

Economic Valuation of the World Cultural Heritage for Promoting Community-based Flood Disaster Management; A Case Study of Ayutthaya Historical Park

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Even though, Ayutthaya Historical City was valued as one of the world heritage sites, an interaction between groups of people (local residents, visitors and outsiders) and historical park has been decreasing. This is because of the fact that the historical city was devalued its attractiveness for the tourism. The major threats affecting on existence of Ayutthaya heritage sites are not only at risk from human disaster through a devaluation of the heritage sites but also at risk from natural disaster, especially floods. The study hence focuses on reflecting actual value of Ayutthaya Historical City by utilizing economic valuations of cultural heritages, named CVM and TCM techniques. Meanwhile, the study adapts SWOT-AHP technique for indicating potential factors influencing on individuals' perception and awareness in cultural and historical heritages.

Keywords : *Economic Valuation, SWOT-AHP, Community-Based Approach*

1. Introduction

Nowadays, around the world has a plenty of world heritage sites, the number of world heritage site located in 138 countries is about 878 properties of "outstanding universal value," including 679 cultural, 174 natural and 25 mixed properties. Ayutthaya Historical City was registered as a world heritage site with UNESCO in 1991, because it is irreplaceable sources of life and inspiration of intellectual property and intangible characteristic of society that were inherited from ancestor. The Ayutthaya Historical City contains the ruins of ancient Buddhist temples and royal palaces of the Ayutthaya Empire which are worthy for conservation. Its remains, characterized by the prang (reliquary towers) and gigantic monasteries, give an idea of its past splendor.

Unfortunately, the Ayutthaya historical park is situated on a low land area and risks flooding in the high water season of every year. A Disaster Preparedness plan is devised to handle the problem by constructing a system to prevent flooding both within and outside the City Isle. The construction is implemented by the Department of Public Works, Ministry of Interiors. At present, the system construction within the City Isle is completed (Thailand National Periodic Report, 2003)¹²⁾. However, these problems remain and still effect to Ayutthaya historical park and community nearby. The recent severe flooding in Ayutthaya caused at least 5.24 billion baht in damage, according to the Department of Disaster Prevention and Mitigation (bangkokpost, 2010). However, the existence of Ayutthaya Historical City has been questionable because the major threats of the historical city are defined as a) man-made disasters in term of devaluation in its worthiness caused by tourisms and b) natural disasters in term of annual flood risks.

This study aims at answering the questions that how much value of Ayutthaya Historical City to reflect current perceptions of people to the historical city, and indicate crucial factors influencing on those perception. As a consequent, three objectives of this study were set as follow; (a) to assess an economic value of cultural heritage in Ayutthaya historical park. (b) to evaluate community awareness on value of cultural heritage in Ayutthaya historical park. (c) to recommend guideline or policy in managing cultural heritage under community – based approach.

2. Economic Valuation

Economic value is one of many possible ways to define and measure value. Although other types of value are often important, economic values are useful to consider when making economic choices – choices that involve tradeoffs in allocating resources. (King and Mazzotta, loc. cit.)¹⁶⁾ Economists typically classify ecosystem goods and services according to how they are used (Stefano P. et al., 2004)¹¹⁾. Total Economic Valuation is the sum of use value, non-use value and option value (see fig. 1). This classification is used in Thailand Development Research Institute. In this part, Authors summarized from Thailand Development Research Institute, Penporn Janekarnkit, Stefano Pagiola, Konrad von Ritter and Joshua Bishop. So, We will explain briefly for each economic value as follows:

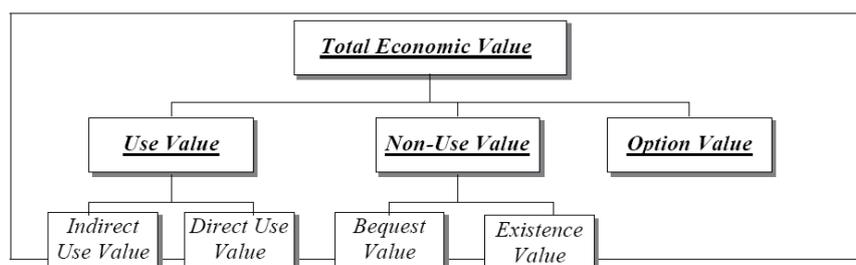


Fig. 1 Show type of economic value
Source: Thailand Development Research Institute, 2002

-*Use Value*: Generally, use value includes direct use value and indirect use value. Direct use value is goods or service that can be consumed directly for examples; food, ecotourism, fuel and so on. For indirect use value is derived from ecosystem services that provide benefits outside the eco-system itself such as flood control and storm protection.

-*Non-use Value*: According to Thailand Development Research Institute, they classified Non-use Value into two types that are Bequest value and Existence value. Bequest value is value of leaving use and non-use value for next generation for examples; habitats, irreversible changes and so on. As for Existence value, it is value from knowledge of continued existence based on aesthetic, cultural and moral aspects such as habitats and endangered species.

-*Option Value*: Option Value is future direct and indirect use value for examples; biodiversity, conserved habitats and pharmaceutical products.

For economic valuation, we were explained the content of each value for respondents in the survey by setting a situation then asking them in term of questions. However, there are several different methodologies used to determine the value of a benefit. Which methodology is used is often determined by the time and expense of the analysis. In this study we would like to sought both tangible and intangible value to encourage community awareness in term of cultural heritage protection from flood disaster; we chose the Contingent Valuation Method (CVM) because it can estimates economic values for virtually any ecosystem or environmental service. The most widely used method for estimating non-use, or “passive use” values. Meanwhile, we also chose Travel Cost Method (TCM) to estimates economic values associated with ecosystems or sites that are used for recreation. Assumes that the value of a site is reflected in how much people are willing to pay to travel to visit the site, the following methods are used:

(1) The contingent valuation method (CVM)

The contingent valuation method or CVM is used to estimate economic values for all kinds of ecosystem and environmental services. It can be used to estimate both use and non use values, and it is the most widely used method for estimating non-use values. It is also the most controversial of the non-market valuation methods.

The contingent valuation method involves directly asking people, in a survey, how much they would be willing to pay for specific environmental services. In some cases, people are asked for the amount of compensation they would be willing to accept to give up specific environmental services. It is called “contingent” valuation, because people are asked to state their willingness to pay, *contingent* on a specific hypothetical scenario and description of the environmental service.⁴⁾

Several practical methods can be used to measure willingness to pay for goods and services in general and health services in particular. The three most frequently used and/or 23 suggested methods are indirect

methods using market human capital approach (Johansson, 1995). The first two are the most common ways of estimating economic values attached to non-marketed goods and services. If a good or service has positive economic value, then preferences show up through individuals' willingness to pay (WTP) for the good or service in question. WTP in the market is made up of two components: the price or what is actually paid and the consumer's surplus or the excess of WTP over the price. The latter is then a measure of the net gain from the purchase of a marketed good. On the other hand, in a pure non-market context, all WTP is consumer's surplus because there is no market price. A disservice, or "bad", has negative economic value shown up by the WTP to avoid the bad in question, as a willingness to accept (WTA) compensation to tolerate the disservice (Summary Guide, 2002). For cost benefit analysis based on the Hicks-Kaldor compensation test, WTP would seem to be the appropriate measure for gainers from some resource allocation decision, and WTA the proper measure for losers from that same allocation (Bateman and Turner, 1997)⁶.

$$\text{WTP} = f(E, Y, S) \quad (1)$$

Where:

E	=	the environment quality at the site j
Y	=	Income
S	=	other socio-economic characteristics

(2) The Travel Cost Method

As for, the travel cost model or TCM, which is used to value recreational assets via the expenditures on travelling to the site. The idea is to collect information about preferences from people's actual behaviour. In other words, people do not buy the commodity (visit an area) unless they find it worth its price (travel cost). However, this method captures only use values and does not consider planned future visits (Freeman, 1998).

The TCM demand or trip generating function (TGF) describes how many visits an individual *i* makes to a site *j* (v_{ij}). Number of visits, v_{ij} is regressed as a function of the travel cost incurred by the individual *i* to the site *j* (tc_{ij}) and several socio-economic characteristics of the individual including income, level of education, age, household size, sex and variables giving information on the type of trip. The latter are often as dummy variables representing either the single purpose trip, or whether on holiday trip or on single day trip. A specification of the TGF of an individual TCM is given in equation 1.

$$v_{ij} = v(tc_{ij}, m_i, sec_i, d_{ij}, q_j) \quad (2)$$

where:

tc_{ij}	=	the travel cost of individual <i>i</i> to site <i>j</i>
m_i	=	the income of individual <i>i</i>
sec_i	=	other socio-economic characteristics
d_{ij}	=	dummy variables (1,0) describing various factors including whether or not the trip by individual <i>i</i> to site <i>j</i> is the sole purpose.
q_j	=	the environmental quality at the site <i>j</i>

(3) Related Work; *Economic Valuation*

Many researcher have done research about economic valuation in term of environment or ecosystem. In this part, relevant research will be addressed, and these research stated valuation of cultural heritage in various dimensions, as follows;

Samuel Seongseop Kim, Kevin K.F. Wong, Min Cho, 2005 studied about Assessing the economic value of a world heritage site and willingness-to-pay determinants: A case of Changdeok Palace ,The main objective of this study is to estimate use value of a World Cultural Heritage in Korea using the contingent valuation method (CVM). Aggregate use value from the log-linear model was estimated to be approximately 1.93 million dollars, while aggregate use value from the log-logit model was estimated as 2.01 million dollars. The results from this study revealed the economic value of the World Heritage site to users or tourists in levels exceeding its monetary benefits.

Andy S. Choi , Brent W. Ritchie , Franco Papandrea , Jeff Bennett, 2009 studied about Economic valuation of cultural heritage sites: A choice modeling approach This study despite growing attention by

researchers and policy makers on the economic value of cultural heritage sites. This paper contributes to the knowledge on the economic valuation of cultural heritage sites through a national choice modeling study of Old Parliament House, Australia. The study sought to value marginal changes in several attributes of this site and revealed that only some of them are valued positively: extending the period of temporary exhibitions, hosting various events, and having shop and cafe and fine dining . Advantages of using a mixed logit model are provided and managerial and policy implications are discussed.

Udomsak Seeprachawong, 2006 studied about Economic Valuation of Cultural Heritage: A Case Study of Historic Temples in Thailand. This study looks at how the conservation of Thailand’s ancient temple heritage might be financed. It assesses how much Thais would be willing to pay for a conservation program to safeguard ten at risk temple sites. It also looks at the main element of such a temple conservation program to see which are most highly prized. It finds that, on average, individuals would be willing to make a one-time payment of 200 Baht (USD 5.30), either as a tax surcharge or as a voluntary donation to finance the conservation program. Extrapolating these results nationally, this would generate more than enough money to finance a temple conservation program. The study also proposes the main elements of a national program to preserve historical temples in Thailand.

3. Methodology

This study used Payment card and Open-ended for survey in term of Contingent Valuation Method (CVM) and choose Individual Travel Cost Method in term of Travel Cost Method (TCM). The result is expected that people in the community will realize the value of cultural heritages. People have awareness to manage their community and protect cultural heritages from disasters. This study focuses on the importance of Economic Valuation of the World heritage in Ayutthaya Historic City, Thailand. Moreover, this study also evaluates community awareness on value of cultural heritage in Ayutthaya historical park by using SWOT-AHP (Analysis Hierarchy Process).

(1) Description of the study area

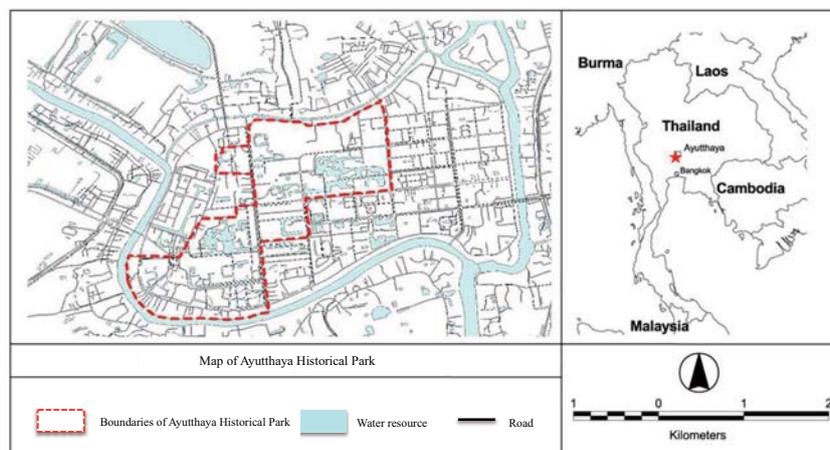


Fig 2. Ayutthaya historical park and the area around the island in Muang, Phra Nakhon Si Ayutthaya
Source: Authors, 2010

This paper, the study area is in Thailand, “Ayutthaya historical park” covering 1,810 rai (around 720 acre) and it has population of 48,543. Ayutthaya historical park is located within Ayutthaya Island, Phra Nakhon Si Ayutthaya municipality, Phra Nakhon Si Ayutthaya district, Phra Nakhon Si Ayutthaya province, it far from Bangkok to the north by Asia road around 75 kilometers. Inner Ayutthaya historical park has 4 subdistrict including with Phatuchai subdistrict, Horrattanachai subdistrict, Hualor subdistrict and Thawasugree subdistrict (Office of fine art, 1994). Ayutthaya, founded in 807 AD, was the second capital of the Kingdom of Siam after Sukhothai. It was one of the important economic and trade centers of the region. Ayutthaya historical park was listed as World Heritage by UNESCO organization under the name. "City of Ayutthaya and in family history," following the cultural criteria (iii) which is “Attesting to evidence of culture or civilization that is visible in the current or potential to disappear then” (UNESCO,1991)⁸.

(2) Research Samplings and Research Tools

This research investigated various characteristics of the respondents which are; socio – economic, aims of trip, behaviors of the respondent related to Ayutthaya historic park, perception on value of cultural heritage and willingness to pay for protecting and preserving Ayutthaya historical parks.

In this paper, the sample size for respondents was calculated based on Yamane¹⁷⁾'s formula. By using Yamane's formula of sample size with an error 1% and with a confidence coefficient of 99%.

- *Respondents for residents who living in the study area*:: As we mentioned above, Ayutthaya historical park has population of 48,543, the calculation from a population of 48,543 came up with 100 respondents.

- *Respondents for Tourist*, it has 3,784,617 visitors (Ayutthaya Provincial Tourism Office, 2008) was divided in foreign tourists is 1,191,511 and Thai tourists is 2,593,106. By using Yamane's formula, the result is 70 respondents for who are Thai tourists, 50 respondents for who are foreign tourists.

- *Respondents for who living outside the study area*: The population in this group is unpredictable so we have determined the number of samples was 50 samples.

Authors analyzed data got from questioners using the software package SPSS for WINDOWS. Frequency, Correlation and Multiple regression analysis were shown in this research. In addition, this research also examined potential of the study area by using Analysis Hierarchy Process (AHP) or SWOT – AHP for determining factors that affect Ayutthaya community members' awareness on value of cultural heritage as well.

Table 1 Show factors for SWOT-Analysis

<p>Strengths</p> <p><i>S1: economic value of cultural heritage</i></p> <ul style="list-style-type: none"> - Represents use value, non-use value and option value to raise awareness in community <p><i>S2: a tourist attraction</i></p> <ul style="list-style-type: none"> - To enhance the income of people in community. - A place to relax and meeting each other in the community - Indicates the potential of this area. <p><i>S3: the world's cultural heritage site</i></p> <ul style="list-style-type: none"> - To encourage the reputation and image of Thailand - Reflects to history and grandeur of Thailand in the past - The place of education is beneficial to next generation 	<p>Weaknesses</p> <p><i>W1: the physical of Ayutthaya Historical Park</i></p> <ul style="list-style-type: none"> - Lowland flooding occurred frequently -The urban landscape is declined -Land use changing is illegal and not appropriate <p><i>W2: Community participation</i></p> <ul style="list-style-type: none"> - Lack of knowledge and understanding of cultural heritage site - Lack of activities that promote participation <p><i>W3: The way of working of the organization authority</i></p> <ul style="list-style-type: none"> - Lack of budget and manpower - Lack of effectiveness of planning and management in Ayutthaya Historical Park
<p>Opportunities</p> <p><i>O1: the policy of the government</i></p> <ul style="list-style-type: none"> - Policies for conservation and management of cultural heritage site - Policies to promote participation - Allocation of budget for each project <p><i>O2: Proximity to the capital</i></p> <ul style="list-style-type: none"> - Getting more chance for urban development and tourism development -Easy to access 	<p>Threats</p> <p><i>T1: the human threat</i></p> <ul style="list-style-type: none"> -Theft of antiquities in Ayutthaya Historical Park. - Tourisms access to overrun some of the historic structure to get damaged <p><i>T2: the natural threat</i></p> <ul style="list-style-type: none"> - The threat of flooding that occurred in Ayutthaya Historical Park -Sun, wind and rain made the historical structure damaged by time

Source: Authors, 2010

(3) Explanation of SWOT-AHP

SWOT is a convenient way of conducting a situation analysis or a diagnostic analysis of factors influencing a particular decision (M.K. Masozera et al., 2006). SWOT analysis is used in strategic planning. It allows analysts to categorize factors into internal (strengths, weaknesses) and external (opportunities, threats) as they relate to a decision and thus enables them to compare opportunities and threats with strengths and weaknesses. (R.K. Shrestha et al., 2004) This approach can overcome by using AHP method. AHP enables decision makers to assign a relative priority to each factor through pair-wise comparison.

a) Implementing SWOT-AHP

In this paper, We used this method to promote community awareness on cultural heritage protection from

flood disaster. We used SWOT-AHP analysis for finding the perception of experts who knew the study area well including with two community leaders, two professors in Thammasat university and one local government official. As table 1 show, we categorized the important factors by SWOT factor.

4. Result of study

(1) Evaluating the value of cultural heritage in Ayutthaya Historical Park

This part reveals factors influencing on willingness to pay for protecting and preserving Ayutthaya historical park. The results can be discussed as follows.

a) Evaluating its existing values

In terms of value of cultural heritage, in the present, the study found that the respondents are willing to pay more than the assessed value of other types (see Table 2) and also revealed that tourists are willing to pay more than respondents who living in the study area. In an aspect of correlation between amounts of money which respondents willing to pay and the other independent variables, the study found that the valuation of the existing value is the first value, correlated with the amount that respondents are willing to pay, when compared to other types of associated value.

b) Evaluating its non – used values

The research found that the respondents, who do not have any business and receive none benefit from the study area (in this research defined as those who living outside study area), still concern much on the value of cultural heritage. The statistic reveals their average amounts of money which they are willing to pay, indicated 110 Baht (At around 350 Yen) per person.

Table 2 Show economic valuation of Ayuttaya Historical Park

Technique for valuation	Type of Value	Sampling	Amount value of WTP on average	Proportion of People which willingness to pay	Populations	Values (Baht per Year)
CVM	Use Value	Local people	82.74	.95	48,543	3,815,479.80
		Thai tourists	177.71	1.00	2,593,106	460,831,980.57
		Foreigner tourists	162.40	1.00	1,191,511	193,501,386.40
	Non-Use Value	Outsider	110.00	1.00	32,308,422	3,553,926,365.00
	Option Value	Local people	49.34	.83	48,543	1,987,835.85
		Thai tourists	66.56	.87	2,593,106	150,400,148.00
		Foreigner tourists	69.12	.68	1,191,511	56,001,017.00
Outsider		45.81	.62	32,308,422 ¹³⁾	917,559,170.60	
TCM	ITCM	Thai tourists	909.10	1.00	2,593,106	2,357,392,664.60
		Foreigner tourists	679.48	1.00	1,191,511	809,607,894.28
Total economic value of Ayuttaya Historical Park					=	8,505,023,942.10

c) Evaluating its optional values

Not surprisingly, the respondents are willing to pay the less they can, since this is the values of cultural heritage in the future which they may or may not receive. Therefore, respondents still lack of the awareness on its values and commonly concern the most on the existing value. The statistical analysis shows that the respondents in each group are willing to pay for protecting and preserving these types of value less than 100 Baht per person. In light of this, the promotion and support for enhancing community's understanding of the optional values are highly needed. The optional values is the value that could make Ayutthaya historical park pass on to the next generation for their prime of historical knowledge and being the pride of the people in the country everlastingly.

d) The individual Travel Cost Method

To find the individual travel costs of the tourist, this study focused on the travel expenses of the tourists, calculated by using the average cost of individual travel. We have collected the data by using questionnaire survey and determined the origin of tourist from their resident to Ayutthaya historical park. It was found that Thai tourists have the cost of travel higher than those foreign tourists (909.10 Baht and 679.48 Baht per

person, respectively). The reason is that Thai tourists normally use individual cars for travelling in the historical park. Meanwhile foreign tourists travel on foot or by a bicycle. The petrol cost for the car is much higher than bicycle renting cost.

(2) SWOT-AHP

In this part, we will show the result from the analysis of an overall awareness of Ayutthaya historical park by SWOT-AHP. The result found that strength factor(50.86%) is the first priority for perception of experts which include economic value of cultural heritage, a tourist attraction and the world's cultural heritage site. When considering in each issues economic value of cultural heritage is the most important issue for experts, the world's cultural heritage site issue and a tourist attraction issue ,respectively. On the other hand, weakness factor(14.90%) is the last priority for perception of experts which include the physical of Ayutthaya Historical Park, Community participation and the way of working of the organization authority ,respectively. (see fig. 3)

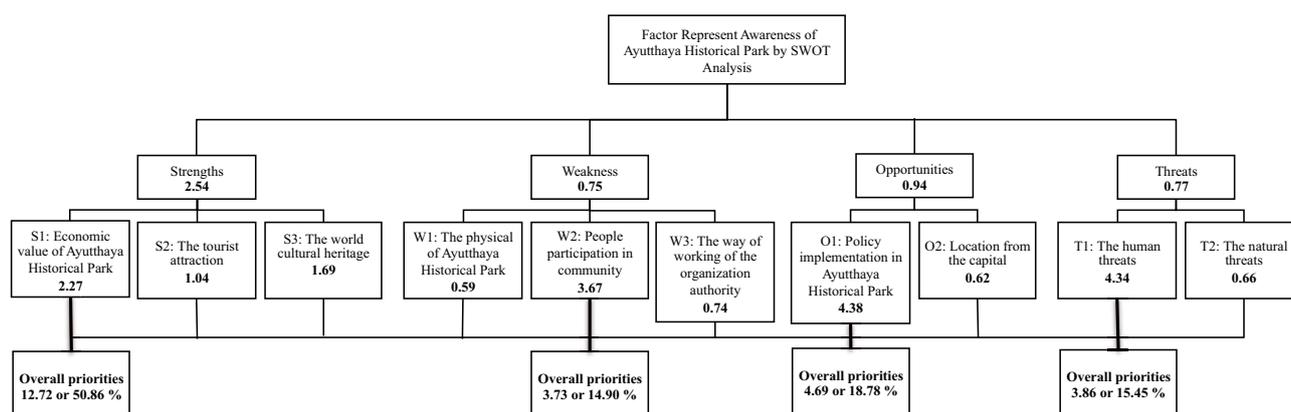


Fig. 3 Show Priority value of each factor represents an overall awareness of Ayutthaya historical park by SWOT-AHP

5. Recommendations

Since Fine Arts Department have processed decentralization, the conservation authorities of cultural and historical sites were transferred from central administrations to local administrations; namely, every historical site has their own administrative unit. An office of Ayutthaya historical park is also counted as one of local administrative unit established for Ayutthaya historical park conservation. As a result, cultural and historical heritage conservations were managed systematically. Unfortunately, a public participation process is not clearly addressed in the practical way of heritage conservations.

Therefore, future public policies should focus on a relationship between local administrative unit and local residents in processes of historical heritage conservation in order to enhance people's awareness and perceptions in maintaining the historical site as a common heritage. To promote historical heritage conservations, local governments should think about effective policy and solutions for historical park management, and they should also motivate local residents to get involved in Ayutthaya historical park conservation.

(1) Strategies for conservation and revitalization policies of Ayutthaya historical park

Effective policy strategies and solutions for Ayutthaya historical park conservations should be shifted from the conservation by local administrative unit alone to "community-based heritage conservation"; this approach aims to motivate local residents to get involved in practically maintaining and systematically managing the Ayutthaya historical park. An illustration of this is that local government educates local residents with historical conservation knowledge and public participation process in the heritage conservation. By this way, local knowledge (intelligence) and social capitals including with local resources will be accumulated as collective resources for historical park conservation.

(2) Creating public awareness on historical park conservations

Besides of designing an effective policy, promoting public awareness in historical values and residents' perceptions on historical heritage ownership can also give rise to an increase of public engagement with

historic heritage conservation. It can be potential results of increases in willingness to donate for historical park conservations. Results of the study reveal that most of donators perceive optional values of historical sites, which is a cultural heritage, inherited from predecessors, and they realize that these cultural heritages should be passed on to the next generation as well. According to the results, authors recommend the activities, which mainly emphasizes on enhancements of the historical scenery and cultural landscape. Because residents living in the area feel isolated from the historical park; namely, “It is mainly served for the tourist” said one of the respondents, it will therefore be better if historical sites, compassed by temples, can be use by community in their daily life. The activities such historical anniversary festival in Ayutthaya (Ayutthaya day) should be held at the historic park, not only placed at public schools as the previous events. Valuing the cultural and historical sites as the public space can lead local residents to perceive that they are the one who owns this heritage sites. This can be a possible result of ownership enhancement.

Creating the activities such historical anniversary festival in Ayutthaya (Ayutthaya day), which is normally held at the public school, the location could be change to the historic park. Thai original festivals are usually based on presenting the respects to ancestors by current generation. This will result embracing communities of all ages together in the common space where they have their history and past together.

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