# **Continual Development of Digital Archives of Kin-Men National Park**

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# Abstract

Kin-Men National Park is the first national park established for maintaining historical assets and war memorials. It contains natural resources, and both cultural and historical importance. It is highly vital in view of historical perspective and plays a milestone of bygone era by itself. In order to strengthen Kin-Men National Park's characteristics, and accomplish the goal of continual development, the project of digitalization of Kin-Men National Park has been initialized since 2009, and so far the project has gone of development. The first stage focuses on digitalization and establishing archives. The second stage is to construct an academic network and introductory websites for public's use, and promote related subjects through online educational methods, and combine homesteads, local gourmets, and specific tourist spots into a larger map for tourism. The third stage prioritizes on promoting the digital archives of Kin-Men Nation Park. The fourth stage focuses on value-increasing applications, and develops merchandises, electronic business process, and educational materials. Other than possessing special materials and massive digital archives, the project of developing digital archives of Kin-Men National Park is moreover a complete, innovative and a digital archive which contains aspects of continual development.Website: http://digital-kinmen.kmnp.gov.tw/

#### Preface

The three decades since Taiwan first established the Kenting National Park in the 1980s, have seen establishment of a total of eight national parks including those at Yushan, Yangmingshan, Taroko, Shei-Pa, Kinmen, Dongsha atoll and Taijiang. Established in 1995, as the sixth National Park - Kinmen National Park, is the first national park established by Taiwan to protect historical heritage assets, commemorate battlefields, and conserve natural resources. Establishment of the Kinmen National Park not only evinces the importance of preserving local cultural assets, but also ensures a more complete geographic scope for Taiwan's national park areas.

Digitalization is an important current policy focus for Taiwan's government. To ensure the sustainability of Taiwan's national park resources, this study relies on the policies announced in the Executive Yuan's "National Digital Museum Project", "National Digital Archives Program", "International Digital Library Cooperation Plan", "National Digital Archives Science and Technology Plan ", and other valuable experiences, to develop the Kinmen National Park Digital Archives project. Our study enjoyed support from the Kinmen National Park management for provision of park souvenirs, books, planning reports, photographs, promotional materials and audio-visual materials as digital content materials, and additionally used digital media to establish the Kinmen National Park Digital Archives thematic information website. This website platform can not only assure Kinmen historical sites and natural resources preservation, but these digital contents can be developed and applications promoted for them to expand integration of the knowledge, culture, communication and academic programs purposes of the park.

Given the background and purpose of this study, the five core goals underlying establishment of the Kinmen National Park Digital Archives are: "permanent archives", "public display", "academic research", "education and learning", and "cultural heritage."

#### **Research Methods**

In order to preserve the precious cultural assets of the Kinmen National Park, through four years this study centers on six core efforts revolving around establishment of a permanent collection, cultural preservation, public display, education, learning and academic research, to be carried out through digital content development, and after finishing assembling of the information and digital technology and application processes, to build a complete "Kinmen National Park Digital Archives Project." The research process for this study is shown in Figure 1.

| Kinmen National Park Heritage heritage assets |
|-----------------------------------------------|
| cataloging                                    |
|                                               |
| digitalization                                |
|                                               |
| website construction                          |
|                                               |
| marketing promotions                          |
|                                               |
| education and workshops                       |
|                                               |
| value added products and applications         |

Figure 1. Methodology and process of the study

#### Cataloging

Cataloging, refers to systematically assigning identification information for cultural relics or collection items in order to facilitate collection acquisitions and development, while museum cataloging of artifacts by classification systems facilitate access to heritage information by topic (Burcaw, 1997). This study requires that each collection item must first be catalogued and assigned an identifier, and each code must be a unique identifier which is not repeated. In this way, the researchers' relying on the digitalization process, may communicate through the cataloging object file encoding processes, to ensure collection objects will not be too numerous or confusing. The detailed list for this study is shown in Figure 2.

| 1 | information                |         |                   |                                                   | Log in<br>aumber | Condition                              |                 |                                             |                                             |             |       |                                                                                                                                                                                                       |
|---|----------------------------|---------|-------------------|---------------------------------------------------|------------------|----------------------------------------|-----------------|---------------------------------------------|---------------------------------------------|-------------|-------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 2 | Type of<br>the<br>Category | Pictuse | same of<br>object | Soieatifio<br>anme                                | amouat           | Log ia<br>aumber                       | neceive<br>date | got from                                    | pteserre<br>from                            | material    | size  | Describe the content                                                                                                                                                                                  |
| 3 | Slides                     | ALC:    | ±門八哥              | Casted Myna<br>I<br>Accidotheses<br>caistatalla   | casa<br>pásce    | kvap-slåfe-<br>bisl_Stun<br>-0001-0001 | 2003            | Kinmen National<br>Park<br>administrationhe | Kinmen National<br>Park<br>administrationhe | <u>film</u> | 正片    | 八年至都治治中每上,等年後時間常的居居,場長台,加減長台,<br>大事。後時時間100時間、周下間(市時時時)台面開台,分級間口<br>「時間(可見上年)一時間面。 長山に応用(市自動)部分的時間。<br>港台、開設五見石陶具、時、設合者的)、然為不利用,通常各級<br>間的時間、開始、部計、開始的任何可以発見、見違い的特定面<br>賞。 成長、長葉、道子名文、金融)開始有自己、協力手起文書 |
| 4 | 231週14                     |         | <b>☆門八</b> 暮      | Carsted Myno.<br>I<br>Arcidotheses<br>cuintetella | 1:58/19          | knap-slåke-<br>båd_Shan<br>-0002-0001  | 2003            | 全門國家公園管<br>理感出版                             | 金門國家公園管<br>理處                               | 際片          | 135mm | 加加加爾斯爾爾加爾加加加加爾爾爾加爾爾爾加爾爾加爾爾加爾爾加爾爾加爾爾爾加爾爾                                                                                                                                                               |
|   | 幻耀叶                        | 250 225 |                   | Carsted Myna                                      |                  |                                        | 2003            |                                             |                                             |             |       | · · · · · · · · · · · · · · · · · · ·                                                                                                                                                                 |

Figure 2. Detailed list

### Digitalization

The first step in the digitalization process involves selection of objects found desirable from the existing item collections. The items included in this study's collection include all kinds of Kinmen National Park souvenirs, books, planning reports, slides, promotional materials, military equipment and weapons, and audio-visual materials, etc.; in addition, Kinmen tourist information also serves as important content for this website, with contents and items such as: collection of images and data about local attractions, food snacks, accommodations including bed and breakfast guesthouses illustrated with flash animation, and so on. In all, this study has completed production of 25 flash animations for bed and breakfast guesthouse introduction, and gathering information on 40 attractions and culinary options, and provides access to first-hand information on these Kinmen attractions and sightseeing resources in the website's special tourism and guesthouses areas. In short, to facilitate follow-up in the digitalization operations, objects collected must be appropriately categorized, building up collection inventories by category. This study's collection items' classifications are shown in Table 1 and Figure 3

#### Table 1. Classifications of collection items

| 2D items            | Three-dimensional<br>objects | Audio         |
|---------------------|------------------------------|---------------|
| Slides              | Souvenirs                    | Humanities    |
| Books / promotional | Couvernie                    | i iailiailiai |
| materials           | Military Equipment           | Nature        |
| Tourist Information | Weapons                      | nature        |



Figure 3. Classifications of collection items

There are a number of commonly used techniques for implementation of Digital Archives efforts, and the various types of methods used in this study are summarized as follows:

 Digital photography: The high-end digital scan-back camera directly shoots images of the items in the collections. This is primarily used for the three-dimensional objects collected. Examples include: Souvenirs, military equipment and weapons. The digital photography for this study is shown in Figure 4.



Actual shooting picture quality Figure 4. Digital photography process

- adjusting light sources and color temperature
- Image scanning: uses high-end flatbed scanners to directly scan images of collection items and artifacts. This is primarily used for 2D objects collected, such collection items include for example: slides. The image scanning for this study is shown in Figure 5.

(digital

photography)



 Audio and video conversion: the process by which VHS tapes, DVD, VCD and so on are converted or edited. These methods of course primarily are used for processing or obtaining the audio-visual class of collection items. (see Figure 6)





Select the destination for the output file, set the output format, and click on the Yes button to begin conversion.

Figure 6. Audio and video conversion process



Search the DVD data file and select the VOB file to be converted

| WinAVI                     |                                | ORMINELL<br>· MASS Notest 228 August                 |
|----------------------------|--------------------------------|------------------------------------------------------|
| Video Converter<br>Ver 9.0 |                                | 0193060_75975_81_8.408                               |
| 正規1中32月底                   | 40.00 E348 -                   | Cillionaments and Settings Loss of<br>975, 21, 21495 |
| 製作編輯                       | 8-0.81 -<br>930-612 -<br>947 - | 10 四 進行轉相                                            |

File conversion in progress

### Website construction

In terms of the system deployment tools used, this website relies on cross-system software development programs, such as the PHP language which can be performed across Windows and Linux platforms. For the site to meet its calling of serving as the "Kinmen Cultural Relics and Natural Resource Conservation Knowledge Dissemination platform", besides the initial homepage the entire site needs to faithfully give expression to Kinmen's unique cultural and ecological images. Users must be able to choose their own viewing purposes, but also directly search into the academic research contents by keyword, collection type, etc. Advanced quick search fields are desirable to help find information in the vast digital collection, as is the category navigation mode which permits classification by the humanities, or nature fields from the macro down to the micro levels of the traditional villages, providing access to the unique military equipment or armaments of Kinmen, or Kinmen's native fauna and flora, and intertidal ecological resources. Therefore, in the academic research version page design, we emphasize a more cool and lighter, calmer tone; whereas the general public segmented navigation pages present collection material emphasizing Kinmen tourism information, whereby users can visit the tourist areas in each district of Kinmen, obtaining information about the local tourist attractions, dining options and guesthouses.

So the general public site has light cool color page design aimed at those site visitors will find a lively and dynamic atmosphere to stimulate their interest. Site-related modules are shown in Figure 7 and Table 2.





General Public Usage



Figure 7. Website pages

Table 2. Website construction

| The website construction of           |              |                                   |  |  |  |  |  |
|---------------------------------------|--------------|-----------------------------------|--|--|--|--|--|
| Kinmen National Park Digital Archives |              |                                   |  |  |  |  |  |
| For General Public                    |              |                                   |  |  |  |  |  |
| •                                     | Souveni      | rs                                |  |  |  |  |  |
|                                       | •            | Product Display                   |  |  |  |  |  |
|                                       | •            | Electronic Cards                  |  |  |  |  |  |
|                                       | •            | Desktop                           |  |  |  |  |  |
| •                                     | On-line      |                                   |  |  |  |  |  |
|                                       | •            | Look for answers                  |  |  |  |  |  |
|                                       | •            | The King of Kinmen                |  |  |  |  |  |
| •                                     | Tourism      |                                   |  |  |  |  |  |
|                                       | •            | Biking Tours                      |  |  |  |  |  |
|                                       | •            | Looking for wind Lion God Statute |  |  |  |  |  |
|                                       | •            | Fine Food                         |  |  |  |  |  |
|                                       | •<br>On Line | Impressions of Battlefield        |  |  |  |  |  |
| •                                     | On-Line      | Archives                          |  |  |  |  |  |
| •                                     | Videos       | Archives                          |  |  |  |  |  |
| •                                     | videos       | Cultural Heritage                 |  |  |  |  |  |
|                                       |              | Nature                            |  |  |  |  |  |
| For Aca                               | demic U      |                                   |  |  |  |  |  |
|                                       |              | Heritage                          |  |  |  |  |  |
|                                       | ·            | Traditional residency             |  |  |  |  |  |
|                                       | •            | Military Preparedness             |  |  |  |  |  |
| •                                     | Nature       |                                   |  |  |  |  |  |
|                                       | •            | Plants                            |  |  |  |  |  |
|                                       | •            | Birds                             |  |  |  |  |  |
|                                       | •            | Intertidal Zone                   |  |  |  |  |  |
| •                                     | On-Line      | Library                           |  |  |  |  |  |
| •                                     | Kinmen       | Archives                          |  |  |  |  |  |
| •                                     | Videos       |                                   |  |  |  |  |  |
|                                       | •            | Cultural Heritage                 |  |  |  |  |  |
|                                       | •            | Nature                            |  |  |  |  |  |

#### Marketing and Promotion

To enhance the visibility of this website and ensure maximum usage, this study looks to bloggers as a key demographic to promote our objectives by using the blogging community's networking capacity and influence to improve our site visibility. Promotions include activities in conjunction with events sponsored by the Kinmen National Park administration such as the "Search for the Lion of the Winds", by hosting a companion online "Visit the Lion of the Winds" activity (see Figure 8). The focus group for this activity will be the typical netizen, who have a keen sense of public spirit and who naturally like to share interesting news with others, as the key to attracting a wider audience and public attention. There had been 302 unique visitors attracted to the blogs, facebook and plurk sites, resulting in a total of 285 networking connections, evincing a highly successful response.



Figure 8. "Visit the Lion of the Winds" and "Search for the Lion of the Winds"

#### Education and workshops

Other than preserving vital information, it is also important to conduct such knowledge to public. The project focuses on two parts regarding educational aspects. The first is the online digital database which is designed for public education, while the digital collection program is designed for training new talents. (figure 9)

The other part emphasizes on training locals and government officials through specifically designed training methods. Such training would enable locals to retain necessary skills on cultural preservation. (figure 10)



Value-Added Applications

Through the construction of digital archives and obtaining numerous cultural information, the traditional cultural assets could be applied to the project. The examples are as follow: 1. The development of electronic maps for tourism(Figure11). 2. 3D displays (Figure 12). 3. Virtural reality(figure 13). 4. Value-added merchandise. (figure 14). 5. Electronic holiday season cards. (figure 15) 6. Easycards (figure 16). Such developments could have digital archives achieve its greatest advantage, and raise the value of the merchandise through cultural aspects, thus create a win-win situation.







Figure 12. 3D display



Figure 9. "Look for answers"



Figure 10. Workshops



Figure 13. Virtual reality



Figure 14. Value added products



Figure 15. E-card



Figure 16. Kinmen easycards

# Conclusion

Digital archive system has been developed for many years. Although of digitalization of its archives has reached apex, there is yet to have a continual development on value-added projects and marketing strategy. This project would be based on a 4-year program to fulfill its purpose. Through the construction of database, development of official websites, educational service, and proper marketing methods, this project could serve as the model for programs of digitalization, and provide vital data for further research.

# References

- [1] Yung-Cheng Hsieh, Archival Arts and Digitalization Processes, Taipei: National Taiwan University of Arts publication (2008)
- [2] Burcaw, G. Ellis, Introduction to Museum Work, Calif: Walnut Altaamira (1995).

# **Author Biography**

Dr. Yung-Cheng Hsieh is currently the President and Professor of the National Taiwan University of Arts (NTUA). He earned both his B.S. and M.S. degree in Kansas and Missouri, and Ph.D. degree in Industrial Technology with Statistics minor from Iowa State University. He taught at Illinois State University before he began teaching at NTUA. As a Visiting Professor during the summer of 2008, he taught at Department of Printing & Packaging of Wuhan University in China. Dr. Hsieh also conducted researches with Industrial Technology Department of Appalachian State University (NC, USA) as a Distinguished Full Professor in the summer of 2009.Dr. Hsieh specializes in graphic communication technology, digital archive and e-Learning, digital content development and application, applied statistics, experiment design, cultural creative industry. He received Silvius-Wolansky Award for outstanding research by the Iowa State University in 1997, Distinguished Research Award by National Science Council in 1999, Outstanding Professor in Industrial Technology Award by National Association of Industrial Technology of USA in 2002, The Research Excellence Award of NTUA in 2003 and 2006, and Top 100 Project Manager by Taiwan Project Management Association in 2008 and 2010 (Level D and C Certificate).

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