

# Relationships between community as an eco-museum and sustainable community development: Lessons from Tainan, Taiwan

Heng Zhang\*, Chu-Yao Peng, Ru-Hui Zhang  
National Cheng Kung University, Tainan, Taiwan

## Abstract

*Increasingly serious environmental degradation has given new emphasis to the need for sustainable development. Such development take the community acts as the basic unit for holistic implementation. One emerging development approach is referred to as the “eco-museum” strategy which seeks to strengthen a community based on its unique resources, create economic benefits, and protect local heritage. This study describes the application of the eco-museum strategy to 36 communities in Tainan, Taiwan, in an attempt to identify elements of best practice and to develop a model for other the development of eco-museums in other communities.*

*In a multidimensional scaling analysis, the study uses landscape, culture, lifestyle, and human resources as items to build the research framework. A questionnaire was applied to survey 36 communities in Tainan to identify community characteristics which lend themselves to the successful implementation of the eco-museum approach.*

*The results suggested that the Chi-Chih community could serve as a model for eco-museum development. Through cognitive map analysis, the distribution points of each community type are found to impact development feasibility and controls. It is expected that the eco-museum strategy will increase local residents’ interaction with their distinct cultural and environmental resources, and facilitate the development a “think globally, act locally” Mindset.*

**Keywords:** Eco-museum, sustainable community, MDS, perceptual map, ideal point

## Introduction

Since the United Nations Conference on Environment and Development (UNCED) in 1992, the concept of “sustainable development” has attracted increasing attention worldwide. The concept centers around community-based action and has been a focus of government community development efforts in Taiwan since the early 1990s. “Eco-museums” are a relatively new, holistic approach to sustainable development that integrates local economic resources, environmental education, and sustainability.

Eco-museum development can provide a community with environmental education resources while attracting tourism and economic benefits to local residents. This approach also promotes ecological protection, cultural preservation, and the promotion of regional features. To create a comprehensive community development strategy and to balance the environmental impact with

---

\* Corresponding Author: Heng Zhang; E-mail- changlin@mail.ncku.edu.tw

the interests of local residents, this study examines the implementation of the eco-museum concept as a potentially beneficial approach for communities in Taiwan.

The scope of this study covers selected communities in Tainan, in southern Taiwan. Tainan is a municipality rich in culture and history, endowing its communities with a solid base and high potential for sustainable development. To put the eco-museum concept into practice, it is essential to find a community with suitable characteristics, and eco-museum development in such a community can provide a useful example from which other communities can learn. The development is also expected to improve the life quality of local residents and to promote local environmental protection.

## Purpose

Different resources are used in different ways in the community development process. This study examines the relationship between the construction and operation of an eco-museum and sustainable community development, focusing on 36 communities in Tainan. Classifying community resources and examining the impact of such resources on the development of eco-museum resources is expected produce a model for eco-museum development which can be applied to other communities.

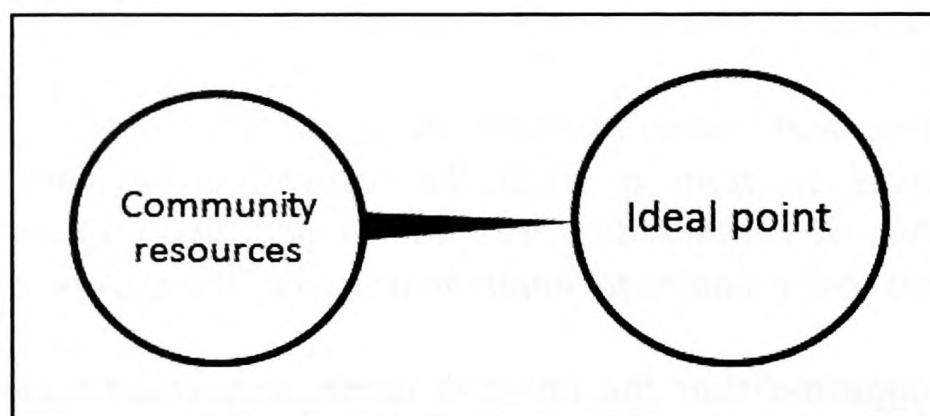


Fig. 1: Research framework

## Literature Review

### Eco-museum

The eco-museum concept involves comprehensive regional development. In 1972 the International Council of Museums (ICOM) defined an eco-museum as an 'environment-related' or 'community-serving' museum. Kenji (1993) suggested that an eco-museum preserves local lifestyles and documents changes to natural and social settings in a particular culture-formed region, thus promoting the preservation of ecological and cultural assets. Stokrocki (1996) suggested an eco-museum should have a strong and intimate relationship with local residents and exist in harmony with its surroundings. The term "eco-museum" has also been widely used to imply the protection of tangible or intangible assets (Corsane et al., 2007).

Thus, building an eco-museum differs from traditional community development activities in terms of its economic, ecological, cultural, and social impact. The starting point of any such development should be "the collective memories of a region." This ensures that the development not only deals with the relationship between people and their environment, but also relates to a bottom-up and inside-out approach to community development, ensuring that

the end result benefits the community in terms of economic profit, environmental protection, cultural preservation, and local attendance.

### **Community resources**

Community resources are defined as all assets which can be used to help a community accomplish its communal aims and ensure the continued autonomy of the community and its residents (Musick et al., 1987). Eco-museums are intended to take advantage of existing community resources, and to help local residents collaboratively create a community which meets their needs and ideals. This not only helps the community preserve its intrinsic values but also helps residents keep up with current social trends.

This study adjusts Corsane's four key eco-museum elements (2006) to correspond to items related to community resources and classifies them into four dimensions: landscape, culture, lifestyle, and human resources.

#### **1. Landscape resources**

Landscape resources can be both natural or artificial, and are defined as an open system consisting of local natural and animal resources, along with the activity of local residents. Here, we focus on not only individual landscape elements, but also the interaction between them.

#### **2. Cultural resources**

Cultural resources can be categorized as either tangible or intangible, both of which are represent the accumulation of the local culture over time. Human communities feature tangible cultural resources such as structures and objects, and intangible resources such as skills and art. This dimension has three indicators, including buildings, humans, and costumes.

#### **3. Lifestyle resources**

Lifestyle resources include spaces and facilities used in residents' daily life, daily routines and community industry. These resources not only satisfy daily needs for foods, education, health care, safety, transport and leisure activities, but also enhance convenience, quality of life and safety. This dimension has three indicators, including community facilities, daily life, and community industry.

#### **4. Human resources**

Community development is always a long-term endeavor and takes many forms. Every single resident constitutes a human resource in the community. Community works require the participation of every resident, and every resident can achieve fulfillment through such work. This dimension has three indicators, including human quantity, human quality, and group behavior.

This background on eco-museums and community resources indicates that local ecology, cultural development, and human/environment interaction are important considerations for the development of eco-museums, and that eco-museum can promote local development. The present study sought to assess community resources in terms of the four major dimensions listed above (i.e., landscape, cultural, lifestyle and human resources) available for use in the development of eco-museums and community resources. More detailed indicators were then expanded from these dimensions to design a survey questionnaire and gather resource information for 36 communities in Tainan.

## **Research Design**

### **Research area and targets**

Sustainable development is most efficiently realized at the community level. The study selected 36 communities which have show potentially good conditions for community development for assessment through interviews and surveys.

### **Research methods**

#### 1. Multidimensional scaling

The study uses Multidimensional scaling to determine differences between the resources available to each community.

#### 2. Variables

As previously noted, community resources can be classified as landscape resources (including natural and artificial landscapes), cultural resources (including buildings, humans, and costumes), lifestyle resources (including community facilities, daily life, and community industry), and human resources (including human quantity, human quality, and group behavior). Differences between community resources can thus be understood in terms of these categories.

#### 3. Samples

The study gathers data for each community's environmental resources from sources including graduate and doctoral dissertations, and local and national government information including from the Directorate General of Budget, Accounting and Statistics of the Executive Yuan, the Tainan City Government website, and the Taiwan Community Platform website. Of Tainan's 50-plus communities, 36 were selected for surveying on the basis of exhibiting conditions conducive to community development.

## **Results and Discussions**

By evaluating the different types of resources available to the 36 studied communities, we sought to identify quantifiable and significant indicators which can be used to model a community's suitability for the development of an eco-museum.

### **Analysis of community perceptual space and ideal point**

The study results directly demonstrate the advantages of various types of community resources as well as the relative advantages enjoyed by various communities by analysis of perceptual space. This provides a useful reference for community development planning. Setting an ideal point can help communities better understand and improve their development direction and practices. Moreover, doing so allows us to select an example community closest to the ideal point as a future eco-museum site.

By applying ALSCAL in multidimensional scaling, dissimilarities between pairs of values are used to establish a 37 x 37 symmetric data matrix (see Fig. 2 below). In this figure we can see the distribution of the communities separated by the distribution and availability of community resources. Closer points represent communities with similar development potential and direction, and thus could benefit from shared learning.

Figure 2 shows the location of communities sharing similar resources, suggesting that communities in Tainan possess multivariate resource potentiality, which provides certain advantages. In addition, some communities (e.g., Chi-ting and Chang-an) share resources in terms of community operation, culture and history, while Fo-tan and Cheng-chueh share lifestyle and environmental landscape resources. This suggests that these paired communities have greater potential such shared resources in the development process.

The ideal point is derived by applying the resource scores according to an ideal community standard as determined by experts and researchers. Analysis of the ideal point and the community locations in Fig. 2 show that experts consider the environmental landscape as playing an important role in community development in Tainan, and the preservation of such landscapes is also an important development goal. Communities which are closer to the ideal point are considered to be ideal communities with development potential. On the other hand, the communities which are far from the ideal point are disadvantaged communities which require more assistance. Based on the distance between the ideal point and the other communities, Chi-chih is selected as a model community to serve as the site for a future eco-museum.

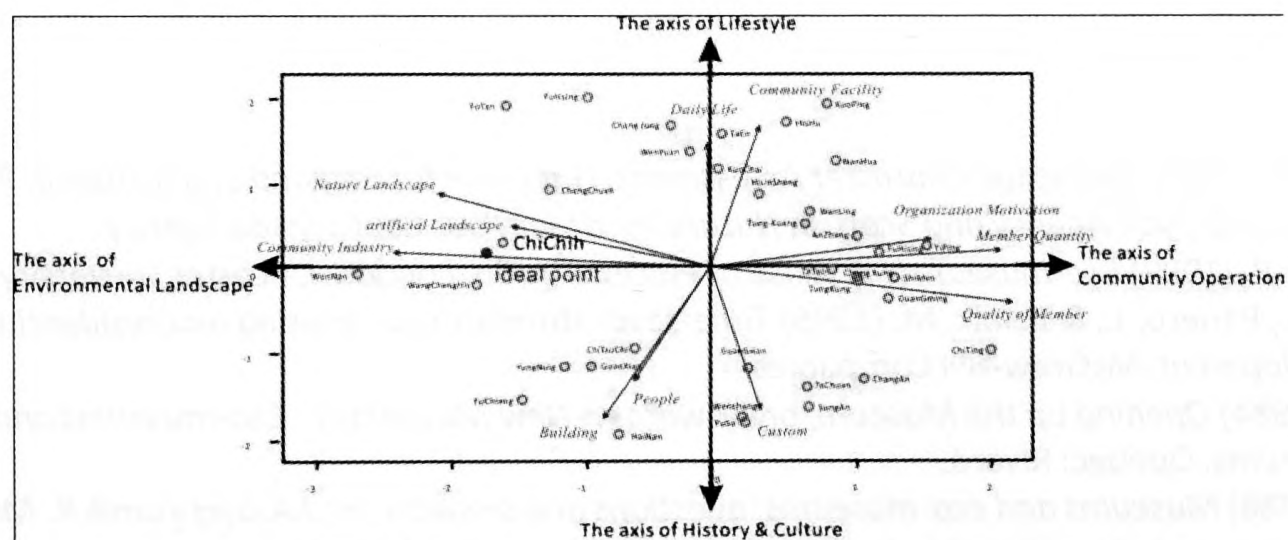


Fig. 2: Community perceptual space

### Research limitations

Due to government policies for community-based subsidies not all communities exhibit conditions conducive to community development, thus some communities were excluded from the study. In addition, because community development efforts in Tainan are not yet mature, and certain aspects of community development cannot be identified. Recommendations for future work include examining the development status and process of other communities in Tainan to potentially provide a better understanding for community development in the region.

### Conclusion and Suggestions

#### Conclusion

Analysis results indicate that suitability for establishment of an eco-museum is dependent on the particular distribution of resources within a community, and finds that Chi-chih is the community closest to the ideal.

## Suggestion

We recommend that the nature and distribution of community resources be considered in selecting a potential eco-museum site. Extrapolating the model used to select Chi-chih as a potential site could allow other communities to assess their own status and improve local place attachment, thus improving local suitability for the development of eco-museums.

## Cohort Study

This research marks the first step in a series of community development research in Tainan, and future findings could have important implications for policy making and funding. The results presented here are still preliminary, and many significant factors of local resident awareness present opportunities for further long-term study of patterns of community development. Therefore, follow up research could expand the present study to promote the development of place cognition in other communities.

## References

### Books:

- Swanwick, C. (2002) *Landscape Character Assessment: Guidance for England and Scotland: Prepared for the Countryside Agency and Scottish Natural Heritage*, UK: Countryside Agency.
- Davis, P. (1999) *Eco-museums: A Sense of Place*, 2<sup>th</sup> edn, London: Leicester University Press.
- De Chiara, J., Panero, J., & Zelnik, M. (1995) *Time-saver standards for housing and residential development*, McGraw-Hill Companies.
- Rivard, R. (1984) *Opening up the Museum, or, Towards a New Museology: Eco-museums and 'Open' Museums*, Quebec: Rivard.
- Rivard, R. (1988) *Museums and eco-museums: questions and answers*, in: J.A. Gjestrum & R. Maure (Eds) *Ø komuseums boka—Identitet, kologi, Deltakelse*, Troms: Norsk ICOM pp.123–128.

### Journal articles:

- Boylan, P. (1992) 'Eco-museum sand the new museology: definitions', *Museums Journal*, Vol. 92, No.4, pp. 29.
- Gerard Corsane (2006) 'Using ecomuseum indicators to evaluate the Robben Island Museum and World Heritage Site', *Landscape Research*, Vol.31, No4, pp.399-418.
- Corsane, G., Davis, P., Elliott, S., Maggi, M., Murtas, D., & Rogers, S. (2007) 'Eco-museum evaluation: experiences in Piemonte and Liguria, Italy. International', *Journal of Heritage Studies*, Vol.13, No2, pp.101-116.
- Perella, G., Galli, A., & Marcheggiani, E. (2010) 'The Potential of Eco-museums in Strategies for Local Sustainable Development in Rural Areas', *Landscape Research*, Vol.35, No4, pp.431-447.
- Peterson, N. A., Speer, P. W., & McMillan, D. W. (2008) 'Validation of a brief sense of community scale: Confirmation of the principal theory of sense of community', *Journal of community psychology*, Vol.36, No.1, pp.61-73.
- Singh, P. (2011) 'Contemporary indigeneity and the contours of its modernity' *Sage journal*, Vol:105, no.1, pp. 53-66.
- Stokrocki, M. (1996) 'The eco-museum preserves an artful way of life', *Art Education*, Vol.49, No.4, pp.35-43.
- Musick, J.S., Bernstein, V., Percansky, C., & Stott, F.M. (1987) 'A chain of enablement: Using community-based programs to strengthen relationships between teen parents and their infants', *Zero to Three*, Vol.8, No.2, pp.1-6.

Wakabayashi Akiko, Kim KiBum , Park Chanil & Miyazaki Kiyoshi (1997) 'Exhibition Techniques in Museums with Considerations on Regional Culture', Proceedings of the Annual Conference of JSSD, Vol.44, pp.171.

Hwang ShyhHuei, Goibuchi Noriko, Miyazaki Kiyoshi, & Cheng WenPiao. (1997) 'New Homeland Movement in Pu-Li, Taiwan: Methodology of Regional Development Participated by Local Inhabitants, Vol.43, No.5, pp.73-82.