

工業遺產旅遊發展與社區的關係;

Gold Museum, New Taipei City Government 經營邁向第 10 年

Abstract:

位於礦業工業遺址金瓜石聚落，台灣第一個生態博物館個案 (Gold Museum)，即將在 2014 年邁入第 10 個年頭；本個案瞭解金瓜石礦業聚落從礦業停產致蕭條人口流失後，透過政府協助成立一個與在地社區互動活絡的平台 _Gold Museum_，藉此與在地居民共同面對礦業遺構的集體保存記憶，發展與互動的過程與變革，以及展望博物館與社區的共生發展趨勢。

Keywords: 工業遺址旅遊, 生態博物館, 金瓜石聚落, Gold Museum, 社區發展

1. Introduction

隨著世界工業的擴張與革命，18 世紀末世界的工業中心已逐漸往亞洲發展，日本在 1868 年明治維新後，在採礦，製鐵，造船，鐵路，紡織等各項工業技術都有顯著的進步與發展。1895 年甲午戰爭後，台灣成為日本的殖民地，日本在殖民台灣的 50 年間，大量推動工業生產，因此台灣現存的工業遺產主要以日治時期專賣事業體系的糖廠，酒廠，礦業為主，這些大量的廠房設施與遺構經過工業革命與產業的轉型，相關周邊的聚落民居空間也隨著凋零閒置。

最早工業化的英國在 1950 年即開始了工業遺產的研究，並在 1973 年成立了“工業遺產保存委員會”；此外，在 1970 年初期法國兩位博物館學者 Georges Henri Riviere 和 Hugues de Vairne 提出了“生態博物館”(ecomuseum) 這樣的理論，嘗試以經營博物館方式，並結合工業遺產，地景觀光資源旅遊方式維持地區經濟及文化發展的功能。此理論被全世界各國引用，也在這 40 多年來曾經有過 300 多座的生態博物館，後續因為不當的開發，經濟財源不穩定，社區的消極配合等因素關閉，目前世界上現存的生態博物館卻不過百座 (Qu, 2005)，由此可見生態博物館在實際運作上仍有許多亟待突破的地方。

臺灣在 1980 年間開始接受到生態博物館學理念 (Y.T.Chang, 2003)，並考量金瓜石礦業聚落，曾經是台灣最重要的金礦產地，隨著礦源式微及開採的深度不符經濟效益，於 1987 年休坑停採後，人口的大量外移，以致該地區蕭條而荒廢，且因為該地區對外交通不便，相關的礦業生活設施遺跡，迄今仍完整保留；也因此，該聚落地區在 2002 年被臺灣當局擇定為世界遺產潛力點“金瓜石聚落”(Jinguashi Gold Mining Community)。

本研究個案“Gold Museum”是為臺灣第一座工業遺產對外開放的“生態博物館”，2005 年營運開放迄今，參觀人次逐年升高，在 2012 年參觀人次更達到 1.25 million 人/年。本研究嘗試瞭解“工業遺產旅遊”與“生態博物館”經營關係，主要由“政府與專家角色”，“社區與居民參與”面向來觀察，時間主要從 1987 年礦坑休坑，1994 年開始籌設規劃，2005 年開館營運迄今，近 25 年來的變遷過程。希望藉由本研究個案瞭解“政府與專家”在過程當中的投入與努力以及“社區與居民”在本個案所扮演的角色，以提供未來發展工業遺址旅遊的改善建議。

2. Research Method

Methodology

本研究以臺灣“Gold Museum”以及所在金瓜石礦業遺址聚落為研究個案主體，試圖瞭解礦業遺址聚落蕭條到博物館開放前，後，對金瓜石礦業聚落環境的演變影響，以及政府作為對居民社區與遊客相互的關係。主要透過下列方法：

- 1) 文獻分析：
 - (1)蒐集“工業遺址”相關研究，以及世界各國“生態博物館”的研究與實例，嘗試瞭解法國，英國，美國的案例與狀況，比較本個案的關係及立論方向。
 - (2)並針對本研究主體的歷史資料文獻，政府相關法令以及博物館的出版品與官方網站資訊與新聞剪報資料，藉以分析，瞭解金瓜石聚落過往之礦業興衰，聚落形成，居民生活的歷史發展，並從歷史演變及政策規劃等面向說明金瓜石礦業遺址旅遊產業發展。
- 2) 田野調查：深度訪談，針對居民生活，對博物館態度，旅遊產業發展進行訪談。訪談對象包含當地里長及意見領袖，在地社區發展協會，文史工作團隊，以及中央，地方政府官員，民意代表，籌設博物館設計建築師以及黃金博物工作人員，民宿，餐飲業者及在地藝術家等，以瞭解當地居民生活與黃金博物館之間的互動關係。
- 3) 問卷調查：主要針對依據博物館開館以來的遊客問卷（平均1050份/年，有效問卷）分析，“遊客參觀行為”以封閉式問卷方式分析遊客參訪經驗。

2.1 工業遺產文獻回顧

Literature Review of Industrial Heritage

英國在 1950 年間即開始針對工業遺產的研究，並在 1973 年成立了 The International Committee for the Conservation of Industrial Heritage, TICCIH, 於 1981 年法國舉辦了第一個以工業遺產為主題的國際研討會，因此引發了一系列對工業遺產的保存運動。對於工業遺產的定義，主要以“國際工業遺址保存委員會 (TICCIH) “ 2003 年在俄羅斯的下塔爾市 (Nizhny Tagil) 發表<下塔爾憲章> (The Nizhny Tagil Charter, 2003) 為主：“具有歷史價值，技術價值，社會意義，建築或科學研究價值的工業文化遺留所構成。這些文化遺留包括了建物與機械，工作室，磨坊，工廠，礦場以及從事相關的加工與精煉化的場址，倉庫和貨棧，產製，輸送和使用能源的場所，交通運輸及其基礎設施，除此之外，還有與工業生產相關的其他社會活動場所，如住房供給，宗教崇拜或者教育”。因此，工業發展過程中所有為了工業活動建造的建築和構築物，工業生產過程，方法，技術與使用的工具，工業活動所處的城鎮背景以及形成的景觀，以及其他各種物質 (McKercher, Ho et al., 2005) 和非物質載體，都是組成工業遺產的元素，具有同等的重要性 (Yaw-Hsiang, 2008)。

回顧工業遺產研究，很多部分是以工業遺產結合觀光旅遊產業的型態活化。例如Coit (1996) 以英國威爾斯與西班牙的礦區案例，因礦業的逐漸衰竭，需創造新的就業機會，因而提出工業遺產發展觀光的4大面向：社會文化，運輸系統，生產程序，工業產物。並依此4大方色發展工業遺產旅遊，嘗試分析以大區域範圍的系統景點串連概念，活化工業遺產發展觀光的機會並討論可能的衝突。此研究提出了一個概念架構提供工業遺產轉型發展觀光產業的方向，並比較兩個區域的差異與優劣，主要的方法是整合區域內既有的共同產業子體，規劃串連自然

資源述說一種集體產業的母體整體形象。是屬於較理想性的理論分析，對於工業遺產發展觀光過程中，政府與專家對在地社區居民所扮演的角色，工業遺產設施活化過程與演變歷程，因為沒有實際的案例說明與對照，較少論述與討論。

此外，美國越來越多的工業城市，面臨工業轉型而蕭條，想藉由旅遊促進城市的轉型與發展，在Xie (2006) 研究中，瞭解縱使研究個案具有各種優渥的工業遺產發展觀光條件，然而過程中各種相關利益者意見差異以及在地區民的認同參與度低，缺乏有力可信的經營組織，等因素都使得想藉由吉普車博物館計畫活化Toledo托萊多這歷史悠久的車輛業工業城市計畫失敗，迄今仍處於規劃與計畫階段始終沒有落實呈現。

基於上述研究的回顧，普遍認為工業遺產雖是一種重要的旅遊資源，但是不當的管理及消耗終將枯竭 (Peil, 2005)，且若未能獲得在地居民的認同，計畫將僅能停留在概念階段無法實現，因此工業遺產的活化，不該只是經濟的目的，也應該具有文化的目標，才得以永續經營 (Lowenthal, 1998)。遺產除了依靠旅遊業快速轉型發展賴以生濟，應該有提昇到世界遺產 (WHS) 的遠景，需要著重在當地居民的生活態度及對整體環境共同價值的保存核心價值，除了保存計畫，更需要一個全面的管理機制與計畫 (Jimura, 2011)，因此本研究除了由“政府與專家角色”來研究此個案的成立發展過程外，特別著重於個案中“社區與居民參與”對計畫的影響。

2.2 生態博物館文獻回顧

1971 年法國博物館學者 (Hugues deVarine-Bohan), 提出“生態博物館”這個名詞，並在 1975 年成立了第一座正式以“生態博物館”自稱的〈人與工業博物館〉(The Museum of Man and Industry, Le Creusot-Montceau-les-Mines)。此類型博物館，著重在環境場域與在地居民生活方式的集體體現 (Kimeev, 2008)，也提出一種透過博物館組織運作管理活化工業資產的機制的可能。此個案包括 Le Creusot 和 Montceau-les-Mines 兩個城鎮，面積約 500 平方公里，一半是工業區，一半是鄉村區，居民約 150,000 人，多半是低收入的勞工或農民。在 18 世界末到第二次世界大戰結束，Le Creusot 是一個製造軍火與火車起家的工業重鎮，Montceau-les-Mines 是一個產煤礦的城鎮，兩個聚落距離約 20 公里，因為軍火與運輸工業唇齒相依。由於產業的衰退，亟需創造新的就業機會，因此結合在地一個 18 世紀軍火家族史耐德家族 (Schneider) 的古堡為博物館總部，加上 5 個衛星館，包括運河館 (The Maison du Canal du Centre at Ecuisses)，煤礦館 (The Coalmine at Blancy)，礦業學校館 (Maison d' Ecole at Montceau-les-Mines)，修道院 (The Medieval prior at Perrecy-les-Forges)，礦工住宅 (The Combe des Mineurs at Le Creusot)，利用這些衛星館周邊自然地景串連成線狀參觀動線，結合在地居民的行動方案，建構多種區域內網絡動線，構成整個“活的博物館”。從 1975~1985，這 10 年間是這個案例的黃金時代，這是一種新的博物館觀念與經營方式，其精神也影響了世界，也因此在各個國家都有類似理念成立的博物館。也因為前述的理念，博物館的經營方式理念也有重大的變革，其管理組織由傳統金字塔形式變為扁平式，大量的引用社區及外界專業人力，其主要由 3 個委員會所共同構成經營核心：

- 1) 使用者委員會 (users'committee) :由不同社會專業領域，文化弱勢，社區文史團體組成，負責活動規劃及成果評量。
- 2) 科學與技術委員會 (scientific and technical comittee) :博物館常設館員，講師，

義工，專家學者所組成，負責研究，維護，展示等工作。

- 3) 管理委員會 (management committee)：由提供財源的地方政府部門，公司立企業或其它贊助團體代表所組成，負責財務與行政監督。

法國這個個案，仍具有高度的創新與實驗價值，讓世界上各相關從業人員可以觀摩討論，藉以提供一種新的思潮 (Y.T. Chang, 2003)。然而，上述列 3 個扁平式委員會，因為來自不同背景，團體，均質性不足，流動也高，彼此常有意見衝突無法整合，另外專家所設計的展示，加上積極鼓勵地方民眾參與，因此在學術上的嚴謹度也較缺乏，專家與社區彼此合作方式，時有競合問題尚待解決。

在英國的鐵橋博物館亦有類似的精神，用 Open air museum, Neighborhood museum 甚少使用 ecomuseum 這個字，以英國著名的鐵橋博物館為例，“它具有分散性質，但是企圖述說一整體故事的博物館” (museum of fragmented nature that sought to tell a holistic story)，英國學者〈生態博物館：地方感〉(Ecomuseums: A Sense of Place) 作者戴維斯 (Peter Davis) 認為：博物館除了服務社區，更重要能吸引外地觀眾，才能創造足夠的營收，保證永續存活。另，康寧伯 (Conybeare) 認為：英國產生一系列社區或景觀博物館，之所以不想套用法國所創“生態博物館”的名詞，是因為英國在理念上，經營的客群對象不僅是地區性更希望提升到國際性，因此希望吸引大量觀光客及民間投資，以利永續經營。也因此博物館的經營主體為“國家信託基金會”，是屬於全國性的，除了將文化資產及文化景觀加以保存維護外，還需要致力於開放對外營運，屬全國，世界性的；然而，生態博物館一詞在法國源起時主要是在地區性，比較專注於服務社區並鼓勵倡導居民將地區視為一個文化單位的概念。雖然“生態博物館”一詞，在世界各國有著不同的名稱，認定規模，組構方式與解讀認知，但是其共同的精神是一種去中心化 (decentralization)，反對從“上而下”的策展方式，其理念主要是將核心價值放在聚落原始脈絡中，為地區文化特色及居民生活方式提供具體證明 (Y.T.Chang, 2003)。

2.3 文獻回顧小結

基於上述研究的回顧，普遍認為礦業遺產雖是一種重要的旅遊資源，但是不當的管理及消耗終將枯竭 (Peil, 2005)，且若未能獲得在地居民的認同，計畫將僅能停留在概念階段無法實現，因此礦業遺產的活化，不該只是經濟的目的，也應該具有文化的目標，才得以永續經營 (Lowenthal, 1998)。遺產除了依靠旅遊業快速轉型發展賴以生濟，應該有提昇到世界遺產 (WHS) 的遠景，需要著重在當地居民的生活態度及對整體環境共同價值的保存核心價值，除了保存計畫，更需要一個全面的管理機制與計畫 (Jimura, 2011)。此外，在 1970 年間博物館“生態博物館”理論，嘗試提供了一種發展管理的機制，然而不同國家的應用，也面臨不同的問題。

本研究是台灣最重要的礦業遺址並以“生態博物館”概念，發展觀光的個案，因此本研究除了由“政府與專家角色”來研究此個案的成立發展過程外，特別著重於個案中“社區與居民參與”對計畫的影響。

3. 金瓜石礦業遺址的歷史與現況; Gold Museum 成立時空背景

金瓜石聚落自 1890 年基隆河發現沙金開始，開採金礦迄 1987 年休坑，這將近百年來的變遷可以說是說是台灣百年採金史的具體縮影，主要可分為下列 5 個階段：

3.1 中國清朝政府時期 1890~1895

中國清朝政府早期針對礦業開採，理念上認為會妨礙風水，對當權者不利，所以限制了礦業的探勘及技術的發展。直到清朝末期1890台灣巡撫劉銘傳構築鐵橋工程時，意外發現金砂，而帶動了基隆河流域沿岸之淘金熱 (Pei-Chun, 2011)。當民間淘金逐漸狂熱，人口聚集造成農田欠收，因此清朝政府1892年設置金砂局管理；1895年中日甲午戰爭戰敗後，簽訂馬關條約將臺灣割讓予日本，清朝於臺灣之採金事業停止。

3.2 日本殖民統治時期 1895~1945

1895年臺灣成為日本殖民地，將礦產帶入工業化程序，也在此期間礦產量達到最高峰，並利用架空纜車運至靠近海岸水湳洞地區提煉，因此完整礦業聚落應該包含礦脈坑口周邊金瓜石聚落及煉礦的水湳洞附近地區，惟水湳洞冶煉場附近受限台灣環保法規公告為“土壤污染控制場址”目前無法對外開放，因此近年尚未納入Gold Museum規劃範圍。殖民時期台灣當地居民受雇為礦夫或勞工，在技術及經營方面均由日本人掌管，以1939年產金高峰期為例，日籍作業人員747人，台灣本島籍6,298人，以及來自中國（溫州，福州等地招募來的工人）2443人，總計日本礦業公司，合計有9,448工作人員，可以想像當時聚落繁榮景象 (W.F. CHEN, 1972)。因此，日本在此時期大量興建礦產設施，日籍幹部宿舍，醫院，派出所，小學校，而台籍勞工依山勢錯落興建的民居也逐漸擴張。而現今Gold Museum核心區，即是以日治時期第5號坑口附近廠房及主要日籍幹部宿舍群腹地範圍所構成。其規劃層次，主要包括3個層次範圍所構成：

- 1) 核心區：礦場坑口與廠房與日籍幹部宿舍區域構成。
- 2) 聚落發展區：主要台籍礦工民生活居住消費錯落地區，現行社區聚落。
- 3) 資源整合區：視野結合自然地景稜線，地貌及相關礦業運輸動線範圍。

3.3 戰後國民政府時期 1945~1987

1945年第二次世界大戰日本戰敗後，台灣國民政府接收管理金瓜石附近廠房設施，1946年成立“台灣金銅礦務局籌備處”，1955年改組為“台灣金屬鑛業公司”（簡稱台金公司），台金公司1981年為了提升礦產加工能力向銀行貸款，在水湳洞附近興建禮樂煉銅廠。但由於國際銅價不斷下跌，在無力償還銀行貸款的情況下，台金公司終於在1987年宣告停止營業，而將相關廠房，土地變賣交由臺電公司，台糖公司代償銀行債務並負責後續管理，結束了金瓜石礦業聚落近百年的採金歷史。

3.4 荒廢到前黃金博物館時期 1987~2002

雖於1987年間停止採礦，但依據澳洲，德國的探勘專家評估金瓜石附近地區仍擁有相當可觀的蘊藏礦量，不排除未來有新工法，技術時重新啟動開採，因此附近地區土地使用迄今仍屬於礦業目的事業用地。Taiwan Sugar, Taiwan Power接管土地期間雖有其他土地開發利用的想法，但仍受限於土地管制以及聚落居民地上物的處理困難而作罷；居民因為只擁有居住地上權且看不見未來地區的發展性，也不願多花經費整修房舍，因此聚落內大致維持了原有建築型態且逐漸敗壞凋零。

1989年，臺灣導演侯孝賢以金瓜石礦業附近地區為主要電影場景拍攝的< A

City of Sadness> 反映台灣歷史爭議“228”事件的電影，參加義大利威尼斯影展並榮獲最佳影片“Golden Lion”的殊榮，成為台灣首部在世界級影展榮獲首獎的電影。此後，金瓜石礦業聚落自然地景及引發了一系列電影，電視劇，廣告拍攝的風潮，其中以1992年< Hill of No Return> 刻劃出日治時期台灣人被殖民生活的電影作品，主題引用在地金礦工人的生活故事特別引起共鳴，引發了一系列追逐電影場景的礦業旅行風潮。

因此礦業主管機關，礦物局中小企業處開始著手輔導居民產業轉型，推動社區型的礦業觀光輔導課程，藉由課程分享在地的故事，並透過定期聚會串連資源。此期間社區居民主要訴求爭取居民土地的所有權藉以經營小規模的民宿，以挽救因礦業休坑停止而逐漸荒廢的社區經濟。社區居民，瞭解目前台灣並無相關採礦技術，地區若不開採礦業，若無透過觀光產業導入地方經濟，聚落終將敗壞凋零，因此居民積極奔走並倡導保存逐漸敗壞的礦業的設施機具，廠房設施，並藉以尋求小規模的社區觀光經濟賴以維生。經過多年的小型觀光經濟與社區轉型民宿醞釀，1995年在地區文史工作者，里長積極奔走呼籲政府應該成立專責機構以保留礦產遺址設施，也因此促成地方政府委託“專家學者”著手規劃礦坑口建築改建籌設“金屬礦物博物館”，而此規劃也成為現今“Gold Museum”重要的規劃基礎。

3.5 Gold Museum 的籌設與改造階段 2002~2005

基於上述的規劃，2002年當時臺北縣政府（2011年升格為直轄市，New Taipei City Government）問偕同當地居民及專業團隊經過多次現勘，討論與評估後，決定以“生態博物館”為理念創設礦業遺址博物館。將機關命名為“臺北縣黃金博物園區”，並與地主（Taiwan Sugar, Taiwan Power）簽訂“黃金博物園區三方合作發展意願書”，期待轉型為礦業文化觀光，以解決土地長期受限礦業目的使用限制。

在籌設期間考量財源及永續性經營，地方政府成立“博物館籌設工作小組”決定採用英國學者康寧伯（Conybeare, 1996）概念：政府在初期投資修建核心區館舍後，中，長期必須吸引大量觀光客及外來的投資，才能永續經營的理念。因此初期，將Gold Museum整核心區體建築分下列兩階段開發：

Phase 1: 由政府投資興建，主要供為基礎行政，教育，展示設施，於2005年完工開放。主由一主要館舍及六大衛星館舍構成：
主要館舍“黃金館與本山五坑”：展示鎮館之寶，以特殊真空鑄造方式，開館當時為全世界最大，總重220.33KG99.99純金大金磚（目前全世界第二大），配合實際的金礦礦坑坑道，淘金體驗區所構成。此外，六大衛星館舍：“遊客中心”，“四連棟”，“環境館”，“太子賓館”，“煉金樓”，“金水特展室”，分別提供了諮詢服務，地質，歷史，生態，教育功能與當地庶民生活形態場景以及金屬工藝及其相關衍生藝術，文創商品。

Phase 2: 在前述館舍周邊腹地，以促參招商方式BOT興建所需附屬設施：餐飲，旅宿，藝術工作坊，交通遊憩等設施，原先規劃於2007年開始招商，興建期2年，營運期20年。

3.5.1 初期整體建築配置構想

規劃配置延續先前“金屬礦物博物館”規劃案成果，核心區第一階段建築

配置及設計構想如下：

- (1) 以金礦坑（五坑）為中心，創造一個如同城市廣場（plaza）的中心點。
- (2) 以透明的帷幕玻璃牆的界定外部公共空間以及博物館群及坑道體驗區。嘗試將礦坑體驗部分恢復原始採礦原貌。
- (3) 在其他建築群修復上，外觀上強調“修復”的觀念，嘗試呈現日治時期建築外觀樣貌，並需符合現代博物館內部設施之水準。

3.5.2 初期建設與社區居民互動關係

博物館開放後，雖是以“生態博物館”為概念籌設，但籌設初期受政府財源年期規劃及執行率因素影響，著重於硬體建設，及內部人員訓練培育，與一般傳統博物館籌設過程並無太大差別，與社區居民互動參與的程度非常有限。也因此博物館初期與居民有著緊張衝突的關係，主要原因如下：

- (1) 博物館初期施工密集，產生的交通，噪音衝擊，缺乏與居民溝通。
- (2) 第一階段核心區，博物館自2005年開放採門票收費制度後，管制部分區內交通後造成居民生活路徑改變。
- (3) 第二階段的核心區招商計畫開發相關旅店，餐飲零售業者，居民認與社區經營民宿，餐飲零業競合，將影響居民生計。
- (4) 開放初期湧入大量遊客，造成例假日地區連外交通系統壅塞，大量遊客衍生帶來的交通與垃圾污染造成社區困擾。

3.6 Gold Museum 幾次重要的經營方式改變及影響 2005~2012

3.6.1 核心區第二期 BOT 促參計畫的失敗與變革

博物館於2005年第一階段教育，展示主要設施完成對外開放後，即積極進行第二階段“民間參BOT二期興建營運計畫”目的為提供整體觀光所需的附屬設施，計畫擴大對外招商：內容包含132間日式宿舍飯店及3間特色餐廳與1間特色商店（營運期20年）。惟於2008年間合計3次流標。經檢討顯示主要無法順利招標原因如下：(1) 整體市場景氣不佳，營建物價飛漲；(2) 用地為特定目的事業用地之礦業使用，增加投資不確定性；(3) 交通的不便利性，增加投資風險；(4) 散落式旅店分佈增加營運成本；(5) 地方居民的認同不足造成抗爭，增加投資風險。因此，原規劃第二階段開發用地納入博物館自行管理範圍，原停滯的第三期發展區，由博物館採自營方式經營藝術工坊，DIY並輔以小型店舖OT方式委外（在地居民，小成本）經營餐飲，文創商店設施補足關觀光所需附屬設施，並規劃相關日式宿舍旅店部分闢建增設為第7大衛星館舍：二連棟藝術家駐村創作空間，提供國際藝術家進駐創作，與遊客互動交流，避免經營民宿與社區民宿業者競爭方式經營。

3.6.2 免收門票政策與居民態度的改變

2008年且因應地方政府升格為準直轄市（Taipei County預計於2011年升格為New Taipei City），New Taipei City所屬所有博物館於2008年採開放免門票參觀，因為此經營方向的改變，博物館不再需要管制核心區內動線，因此恢復了原居民社區生活路徑動線，毗鄰民居建築可經營零售店舖，因此博物館與社區界線逐漸模糊，社區建築逐漸融入成為博物館建築群的一部份。

因為上述的改變，博物館開始著重於與社區交界面的處理，整理聚落內鋪面，

標示, 解說牌, 街道家具改善; 隨著核心區第一階段工程的完工, 第二階段促參案的終止, 博物館人員可以專心致力於社區經營, 與主題展覽, 結合活動方式整體行銷, 並結合社區既有的無形文化節慶活動: 迎媽祖, 關公節, 青草祭等辦理主題式展覽, 出版民宿及景點專書, 與居民一起合作拍攝微電影, 藉此整體行銷博物館及其所在的礦業聚落, 社區開始逐漸承載博物館營運所需的附屬商業設施。

博物館與社區關係也逐漸改善, 博物館核心區也因此逐漸或大到社區聚落發展範圍, 遊客開始川流於聚落社區巷弄, 因此雖然會影響居民們生活隱私, 然而也透過了此小型觀光經濟, 讓社區居民及外來經營者對聚落的活化方式增加了許多的想像與投資意願。

3.6.3 博物館核心區建築型態對社區環境的改變

籌設初期博物館的硬體改善, 是以核心區恢復日治期間產金高峰聚落繁榮時期方式整理了相關硬體設施。因為博物館開放後引入了大批的觀光客, 社區內閒置空間, 即扮演了承載博物館所需相關附屬設施的需求, 居民們自2005年起開始經營飲食小吃, 飲料, 特色民宿與零售店鋪, 2008年博物館第二階段促參計畫失敗, 且改採免收門票方式經營後, 遊客倍增, 居民開始投資修建聚落內閒置空間, 相關室內裝修, 建築外觀語彙也開始仿效博物館建築群語彙, 希望融入博物館建築群。

隨著2008~2012近年觀光客的穩定倍增, 居民修繕美化情況越增, 社區內原閒置, 凋零的房舍, 開始有外來的經營者願意承租, 購買地上權予以修繕, 惟受限於該地區土地管制仍屬於“礦業目的使用”的限建開發區, 居民多半會以蠶食增, 修建方式, 並仿校日式斜屋頂方式修建 (考量成本因素, 多半採輕鋼架斜頂黑瓦或是柏油油毛氈屋頂)。修建時避免大規模開發並避免使用RC, 玻璃, 現代建材形成突兀, 遭受社區居民, 遊客檢舉, 因突兀破壞整體景觀協調性而遭受地方政府勒令拆除的窘境, 也因此博物館群與社區環境仍一直維持黑屋頂, 小尺度, 仿木構造的形式語彙, 遊客對博物館經營範圍邊界逐漸模糊, 博物館範圍逐漸納入社區聚落發展區, 而社區內建築語彙與型態也逐漸仿效核心區建築修建美化, 以利吸引遊客自然穿梭, 以利社區經濟。

3.6.3 博物館推動金屬工藝產業的方向改變

2005年博物館開館初期, 博物館希望社區除了經營民宿外, 為了減少第二階段促參招商對社區經營民宿與零售的衝擊, 希望以社區營造方式, 輔導在地居民產業轉型, 引入文創產業金屬工藝技術, 因此於2005~2010連續開辦了5年的金屬工藝課程, 設置金屬工藝專用教室, 培育社區金工人才, 並於2007年起每兩年辦理一次全國性的金工比賽, 希望逐漸帶動社區走向金屬工藝特色聚落。

但是從該發展社會時空背景觀察, 金瓜石聚落屬於礦源產地, 居民多屬礦產技術或勞工階級, 對於文創產業, 美學所需的金飾加工更或是金屬工藝並無任何經驗。聚落百年來歷史並無金屬工藝發展軌跡, 甚至連打金舖也沒有, 且隨著國際貴金屬價格持續攀高, 且博物館周邊聚落並無相關產業, 學界的基礎環境, 以致於初期基礎人才培育後, 人才都往市中心尋求進修發展, 再加上材料費日益高漲, 很多人因此半途中止, 也因此金屬工藝產業目前在金瓜石社區聚落內仍未成形, 隨著逐年營運金費的緊縮, 博物館相關的金屬工藝推廣課程自2011年暫緩辦理。

雖然如此，博物館在推展金屬工藝這個部分，將原先試想扶植在地注入新產業的政策方向，逐漸轉型為提供台灣地區金屬工藝推動整合的比賽與平台，2013年已經邁入第4屆，在臺灣地區已經成為獎金最高且最重要的金屬工藝的比賽。也因為比賽品牌的建立，博物館逐漸成為臺灣地區重要的金屬工藝展覽，推廣，交流的重要平台。

3.6.4 博物館策展模式與典藏物品方向的改變

博物館籌設及開放前4年著重於核心建築群的整備及相關附屬設施招商工作，其主要策展方向著重於專家導向的礦業聚落的歷史呈現方式。近年來隨著與社區關係的改善，展覽規劃與策展著重於與在地的連結，結合社區達人及志工帶領遊客的“礦山健走”著重於在地自然生態，礦業場景與居民生活的故事，結合在地宗教信仰的民俗祭典主題活動（迎媽祖，關公節，青草祭），並與在地居民生活巷弄，場景，民宿，並藉由紀錄片，微電影等方式與遊客互動，藉以整體行銷串連當地傳說，故事與博物館周邊特色景點。

隨著上述策展方式的改變，博物館的典藏品，也由初期的，採礦產機具，工具，貴金屬飾品，轉型向社區耆老口述歷史的調查，紀錄片，影像，書籍，生活器具，文史資料等百年礦業聚落的生活面向物品。

3.6.5 博物館參觀遊客的變化與趨勢

彙整近8年來歷年參觀人次關係 (Table 1)，可見開館前4年，參觀旅次呈現逐年下滑的情況，究其原因係因為博物館相關附屬設施不足且屢屢與社區關係惡化造成負面影響。在2008博物館二期BOT委外促參失敗後，博物館改採免費參觀方式並恢復原有居民生活路徑動線後，參觀人次自2009年逐年成長31%，17%，13%，7%到2012年12.5 million 人達開放後最高峰。並依假日交通嚴重擁塞情況觀察，逐年成長趨緩主因，歸咎於山區交通不易，對外連接交通未改善前，未來參觀旅次增長，仍受假日交通可承載總量限制。

Table 1: 2005~2012年參觀人次表

年份	2005	2006	2007	2008	2009	2010	2011	2012
參觀人次	924,390	793,263	664,694	665,479	874,479	1,026,248	1,167,203	1,252,415

3.6.6 博物館發展與社區民宿趨勢

Table 2: 2005~2012年博物館遊客住宿需求表

年份	2005	2006	2007	2008	2009	2010	2011	2012
超過一天需住宿	21.5%	26.3%	20.1%	22.7%	24%	33%	13.3%	18.7%
金瓜石附近民宿	2.1%	3.5%	3.6%	6.6%	15%	21%	20.1%	21.5%

彙整近8年參觀博物館遊客平均約有22.5%表示規劃參訪博物館整體行程規劃有住宿需求 (Table 2) 在2011年地方政府大量的增加了公共汽車運輸交通接駁，並延長早，晚班車次後，反而驟減了遊客隔夜留宿的需求。然而有住宿需求的遊客中，選擇住宿在博物館周邊民宿需求呈現逐年穩定成長的趨勢，特別在2008年因為博物館第二期BOT附屬商業設施招標失敗後，社區居民開始願意投

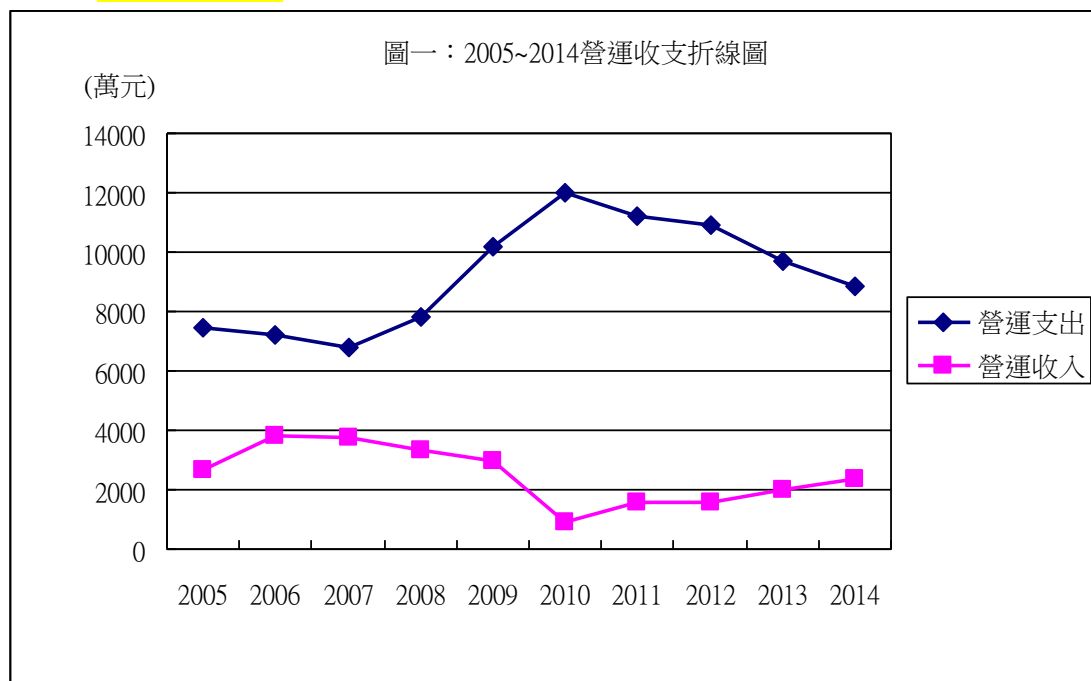
資改善民宿環境，無論在質，量上都有顯著的提升，也因此選擇金瓜石附近民宿投宿的遊客從6.6%，成長到2009年的15%，並隨後幾年逐年穩定成長。

3.6.7 博物館營運所需營運支出，收入趨勢

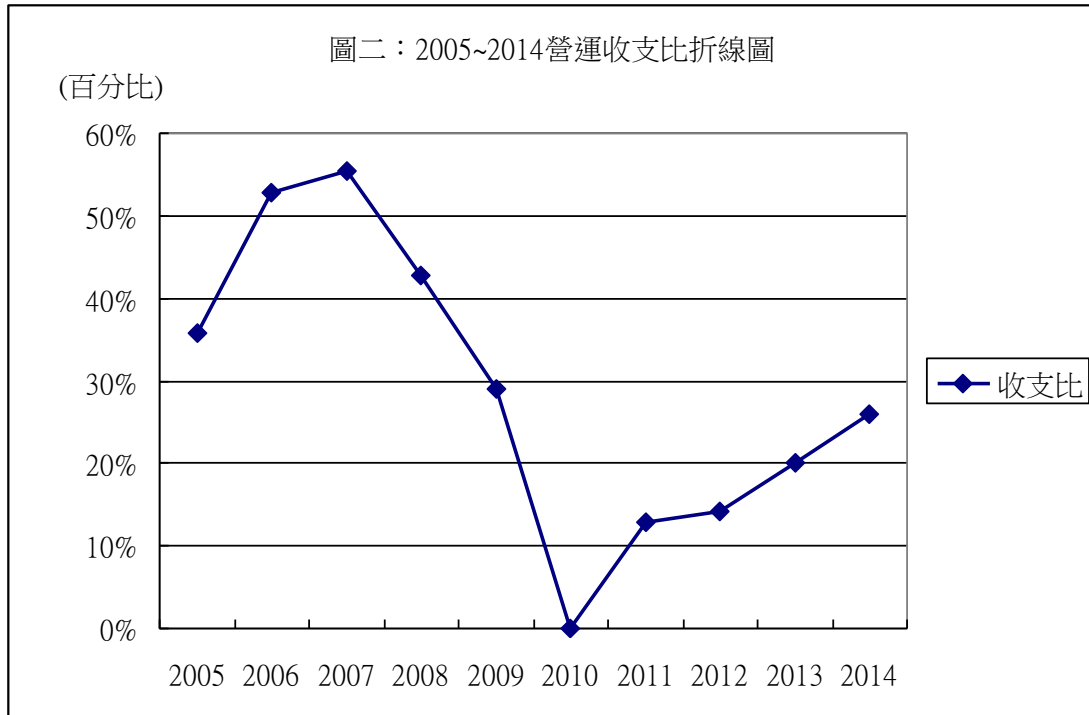
Table 3: 2005~2014年營運收支一覽表

年份	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
營運支出	7,477	7,203	6,773	7,808	10,199	11,974	11,204	10,932	9,679	8,850
營運收入	2,682	3,803	3,756	3,347	2,958	918	1,547	1,550	1,980	2,350
收支比	35.8%	52.7%	55.4%	42.8%	29%	7.6%	12.9%	14.2%	20%	26%

彙整館方8年來營運經費，以及加上2013，2014官方概算合計10年來博物館營運資料，可見營運所需前4年支出穩定每年約73.15 million，2009~2012年支出所需亦呈現穩定每年約110.77 million，然而自2012年起營運所需支出有明顯下滑趨勢 (如Figure 1)。



由於2008年促參失敗後改採免收門票政策推動後營運收入在2009，2010年明顯驟減，隨著遊客的逐年增加，博物館內相關淘金，坑道體驗及DIY金工創作等收費，自2011年起呈現逐年增加趨勢，收支比前4年平均為44.6%，然而在2010年達到最低7.6%隨後，近年來營運支出呈現逐年下滑穩定現象，而營運收入與遊客數呈現逐年增加的趨勢 (如Figure 2)。



4. Conclusions

4.1 本個案“生態博物館”在地居民扮演了關鍵性的角色

金瓜石礦業遺址地區在礦產停產後，聚落失去經濟功能，社區內經濟人口大半遷移離開謀求生計發展，留在現地居民，多屬經濟弱勢或老、幼非經濟人口。因此，本個案博物館的雛形與推動，主要是為求社區生存經濟轉型的動能，並配合國際得獎電影的行銷曝光，促成地方政府投資而成立。

在2005年博物館對外營運開放初期，隨著遊客的增加確實活絡了地區經濟。但因為開館初期相關對外交通配套規劃不足，館區收費制度影響原有居民生活路徑，大量遊客帶來的垃圾，交通衝擊，造成居民生活與諸多不便，且因為博物館初期積極著手附屬商業設施招商，其經營主要內容包括旅宿，餐飲，店鋪等商業設施，這些項目均與社區經營的民宿與零售等社區經濟項目競合。

然因為居民長期努力催生了博物館的誕生，博物館開放後其經營方式卻無法促進社區經濟反而造成居民生活干擾，此矛盾的情緒造成營運初期博物館與居民互動冷漠，時有居民抗爭衝突現象發生。

上述現象在2008年招商失敗後，博物館收費，營運管理方式改變，恢復核心區內原有居民生活動線，並採與居民合作方式行銷聚落民宿，街景，零售店鋪，居民也開始仿效博物館建築群修復語彙整修自宅，而逐漸形成博物館核心區建築與居民聚落結合型態，居民承擔了主要博物館附屬服務空間功能，也因此的生活作息也逐漸受博物館開放，休息時段影響共進退；遊客也開始逐年增加，並留宿於博物館周邊民宿。

本個案在地居民在無其他退路情況下發展地區型礦業觀光，因為居民的動能促成政府的關注與資金的挹注，雖發展過程中政府，居民的關係經歷了，醞釀，促成，競合，衝突，合作的複雜關係歷程，造成本個案迄今呈現公，私部門相互交融合作，且共同服務遊客的“生態博物館”模式經驗。

4.2 本個案“生態博物館”的構成與遊客發展趨勢

本個案發展迄今，主要由下列兩個部分相融合而構成：

第一，博物館核心建築群：由政府挹注金費，仿日治時期產金高峰時期建築空間樣貌的建築群，內容主要：展覽，教育，推廣，行政硬體設施。

第二，聚落民居發展區：由在地居民自籌經費，經營的餐飲，民宿，零售等店鋪。

觀察本個案遊客參觀人次/年，在2008年改採免收門票及與居民合作經營方式改變後，參觀遊客數量明顯自2009年起665,000人逐年攀高成長至2012年1,252,000人；此外在政府所需營運支出部分在2010到達高峰後有逐年遞減趨勢，此現象呈現由政府所經營的博物館核心建築群發展逐漸穩定。在另一方面，遊客選擇居住於當地民宿趨勢有逐年增長情況觀察，聚落內民宿逐年增加也增加了社區經濟，此現象呈現出聚落居民發展區有逐年擴大的情況。(如Figure 3)



本研究個案籌備期間採用法國生態博物館這名詞籌設，並在籌備開館營運規劃採用英國學者康寧伯的理論 (Conybeare, 1996)，以納入民間投資建設方式規劃，希望引入外部資金以利永續經營。然而本研究個案，卻因對外招商失敗，在缺乏配套的附屬商業設施下，2005~2008年參觀人數從2005年開放924,000人逐年下滑至2008年665,000人次。然而卻也在招商引入外部資金失敗後，反而促使在地社區小型資金投資聚落內閒置空間重新活化，居民返鄉逐漸活絡了社區居民的生活巷弄空間，並逐漸承擔了博物館所需周邊附屬商業設施，解決了博物館周邊附屬商業設施不足的情形。因此自2009年起~2012年呈現參觀遊客逐年穩定增長的趨勢。

從此個案中發現，政府資金投資興建博物館核心區初期設施後，社區經濟隨著礦業發展逐漸轉向文化觀光，博物館的經營若能營造友善社區的環境及策展方向，社區及可以透過下而上的社區營造動能，自然發展出與博物館核心區互惠生存的社區經濟與空間發展模式；此外在博物館所需營運支出部分在2010到達高峰後有逐年遞減趨勢，此現象呈現由政府所經營的博物館核心建築群發展逐漸穩定。在另一方面，遊客選擇居住於當地民宿趨勢有逐年增長情況觀察，聚落

內民宿逐年增加也增加了社區經濟，此現象呈現出社區聚落發展區有逐年擴大的情況。

4.3 管理機構的組織與財源，權力與認同

從現實營運的角度觀點而言，博物館是持續性的投資，一向需要大量經費挹注的事業 (Y.T. Chang, 2003)。博物館必須有穩定的資金，以致傳統的博物館一向具有中央集權的角色，在中央文化，教育體制系統外的文化活動很難獲得資源，地方上若要爭取生態博物館的主導權，及意味著在心裡及財務上，要儘量自籌且獨立運作。在法國 (The Museum of Man and Industry, Le Creusot-Montceau-les-Mines) 生態博物館，其管理組織由傳統金字塔形式改變為扁平式，大量的引用社區及外界專業人力，並積極鼓勵地方民眾參與，以致經常呈現專業者與居民意見競合與在學術上的嚴謹度也較缺乏的窘境。

在本研究個案，籌設初期雖是以生態博物館為理念所籌設，因受限於經費的來源，博物館核心區內經營方式仍無法跳脫傳統博物館的經營模式，仍採上而下式的管理組織，許多的展覽與政策方向，仍採管理者模式進行。且因為博物館隸屬於地方政府文化局 (財源)，其所管轄下其它博物館如 New Taipei City Yingge Ceramics Museum, Shihsanhang Museum of Archaeology, Tamsui Historical Museum 等等，仍屬於傳統式博物館類型經營型態，致本個案博物館所面臨的上級機關績效評核與政府部門經營的博物館研究的專業學術性，並無其它標準及年期，因此無法依據法國的經驗採扁平式管理組織運作方式。

然而，因為本個案博物館的構成與遊客發展趨勢，擴大納入居民生活聚落範圍後，遊客穿梭於公營博物館核心區與民間自營的聚落發展區內，因此博物館責無旁貸開始針對大範圍地區設置標示牌，繪製導覽地圖，將社區公共街道清潔納入博物館管理範圍；遊客開始穿梭於聚落巷弄，因為隱私問題，部分一樓生活空間變更為店鋪，或展示空間，並開始擴大經營民宿，餐廳等空間，相關陳設佈置都由居民所主導，其建築物外觀等整修語彙，大半仿效博物館核心區建築。

而上述這些由社區建築改建呈現的零售店鋪，展場與陳設，即呈現了地區文史工作者，藝術家及社區生活的居住型態，及在地的傳說故事。

因此，本研究個案博物館區域既存在內核心區“上而下”專家主導式，也呈現“下而上”在地社區生活場景與記憶。從本研究個案歷史發展脈絡觀察，從百年的礦業停產至蕭條，在新電影的觸媒啟動下，引發懷舊礦業旅遊的商機，帶動居民社區營造為求社區經濟的存活與轉型；博物館的規劃，招商失敗後，反而促使兩種系統，結構體 (核心區的博物館，聚落發展區的居民)，融合並企圖敘述一整個故事。

此外，在建築物修復方式上，也採取恢復日治時期採金高峰時期的聚落規劃，形式語彙，外觀仿古包覆，也逐漸的影響居民以現代建材方式呈現一種新的區域性的文化形式。因此，本個案亦有別於傳統博物館“物件導向”文物的收藏，而是呈現在地礦業遺址轉型到地區文化觀光的過程，博物館策展思考不僅著重於過去百年來礦業的歷史曾經發生什麼事情，而是呈現現在並交付遊客與居民互動想像未來的可能性。

5. Conclusion

“生態博物館”一詞，在世界各國有著許多不同的定義與操作模式，然而由本研究經驗看來，並無存在一種“理想典範”的操作發展模式，但就本個案“生

態博物館”而言仍有下列重要的因素以有效維繫本個案的永續發展:

- 1) 面對生存沒有退路的社區經濟轉型共識, 以凝聚籌設動能.
- 2) 政府的投資與專家的協助籌設.
- 3) 博物館營運與在地居民社區經濟緊密的結合與合作.

金瓜石附近地區曾經是台灣最重要的礦產地區, 隨著礦業的蕭條式微因為民間社區的生存需要轉化促使政府的投資興建籌措 “Gold Museum”, 其周邊地區也從單純的礦業經濟, 轉型迄今以博物館與社區聚落共存的礦業文化觀光方式呈現; 然而, 隨著這25年來物價及貴金屬的飆漲, 伴隨著國際採礦技術的進步, 近年來已有澳洲, 德國等專業團隊與台灣的地質調查所, 積極評估本地區重新開採貴金屬的可能性. 本個案 “生態博物館” 與社區互動發展過程實際展現一種在地文化自我定義與再定義的過程, 也因為這獨有的特色, 目前已經儼然成為世界級的觀光重鎮.

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The Relationship between the Development of Industrial Heritage
Tourism and Communities;
The upcoming 10th Anniversary of the Gold Museum, New Taipei City
Government

Abstract:

The Gold Museum, which is Taiwan's first case of eco-museum and is situated in the mining heritage site "Jinquashi gold mining community", is embracing its forthcoming 10th anniversary in 2014. Understanding that the Jinquashi gold mining community has experienced serious out-migration and population loss since the declining and discontinued mining operations, this case (museum) employed the government's assistance to establish the Gold Museum, which serves as a platform for the museum's interactions and social activities with the local community. Through the establishment of this museum, it is anticipated that the museum and the locals can jointly preserve a collective memory of development, interaction, process, and transformation which took place in the mining heritage, as well as cultivate a trend of a symbiotic relationship between the museum and the community.

Keywords: industrial heritage tourism, eco-museum, Jinquashi gold mining community, Gold Museum, community development

1. Introduction

Along with the expansion and revolution of industries around the world, the global industrial center gradually shifted to Asia in the late 18th century. After the Meiji Restoration in 1868, Japan began to experience significant progress and development in mining, iron production, shipbuilding, railways, textiles, and various other industrial technologies. After the Sino-Japanese War in 1895, Taiwan became a Japanese colony. During the 50-year Japanese rule, industrial production in Taiwan was greatly boosted, resulting in the majority of remaining industrial heritages in Taiwan being sugar refineries, wineries, and mining industry under a monopoly business system in the Japanese occupation period. After these multitude of factory infrastructure and relics of ancient buildings went through the Industrial Revolution and industrial transformation, settlements and space of residents in the peripheral areas became idle or withered away.

As the first nation to become industrialized, the United Kingdom took the lead to start studies of industrial heritages in 1950, and established the "Industrial Heritage Preservation Committee". In Addition, in the early 1970s, two French museum study scholars Georges Henri Riviere and Hugues de Vairne proposed the theory of eco-museum, and attempted to operate a museum that incorporated industrial heritages, resources of landscape tourism and travel, to sustain regional economy and

cultural development. This theory was subsequently adopted by all nations and resulted in the establishment of over 300 eco-museums in the previous 40 something years. Some of these eco-museums, however, were shut down for reasons such as inappropriate development, unstable sources of funding, and insufficient cooperation of the community. Currently, there are only less than 100 eco-museums around the world (Qu, 2005), indicating that there is a large room for improvement and breakthrough in terms of the practical operation of an eco-museum.

Taiwan began to perceive the notion of eco-museum in the 1980s ([Y.T.Chang, 2003](#)). The Jinguashi gold mining community used to be the most important gold production site in Taiwan. Along with the declining number of gold ores and insufficient economic benefits in terms of the required depth of excavation, this community, which was stricken by out-migration and population loss, became slack and obsolete after mining operations discontinued in 1987. Luckily, heritages of life facilities associated to the old mining operations still remain intact owing to the inconvenient transport between the area and the outside world. Thus, heritage in the community was listed as a potential world heritage site by the Taiwanese authority in 2002.

The “Gold Museum”, which is chosen as the case of study, is Taiwan’s first eco-museum which features industrial heritage and is open to the public. Since its opening in 2005, the number of visitors to the museum has been increasing every year, and there were 1.25 million visitors to the museum in 2012 alone. Aiming to understand the relationship between “industrial heritage tourism” and the operation of a “eco-museum”, this study proposes to adopt the perspectives of “the government and experts’ role” and “community and community residents’ participation” to observe the museum’s 25-year journey of evolution which started from the stopped mining operations in 1987, went through the initial planning for the establishment of the museum in 1994, the museum’s grand opening in 2005, until the present. Through this exploration, this study aspires to understand the commitment and efforts of the “government and experts” in the course and the role that “the community and community residents” have played, and recommend possible improvement for the development of industrial heritage tourism in the future.

2. Research Method

Methodology

With the “Gold Museum” and where the museum is - the Jinguashi gold mining community, as the research subjects, this study aims to understand the sluggish mining heritage community and the museum’s impact on the Jinguashi gold mining community environment’s evolution before and after the museum was open to the public, as well as the government’s role in the relationship between community residents and tourists. This study will mainly employ the following research methods:

1) Literature Review:

- (1) Collecting relevant studies of “industrial heritage” as well as research and examples of “eco-museums” around the world in an attempt to understand the French, British, and American examples and conditions, and compare the relationship between each example and direction of arguments.
- (2) Analyzing historical data and literature, relevant government laws, museum publications, official website information, and news clippings which center on this study’s research subject, to understand the rise and fall of the mining industry in the Jinquashi gold mining community in the past, the formation of the community, the historical development of residents’ life, and to explicate the development of tourism in the Jinquashi mining heritage from the perspectives of evolutionary history and policy planning.

2) Field Study:

In-depth interviews would be conducted to explore local residents’ life, residents’ attitude about the museum, and the development of the tourism. Interviewees would include the neighbourhood magistrate and opinion leaders, the local community development association, cultural and historical work teams, officials of central and local governments, people’s representatives, designers and architects involved in the preparation of the Gold Museum, staff at the Gold Museum, bed and breakfast (B&B) operators, food and beverage industry workers, and local artists, in order to understand the interaction between local residents’ life and the Gold Museum.

- 3) Questionnaire Survey: Adopting close-ended questionnaires (1,050 valid questionnaires per annum on average) to investigate tourists’ visiting experience, this survey would primarily analyse the “visiting behaviours” of tourists to the museum since the time the museum was open to the public.

2.1 Literature Review of Industrial Heritage

The United Kingdom embarked on studies of industrial heritage in the 1950s, established The International Committee for the Conservation of Industrial Heritage (TICCIH) in 1973, and held the first international industrial heritage symposium in France in 1981, which instigated a series of industrial heritage preservation movements. The definition of industrial heritage largely drew from the notion in the Nizhny Tagil Charter which was published by TICCIH in the Russian city Nizhny Tagil in 2003. By definition, industrial heritage refers to the constitution of industrial culture legacy which has historical value, technical value, social significance, architectural value, or scientific value. Such cultural legacy includes buildings and machinery, workshops, mills, factories, mining sites, relevant processing or refining sites, stowage or warehouses, premises that generated, delivered, and supplied energy, transport, and basic infrastructure. In addition, other sites for social activities in

relation to industrial production such as dwellings, sites for religious practices, or education provision are also classified as industrial heritage. Therefore, all architectures and constructed objects that were established for the purpose of industrial activities, the processes, methods, techniques, and tools in the course of industrial development, the background of a city or a town where the industrial activities took place and the resulting landscapes, as well as other various material ([McKercher, Ho et al., 2005](#)) and non-material carriers are all elements of equal importance in the buildup of industrial heritage ([Yaw-Hsiang, 2008](#)).

Reviewing previous studies on industrial heritage revealed that most industrial heritage was revived through integration with the tourism industry. Taking mining sites in Wales in the United Kingdom and Spain for instance, there was a dire need for the creation of new employment opportunity in response to the falling mining industry. Therefore, the four aspects for developing industrial heritage, namely social culture, transportation system, manufacturing process, and industrial products, were proposed and industrial heritage tourism was developed in line with the four directions. In an attempt to analyze the idea of a systematic connection of tourism attraction sites in a big region to revive industrial heritage's tourism development opportunity and possible conflicts, this study proposes a conceptual framework to provide a direction for the transition and the development of industrial heritage tourism, and to compare the difference, strength, and weakness of two regions. The main approach is to integrate the same sub-industries in both regions, plan and concatenate natural resources, and elaborate on an overall image of the communal industries, which is a more ideal theoretical analysis. However, there are relatively scarce discourses and discussions on the government and experts' roles for local community residents in the course of developing industrial heritage tourism or the revival and evolutionary processes of industrial heritage infrastructure due to a lack of practical examples for illustration and comparison.

In addition, a growing number of American industrial cities have experienced depression as a result of industrial transformation. It was revealed in the study of Xie (2006) that despite a place's various advantages to develop industrial heritage tourism, factors such as different opinions of various (stakeholders), insufficient recognition and participation of local residents, and lack of powerful and creditable management organizations, all could lead to a fruitless plan similar to reviving the historical vehicle industrial city Toledo through a jeep museum, which is a plan that is still in the planning and preparation stage and has never been implemented.

To summarize the above review, there is a general belief that industrial heritage, despite being an important resource for tourism, would eventually be depleted shall there be no proper management (Peil, 2005), and a plan could only stay in a conceptual stage and never be implemented without local residents' approval. Hence, the revival of industrial heritage should have cultural objectives on top of economic purposes in order to achieve long-term operation ([Lowenthal, 1998](#)). In addition to

relying on the rapid transformation and development of tourism for livelihood, there should be a vision to turn a heritage site into a world heritage site (WHS). To realize this vision, attention should be paid to local residents' life attitude, and local residents' core values in preserving the whole environment and collective values. A comprehensive management mechanism and scheme should be established along with a scheme of preservation (Jimura, 2011). Based on the above consideration, this study would especially emphasize on the impact of "community and residents' participation" on the project other than probing into the establishment and development processes of this case from the "role of the government and experts" perspective.

2.2 Eco-Museum Literature Review

The phrase "eco-museum" was coined by the museum study scholar Hugues deVarine-Bohan in 1971, and the first self-acclaimed "eco-museum" - the Museum of Man and Industry (Le Creusot-Montceau-les-Mines), was established in 1975. This type of museum emphasizes on a collective representation of environmental fields and local residents' life ([Kimeev, 2008](#)), and presents an opportunity to revive the mechanism of industrial heritage through operation and management of museum institutions. An exemplary case includes the two towns Le Creusot and Montceau-les-Mines. Each of these towns had a land size of approximately 500 square kilometers. The half side of both towns was industrial area while the other half side was a country village. There was a population of 150,000 residents in each town, most residents being low-income laborers or peasants. During the time between the end of the 18th century and the end of World War II, Le Creusot was an industrial city that manufactured munitions and trains while Montceau-les-Mines was a coal-producing town. The two villages were approximately 20 kilometers away from each other and interdependent due to the munitions and transport industries. Due to the decline of the old industries and therefore a dire need for new job opportunities, a "living museum" which incorporated the 18th century munitions family Schneider's castle as the headquarter museum, the five satellite pavilions including Canal Museum (The Maison du Canal du Centre at Ecuisses), Mime Museum (The Coalmine at Blancy), Mining School Museum (Maison d' Ecole at Montceau-les-Mines), the Monastery (The Medieval prior at Perrecy-les-Forges), Miners' Dwellings (The Combe des Mineurs at Le Creusot), and various regional network routes which integrated liner routes of visiting concatenated by the peripheral natural landscapes of each pavilion and local residents' plans of actions. The 10 years from 1975 to 1985 were the golden years of this exemplary case as it was the embodiment of a new concept of museum and a new mode of operation. Its spirit also made an impact on the entire world and resulted in the establishment of museums with similar ideas in each country. Adhering to the aforesaid philosophy, many museums have experienced significant changes in terms of modes and philosophy of operation. Such changes were reflected on the transformation from a traditional pyramid organizational structure to a horizontal organizational structure, and use of a large number of

community and external professional human resources. These museums chiefly consist of the three following committees, which jointly constitute its core operation:

- 1) Users' Committee: a committee which is formed by various professional disciplines in the society, culturally disadvantaged groups, and community culture and history groups, to be responsible for activities planning and performance appraisal.
- 2) Scientific and Technical Committee: a committee which is formed by permanent museum staff, lecturers, volunteers, scholars, and experts to be responsible for tasks such as research, maintenance, and exhibitions.
- 3) Management Committee: a committee which is formed by local government authorities that provided funds, companies, enterprises, or representatives of other sponsoring groups, to be in charge of financial affairs and overseeing administration.

With a considerable degree of innovative and experimental value, the French museum can be an example for professionals in relevant fields around the world to observe, discuss, and offer a new trend of ideas (Y.T. Chang, 2003). However, as the aforementioned horizontal structure committees are formed by members of heterogeneous backgrounds and groups, the characteristics of committee members are not homogeneous enough, the turnover of committee members is high, and members are unable to work as a whole due to constant conflicting opinions. Besides, the juxtaposition of exhibiting experts' designs and vigorously encouraging participation from local residents makes museum exhibitions fail to meet stringent academic requirements. In terms of collaboration of experts and the community, the recurring issue of co-competition also awaits to be solved.

The Ironbridge Gorge Museum in the United Kingdom also has a similar spirit, yet the terms "open air museum" and "neighborhood museum" are more frequently used than "eco-museum". Taking the Ironbridge Gorge Museum as an example, it is a "museum of fragmented nature that sought to tell a holistic story". Peter David, an English scholar and the author of "Eco-museums: A Sense of Place" suggested that in addition to serving the community, a more important function of a museum is to attract foreign visitors to generate sufficient revenues and guarantee perpetual existence. On the other hand, Conybeare proposed that why terms such as "neighborhood museum" and "landscape museum" were created in the United Kingdom to avoid using the term "eco-museum", which was created by French people, is because museums in the United Kingdom embrace the idea of lift museum visitors from a regional level to an international level, and strive to attract a large number of tourists and private investment for perpetual operation. Therefore, the entity of a museum is a "national trust", which is on a nationwide level. In addition to maintaining and preserving cultural assets and cultural landscape, a museum should endeavor to be open to the external world, which is a nationwide and international level. However, when the term eco-museum was coined in France, it primarily centered on the regional area and was relatively more focused on providing services

to communities and encouraging residents to perceive a region as a cultural unit. Although the name, recognized scale, structure, interpretation, and perception of the term “eco-museum” differ from nation to nation, eco-museums around the world share the same spirit of decentralization and being against a “top-down” approach of planning an exhibition. The idea of eco-museum is to place core values on the original contexts of a village and provide concrete evidences for cultural characteristics and residents’ ways of life in a region ([Y.T.Chang, 2003](#)).

Literature Review Summary

Based on the above literature review, it is commonly believed that mining heritage, despite being an important tourism resource, would be eventually depleted due to improper management and consumption (Peil, 2005). Besides, a plan without the recognition of local residents could only stay at a conceptual level and can never be implemented. Therefore, revitalization of industrial heritage should be underpinned by cultural objectives in addition to economic purposes for the perpetual operation of the heritage ([Lowenthal, 1998](#)). In addition to relying on the rapid transformation and development of tourism for survival, there should be a vision to upgrade a heritage site to a world heritage site (WHS). More attention should be given to local residents’ attitude toward life and residents’ core values of preserving the holistic environment and collective values. A comprehensive management mechanism and plan is also essential on top of a plan of preservation (Jimura, 2011). Moreover, despite an attempt to provide a new development and management mechanism through the eco-museum theory in the 1970s, different nations encountered different problems when the theory was put into practice.

Choosing a museum that utilizes the notion of “eco-museum” to develop tourism in Taiwan’s most important industrial heritage, this study would especially focus on the influence of “participation from the community and residents” on the project in addition to probing into the establishment and development process of this case from the perspective of “the role of the government and experts”.

3. The History and Current Status of the Jinquashi Mining Heritage; The Historical and Geographic Background of the Establishment of the Gold Museum

The Jinquashi community came into existence in 1890 when alluvial gold was discovered in Keelung River. Changes that the community had experienced in the nearly 100 years from 1890 to the discontinued gold mining operations in 1987 presents a specific miniature of Taiwan’s century-long gold mining history. The evolution of the community mainly consists of the five phases:

3.1 The Qing Dynasty Period (1890-1895)

In early years, the Qing government had the idea that mining operations would result in a bad feng shui and bring about unfavorable consequences to the authorities, and therefore restricted mining exploration and technology development. In 1890, the Taiwan inspector-general of province Liu Mingchuan accidentally discovered gold sand while measuring and planning the construction of an iron bridge, which triggered a gold rush along the banks of Keelung River (Pei-chun, 2011). While civilians gradually became frenzied about gold panning, the congregated population caused poor agricultural harvests, and therefore the establishment of the Bureau of Gold Sand in 1892. After the Qing Empire's defeat in the first Sino-Japanese War in 1895, the Qing government signed the Treaty of Shimonoseki, gave away the Taiwan Island to Japan, and stopped its involvement in gold mining operations in Taiwan.

3.2 The Japanese Colonial Period (1895~1945)

After Taiwan became a Japanese colony in 1895, mining operations started to go through the process of industrialization, and mining production reached the peak during this period. Ropeways were used to transport ore stones to a field near the coastal Shuinandong (水湳洞) for processing. Therefore, the complete settlement of mining industry should include the Jinquashi gold mining community, which was in the peripheral area of tunnel exits of ore veins, and the surrounding area of Shuinandong, where ore stones were smelted. As the surrounding area of the Shuinandong smelter was declared as a “contaminated soil control site” in accordance with environmental protection regulations in Taiwan, and is therefore not open to the public, the area has not been included in the Gold Museum's plan. In the Japanese Colonial Period, local Taiwanese were either employed as mineworkers or laborers and were controlled by Japanese in terms of technology and operation. For example, in 1939 when gold production reached the climax, there were a total of 9,448 workers in a Japanese mining company, which included 747 workers of Japanese nationality, 6,929 workers of Taiwanese nationality, and 2,443 workers of Chinese nationality (including workers recruited from Wenzhou, Fuzhou, and other areas). It is not hard to imagine a prosperous scene in the settlement back then ([W.F. CHEN, 1972](#)). Therefore, a large number of mining infrastructure, dwellings of Japanese cadres, hospitals, police stations, and small schools were built at this time, and there was also a gradual expansion of Taiwanese laborers' dwellings which were built in line with the mountain topography. The current core zone in the Gold Museum consists of factories near exits of the 5th Tunnel and the hinterland of the dwelling complex of main Japanese cadres in the Japanese Colonial Period. In terms of the layers of planning, the area primarily consists of the three zones:

- 1) Core Zone: consisting of tunnel exits in the mining sites, factories, dwellings of Japanese cadres.
- 2) Settlement Development Zone: largely consisting of the scattered living, dwelling, and shopping areas of Taiwanese mineworkers and civilians in the Japanese Colonial Period, as well as the area of the current community.

- 3) Resources Integration Zone: integrating views, natural landscapes, ridges, topography, and areas of routes of relevant mining transportation.

3.3 The Post-War National Government of the Republic of China Period (1945~1987)

After Japan's defeat in World War II in 1945, the National Government of the Republic of China (the Taiwan Nationalist Government) took over the management of plant facilities near Jinguashi, established the "Preparatory Office of the Taiwan Gold and Copper Bureau" in 1946, which was renamed as "Taiwan Metal Mining Corporation" (abbreviated as the Taijin Company) in 1955. To enhance metal processing capacity, the Taiwan Metal Mining Corporation borrowed money from banks to build the Li-Le Copper Smelter near Shuinandong. Taiwan Metal Mining Corporation, however, announced to close down in 1987 and sold relevant plants and land to the Taiwan Power Company due to its failure to make loan repayments as a result of the continuously dropping international copper price. Thereafter, the Taiwan Sugar Corporation took over the bank loans and subsequent management, ending the century-long gold mining history in the Jinguashi gold mining community.

3.4 The Period between Ceased Mining Operations and the Establishment of the Gold Museum (1987~2002)

After the terminated mining operations in 1987, Australian and German mining experts assessed that the surrounding area of Jinguashi still contained considerable ore reserves, and did not rule out the possibility of resume mining operations when new mining methods and technologies come to existence in the future. Therefore, the land nearby has always remained an industrial land designated for mining purpose. Although the Taiwan Sugar Corporation and the Taiwan Power Company used to have other ideas of land development and utilization during the period of their management, they eventually gave up those ideas due to the land control restriction and difficulty in removing community residents' belongings on the land. As residents, who were only entitled to the surface rights of the land and couldn't foresee any regional development in the future, were unwilling to invest in renovating their premises. The community largely remained its original architectural style, which was slowly decaying and withering away.

In 1989, the Taiwanese director Hou Hsiao-Hsien used areas near the Jinguashi Mine as the primary film location to shoot the film "A City of Sadness", which reflected the controversial "228 Incident" in Taiwan, won the Golden Lion Award for the Best Film at the Venice Film Festival in Italy, and became the first Taiwanese film to win a top award at an international film festival. Thereafter, a craze of a series of movie, TV drama, and commercial shots took place in the natural landscape of the Jinguashi gold mining community. In particular, the 1992 film "Hill of the Return" depicted Taiwanese people's life in the Japanese occupation period, triggered film watchers' emotional resonance by using local mineworkers' life stories as the theme

of the movie, and created a vogue of mining tourism by followers of film locations.

Therefore, mining authorities and small and medium-sized enterprises started to provide guidance of industrial transformation to residents, promote community-style counselling programs of mining tourism, share local stories in class, and concatenate resources through regular meetings. During this period, the primary appeal of community residents was to acquire land ownership in order to operate small-scale B&B, to rescue the downhill community economy after mining operations discontinued. Community residents understood that Taiwan had no relevant mining technologies at that point, and the community would eventually wither away if there were neither mining activities nor integrating tourism industry into the local economy. Therefore, residents actively went around advocating preservation of the decaying mining industry's facilities, machinery, and plants, in order to seek for small-scale community tourism economy for livelihood. After many years of preparation for small-scale tourism economy and B&B that may transform the community, in 1995 the local government commissioned "scholars and experts" to embark on planning the alternation of architecture next to exits of tunnels in the mining sites, and preparing the establishment of the Museum of Metallic Minerals after regional cultural workers and the neighbourhood magistrate went around progressively advocating the setup of dedicated agencies to preserve facilities in the mining heritage. The preparation of the Museum of Metallic Minerals in turn became an important foundation for the planning of the Gold Museum.

3.5 The Planning and Renovation Period of the Gold Museum (2002-2005)

Based on the above plan, in 2002 the Taipei County Government (which subsequently upgraded to the municipality New Taipei City Government in 2011) decided to employ the concept of "eco-museum" to establish a mining heritage museum after conducting several onsite investigations, discussions, and evaluations with local residents and professional teams. The museum would assume the name "Gold Museum, New Taipei City Government", and a "Letter of Intent of Tripartite Cooperation and Development in the Gold Museum" was signed with the two land owners - the Taiwan Sugar Corporation and the Taiwan Power Company, in an attempt to transform the local economy to the mining culture tourism and break the long-term restriction on the use of land for mining purposes.

In consideration of sources of funding and perpetual operation, the local government set up a "museum setup planning and preparatory group" in the preparatory phase and decided to adopt a concept proposed by the English scholar Conybeare in 1996: after the government's initial investment in constructing the pavilions in the core zone, the concept of perpetual operation can only be fulfilled when the museum can attract a huge number of tourists and external investment in the medium and long term. In light of this, the development of architectures in the Gold Museum's core zone would be divided into the two phases:

Phase 1: Funds for construction primarily came from government investment, and the construction mainly focused on basic administration, education, and exhibition facilities. The area was completed and opened to the public in 2005. It mainly consists of one principal pavilion and six satellite pavilions:

The principal pavilion “Gold Building and Benshan 5th Tunnel” exhibits the most important treasure in this museum, which is a 220.33KG gold brick consisting of 99.99 % pure gold. The gold brick was made through a special vacuum casting technique and was the largest gold brick in the world when the museum was established (currently, it is the second largest gold brick in the world). In addition to the gold brick exhibition, the principal pavilion consists of real tunnels that link pits of gold ore and an area for tourists to experience gold panning. Besides, the six satellite pavilions “Visitor Center”, “Four Connected Buildings”, “Environment Pavilion”, “Jinguashi Crown Prince Chalet”, “Gold Refinery Building”, and “Jinguashi and Shuinandong Special Exhibition Room “ respectively provide consultancy services, geological, historical, ecological, and educational functions, local residents’ life styles and scenes, metal crafts, and relevant derivative art, cultural and creative products.

Phase 2: In the surrounding hinterland of abovementioned pavilions, the Build-Operate-Transfer (BOT) method under the Private Participation in Infrastructure Projects (PIIP) scheme was adopted to construct ancillary facilities such as restaurants, hotels, art workshops, transport, and recreational facilities. The original plan was to commence to invite private investment in 2007, the construction was scheduled to last for two years and the museum was scheduled to operate for 20 years.

3.5.1 The Initial Idea of the Holistic Architectural Configuration

The configuration of this museum is a continuation of the results of a previous plan for the “Metallic Minerals Museum”. The Phase I architectural configuration and design ideas for the core zone are as follows:

- (1) Using the gold mining tunnel (the 5th Tunnel) as the center to create a center that resembles a city piazza.
- (2) Using transparent glass curtain walls to define the exterior public space, the museum complex, and an area for museum visitors to experience tunnels. With regard to the tunnels experience area, attempts would be made to restore the original mining scenes.
- (3) The concept of “repair” would be emphasized with regard to restoring the appearance of other architecture complexes. The goal was to represent the exterior appearance of architectures in the Japanese colonial period, as well as

to meet the standard of interior facilities in a modern museum.

3.5.2 The Initial Construction and Interaction with Community Residents

After the museum was open to the public, it was revealed that construction of physical facilities and training and cultivation of museum staff received particular emphasis in the initial phase of preparation owing to factors such as the annual plan of government funds and efficiency of implementation, which made the preparatory process of the museum, which was born out of the concept of “eco-museum”, were not much different from the preparatory process of a general or traditional museum. Besides, the interaction between the museum and community residents was very limited, and there was a tense and conflicting relationship between the museum and residents in the early stage of the museum. The main reasons are as follows:

- (1) Heavy traffic and loud noise resulting from intensive construction in the initial stage of museum construction, and insufficient communication between the museum and residents.
- (2) The core zone in the Phase I of the construction: the museum started to collect admission charges and control traffic in some regions in 2005, which changed residents’ routes of movements in daily life.
- (3) The core zone in the Phase II of the construction: Community residents believed that establishments such as B&B, food and beverage providers, and retailers developed under the PPIP scheme would compete with local B&B, food, and beverage businesses and affect residents’ livelihood.
- (4) When the museum was first open to the public, the influx of tourists on holidays caused congested traffic even outside the region. A large number of tourists also brought along heavy traffic and garbage pollution and created troubles for the community.

3.6 The Gold Museum’s Several Important Changes in Operation Modes and the Resulting Impact in 2005-2012

3.6.1 The Failure of the BOT Plan under the PPIP Scheme for the Core Zone in the Phase II and the Resulting Transformation

After main facilities such as education and exhibition facilities in the Phase I were completed and open to the public in 2005, the museum actively commenced the Phase II construction - “the Plan of Private Participation through BOT in the Phase II Construction and Operation”, which aimed to provide ancillary facilities required for the holistic tourism. The project further expanded the range of enterprise recruitment to include 132 Japanese-dwelling-style hotels, three specialty restaurants, and one specialty shop (with an operating period of 20 years). However, there were a total of three unsuccessful openings of tenders in 2008, and the following reasons were revealed after review: (1) an unpromising overall market and skyrocketing costs for construction; (2) the land was an industrial land for the use of mining industry, which

increased the uncertainty of investment; (3) the inconvenient transportation increased the risk of investment; (4) the scattered distribution of travellers' lodges increased operating costs; and (5) insufficient recognition of local residents, which increased risk of investment.

Therefore, the initial plan was that land for the Phase II development would be included in the museum's area of self-management. With regard to the stagnant developing area in the Phase I, the museum would self-operate and manage art workshops, DIY shops, and allow local residents with small capital to run small-scale shops such as food and beverage-related businesses, cultural and innovative shops through the Operate-Transfer (OT) method. In this way, these shops could fill the gap of ancillary facilities which were essential for tourism. In addition, the previous Japanese dwellings or hotels would be transformed to be the 7th satellite pavilion: the duplexes would be on-site artists' space for creation, and international artists could be invited to live in the duplexes to create artworks and to have interaction with tourists. In this way, running B&B in the duplexes and competing existing B&B in the community could be avoided.

3.6.2 Policy of No Admission Charges and Changes in the Attitude of Residents

In 2008, admission charges of all museums in the New Taipei City were waived in response to the local governments' upgrade to a quasi -municipality (the Taipei County was scheduled to be become the New Taipei City in 2011). Due to such change in the operating direction, the museum, which no longer needed to control the routes of movement in the core zone, restored community residents' routes of movement in their life and allowed adjacent residential premises to become retail shops, resulting in a gradually blurring line between the museum and the community, as well as the community architectures' gradual integration into the museum complex.

Due to the changes hereof, the museum began to focus on handling the interface with the community, tidying up pavements, signs, information boards in the community, and improving furniture on the streets. Along with the completion of the Phase I construction in the core zone and the terminated PPIP scheme in the Phase II, museum staff could concentrate and devote themselves to community management, theme-based exhibitions, integrated marketing communications which incorporate events, theme-based exhibitions that incorporate existing spiritual cultural festivals and events such as Matsu Pilgrimage, Guan-Gong's Birthday Celebration (Guan-Gong's Festival), and Green Grass Celebration, having books of B&B and tourist destinations published, and collaboration with community residents to produce microfilms. Therefore, a holistic marketing program can be implemented on the museum and the mining community where it is situated, and the community has gradually come to provide the necessary commercial facilities for the museum to operate properly.

The relationship between the museum and the community is steadily improving. Consequently, the museum's core zone gradually expanded to the community and village's developed area, and tourists began to wander in the village alleys, which, in spite of its interference with residents' privacy, evoked community residents and non-local entrepreneurs' imagination about possible methods to revitalize the community, and increased their willingness to invest through the small-scale tourism economy.

3.6.3 How the Architectural Patterns in the Museum's Core Zone Changed the Environment of the Community

With regard to improvement in physical facilities in the initial stage of museum preparation, relevant physical facilities in the core zone were restructured with reference to the prosperous age in the community when gold production was at its peak in the Japanese colonial period. As the opening of the museum was followed by a great influx of tourists, the unused space in the community hence played the role of providing relevant ancillary facilities that the museum needed. From 2005 onwards, community residents started to run eateries, snack stands, tea houses, unique B&B, and retail shops. After the failed PPIP scheme in the museum's Phase II construction in 2008 and the waiver of museum admission charges, the number of tourists experienced a steep increase. Accordingly residents began to invest in constructing unused space in the settlement and embarked on relevant interior renovation and decoration. Vocabulary used on the exterior of architectures also emulated vocabulary of the museum complex, in the hope to be included in the museum architecture complex.

In response to an increased number of tourists in the period 2008- 2012, residents became more involved in renovation and beautification. The originally idle and decaying premises in the community began to receive intention to lease from entrepreneurs from outside the community. After purchasing the surface rights, these entrepreneurs went on to have these premises renovated. However, as land in this area was categorized as construction-restricted land for the use of "mining purpose" and was subject to rules of land control in this area, community residents mostly took the "silkworm nibbling" approach in renovation and imitated the pitched roofs of historical Japanese architecture (in consideration of costs, light steel frame and black tile pitched roof or roofs coated with asphalt felts were mostly used). During construction, large-scale developments and materials such as RC, glasses, modern construction materials were avoided in order not to construct mismatched buildings that would receive complaints from residents or tourists, or be ordered by the local government to demolish due the abrupt building's disturbance to the harmony of the overall landscape. Hence, the museum complex and the community have always kept black tiled roofs, small-scale transformation, and RC wood replicas. Tourists' perception of the boundary of the museum gradually became blurred. As the museum has gradually incorporated the community's areas of development into its domain,

vocabulary and styles of architectures in the community gradually imitated architectures in the museum's core zone in terms of renovation and beautification, in order to attract tourists to shuttle in and out the community inadvertently and benefit the community economy.

3.6.3 The Museum's Change of Direction in Promoting the Metal Craft Industry

In 2005 when the museum was newly open to the public, the museum wished to provide guidance and assistance to local residents for industrial transformation other than running B&B through a community development movement and the introduction of metal craft techniques, which is a form of cultural and creative industries, to the local residents as an attempt to buffer the impact of the PPIP scheme in the Phase II construction on local B&B and retailers. Therefore, the museum organized metal craft classes from 2005 to 2010 for a consecutive period of five years, arranged classrooms for the exclusive use of metal crafts, cultivated community talents of metal craftsmanship, and organized a biennial national-wide metal craftsmanship contest from 2007 onwards, hoping to progressively lead the community to a distinctive metal craft settlement.

Observing the social context of the development, one can notice that as the Jinguashi community was the origin place of ores, community residents, who are largely mining technicians or in the working class, have neither experience in gold jewelry ornamentation nor in metal crafts, which are necessary for cultural and innovation industries or aesthetics. In the community's century-long history, there was neither trace of any metal craft development nor any goldsmith shops. Along with a continuous price increase of precious metals in the world, the lack of relevant industries in the museum's surrounding community, and a rudimentary academic environment, talents that were nurtured in the initially phase have moved to urban areas for further study or development. The soaring material costs also forced many people to stop halfway. As a result, the metal craft industry has not materialized in the Jinguashi community, and the museum's relevant metal craft promotion courses were temporarily put on hold since 2011 due to a shrinking annual operating budget.

Nevertheless, with respect to the museum's promotion of metal crafts, the original idea was to foster the policy direction of implanting new industries into the local area, and gradually transform the community into a competition platform that facilitates the promotion and integration of metal crafts in the regions of Taiwan. Being the most important metal craft contest in the regions of Taiwan and giving the highest amount of prize money, the metal craft contest has entered its 4th anniversary in 2013. Following the established brand name of the contest, the museum has gradually become the most important platform for exhibition, promotion, and information exchange of metal crafts.

3.6.4 The Museum's Change of Direction in Mode of Museum Exhibition and

Collections

In the preparatory phase and the initial four years after the museum was open to the public, emphasis was put on reorganizing the museum's core building complex and recruiting enterprises for relevant ancillary facilities, and the direction of exhibition plans focused on an expert-oriented approach to present the history of a mining community. In recent years, along with the museum's improved relationship with the community, the plans and concepts of exhibitions have shifted to focus on connection with the locals. There are tourists' "mine hiking" activities led by community experts and volunteers, which stressed on local natural ecosystems, mining scenes, and stories of residents' life. There are theme-based folk festival events (such as Matsu Pilgrimage, Guan-Gong's Birthday Celebration and Green Grass Celebration) that involve local religious belief. There are also interaction with tourists through presenting alleys where local residents live in, scenes of residents' life, B&B, documentaries, and microfilms. All of these facilitate to implement a holistic marketing program to concatenate local legends, stories, and idiosyncratic tourist attractions in the periphery of the museum.

In line with the aforesaid changes, the museum's collections have transformed from mining machinery, tools, and precious metal jewelry in the initial phase to studies of community seniors' oral history, documentaries, videos, books, household appliances, cultural and historical data, and other life-related items of the century-long mining community.

3.6.5 Museum Visitor Changes and Trends

Collecting and comparing the annual number of visitors to the museum in the past eight years (as shown in Table 8) revealed that in the first four years after establishment, the number of museum visitors was dropping year after year. The underlying reasons could be insufficient museum ancillary facilities and negative impacts due to a repeatedly deteriorating relationship with the community. After the unsuccessful BOT project under the PPIP scheme when the museum was in the Phase II construction in 2008, the museum waived admission charges and restored residents' old routes of movement in life, resulting in an increased visitor number since 2009. On 2009 onwards, the annual increase rate of visitors was 31%, 17%, 13%, 7% respectively until the visitor number reached 12.5 million in 2012, which was the peak since the opening. Observing the serious traffic congestion on holidays, it can be inferred that the slow annual visitor increase could be attributed to uneasy transportation in mountains. Therefore, unless transport to the exterior world can be improved, increase of visitor number in the future is still restricted by the total traffic load on holidays.

Table 1: 2005-2012 Annual Visitor Number

Year	2005	2006	2007	2008	2009	2010	2011	2012
Number	924,390	793,263	664,694	665,479	874,479	1,026,248	1,167,203	1,252,415

of Visitors									
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3.6.6 The Trend of Museum Development and Local B&B

Table 2: 2005-2012 Museums Visitors' Demand for Accommodation

Year	2005	2006	2007	2008	2009	2010	2011	2012
Tourists who took a more-than -one-day trip and needed accommodation	21.5%	26.3%	20.1%	22.7%	24%	33%	13.3%	18.7%
Bed and Breakfast (B&B) near Jinquashi	2.1%	3.5%	3.6%	6.6%	15%	21%	20.1%	21.5%

The study of museum visitors in the past eight years revealed that on average about 22.5% of visitors expressed their need for accommodation (as shown in Table 2) in their comprehensive museum visit plan. When the local government increased a lot more public buses for shuttle services, and prolonged the service hours of buses in the morning and in the evening in 2011, such change instead considerably reduced tourists' need for staying overnight. However, tourists who needed accommodation and opted for staying in B&B near the museum showed a trend of stable annual growth. After unsuccessful openings of tenders for the museum's ancillary commercial facilities in 2008, community residents were particularly willing to invest in improving the environment of B& B, resulting in the improved B&B in terms of quality and quantity. Therefore, tourists who chose to stay in B&B near Jinquashi increased from 6.6% to 15% in 2009, and showed a stable annual growth in subsequent years.

3.6.7 The Trend of the Museum's Operating Expenses and Operating incomes

Table 3: 2005-2014 Operating Incomes and Expenses Table

Year	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
Operating Expense	7,477	7,203	6,773	7,808	10,199	11,974	11,204	10,932	9,679	8,850
Operating Income	2,682	3,803	3,756	3,347	2,958	918	1,547	1,550	1,980	2,350
Income-to-Expense Ratio	35.8%	52.7%	55.4%	42.8%	29%	7.6% ¹	12.9%	14.2%	20%	26%

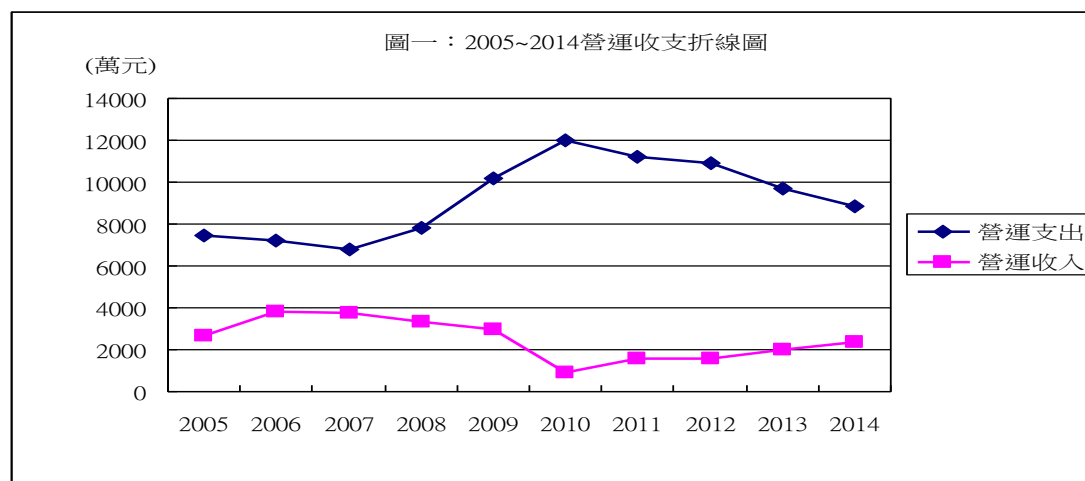
The collection of the museum's operating expenses in the first eight years plus the official general estimate of the museum's operating expenses in 2013 and 2014 indicated that a stable operating expense of approximately 73.15 million per annum was required for the initial four years, and a stable operating expense of approximately 110.77 million per annum was required for 2009-2012. However, there

was an obvious trend of decline in operating expenses from 2012 onwards (as shown in Figure 1).

Figure 1: 2005-2014 Operating Income and Expenditure Line Chart
ten thousand (萬元)

Operating Income (營運收入)

Operating Expense (營運支出)



After the failed PPIP scheme in 2008 and the implementation of the waived admission charges policy, the operating incomes in 2009 and 2010 showed a significant drop. However, along with the increased annual number of tourists, money collected from museum activities such as gold panning, tunnel experience, and DIY gold craft making started to show a trend of increase over years from 2011 onwards with an average income-to-expense ratio of 44.6% in the initial four years. After the income-to-expense ratio hit the bottom at 7.6% in 2010, the operating expenditure has been declining steadily in recent years while the operating income and the tourist number showed a trend of increase over the years (as shown in Figure 2).

Figure 2: 2005-2014 Operating Income-to-Expense Ratio Line Chart (圖二：2005-2014營運收支比折線圖)

Percentage (百分比)

Income-to-Expense Ratio (收支比)

