



Journal of Marine and Island Cultures

www.sciencedirect.com



Bamboo!! Improving island economy and resilience with Guam College students



Amy Owen

University of Guam, Geography Department, PO Box 5172, UOG Station, Mangilao 96923, Guam

Received 9 July 2015; accepted 18 September 2015

Available online 21 November 2015

KEYWORDS

Island;
Economy;
Ecology;
Bamboo;
Guam;
Culture;
Sustainable;
Agriculture

Abstract This study examines possibilities in improving Guam's economic independence. Growing economically and culturally sustainable industries benefit future generations. In this work bamboo, historically utilized on the island by the native CHamoru, is evaluated for industry and market potential specifically for Guam. Young adults of the island engaged to find creative possibilities for improving economic sustainability, utilizing methods that worked for them. Results include the use of social networking, gaining viewpoints of young adults who are far more interested in marketing the products than manufacturing them. Additionally, a potential for bamboo as a food source and charcoal aligns with the fiesta culture of Guam. Sourcing of *Bamboo vulgaris*, Guam's major bamboo species, has ecological benefits, while *blumeana* could be cultivated for crafts for export and tourists. Future study is planned to further involve young adults utilizing social networking methods developing culturally appealing and ecologically beneficial industry for the island. © 2015 Institution for Marine and Island Cultures, Mokpo National University. Production and hosting by Elsevier B.V. This is an open access article under the CC BY-NC-ND license (<http://creativecommons.org/licenses/by-nc-nd/4.0/>).

Introduction

The island of Guam's mid-Pacific location has fostered adaptability in the ecology and the people that live here. Typhoons, earthquakes, humidity, wind and rain – as well as influx of immigrants and waves of colonization have made Guam's people versatile and resilient in the face of change.

Like many islands, Guam's history of interaction with other cultures has affected its economy. Guam's economy remains dependent upon government, military and tourism and could benefit by diversifying and improving adaptability

and resiliency. Culture and ecology are considerations in developing economic sectors that will improve economic versatility and “bounce back” Guam's economy during challenging events and times. In previous culture change studies (Owen, 2012, 2011, 2010) Guam's young adult population was determined to have differing cultural views from the older age ranges – using more social technology, losing ancestral languages and religion and displaying a blurring of gender roles. Another attribute of this group is concern, and often apathy regarding their ability to address and change current economic conditions in the current volatile condition of the global economy.

The young adult sector inherits the island's condition – its ecological and economic health. In this study, College students at the University of Guam are challenged to

E-mail address: alowen2@gmail.com

Peer review under responsibility of Mokpo National University.

<http://dx.doi.org/10.1016/j.imic.2015.09.002>

2212-6821 © 2015 Institution for Marine and Island Cultures, Mokpo National University. Production and hosting by Elsevier B.V. This is an open access article under the CC BY-NC-ND license (<http://creativecommons.org/licenses/by-nc-nd/4.0/>).

engage creatively in addressing their future and the future of the island. The study purpose is threefold: (1) examine the potential of a resource that fosters economic resiliency on the island, (2) involve Guam College students in finding creative ways of building ecologically and culturally friendly business for the island and (3) provide new ideas and information on sustainable resource building for application elsewhere.

There is a history of use of bamboo on Guam. Guam's indigenous people, the CHamoru, used it to create fishing devices such as nets, poles, and weirs during pre-colonial times (Tolentino, 2015). Bamboo was selected for the investigation because there is a current supply, it has a history of use on the island yet isn't currently utilized, and because it grows well in Guam.

The research question for this study is as follows: what is the potential of bamboo for improving economic resiliency in Guam?

Study objectives include:

- (1) Identify bamboo species, location and product uses in Guam
- (2) Analyze manufacture, industry location, licenses, labor and ecological considerations
- (3) Determine market feasibility and local perception

Methods

A Field study was designed and conducted with the participation of University of Guam students for an economic geography class project during the fall semester of 2014. Students provided input to the research design, collected and compiled field data for the study.

Current Bamboo locations were determined through an aerial photography analysis of Guam. Short interviews of business owners, farmers, agricultural experts, faculty members and government officials were conducted. The worldwide and Asian bamboo market and bamboo uses were researched and analyzed for feasibility in Guam. Questions for expert interviews were asked regarding bamboo life cycle, products and marketing. All participation in the study was voluntary and anonymous.

A perception study was developed using a short questionnaire to determine Guam young adult perception of a bamboo market. A questionnaire was designed by the using Google docs and delivered via social media and telephone. The survey targeted the young adult age group, to collect information on their perspectives on bamboo harvest, manufacture and marketing. Study participation consisted of 306 Guam residents over the age of 18. Results are reported with a 95 percent confidence level + or -5.6% accuracy for the population of 161,000 (United States Central Intelligence Agency, 2014). While it was understood that the young adult population was overrepresented – the survey was intended only to provide a general idea of interest level. Four multiple-choice questions regarding the perception of buying or marketing bamboo were asked, along with gender and age group were created online using Google Forms. Simple statistical summarization was used in data analysis.

Results and discussion

Guam's available bamboo

The United States Territory of Guam's mid-Pacific location is south of Japan, north of Australia, east of the Philippine islands and west of the United States. It is subtropical at approximately 14 degrees north latitude, and volcanic in origin. It is a "high island" created from two volcanoes worn down to create flat plateaus no higher than 2500 feet, ringed by limestone and surrounded by a thick protective ring reef. The single harbor, Apra Harbor, is the location of a United States naval base. Guam is divided into 19 villages (Fig. 1). All places referred to in this study will be indicated by village and may be located on the village map.

The most prevalent bamboo currently available in Guam is a non-cultivated variety growing in the waterways of the southern part of the island. *Bambusa vulgaris* is one of the most common bamboos of the world. Originating in Asia, it has become important for its wide range of uses as building material, for paper, tools and as a food source. In heavily populated areas, bamboo has been providing steady, plentiful and cheap housing materials. From Asia humanity spread it around the world. Now found in tropical and subtropical areas, it thrives along riverbanks, roadsides and open areas (McClure, 1966).

Bamboos are grasses, though they often appear like trees. The structure of bamboo differs from wood in that it has solid nodes and hollow stem or trunk and it is more difficult to chip. *B. vulgaris* is the largest of the bamboos, growing in large dense clumps up to 20 m (70 feet) tall and up to 10 cm (4 inches) thick.

On Guam, this plant is found especially in southern Guam, overcrowding the rivers and wetlands. (Figs. 2–4). Preferring a wide range of soils, it thrives and grows the fastest in wet soils. An exceedingly fast growing plant, in an ideal environment it can grow from 3 to 16 inches daily (Farrelly, 1984). For this reason it provides abundant material for any commercial venture that involves bamboo.

Bamboo is easily propagated by cutting "runners" from plant roots or by uprooting new stems and transplanting them (Raulerson and Rinehart, 1991) and also by other methods that are commonly used in farming such as air layering, seeds, tissue culture and division.

Bambusa blumeana, also known as thorny bamboo (Fig. 5) is also found on Guam, although is not as commonly as *B. vulgaris*. The growth pattern and properties are the same as the bamboo mentioned above with some differences. *B. blumeana* differs from *B. vulgaris* by having a thicker stem wall, which makes it more durable to use as a construction material. However, the stem has dense sharp and thick thorns that make harvesting difficult and time consuming.

The *B. vulgaris* is best used for products that do not require long-term durability, such as temporary scaffolding, poles and farm material, since the stem wall is not very strong. Stems can be treated with preservation solution to ensure longer and more durable use. The shoots are edible. *B. blumeana* is much more durable. Although the thorns make harvesting difficult, this bamboo species can be used for long lasting furniture, fishing poles and handicrafts.

Download English Version:

<https://daneshyari.com/en/article/1107036>

Download Persian Version:

<https://daneshyari.com/article/1107036>

[Daneshyari.com](https://daneshyari.com)