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A review on historic building conservation: A comparison between Hong Kong and Macau systems

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ABSTRACT

Concerns on historic buildings emerged with accelerating urbanization and increasing population of Hong Kong have been raised by the public since 1970s, this has recently been increasing concerned due to several failures of historic buildings conservation cases. Comparing Hong Kong and Macau, both with similar geographical locations and histories, Macau seems made better efforts on historic building conservation especially after 2005. This paper aims to identify the differences in histories, mechanisms and policies of heritage conservation in Hong Kong and Macau, and thus suggests measures to Hong Kong and Macau for improving historic building conservation systems. Case studies are used to explore the differences between Hong Kong and Macau and its implications to historic conservation development. It is found that Hong Kong and Macau have many differences in legislation development, organizational hierarchies, protection scopes, protection and reuse methods. Macau has laid more emphasis on the development of tourism by conservation and reuse of cultural heritage while Hong Kong tends to introduce modern technologies in forming the combination of modern world and historic features.

1. Introduction

Historic buildings are broad and flexible concepts that refer to valuable buildings and constructions left by history and able to witness some development though civilization, meaningful development or certain historical events, urban or rural environment and certain historical events. Historic buildings are usually characterized by a particular microclimate due to their high thermal inertia that may require the use of mechanical systems to control the environment [1]. The value of historic building includes cultural value and economic value. Economic value means land value and value of the building itself; cultural value includes historical, architectural, cultural, artistic and social value. Different with general buildings, although the economic value of historic buildings is relatively clear, indirect economic value and market recognition are influenced by social economy, society structure and consciousness of people. Therefore, value of historic buildings has great uncertainty. In addition, with the passage of time, indirect economic value will have significant changes. Some of them follow the general pattern that they become too old for use or changed dramatically under excessive repair, finally lost its economic value; the others due to well protection, with the time goes

by, become increasingly rare and gradually become heritages with great economic value. Cultural value and economic value of historical buildings are closely linked, under certain conditions, culture value can be transformed to economic value [2]. The existence of cultural value can bring potential economic value.

Cultural heritage preservation and energy savings are important issues around the world [3–5]. Energy efficiency and thermal comfort in historic buildings have raised public concerns [6]. Environmental feasibility for rehabilitating heritage buildings has also been conducted [7]. Green retrofitting of historic buildings belonging to Italian cultural heritage has been highlighted, which can be linked to unavoidable refurbishment works and renovated buildings can take on an interesting market value in Italy [8]. The impacts of the indoor climate to the conservation of artifacts, influenced by temperierung heating [9], moisture dynamics in the masonry fabric [10], thermal performance of a selection of insulation material [11] were discussed. Environmental assessment evaluation tools have also been considered to include historic building in the rating system in Italy [12]. Cost-optimal methodology has been employed for achieving balance among energy, environmental and economic impacts of energy efficiency measures from historic architectures with European energy and

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climate objectives [13] and cost-optimal solutions were implemented in Portugal's historic buildings [14]. Researchers also focused on improving energy efficiency of historic buildings in Italy [15–18]. A hygro-thermal performance evaluation for historic buildings and its thermal performance have been considered [19,20]. Calibrating historic building energy models to hourly indoor air and surface temperatures were developed in minimizing the root mean square error average over the building using a particle swarm optimization algorithm [21].

For effective implementing historic buildings, 'green' policies are necessary to put in place. Impacts of 'green' policies for developing and developed countries have been conducted although the results confirmed that not all policies promote the investments in renewable sources and their effectiveness depend by the stage of development of the countries [22]. Renewable energy policies have been implementing in the recent years [23,24]. Enforcing energy policy for reducing greenhouse-gas emissions is one of the major targets [25–27]. However, limited studies are focusing the trends of the policy development, in which future directions and mitigation measures can be effectively recommended.

France, who has rich and diverse history and culture, received over 85 million tourists every year which is even more than the total population of France of about 64.9 million in 2015 [28]. The historical and cultural heritage in France has become a very important economic resource. Today, French is not restricted to work on the restoration of those particular historical or architectural heritage where are national symbols, but more committed to improve the living environment of residents living in historical areas and reuse of historical and cultural heritages, thus to maintain the vitality of historical and cultural heritage and raise their values. However, establishment of France's historical and cultural heritage protection system is not easy, even for the generation of protection concept is also after long-term appeal and controversy. Experienced a century of efforts, people understanding for the protection objects, scopes and methods get improved. Due to this long-term dedication, people are able to experience France with such strong national identity and historical emotion. France's historical and cultural heritage including art works, architectural monuments and natural monuments.

In the United Kingdom, fulfillment of successful, systematic protection of historic buildings and ancient city is with no more than a hundred years. Protection works playing an important role in promoting economic growth and enhancing the development of tourism. In many economic decision-making, value of historical monuments has become increasing important. The success of conservation efforts in some areas of the United Kingdom not only promotes economic revitalization, but also attracts world's attention.

In Asian countries, Japan is ahead in traditional cultural heritage's protection. The protection work of Japan started from Meiji dynasty in the 19th century. Since the Meiji restoration in 1868, Japan's cultural heritage has experienced exploration and frustration, has accumulated rich experience. After 1950, the 'Protection of Cultural Property Act' formed a relatively complete legislation system in terms of cultural heritage protection. The pre-war cultural heritage protection legislation process is based on 'the Law for the Preservation of Old Shrines and Temples', 'Preservation of National Treasures Act' and 'the Historical Spot, Scenic Beauty and Natural Monument Preservation Law', whose protection objects has certain limit [29].

From its beginning as a small fishing village to a world's international financial center, Hong Kong, in the past one hundred years, has witnessed huge development and transformations by a number of historical buildings. In the 1950s and 1960s, problems on land supply shortage and urbanization accelerating gradually emerged by rapid population increase. Absence of the awareness on heritage conservation at that time, neither the government nor Hong Kong citizens measures their life quality as long-term, but tends to in economical and material terms. Adaptive reuse of traditional buildings has been considered [30]. Under that circumstance, many buildings with huge

historic values, such as the HSBC Building in Central was demolished and Murray House in Queensway was disassembled and moved. Historic building conservation has been heatedly discussed again since 2008 and getting serious with the demolition of Queen's Pier raised protest in 2012 and the negotiation failure between the government and property owner of Ho Tung Garden led to this unique garden sold and redeveloped in 2015.

While Macau, located on the other side of the Pearl River Delta, has its own opportunities and challenges on historic building conservation. Since 2002, the booming gaming industry and considerable tax revenue provide necessary resources in carrying out work for historic building conservation. The success of listed in the world heritage also attracted world's attention in 2005. However, due to Macau's densely population and limited land resources, conservation and development of historic buildings has become a hot topic. Public is considered that conservation is a stumbling block of development and development is the culprit of vandalism. Life cycle of cultural heritage in Macau has been planned under four stages: (1) introduction; (2) growth; (3) maturity; and (4) consolidation [31]. Tourism management has raised alert on cultural heritage can help improving tourism [32,33].

Due to the proximity on geographical locations and traditional culture, development of architecture of Hong Kong and Macau has certain connections with the Pearl River Delta region, China. Early architecture styles of Hong Kong and Macau are based on the residential buildings of the Pearl River Delta region and also the Hakka architecture [34]. And the colonial history of Hong Kong and Macau started from 1841 and sixth century respectively, introducing western features and directing new architecture styles in Hong Kong and Macau.

Portuguese architecture, is symbolized by the history and people who settled there, including Romans, Germanic peoples, Visigoths and Arabs, and also the impacts from the main artistic centers of Europe from where were introduced various architectural styles including Romanesque, Gothic, Renaissance, Baroque and Neoclassicism. Portuguese architecture is a combination of European architecture styles. The Portuguese built up many structures in Macau since they occupied it in the sixteenth century and the sights of Portuguese culture can still clearly seen in Macau. In fact the old architectures developed by Portuguese are the most eye-catching features of Macau [35]. Before the Portuguese controlled this territory, they have built a number of buildings which were the initial examples of Portuguese architecture. St Paulo's facade (Ruínas de São Paulo) is the most important and impressive building of that period that still stands with pride and visited by a large number of tourists every year and the Fortress (Fortaleza do Monte) initially built by the Jesuits as a military center in the 16th century. The Portuguese impression is deeply merged in the architecture of Macau.

British architecture composed by a rich combination of architectural styles, ranging from Roman, to modern 21st century. Ancient stone monuments were erected during the prehistoric periods. Early Medieval buildings were simply built with wood skeleton and straw top; The English Gothic architecture flourished throughout the Plantagenet era. Medieval architecture was completed with the 16th century Tudor style. English Baroque style appeared after the Renaissance. Queen Anne Style architecture flourished from about 1660 to about 1720. Georgian architecture followed, evoking a simple Palladian form the romanticism appeared during Victorian era. After 1930s, various forms of modern architecture emerged. Examples of British colonial architecture can still be found in Hong Kong. British colonists introduced Victorian and Edwardian architecture styles after the mid-19th century [36]. Built in 1844 at the location of the present-day center business district, Murray House is an instance influenced by traditional Victorian culture. St John's Cathedral, was designed to early English gothic style and completed in 1849, is the oldest Christian church in Hong Kong. Although Hong Kong's colonial past not so long as Macau's, it is significantly influenced by the British culture in

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