

Science in kitchen building substantial management- Tengjih National Forest Recreation Area

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ABSTRACT

The national forest has faced strictly problems by illegal or legal destroy from artificial factors which caused serious hazardous landsliding. Most of deforestation by the aboriginal people is trying to expand the land to produce much more products for economic interests. Field works of the forest recreation area, depth-interviews with residents and restaurants' owners, and theoretical analysis of the factors were used. Culinary innovation was applied in kitchen and services on improvement it. The raw materials were obtained from existing local agriculture products. The innovation patterns have implication for public policies as well as for local restaurant opening new opportunities for business without cutting existing tree to plant other new tree or vegetable which both community and creation area can prevent environmental disaster and sustainable management. The model of sustainable management connecting with agriculture, tourism, and culinary service was built.

Keywords: *substantial management, innovation, culinary gastronomy, culture heritage*

INTRODUCTION

Tengjih National Forest Recreation Area with 770-hectare is located in, Baoshan Village Taoyuan Township, Kaohsiung City and its altitude from 500 to 1804 meters. The area has a proper temperature around 18-21 °C through the year and has steep terrain, dense forest, and enclosed landscape to make visitors feel as if they have stepped into another world. At the top of observatory 1804 meters, visitors can enjoy a grand view of magnificent mountains around Yushan, the Central Mountain Range, and Beidawu Mountain and are able to view a sea of clouds as foggy as a fairyland.

The tree varieties on the ridge are mostly Taiwanese precious tree Azalea, Chinese Guger Tree and Taiwanese Apple. With colorful flowers and leaves are changing with seasons. Inside the area is living with various wild animals, mammals (such as red-bellied squirrels, white-faced flying squirrels and Formosan rock monkeys) and more than 56 varieties of birds. Among songbirds, the yellow tit is the most notable bird and is easy to sight in this area.

The recreation area provides a very good place for visitor one –two days trip in southern Taiwan. Most tourists came to here for mountain climbing, hiking, sightseeing, bird-watching, butterfly-watching, moth-watching, and flower-observing and researching nature. Walking along the linked trails, visitors can feel both the intellectual and emotional experience of this sightseeing area very enjoyable.

Tengjih Villa and Visitor Center, and 25 restaurants nearby Baoshan Village have afforded food and accommodation services for the tourist to eat and stay. Restaurants are most owned by the local residents.

Because more and more tourists came to visit and it's bring opportunities to residents expanding

their business, the residents have had massive investment in development of mountain reservation land construction guesthouse, deforestation to plant coffee tree, vegetable and tea. The national forest has faced strictly problems by illegal or legal destroy from artificial factors. Deforestation is the most important action caused serious hazardous landsliding. Most of deforestation by the aboriginal people is trying to expand the land to produce much more products for economic interests. It was caused much more concern from the forest service and people of ecological conservation.

Morakot hurricane hit the recreation area in 2009, Baoshan Village, and nearby communities. People's livelihood has been seriously affected and the recreation area must be closed at least two years. During the period, the forest service considered it was the right time as reconstructing the recreation area as teaching residents a proper attitude for environmental protection and keeping local community sustainable development. Using science in kitchen and culinary service innovation was one of policy to meet both ends such as the needs of residents and the requirement of the forest service.

Previous studies have indicated innovation playing a key factor for succession of business. The restaurants using culinary gastronomy has well developed and successive in city such as Ferran Adria El Bullit or restaurant wd-50 in New York or Blumenthal's Fat Duck near London (Hill, 2009; Silviya *et al.*, 2007). But little information is valuable on integration the culinary gastronomy with local farm products, cultures, eating habits, and lifestyles. The effects of culinary innovation on national forest sustainable management were interested to drive my concerns on the issue. Specially, taking into account the culinary innovation aspects with tourism based functional food experience which could involve culinary tourism.

Supply chains are caused it changing from a production to a customer demand. The supply chain is evolving towards new developments in market structures as a consequence of globalization, supply chain integrity, food safety competitiveness. Key technologies such as biotechnology, ICT tools, e business, robotics, nanotechnology are having an increasing influence in the sector; and finally, the new and future regulations and policies are subject of debate among the public and have a strong influence in the sector evolution (O Mahony, 2004),

This work marks the first step in our research line in culinary innovations which are used for the residents to cook with materials from their current farm products to prevent cultivating forest to plant other trees or vegetables.

Culinary is defined as something related to or connected with, cooking or kitchens is defined as a manner of preparing food, a style of cooking, by an approach to blend science and art (Hill, 2009; Hervas-oliver, 2009). Culinary arts are a central element of the cultures and everyday life for people all over the world (Manniche, 2007).

The objective of this paper is to analyze the innovation cuisine processes and models linked to the national forest sustainable management, culinary activities as well as the actual science based culinary. The paper will be organized in the following way. First, a field work and depth-interview with the residents and local restaurants are to realize problems for them to put business on the right track. Following, science is used to the culinary with materials from local farm products. Then, a proposal of the innovation paradigms of the culinary process was expanded to local restaurant. The paper has concluded with conclusions and proposals for future research.

MATERIALS AND METHODS

Field works of the forest recreation area, and depth-interviews with residents and restaurants' owners were firstly used to realize government forestry policy as same as current status of villages,

culture heritages of tribe, and the key factors for management of local restaurants.

Following by theoretical analysis of the factors has effect science in kitchen and culinary service innovation on improvement it. Three sessions of group meetings discussed with residents included the village head, elder, township members to previous work on the related plan and communication to the residents. Prior communication is to reduce misunderstanding and to let local communities understand their dependence on the forest recreation area. It is helpful to reach common consensus that prosperity community needs to cooperate with forest sustainable management.

Depth-interview was used with the residents and restaurant owners to understand their expectations for coming community renewal. A set of problems (Cathy, 2003; Hervas-oliver *et al.*, 2009) that included many facets as (1) government regulations: health-care insurance, rising minimum wages, taxation, insurance costs, legal liabilities, aboriginal reserve land development restrictions, interference, smoking bans, workers compensation, paperwork, property tax, estate tax, payroll tax, obesity; (2) food issues: food innovation, food processing, new product, food safety, food sanitation, food costs, food trends, food quality, nutrition, food allergies, food handling; (3) economy: slow economy, labor-pool shortage, seasonality; (4) competition: competing with chains, dropping sales; (5) marketing: sales management, customer attraction, customer service, customer retention, advertising, industry Image, customer expectations, customer satisfaction; (6) operations: purchasing and vendor quality, IT advances, maintaining physical equipment, menu pricing, administration work, organizational structure; (7) accounting: labor costs, cost controls, profit, utility cost, cash-flow management, rent cost, financing, cost of sales, product waste, equipment cost; (8) human resources: employee skills, benefits, motivation, retention, recruiting, training, compensation, interest in industry, immigration, loyalty and satisfaction, interpersonal conflicts;. The number of 22 reviewers was volunteers from local totally 25 restaurants. We explained clearly every question to interviewers before they answer the questions.

Science was used the culinary with materials from local farm products. Analysis the innovation cuisine processes and models linked to the national forest sustainable management, culinary activities. Then, a proposal of the innovation of the culinary process was expanded to local restaurant.

RESULTS AND DISCUSSION

1. Status of community development and forestry

Baoshan village and Taoyuan Township have abundant agricultural products, such as plum, awkeotsang, papaya, cabbage, ginger, mango, peach, Tianshan snow lotus potato, ashitaba, hericium, taro, millet, pears, and red meat plum. The residents have no enough knowledge or training to use local raw agriculture products to produce something that can attract tourists. So they transported the food far away from other places. It made not only the cost too high also the food no local distinctive characteristics. In the condition, these lead the motivation of residents to has planned reclamation mountain reservation land to grow other fruits and vegetables to meet the needs of their restaurants.

From government policy, the sound reclamation mountain reservation land is better for the forest park sustainable management. Food science and technology, and marketing management were integrated with these local farm resources and culture heritages to make a variety of local specialty products. The tribe of village has owned rich culture heritages such eat customs, clothes, and head decoration for make up. The distinctive cooking is lithographic barbecue and lavilu wrapped with millet or glutinous rice which is effective with digestive.

Culinary innovation is combined with technological innovation, social and cultural innovation, and

then restaurants used these local farm products to create new customer demands responding to social changes. According to a previous work, ecological, environment protection, and global warming have had a strong influence in shopping, cooking and eating habits (Earle, 1997). In this study it is to use local available farm products to create new products with local characteristics. The residents do not need to cut down the old trees to grow others fruits and vegetables for economic gains.

The residents could develop their own distinctive food and gifts from the local farm products. Culinary innovation created new added values to the farm products. This study found that marketing of its distinctive food and gifts can create more business opportunities and economic gains for the local communities.

2. Key issues of residents and restaurant owners

The respondents did not speak with one voice on key issues concerning food service. Owners were asked to think about the one or two issues or problems that they find themselves worrying about most or wishing that they had a better way of improving community development and the forest sustainable management. After reading all of the responses, we developed several groupings that reflected categories of concern, and within these broad areas we identified specific sub-issues.

(1) Government regulations

Government regulations and food issues were by far the most prominent concerns for restaurant owners and residents. The respondents showed considerable antipathy to government regulations, particularly those relating to limited cultivation and legal to use the land. One common issue was that the residents and owners were convinced that regulators do not understand the resident's distinctive challenges.

Owners did not have problems of property and payroll taxes. But they have issues of smoking bans, rising minimum wages, and workers compensation expenses. Government agencies were viewed as lacking a clear understanding of the restaurants operating problems or the reasons why restaurants typically fail. Some of restaurants' profits are not keeping pace with the current annual increases in expenses stemming from regulation and price of materials.

(2) Food issues

While other issues compare with government regulations, the respondents were cognizant of the need to expand markets and handle food carefully, among other concerns. Owners identified a variety of food related issues. A common sense of food-issue responses involved the culinary innovation, food safety, and the category comprising supply, preparation, cooking methods, storage and serving arts. The first serious thing was almost all owners had no experience in processing coffee fruit to coffee bean but they looked forward to planting coffee tree just because drinking coffee is a public movement in Taiwan and coffee can make money for them. Another thing was to protecting the food supply from the field to the restaurant, and incorporating safe food practices into restaurants to prevent accidents or illnesses which were noted by many respondents. Some owners spoke with some alarms about current farm practices while others suggested that preservation and diversification of domestic farm production and stabilizing its harvesting were important issues. Still others identified the challenge of maintaining food safety standards with restaurant owners.

Food sanitation was mentioned how to prevent contamination, while some expressed concerns about food-borne illnesses and how best to manage public relations and determine whether procedures

were the true cause of a complaint. Making HACCP work in various restaurant contexts, such as high-volume white-linen operations that don't use frozen or pre-made foods, was another example of a food issue that challenges the owners. Identifying foods from transgenic components is yet another worrisome issue.

Nutrition was noted in the trend of food such as development of healthy foods and exploring alternative cooking methods. The balance between improving product quality while operating the fresh local products and the complexities of storage were noted in particular. Another recommendation is that food service is a profession and not something waiting for your life to begin or as a fall-back job. In summary, culinary innovation was the most critical issue in this area, coming with food safety, food sanitation, and handling, as well as controlling food costs, food quality, and nutrition.

(3) Economic issues

All owners cited economic issues were hampering their abilities to initiate expansion plans that are warranted. They were worry about the outcome of the external realities of the current economy affect consumer's ability. The economy is troubling, but is difficult to change. As a consequence, owners can control only by viable approach for handling this challenge. Along with a distressing economy are the dynamics of competition, including franchising, branding, maintaining increases in same store sales, and pricing behavior. Increasing sales in highly competitive markets during difficult economic times is the sales-management challenge.

(4) Competitive issues

Two types of competitive issues in the survey were competing and dropping sales. Several owners have noted the challenges of competing against the large, multi-brand. Finding the right niche and maintaining a reasonable profit margin is a competitive challenge for many who observe the increase in the number of chain units. Labor, rent, utility, product waste, rising energy costs, rising administrative costs, rising legal costs, rising insurance costs, and equipment costs were all mentioned as examples of the escalating costs that burden many owners. In addition to cost issues, cash-flow management, financing, and profitability emerged as challenges.

A puzzle for many owners was how to increase the volume of customers coming into their restaurants. Keeping up with customer expectations and demand novel, inexpensive, and intriguing food offerings was noted by many. Some felt that customers' expectations had become unreasonable, while others argued that managers need a better understanding of demographic trends to help overcome the sales-management challenge. Still others argued that the guest mentality and perception of value had eroded and guests have lost touch with the dining experience.

(5) Marketing issues

The ways to capture customers' feedback before they left the restaurant was identified as necessary to help in the process of attracting and retaining customers. In addition, a better understanding of customer satisfaction with regard to the dining experience was suggested to help deliver high-quality service. Many respondents seemed frustrated with evolving customer expectations and understanding of the dining experience, but particularly with regard to discovering how to keep them content and coming back.

A variety of marketing issues was emerged at the top of the list as advertising, customer attraction, sales management, and customer service. Others issues were listed in the sequence customer retention, the poor image of the industry overall, changing customer expectations, and customer satisfaction. Overall,

the advertising challenge for single unit operator appears daunting, while sales-management issues are a problem for all types of operators and managers.

(6) Operation

Purchasing good quality and low price materials were main concerned puzzles, and coming with information-technology maintaining and upgrading messages on internet. To compare with other puzzles, operation has fewer problems in this area for owners.

(7) Accounting

Controlling food costs and ensuring that the best possible food products are purchased are also considerable importance to many managers.

(8) Human-resources issues

Analysis of the human-resources issues reveals that other issues such as adequate training, the image of the industry in attracting and retaining talent all combine to contribute to, produce the skilled employees, and benefits.

Recruiting qualified and dependable staff members with the appropriate skills is a struggle, as some noted that they never have enough employees and the labor pool from which they draw is poor. Nobody seems to want to work in the food-service industry, more even in a family-style restaurant. The working hours are long, the work can be hard, and in the mean time the pay can be average in some areas, yet potential employees are now able to pick and choose where they want to work. Most of these people choose the most amount of pay for the least amount of work. The rising minimum wage for these low-skilled and unmotivated employees makes it difficult for you to attract and retain the more desirable workers.

To analyze key issues of residents and restaurant owners, two fields were classified: business management and culinary techniques. Most of issues (government regulations, economy, competition, marketing, operations, accounting, and human resources) are caused by business management except food issue which is directly associated with culinary techniques. Therefore, approach of deforestation used by the aboriginal people to expand the land is not the efficient way to dissolve the business problems which should be individually treated with different ways.

3. Innovation of the culinary process and service management to food issues

According to response of key issues of residents and restaurant owners, a variety of food related gastronomy involved the culinary innovation, food safety, and the category comprising supply, preparation, cooking methods, storage and serving arts. Owners have to learn the skill to make food with the local farm products.

The basis of science principle was applied to culinary innovation as state of matter, viscosity, heat and temperature, emulsions, foams, texture and flavor, gelatin, browning and oxidations, and meat character, catalysis, fermentation (McGee, 1984). Various foods or dishes were made by culinary innovation from local farm products such as: fruit ice creams are made from red meat plum or plum by foams and emulsions; wines were made from variety fruits by fermentations of yeast; bread was made from fruit wines by sourdough; and we also made variety foods as cake, chocolate, and sauces.

Lithographic barbecue and lavilu wrapped with food were kept gift new dishes with tribe flavors and eat customs.

This culinary innovation is based on science approaches to create values for customers and community. Various concepts of values have influenced the economic activity of food innovation (Thevenot *et al.*, 2000). The culinary innovation is different from industrial values with standards of technical efficiency and reliability. More over, products are not only having commercial market values, but also it is gifted societal values, inspiration values, cultural values, and green or environmental values.

Finally, the model of sustainable management connects agriculture, tourism, and culinary service is suggested as Figure 1. Agriculture products supply materials for industry values, meanwhile tourism gives nature

Another, culinary innovation is not based on standardized processing to have mass products (Cooke, 2005, 2007; Halkier, 2007; Morgan *et al.*; 2006). The science using in kitchen with key elements of cultural, green values and inspiration qualities and it plays a central role as organic, local food and specialties, food fairs, as same as it emphasizes health, nutritional effects, and biosciences including foods fortified with health-promoting additives such as vitamin-enriched, omega, and fibers.

Taking into account the culinary innovation aspects, the tourism based on functional food experience which could involve culinary tourism such as Ferràn Adria El Bullit or Blumenthal's Fat Duck near London.

The innovation drives which respond to new customer demands and environmental protection for substantial management of community.

The dissemination of a new cooking culture came together with the park authority and the community cooking skills initiated to be transmitted with innovation of knowledge.

The other factors mentioned before were concerned by restaurant owners also needed to well communicate with each personnel issue individual.

Early analysis of knowledge intensive business services ignored hospitality or restaurant related services.

Recently, tourism and hospitality services have been studied as linked to KISA or Knowledge Intensive Service Activities (Collado, 2005; OECD, 2006; Thorburn, 2004). To compare tourism innovative behaviors with hospitality, characteristics have a relevant influence on innovativeness, being the size, professionalism, and entrepreneurship drivers' innovation. Culinary sectors should be considered within creative industry of tourism (Cooke, 2005; EMCC, 2006; Manniche, 2007; Scarpato, 2002a, 2002b). Despite innovation in services with its lower innovative intensive nature, services innovate similarly to manufacturing, with some different patterns, but definitively likewise (Tether's, 2005).

At the end, the community has found that local restaurants can well successive to expand their business with culinary innovation instead of deforestation.

Figure 1: The model of sustainable management connects agriculture, tourism, and culinary service

CONCLUSIONS

Innovation can be considered on culinary and hospitality service management, and tourism services. The basis of scientific knowledge was used here as physical and chemical processes of cooking in order to develop new instruments and ingredients, to design and invent new dishes. The raw materials were obtained from existing local agriculture products. The innovation patterns have implication for public policies as well as for local restaurant opening new opportunities for business without cutting existing tree to plant other new tree or vegetable which both community and creation area can prevent environmental disaster and sustainable management. The model of sustainable management connecting with agriculture, tourism, and culinary service was built. At the end, local restaurants have succeeded to expand their business by the way of culinary innovation without deforestation.

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