตัวอย่างประกอบด้วยกลุ่มผู้รู้ด้านการเพาะเลี้ยงไข่มุก 6 คน ผู้ปฏิบัติ 6 คน และกลุ่มบุคคลทั่วไป 68 คน เก็บรวบรวมข้อมูลด้วยวิธีการสังเกต การสัมภาษณ์ การสนทนากลุ่ม และการประชุมเชิงปฏิบัติ ตรวจสอบความถูกต้องของข้อมูลด้วยเทคนิคสามเฒ่า นำเสนอผลการวิเคราะห์ข้อมูลโดยการพรรณนาวิเคราะห์ ผลการวิจัยพบว่า ในปัจจุบันนี้ ประเทศจีน ถือได้ว่าเป็นประเทศที่ติดอันดับต้น ๆ ของการส่งไข่มุกออกสู่ตลาดโลก ไข่มุก เป็นอัญมณี มีสีขาว เงินยวง ชมพูและสีทอง โดยนำมาจากสัตว์จำพวกหอยนางรม อาจจะนับได้ว่าเป็นอัญมณีชนิดเดียวในโลกที่เกิดมาจากสัตว์ กรรมวิธีการเลี้ยงไข่มุกอาศัยวิธีแอบอิงธรรมชาติของหอยที่ว่าถ้ามีสิ่งอะไรแปลกปลอมเข้าไป สภาพปัจจุบันและปัญหาในการเพาะเลี้ยงไข่มุกเป็นปัญหาที่เกิดจากการขาดความรู้ความเข้าใจในการใช้เทคโนโลยี หอยมุกน้ำทะเลเป็นสัตว์น้ำเศรษฐกิจสร้างอาชีพทางเลือกให้เกษตรกรรายได้งาม สามารถเพาะเลี้ยงลูกหอยให้มีอัตราการอดสูง เพิ่มผลผลิตนำมาผลิตเป็นไข่มุกในเชิงพาณิชย์

**คำสำคัญ:** การเพาะเลี้ยงไข่มุก เศรษฐกิจ สาธารณรัฐประชาชนจีน

## Introduction

For many centuries pearl products have played an important role in the practical, ceremonial and religious lives of people in Asia and Europe (Anderson, 2015). As such, they can be studied as a material product of their societies. China is a vast treasure trove of knowledge about pearl products. Historically, China was the earliest country to make use of pearls and pearl products as medical health products and medical cosmetics. Therefore the nation has built and maintained a unique culture around pearls. Pearl products made in China are sold both domestically and in other countries around the world (Fu et al., 2009). Due to the differences in materials, designs, skills and production processes, the use and the purpose of pearls vary. This study focuses on the wisdom in pearl raising for jewelry making, medical health products and medical cosmetics in Hepu County, Guangxi Province, the People's Republic of China.

Seawater pearl culturing is far more difficult than freshwater pearl culturing. Seawater pearls tend to have a better shape, better lustre, and a smoother surface than freshwater pearls (Li & Liu, 2011). The market-value of seawater pearls is therefore usually 10 times more than that of freshwater pearls. Saltwater pearls include the akoya cultured pearls grown in South China Sea waters, especially in the Beibu Gulf, Guangxi, and also along the Japanese coastline. The size of these pearls range from 2mm to 10mm, although 10mm ones are rare. The larger pearls are usually round with surface perfection in white and cream color. The smaller ones usually have an irregular shape and poor surface quality in gray color. South Sea pearls are also produced in some Western Pacific countries, including Australia, Indonesia, and the Philippines. These pearls are the largest of all the pearls, the size of which range from 9mm to 20mm and can be naturally white, cream, or golden in color. The pearls grown in Polynesia are generally from 8mm to 16mm in size. Their natural colors include gray, blue green and purple. Collectively they are also called black pearls (Matlins, 2001).

China is the largest producer of cultured pearls in the world. The country has a long and rich history in pearls from saltwater oysters and freshwater mussels. The region of Hepu and Behai had active marine pearl fisheries as early as the Han dynasty (3rd century AD). Reports of pearl finds in rivers and lakes date back to the 4th millennium BC. But pearl farmers are now faced with questions about their future as they encounter increasing ecological problems and are excluded from industrialization strategies.

Hepu county borders Guangdong Province on the east and faces Hainan Island, Hong Kong, Macao and Taiwan. It covers an area of 2,389 square kilometers with a population of 1,030,000 people. Hepu has a long history. Since the Qin and Han Dynasty, Hepu has been the famous homeland of the South Pearl. There is a well known Chinese phrase, “Hepu Zhu Huan”, meaning the returning of precious things. This is derived from the literal meaning of the phrase (“the returning of the pearl to Hepu”), which came from an episode when an Eastern Han Dynasty official stopped greedy local magistrates from plundering the oyster beds off the Hepu coast. The culture and lifestyle of the Hepu people is inextricably linked to the pearl industry in Southern China.

### **Research Objectives**

The study focused on eleven aspects of pearl production as the basis of analysis: materials, tools, process, identity, evaluation, price, storage, packaging, beliefs, marketing and investment. The objectives of the research were (a) to study the historical and cultural background of pearl raising in Hepu county, Guangxi Province, the People’s Republic of China; (b) to study the current situation and problems of pearl raising in Hepu County, Guangxi Province, the People’s Republic of China; and (c) to study pearl raising and its effects on the economy in Hepu County, Guangxi Province, the People’s Republic of China.

### **Literature Review**

Due to the integrated utilization of seawater pearl in the domestic market, Hepu enjoys its fame in the leading position in pearl industry in the local area, which is mainly reflected in the number of large-scale pearl enterprises, wide variety of pearl products, high output and good economic benefits. There are 18 pearl enterprises in Hepu which are involved in the comprehensive utilization of the pearl, including pharmacy manufacturing, food products, skin care products, and arts and crafts. The important representatives whose main products are considered treasured brands are Zhenzhu Mingmu eye drops, Pear Powder, pearl layer powder, The Oriental Beauty Company’s “noble family” series of skin care products and Guangxi Black Pearl’s “Black Pearl” series of skin care products. Their products are popular among citizens and occupy decisive shares in the domestic market.

In July 1996, China's largest seawater pearl trading market, China South Pearl City, opened in Beihai. After that, the following south pearl trading markets have been built in Beihai: The Beihai Pearl City, Waisha Wholesale And Retail Pearl Market, Hongfan Mall, Beihai Silver Beach Pearl Market and Zhuhai Road Pearl Market. In 1996, hosted by the municipal government of Beihai City, the first "Beihai International Original Seawater Pearl Trading Fair" was held in China South Pearl City. The Beihai International Original Seawater Pearl Trading Fair has also been successfully held in 1991, 1993, 1997 and 2004.

Traditional Chinese medicine combines a variety of treatments, including acupuncture, massage and physiotherapy. "Since 2010, TCM has been considered one of the Masterpieces of the Oral and Intangible Heritage of Humanity for its contribution to maintaining health in Asia" (Andre et al., 2014). Lao-Tzu defined the underlying philosophy of traditional Chinese medicine as "promoting health and prosperity through understanding and adhering to Tao" (Tao is the absolute principle of the universe emphasising the existence of Yin and Yang) (Mair & Tzu, 2012). According to ancient texts and records, including the "Compendium of Materia Medica" and the "Pharmacopoeia PRC", pearl has been used for medicinal purposes in China for over 2000 years (Li & Luo, 2003; State Pharmacopoeia Commission of the PRC, 2008). Pearl has a reputation of being a medicine for treating certain diseases as well as preserving a youthful appearance.

In traditional Chinese medicine, pearl powder is taken internally and applied topically. Used internally, pearl powder is believed to "detoxify the system, clean and clear the skin, remove age and liver spots on the skin, give the skin a younger appearance, adjust the body energy, calm the liver, relieve stress from the mind, treat sore throats, adjust the nerve system, regulate the metabolism, improve eyesight, treat insomnia and energize the body" (Kunz & Stevenson, 1908). When pregnant women and breastfeeding women take it, pearl powder is believed to speed up bone development and promote intelligence in babies. When used topically, 100% pure pearls crushed into pearl powder are famous for keeping skin smooth, soft, and lustrous; it is also used in treatment of open sores, burns, and cuts, as well as being a homeopathic cure for fever.

During the data collection period, the researcher will apply the "constant comparative method" and "theoretical sampling" to determine if the inductive claims from one domain (and at one time) have application elsewhere (Fine & Elsbach, 2000). The theoretical basis for this study is three theories: structural functionalism theory, cultural diffusion theory and cultural ecology theory. Additionally, the symbolic interaction theory and cultural diffusion theory will be considered

during data analysis and inform the research conclusions. The theories concerned are effective in making clear the relationship between traditional pearl raising for jewelry making, medical health products and medical cosmetics and local living or local society.

Structural functionalism, or functional theory, as it is often called, is based on “organic analogy”. This is the idea, developed by early social philosophers such as Comte and Durkheim, that society is like the human body. Just as the body is made up of various parts that need to function together and properly for it to be healthy, so is society. Each part needs to be in a state of equilibrium, or balance. Just as the human body has evolved over time, so has society. Comte believed that social science should be based on empirical observations (Comte, 1876). Durkheim was also concerned with how social systems are integrated and hold themselves together (Durkheim, 1973; Kingsbury & Scanzoni, 1993). “Analyzing social systems involves developing a system of concepts that, first of all, captures the systemic feature of society at all its diverse levels and, second, points to the modes of articulation among personality systems, social systems, and cultural patterns” (Turner, 2012).

Julian Steward’s major contribution was his approach to the development and changes of culture. He called it the theory of cultural ecology, or “the study of the processes by which a society adapts to its environment” (2006). This theory explained how cultures and its institutions should be analyzed as environmental adaptations. The environment he referred to encompassed a broad field of variables, including such aspects as terrain, surrounding materials, and other social groups. Steward also referred to a culture’s “core”, which is the combination of cultural features that intercedes humans and environment. These features are vital for subsistence and basic economy and might include aspects such as political systems, subsistence practices, and technology. According to the theory, it is the dynamic relationship between that environment and culture core which explains the evolution of a society. Cultural ecology examines that relationship and attempts to “determine whether similar adjustments occur in similar environments” (Haen & Wilk, 2006).

The concept of satisfaction, put forward by Bronislaw Malinowski (1939) and “the latent function” put forward by Robert King Merton (1968) imply that behavior and activity of local farmers and surrounding people as well as the essence of pearl raising in Hepu county, Guangxi Province People’s Republic of China lead the industry. By contrast, the eco-cultural theory claims that cultural change of local pearl raising and pearls products in local society and local lifestyle are determined by the suitability of the surroundings, both cultural and environmental.

The cultural diffusion theory offers a clearer significance for pearl farming, caused by development of pearl raising for jewelry making, medical health products and medical cosmetics. Prior research has suggested that the primary purpose of pearl products is to decorate the wealthy (Chadour-Sampson, 2013). However, pearl has been used in health products for local people for centuries. Though today the ways of uses and aims of production have changed, pearls remain an essential item for local people. They bring positive economic benefits to the local society and satisfaction to the local people. The pearl products serve a function as a traditional craft and a product for marketing in other countries. Therefore, they exist as a symbol for local societies.

### **Research Scope**

Data for this study was collected in Hepu County, Guangxi Province, the People's Republic of China. Hepu Seawater Pearls (Hepu South Pearls) were purposively chosen for this investigation. Hepu South Pearls are cultivated in the Beibu Gulf, which is located in the South of Guangxi Province, the People's Republic of China. A significant number of rural farmers are involved in pearl raising and associated occupations in this area. Moreover, the Hepu Pearl has become so popular that it represents the South Chinese pearl industry. Consequently, Hepu is a prosperous area thanks to seawater pearl cultivation. A seminar was held to discuss how the local environment has been changed by the industry, how pearl raising and pearl products would continue to influence the area and how the industry could be developed in harmony with the local environment and economy.



### Research Methodology

This investigation lasted one year from September 2014. The timetable of research is as follows:

	2014	2015	Location
Documentary data collection	September to December		Thailand
Field data collection		January to March	China
Data analysis		April to June	Thailand
Data report		July to September	Thailand

*Table 1.* The research timeline

The research population was made up of three groups from the research sites in Hepu County Guangxi Province, the People's Republic of China. The purposively selected sample consisted of 80 informants, who were categorised into three groups: key informants (n=6), casual informants (n=6) and general informants (n=68). The six key informants were government scholars and academics in higher education institutions with no direct financial link to the pearl raising business or domestic economy. These individuals could provide in-depth informed and impartial opinions on the distribution of wealth and development of the pearl market in Guangxi. The six casual informants were employers and owners of private pearl companies who had a direct interest in the growth of the domestic and international pearl markets. The general informant group of 68 individuals was composed of pearl consumers, pearl farmers and members of the general public in Guangxi Province. The field research was conducted through formal and informal interviews, observations and focus-group discussions with the sample population.

The first phase of the research was collection of related data from documents concerning local geography and environment, local history and important events in the area, local identity (way of life, religion, traditions, language, arts and crafts and social norms) of Hepu County Guangxi Province the People's Republic of China, lists of the natural and cultural heritage of the locality and local wisdom and technology of pearl products in Hepu County. For phase two, the research team conducted interviews and observations in the study area. A basic survey was first conducted to establish the local population development process of Hepu area, local geographical conditions and surroundings, local climate terrain and local social, economic, cultural, sanitary and educational conditions. Interviews were then con-

ducted. There were two types of interview: the six key informants attended formal, structured interviews and the remainder attended informal, unstructured interviews. Structured interviews asked specific information of the target group in order to answer the study's objectives. Unstructured interviews did not limit the discussion topics, allowing the research team to discover further issues and analyze their meaning. The interviews focused on the role of the community, local wisdom and the creative economy. The study used direct observation and continuous monitoring of farmers and related labourers at work to gather further data. The researchers were able to focus on the essence, the meaning of existence and cultural changes caused by pearl products by conducting participant and non participant observations of activities and behaviors of the local farmers and surroundings in the study area. A focus group discussion was then organised to determine the perceptions, opinions and attitudes of local people towards creative economic management, its benefits and ideas on the development of local wisdom in the target area. Questions were asked in an interactive group setting where participants were free to talk with other group members.

The research results were drawn from three research questions as follows: (a) What is the historical and cultural background of pearl raising in Hepu county, Guangxi Province People's Republic of China? How does the cultural and historical background of pearl raising in Hepu county, Guangxi Province, the People's Republic of China influence the development of the pearl industry in China as well as in Hepu?; (b) What is the current situation and problems of pearl raising for jewelry making, medical health products and medical cosmetics in Hepu County Guangxi Province, the People's Republic of China?; and (c) What is the body of traditional knowledge concerning pearl raising for jewelry making, medical health products and medical cosmetics in Hepu County, Guangxi Province, the People's Republic of China? The local knowledge is derived from the functions of each pearl harvest, which of course impact upon the local society and add to the identity of pearl products. The added value of pearl products is affected by the local way of life and local identity. Similarly, the benefits of pearl farming are reflected in the local society.

The data was categorised and analysed typologically in order to assess the behaviors and practices influenced by communal beliefs and the role of leaders in indigenous knowledge edification. The categories were: (a) Acts: The event, situation or practice, which temporality occurs; (b) Activities: Events/situations/or culture and ritual practices, which continuously occurred and related to people; (c) Meaning: People explain and provide a meaning to behavior or activities. This meaning related to vision, beliefs, definition and norm; (d) Relationship: The relationship among people in the community. It could be studied in the terms of prefer-

able relations or conflicts; (d) Participation: People participate in the activities and were able to adapt themselves to any situations; and (e) Setting: The environment or situation, which occurred during the study.

This study used a grounded theory, which refers to a theory that was developed inductively from a corpus of data. The basic idea of the grounded theory approach was to read (and re-read) a textual database (such as a corpus of field notes) and identify variables (called categories, concepts and properties) and their interrelationships. The ability to perceive variables and relationships is termed theoretical sensitivity and is affected by a number of things, including the researcher's reading of the literature and use of techniques designed to enhance sensitivity (Strauss & Corbin, 1998). The elements of this study's data report were: (a) phenomena; (b) casual conditions; (c) context; (d) intervening conditions; (e) action strategies; and (f) consequences.

## Results

### **The Historical and Cultural Background of Pearl Raising in Hepu County, Guangxi Province, People's Republic Of China**

This study found Hepu pearls to be significant in both past and present societies. Hepu pearls are also called Southern pearls or South China Sea pearls. They have been the most highly regarded pearls in China for over 2,000 years. The Beibu Gulf is in a subtropical area with a warm and humid climate and has an optimum climate for the cultivation of Southern pearls. The Beibu Gulf seabed along Hepu County can generate spring water, which can temper the salty water and make a suitable environment for the growth of the pearls. In an old historical document named "*Guang Dong Xin Yu*" written by Qu Dajun who lived during the late Ming Dynasty and early Qing Dynasty, it was written that Western pearls are not considered as good as the Eastern pearls, and that the Eastern pearls were not as good as the Southern Pearls (Zhang, Zhang, Li & Liang, 2014).

Rapid growth in Hepu County started more than 2000 years ago with the accumulation of South Pearl culture. In the Hepu area, many ancient mysterious tombs have been found, most of which were from the Han Dynasty and confirm Hepu as one of the first ports of origin on China's ancient "Marine Silk Road" (Hong-bo, 2012). Hepu pearl has always been famous for its large size, roundness, translucent silk-white color, smoothness and shininess, as well as its exquisite quality. As precious and renowned as it is, Hepu pearl is made into necklaces, rings, ear-

bobs, pins, and other pocket decorations. More importantly, Hepu pearl has a high medicinal value, the powder of which can soothe the nerves, treat hypertension and falling sickness. According to historical documents, the first recorded use of Hepu pearl was during the Han Dynasty (206BC-220AD), and it has been used as an article of tribute to the palaces through the years. During the Ming Dynasty (1368-1644), the production of Hepu Pearl reached its peak, and the “Pearl City” was set up to explore and cultivate Hepu Pearl.

The technology of freshwater pearl culture was developed in China some 2,000 years ago. However, commercial freshwater pearl culture dates back only to the late 1960s and early 1970s. Gradual changes in technology and, most importantly, in the type of mussel used, resulted in the production of greater quantities of larger and more lustrous round, near-round, and baroque cultured pearls with a variety of colors (Dan & Ruobo, 2002). Though Hepu pearls are recognized as components of traditional products, they serve an important function in local society as ingredients of medical health products and medical cosmetics. This has both negative and positive consequences.

### **The Current Situation and Problems of Pearl Raising in Hepu County, Guangxi Province, People’s Republic of China**

Both pearl raising and pearl product transformation have positive effects on the local economy. It stands to reason that the local farmers make their income by pearl raising, producing and marketing. Besides this immediate benefit, there is the potential economic effect of advertising. In China today, Hepu pearls have already become a synonym for China seawater pearls and this has given the Hepu pearl a strong impact, both at home and abroad. Therefore, there exists a vast commercial opportunity in advertising for pearls and pearl products. In addition, Hepu pearl is a local specialty and traditional handicraft, which can be an attraction to domestic and international tourists in its own right.

In recent years, huge development have been made in the pearl industry in Hepu County, but there are still many problems, mainly reflected in the following aspects. Firstly, the cultured pearls in Hepu are not standardized. There is therefore a low level of technology, content and yield. This is mainly due to the pearl farmers’ awareness of science and technology and its management. The backward mode of aquaculture and the deterioration of marine environment are also to blame. Secondly, the original pearl processing level is relatively low because of the processing capacity. At present, there are only three scale manufacturing workshops for

pearl processing in Beihai city. The rest are mainly household workshops which are small scale, in poor technological condition and lack processing capacity. Not only due to the local price of pearls, but also the small scale of the enterprises, the local self-production and sales of the original pearl remain depressed. This is also owing to poor processing and comprehensive utilization of local resources. The above are the main reasons that have led to lower prices of local original beads and also a market downturn. The local pearl farmers provide the market with their products but the market rebounded little profit, which, of course, will not only attack the enthusiasm and motivation of the pearl farmers but also do harm to the development of Beihai Hepu pearl industry.

Thirdly, pearl trading markets are not standardized, which leads to shoddy pearl branding. After 40 years of development, the Hepu south pearl industry has gradually developed its pearl breeding, processing and management of resources, thus shaping the industrial chain of pearl products. At present, Beihai has not yet formed a centralized and standardized pearl wholesale and retail market, or an original pearl marketing system. In Beihai, the shortage of scientific breeding technology standards as a guide and the lack of quality classification and evaluation of uniform standards have led to vicious price competition of pearls and pearl products. Moreover, pearl prices are seriously out of control. High prices and the “dishonest discount phenomenon” shows that the entire Beihai pearl market is in a disorderly state. Fourthly, the pearl market competition is fierce, which mainly comes from outside. At present, The Shenzhen (International) Pearl Trading Market, which covers a total area of 2,300 square meters has been opened in Beijing, with additional trading centers in Hongqiao, whose aim is to build China’s largest pearl trading market. In addition, Japan is also actively supporting the development of the pearl industry in Southeast Asian countries, especially Vietnam, to shake the position of Chinese sea pearls in the international market.

### **Pearl Raising and Its Effects on the Economy in Hepu County, Guangxi Province, People’s Republic of China**

According to Mr. Lin (59), a Chinese Hepu Pearl technician, “although the Hepu pearl industry is confronted by difficulties and inevitable competition, the sea water pearl breeding advantage still exists. Under the leadership of the local government, the Beihai industrial structure adjustment is underway, which will do good to the development of the pearl industry and further improve and promote the tourism industry in Beihai.”

The relationship between pearl industry results are divided into the core layer and the outer layer. The core layer includes breeding, processing and sales, including the breeding and cultivation of seedlings, pearl processing, bleaching, coloring and polishing, series production and deep processing of products such as pearl powder, cosmetics, pharmaceutical products and jewelry. At present, pearl jewelry is an international trend and has good development prospects. According to Mr. Chen (57), a businessman at Hepu South Pearl Market, "Pearl industry production involves many aspects, which are mainly: breeding, processing and sales. Before 2007, there were more than ten thousand acres for pearl breeding in Hepu, but by the end of 2007, the total breeding area went down to only about two thousand acres." This happened mainly due to the natural disasters and also economic breeding efficiency when compared with fish breeding and other aquaculture industries. In addition, affected by the international economic environment, the downturn in pearl prices led to the decline in the quality of pearls. Pearl farmers harvested their pearls early or even sold their crop because the risk of culturing pearls is much larger than seafood. Therefore, many pearl farmers lost their faith in pearl farming and chose to quit. In more recent years, pearl farming technologies have signalled progress but the effect on the pearl farming economy is not yet obvious. The high density of sea farming, food competition and the growing pollution of the farming areas are all to blame for the inevitable decline in both the production and quality of pearl farming. Moreover, the farmers do not update their farming technology and do not realize the importance of regulating their operations, electing to maintain traditional farming practices. In fact, research results indicate that the biggest beneficiaries of the pearl market are the business owners and large-scale traders. Individual farmers were generally operating on low incomes with minimal prospects. The working hours were long, conditions hard, financial reward unsatisfactory and job security low. By contrast, developments to machinery over the last decade have helped big business owners minimize their workforce and thus reduce costs. There is a benefit gap between the richest and the poorest, with the pearl farmers seeing far less comparative benefit of Hepu's international reputation than their employers. The lack of education for farmers and the reluctance to invest in improved tools and equipment ensures that this situation remains.

The natural environment of Hepu is a tangible resource for the continued development of pearl farming in the region. The area is richly endowed by natural geographical resources, such as water temperature, pH value, food ingredients, submarine undercurrent and sand composition. The year-round water temperature is at the optimum 18-35 degrees Celsius and there is proper freshwater input, suitable salinity and small sea waves. Nevertheless, regarding equipment and other physical resources, there is little advantage in the local area, because most of the advanced equipment and auxiliary materials are produced in Japan.

There are other intangible resources that aid the development of the pearl industry in Hepu. The “South Pearl” brand has a long history of several thousand years. It has a special status in the world and is an influential part of local culture. Due to the lack of macro guidance in the local area, leading technologies are not so popularized in the local pearl industry. Although the processing technology is not superior in Hepu, in 2009 a pearl industry breeding technology standard was established. At the same time, some famous brands were founded in the fields of Beihai, such as “Pearl Palace”, which is an intangible and precious resource for the South pearl industry.

Pearls, as high-grade consumer goods, are not easy to preserve. Their sales are vulnerable to the impact of the economic environment. Therefore, the sales depend totally on the market. When the economic environment is good, it drives the market purchasing power, so the sale of the pearls and pearl products increase significantly. However, when the market is in a period of downturn, sales decrease sharply, for example in 2008-2009, when the world economic downturn caused pearl sales to directly declined (both exports and domestic sales). In addition, pearl jewelry products have their own characteristics and special operating system. Though the system offers the pearl merchants great sale and a higher gross margins, the net profits are not high. In addition, the national consumption tax levied on jewelry processing enterprises directly leads to increases in the total costs of pearl enterprises. Therefore, the development of the domestic economic environment has had a negative impact on the pearl industry. In response to this, there must be a special economic policy to support the South pearl industry and its development.

Currently, there has been an increase in investment in breeding technologies. This has been aimed to cultivate new varieties of *inctada maxima* Jameson, to improve the breeding quality of the South pearls and enhance their ability to withstand natural disasters. Previously the Japanese introduced the *pinctadamartensii* from China, crossbreeding with Japanese pearl oysters. This achieved great success. Domestically, there have been no breakthroughs in genetic breeding technology. The processing technology in Japan is mature, so Japanese enterprises import large quantities of foreign pearls. After they have been processed, the imported foreign pearls can be seen in Britain and other international pearl markets, which offer the Japanese high profits. It is predicted that by 2015 Japan's import of foreign pearls will reach 250 tons. In China, although some enterprises have introduced and further developed processing technology, key features remain controlled by the Japanese, such as the formulation of raw materials and polishing materials, which still have to be imported from Japan. As for deep processing products, enterprises in China have great potential to become a new economic growth market for the Hepu South Pearl industry.



Pearl products come from pearl raising. Cultivation of pearl oysters must include the participation of the local community. People in the area value the traditions of the community and the natural environment. Therefore, the local community values the relationship between nature and society. For example in Beihai city, the pearl festival is held annually to express good wishes for the pearl harvest. Thus, both pearl raising and the making of pearl products are important connecting joints between nature and human beings.

### **Discussion**

Based on the results, the following principles must be discussed and taken into consideration when marching towards the goal of sustainable development of cultivation of Hepu South Seawater Pearls: (a) maximize the benefits of sustainable cultivation of Hepu South Seawater Pearl raising for jewelry making, medical health products and medical cosmetics of Hepu South Seawater Pearl development; and (b) Mobilize the development of local wisdom.

Hepu South Seawater Pearl products are recognized as traditional pearl products in markets both in and outside China. The objectives in both producing and marketing are considered as two sides - traditional crafts and industrial products. This is a conflict for local farmers. Therefore, under the circumstances of the historical and local cultural background, one question must be considered: how will local pearl raising for jewelry making, medical health products and medical cosmetic of Hepu be developed? Moreover, living norms need creation and development. Human societies constantly need new wisdom and modern technology to improve lifestyles. If creation stops, the community will wither (Musigakama, 2000). It is difficult for the local farmers to balance the traditions and the new techniques.

Hepu seawater pearl products have been created from local lifestyles. There is nothing special in the material used in the pearl products, other than the Hepu South Seawater Pearls and the related Hepu South Seawater Pearl products. Although Hepu pearls are popular around the world, the backward breeding technology and the lack of the market development has led to its decreasing share in the international pearl and pearl product market.

In July 1996, China's largest seawater pearl trading market, China South Pearl City, opened in Beihai. After that, the following south pearl trading markets were also built in Beihai: The Beihai Pearl City, Waisha Wholesale And Retail Pearl Market, Hongfan Mall, Beihai Silver Beach Pearl Market and Zhuhai Road Pearl



Market. In 1996, hosted by the municipal government of Beihai City, the first Beihai International Original Seawater Pearl Trading Fair was held in China South Pearl City. Thereafter, The Beihai International Original Seawater Pearl Trading Fair was successfully held in 1997 and 2004. In May 2010, the Beihai Pearl Fair, which was highly valued as the most precious treasure of Guangxi in the Expo, was invited to the Shanghai World Expo, which gave Hepu South Pearls an international platform. Beihai has become a major domestic seawater pearl and pearl product trading center. Of the total annual sales volume of seawater pearls in the domestic market, Beihai shares 50%, which makes it a veritable “Pearl City”. However, the development of culture, of the ideas people live with, is a steady process, always on the move, and to begin its story from a certain date is arbitrary indeed (Mulder & Coppolillo, 2005).

Social identification leads to activities that are congruent with the identity of Hepu pearl products. Such activities generate support for institutions that embody the identity and reinforce stereotypical perceptions of the products, their creators, their consumers and the associated lifestyle. This reinforces the antecedents of identification (Ashforth & Mael, 1989). It seems that a special product has come out from the local identity - Hepu South Seawater Pearls. Although the form has changed over the years, the character has remained and is handed down through the Hepu pearl products.

Hepu pearl products are easily affected by the cultural and historical background, as well as the behavior and activity of the local community. Steward's cultural ecology theory is directly related to cultural evolution, and it is argued that each social group moves along its own evolutionary path according to the group's core features and environment (Steward, 1969). This study considers that cultural change materializes under a specific environment, which includes cultural and historical background.

In this study, the 11 aspects of Hepu pearl products (materials, tools, identity, evaluation, price, storage, packaging, marketing, investment, process of producing, and beliefs) were found to be deeply involved in the local society. The patterns or designs of pearl products reflect ages and social conditions, especially the local culture. In the study area, the patterns have changed. Consumer needs are fully considered, which is an important factor in marketing. Additionally, the materials for making pearl products are closely connected with the local climate and environment. Zane Ma Rhea (1995) stated that ‘local wisdom is the outcome of certain processes of thinking.’ Hepu seawater pearls have developed with the times and built up their own cultural value, which has provided a strong basis for local wisdom and knowledge. As a result, the activity and behavior of the local farmers have led their development.

Hepu seawater pearls have added value and boosted the local economy. In the wake of changes, essence and meanings also have changed and Hepu seawater pearl products are used in many fields. Nevertheless, even though the essence and form have changed, they still carry their original cultural significance.

Local farmers do not consider pearl raising as something special. Their involvement in the creation and use of pearl products is their daily life. Though they are proud of their local wisdom in pearl cultivation and encourage development, they openly criticize the present sensation. Farmers in the study area said ‘the development of pearl products make more people understand Hepu pearls. Hepu seawater pearl is an upscale brand that needs a fire lit under it.’ There is no doubt that the added-value of local wisdom in pearl cultivation and the development of pearl marketing contribute to the development of local society. Though the locals recognize this, they are not inclined to actively alter the current situation.

This study has identified the significance of local pearl products. Hepu seawater pearl products develop new meaning to adjust to social change. Similarly, local people adjust to environmental changes. The actions or activities vary with the position of people. In other words, it is for this reason that Hepu county exerts a favorable influence upon the local society and is called a symbol.

## **Conclusion**

In the past, local pearl products were still regarded as a treasure for the local people, which were closely related to everyday life, including cultivation, processing, usage and wearing as accessories. In recent years, the uses and aims of the pearl products have been diversified. They are essential items for local people. What matters is that they bring positive economic benefits to local society and satisfaction to the local people. Local wisdom in pearl raising for jewelry making, medical health products and medical cosmetics is considered as a function in traditional craft and a product in international marketing. Therefore, pearls serve as a symbol for local society.

## **Recommendations**

### **Recommendations for Application of the Research Results**

Hepu seawater pearl raising and product processing are endowed with and recognized as cultural value and traditional products with their own characteristics. Considering the practical usage, their value is positive. Though they are today treated as high-class products, pearls have also been very popular in people's daily life activities. In the past, the practical usage of pearls and pearl products were not regarded as so important. Nowadays, the substantial high quality is a must for a high quality pearl products. Therefore, quality control must be tightened for products to retain important commercial and cultural value.

Though the characteristics of pearls has been investigated from every point of view, local people instinctively notice the positive qualities of the pearls in relation to nature. This local experience must be drawn upon within the pearl industry and their should be closer links between communities and producers. Moreover, employers and business owners should ensure that farmers and general workers experience the benefit of the enhanced reputation of Hepu pearls. This can be aided by education, training and professional development programmes.

### **Recommendations for Further Research**

The researchers recommend that future research should consider:

- Advanced research of pearl raising for jewelry making, medical health products and medical cosmetics;
- Commercial added value of Hepu seawater pearl products;
- The relationship between the environment, local pearl raising and the pearl industry;
- Preservation of folk traditions through research of local wisdom in pearl raising for jewelry making, medical health products and medical cosmetics; and
- Contributions of the pearl industry in other fields.

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