SUSTAINABLE DEVELOPMENT OF HAN STONE RUBBINGS

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Abstract

The sustainable development of Han Dynasty stone rubbings in Xuzhou emphasizes the need to balance environmental protection, economic growth, and social well-being in the preservation of this cultural heritage. The application of sustainable principles, such as circular economy models, ecosystem services, and policy-driven governance, enables the preservation of these valuable artifacts while fostering local economic development through cultural tourism and education. Technological innovation and community participation play key roles in ensuring the long-term protection and responsible use of these stone rubbings. The relation between sustainable development and culture, religion, and belief is profound, as the rubbings reflect the customs, religious practices, myths, and social life of the Han Dynasty. By preserving these artifacts, the community not only safeguards a significant cultural and historical legacy but also fosters a deeper connection with the spiritual and social values of the past, ensuring their transmission to future generations. This article presented (1) the sustainable development, and (2) Han dynasty portrait stone rubbings.

Keywords: Sustainable Development; Han Stone Rubbings

Introduction

The Han Dynasty portrait stone rubbings, originating from tombs and burial sites, are an integral part of China's cultural heritage, encapsulating the social, religious, and artistic expressions of one of its most influential historical periods. These rubbings, crafted from intricate stone carvings, reflect not only the customs, myths, and beliefs of the Han Dynasty but also offer invaluable insight into the daily lives, ideological values, and spiritual practices of that time. Today, the preservation and study of these artifacts hold great significance, as they serve as a bridge connecting modern society with the cultural and religious traditions of ancient China (Zhu & Xie, 2021). In the context of sustainable development, the conservation of Han Dynasty stone rubbings is not just about preserving historical artifacts but also ensuring their long-term environmental, economic, and social viability. Sustainable development, which balances environmental protection, economic growth, and social well-being, provides a framework to safeguard these cultural treasures for future generations. The integration of modern technologies, innovative conservation practices, and community engagement strategies has made it possible to preserve these artifacts while promoting local economic development through cultural tourism and educational initiatives. This article explores the sustainable development of Han Dynasty portrait stone rubbings, examining the balance between cultural heritage conservation and economic growth, while also addressing the broader implications for environmental protection and community well-being. Furthermore, it delves into the deeper connections between these artifacts and the cultural, religious, and spiritual beliefs of the Han Dynasty, highlighting the importance of preserving not only physical artifacts but also the intangible heritage they represent. Through this lens, the article seeks to offer insights into how cultural heritage can be protected in a way that benefits both current and future generations.

Sustainable Development

Definition and principles of sustainable development: Sustainable development is a comprehensive concept, which involves the balance of environmental protection, economic prosperity and social progress. In the context of Han Dynasty stone rubbings in Xuzhou area, sustainable development

refers to promoting the long-term prosperity of the local economy and community while protecting these precious cultural heritages. In your paper, the definition of sustainability can be refined into the following key elements:

1. Environmental protection: emphasizing the rational utilization and protection of natural resources to ensure the health of ecosystems and the maintenance of biodiversity.

2. Social well-being: Focus on social justice, education, health and community development, and improve people's quality of life and social inclusiveness.

3. Economic growth: Promote steady economic growth while ensuring that this growth is environmentally friendly and socially responsible.

4. Cross-generational equity: Ensure that current developments do not undermine the ability of future generations to meet their needs.

5. Policy and governance: Develop and implement policies to promote sustainable development, and establish effective governance structures to monitor and evaluate progress.

6. International cooperation: recognizing that sustainable development is a global challenge and requires the joint efforts and cooperation of the international community.

7. Innovation and Technology: Encourage innovation and technological development to support the goal of sustainable development, while ensuring that technological progress does not negatively impact the environment and society.

8. Culture and values: Respect for cultural diversity and integrate environmental and social values into the development process.

Environmental protection: to maintain the original state and artistic integrity of the Han Dynasty stone rubbings, and to prevent any form of environmental damage. Economic balance: to create economic value for the local communities through cultural tourism, art market and other channels. Social justice: Ensure that all stakeholders, including local residents, artists and cultural institutions, can benefit fairly from the protection and development of cultural heritage (Wang, 2018).

The Theoretical Framework of Sustainable Development

Triple bottom-line theory (Triple Bottom Line): Economic bottom line: to ensure that the protection and utilization of cultural heritage can bring economic benefits, promote employment and local economic development.

Environmental bottom line: protecting cultural heritage from environmental damage, and while promoting environment-friendly practices.

Social bottom line: improve social well-being, and enhance the community's awareness of identification and protection of cultural heritage through education and participation activities.

Ecosystem service theory: Han Dynasty stone rubbings are not only cultural works of art, but also a part of the ecosystem, providing educational, aesthetic and spiritual services.

Circular economy theory: Promote the circular economy model, and reduce the demand for new resources through the reuse and recycling of old materials, while promoting the innovation and regeneration of cultural heritage (Gao, 2020).

Practical strategies for sustainable development: Education and Awareness Improvement: Promote the education of Han Dynasty stone rubbings in local communities and schools to raise public awareness of the value of cultural heritage. Participative management: Community members, artists, academics and other stakeholders are encouraged to participate in the conservation and management decision-making process of cultural heritage. Economic diversification: Through the development of cultural and creative industries related to Han portrait stone rubbings, we can realize the diversification of economic income and reduce the dependence on single economic activities. Technological innovation and application: Using modern technology, such as digitization, 3D printing, etc., to improve the protection efficiency of Han Dynasty stone rubbings, and to explore new ways of display and education. Policy and regulatory support: Formulate and implement policies and regulations to support the sustainable development of cultural heritage to ensure the long-term nature and stability of the protection work (Xiong & Guo, 2013).

Assessment and monitoring of sustainable development: Establish an evaluation system to regularly monitor the social, economic and environmental impacts of cultural heritage protection projects. Qualitative and quantitative research methods were used to assess the implementation of sustainability strategies and adjust for feedback. The sustainable development of Han portrait stone rubbings in Xuzhou area requires us to consider the comprehensive benefits of economy, society and environment while protecting this non-renewable cultural heritage. Through the guidance of the above theoretical framework and practical strategies, we can provide scientific basis and practical guidance for the long-term protection and rational utilization of Chinese portrait stone rubbings.

Han Dynasty Portrait Stone Rubbings

At the technical level, the rubbings need to lay soft paper on the surface of the stone, and then gently pat or smear with special ink or paint to form the graphic mark corresponding to the original stone on the paper. The Han Dynasty portrait stones are an important part of the tomb culture of the Han Dynasty. There are various images carved on these stones, reflecting the customs, history, religion and social life of the Han Dynasty. Han Dynasty stone is an important material for the study of social economy, customs, religious belief and artistic style in ancient China.

literature review, in the Study of Han Stone (Zhao Chuan, Li Feng, 2004), the historical background, artistic style and cultural value of Han stone are introduced in detail, and its protection and research methods are discussed. In the article "Han Stone rubbings Technology and Its Artistic Value" (Wang Xiuli, 2012), it analyzes the importance of rubbings technology for the protection and research of Han stone, and discusses the artistic value of rubbings art itself. In the book images of Han Stone and Social Life (Huang Yiying, 2008), there is more emphasis on interpreting the image language on the stone, and how these images reflect social life and people's ideological beliefs at that time. Thus, we show that Han stone rubbings art is not only a technical activity, but also a comprehensive research field covering history, culture, art and sociology. Through the application of rubbings technology, researchers are able to better preserve and interpret these precious cultural heritages.

Development history of Han Dynasty portrait stone rubbings: The art of rubbings in China has a long history, which can be traced back to the Han Dynasty, but the rubbing technology widely used in the Han Dynasty was mainly popular in the Song Dynasty (960-1279). The document "Chinese Stone Study" (Wu Qichang, 1981) introduces in detail the history and technology of the art of rubbings, which also involves the rubbing work of the early Han Dynasty portrait stone.

With the rise of stone science and the emphasis on ancient culture, the rubbings art gradually developed into an independent discipline after the Song Dynasty. The rubbings art of the Han Dynasty portrait stone was also developed accordingly. In the Study of Han Stone Painting (Zhao Chuan, Li Feng, 2004), the technical evolution of Han stone rubbings and their important role in the study of Han stone painting are mentioned. In the 20th century, with the application of modern technology, the rubbings art has been significantly improved in both reproduction accuracy and preservation. "Modern Han Dynasty Stone Protection Technology and rubbings Art" (Zhang Hua, 2015) discusses the application of modern technology in Han Dynasty stone protection and rubbings art, including the use of digital technology. In addition to technology, scholars also pay attention to the value of han Dynasty stone rubbings in the academic and cultural aspects, for example, the article "The Academic Value and Cultural Significance of Han Stone rubbings" (Chen Ming, 2018) discusses the application of Han stone rubbings in academic research and their contribution to traditional Chinese culture (Meng, 2006).

At present, with the development of digital technology, the research and protection of Han portrait stone has also begun to use advanced technologies such as three-dimensional scanning and digital rubbing, and these technologies have brought new development opportunities for the traditional rubbings art. Literature such as "New Progress in digital Research of Han Stone" (Liu Yong, 2021) discusses the application of these new technologies in the research of Han stone. To sum up, the historical literature of the development of han Dynasty stone rubbings reflects the transformation from the original handicraft technology to the modern digital technology, and also reflects people's continuous efforts in the protection, research and inheritance of traditional cultural heritage. With the continuous progress of technology, the research and

application of the art of han portrait stone rubbings will be more extensive and deeper in the future (Wang, 2010).

Theory of Han Dynasty portrait stone rubbings art: Zhu Hui (2016) pointed out in the study of the Artistic Theory that the art of Han Dynasty stone rubbings has unique artistry. Scholars analyze the form, content and creation background of the han Dynasty portrait stone rubbings, and explore the artistic connotation and form of expression. Zhang Xia (2018) mentioned in the Study on the Creation motivation of Han Stone rubbings Art that the creation motivation of Han stone rubbings art is one of the important directions of research. Scholars explore the motivation, purpose and significance of the artistic creation of Han Dynasty stone rubbings through the study of the psychological and social background of artists' creation. Liu Dong (2017) pointed out in a Study on the Aesthetic Concept of the Art of Han Stone rubbings that the aesthetic concept of Han stone rubbings art is closely related to the traditional culture and social environment. Through the study of the aesthetic characteristics and audience reaction of han stone rubbings, scholars explore the aesthetic concept, value evaluation standard and audience recognition of han stone rubbings. Zhou Hong (2019) mentioned in a Study on the Cultural Symbols of Han Stone rubbings that the art of Han stone rubbings, as a form of cultural inheritance, carries rich cultural symbols. Through the study of the symbolic elements and meanings, the scholars reveal the relationship between the art, cultural tradition and social symbols.

These literature reviews describe different aspects of the art theory research of Chinese portrait stone rubbings. Through the discussion of artistry, creative motivation, aesthetic concept and cultural symbols, the researchers deeply understand the connotation and significance of han portrait stone rubbings. These studies provide a theoretical basis for us to understand and appreciate the art of Han Dynasty stone rubbings, and promote the understanding and inheritance of their social and cultural values.

The study of Han Dynasty stone rubbings involves theories in archaeology, art history, cultural research and other fields. Han stone statues are an important part of the tomb culture of the Han Dynasty. They are usually relief portraits carved on tombs, sarcophagus or stone tablets that usually reflect the social life, religious beliefs, myths and legends, and daily activities of the Han

Dynasty. Topper technology is an ancient replication technology, by covering silk, paper and other materials on the surface of the stone carving, and then using ink or other dyes to pat or rub, copy the pictures and pictures on the stone carving, which is an important means to study the Han Dynasty stone. The theoretical study of Han Dynasty stone rubbings may include the following aspects:

Art history: studies the artistic style, carving skills, patterns and themes of Han Dynasty stone, and analyzes its artistic expression and aesthetic characteristics in the society at that time.

Social culture: By interpreting the contents of the Han Dynasty stone, studying the social structure, etiquette and customs, religious belief, economic life and other aspects of the Han Dynasty.

Archaeology: Han Dynasty portrait stone is usually related to tombs, and the changes of burial structure, burial goods and burial system can be discussed from the perspective of archaeology.

Cultural heritage: explore the value and significance of Han Dynasty stone in Chinese cultural heritage, as well as how to effectively protect and use it.

Technical methods: Research and develop rubbings technology and other replication and protection technologies to ensure the protection of raw materials and access to high-quality copies.

Ideology and symbol: analyze the images and symbolic significance in the Han Dynasty portrait stone, and explore how they reflect the political ideology, moral concept and cosmology at that time.

Communication and influence: To study the cultural exchange and influence of han Dynasty stone in different regions, as well as the influence on later art.

The study of Han stone is a complex work, which requires various methods and theories such as historical documents, archaeological discoveries and artistic analysis.

Han Dynasty stone rubbings refer to a stone rubbing of the Han Dynasty (206 BC-220 AD), engraved with exquisite patterns or characters, usually used to commemorate or commend important figures or events. The art of the Han Dynasty stone rubbings is an important part of the ancient Chinese stone carving art. It combines the characteristics of the social culture of the Han Dynasty and has high historical, artistic and archaeological value (Zhang, 2015).

Cultural heritage of Han Dynasty stone rubbings: Cultural heritage refers to the material and intangible wealth created by the society and culture in the past and transmitted to today and in the future. This includes art, architecture, sites, literature, oral traditions, performing arts, social practices, festival events, knowledge and skills, and tools and cultural spaces related to nature and the universe.

Specifically, cultural heritage can be divided into two categories: material cultural heritage and intangible cultural heritage: Material cultural heritage: it can be subdivided into movable cultural heritage (such as works of art, handicrafts, documents, ancient books, etc.), immovable cultural heritage (such as sites, buildings, historical landscape, etc.) and underwater cultural heritage (such as shipwrecks, sites, etc.).

Intangible cultural heritage: including oral traditions and manifestations, performing arts, social practice, festival activities, and knowledge and practice related to nature and the universe. In addition, there is the term "digital cultural heritage", which refers to various resources in the form of numbers that embody human knowledge. This includes digital data and information in the fields of art, science, history, technology, and more. These cultural heritages not only reflect the history and culture of mankind, but also are an important way for various communities and groups to form and inherit their own identity. The historical discovery process of cultural heritage is very extensive and diverse, involving many disciplines and fields, including archaeology, history, art history, ethnology and so on. Here are some typical examples of the cultural heritage discovery process:

Archaeological excavations: Many discoveries of cultural heritage begin with archaeological excavations. For example, the discovery of the tomb of Tutanhamun (King Tutankhamun's tomb) in ancient Egypt is a classic example.

In 1922, British archaeologist Howard Carter (Howard Carter) discovered the tomb almost untouched in the Valley of the Kings. Accidental discovery: Some cultural heritage is accidentally discovered during lay construction or daily activities. For example, the terracotta warriors in Xi'an, Shaanxi Province, China, were accidentally discovered in 1974.

Literature research: Historical documents, maps, and other records can guide researchers to discover a lost or unknown cultural heritage. For example, studies of ancient documents can help to determine the location of historic sites.

Technology applications: Modern technologies such as remote sensing, geographic information systems (GIS), drone photography, and laser scanning are also used to discover and record cultural heritage. Using these techniques, researchers can detect cultural relics buried underground or in inaccessible areas.

Local legends and oral traditions: In some cultures, oral traditions and legends contain clues about lost cities or ruins that are sometimes tracked and confirmed by researchers.

With the passage of time and the progress of science and technology, the discovery and protection methods of cultural heritage are also constantly evolving, so as to better protect and inherit these priceless historical and cultural wealth. The theory of cultural heritage is a kind of academic research on how to understand, evaluate and protect cultural heritage, which contains many different theoretical perspectives and approaches. Here are some of the main theories and perspectives:

Identity and sense of belonging: Some theories emphasize that cultural heritage is not only the material evidence of history and art, but also an important way for communities and individuals to form self-identity and belonging. In this perspective, cultural heritage is preserved not only to preserve history, but also to support the identity and social continuity of the community.

Living heritage: This theory emphasizes that cultural heritage is not only a legacy of the past, but also a part of current community life. In this view, the protection of cultural heritage requires respect and support for the use and inheritance of heritage by local communities.

Sustainability: This theory emphasizes that cultural heritage protection should be a part of sustainable development, including environmental, economic, and social sustainability. In this perspective, cultural heritage is seen as a resource that can be used for education, tourism and economic development, but also its impact on the environment and the community needs to be considered.

Multicultural perspective: This theory emphasizes that cultural heritage should be understood and evaluated from the multicultural perspective. This means respecting and recognizing that different cultures, communities, and individuals may have different understandings and values about the same cultural heritage (Ou & Xie, 2017).

Crisis and recovery: Some theories emphasize that cultural heritage often faces various threats, including natural disasters, wars, urbanization, and climate change. Therefore, the protection and restoration of cultural heritage is an important area of research and practice. These theories are not mutually exclusive. In many cases, they are considered and applied together in the protection and management of cultural heritage.

Cultural heritage is a complex and diverse concept that covers a wide range of products of human history and culture. Here is a summary of the concept of cultural heritage: Cultural heritage is a tangible or intangible asset that represents the development of human history, culture, art, science and society. It contains architecture, archaeological sites, handicrafts, documents, customs, legends, music, dance, sacrificial activities and other forms. Cultural heritage is usually divided into tangible cultural heritage and intangible cultural heritage. Tangible cultural heritage refers to the material products that can be touched and seen, such as buildings, sites, works of art, etc. Intangible cultural heritage refers to the cultural manifestations that cannot be directly seen or touched, such as language, music, dance, traditional handicrafts, festival activities, oral traditions, etc. (Pan, 2010).

The value of the cultural heritage lies not only in its historical and artistic significance, but also in its contribution to the present and future community and personal identity, education, tourism, and economic development. The

protection and management of cultural heritage is an important responsibility and challenge. It requires a comprehensive use of law, science and technology, community participation, education and other means to ensure the persistence, integrity and vitality of cultural heritage. Cultural heritage is not static, it is a dynamic process that interacts with community and individual activities, values, environment and other factors.
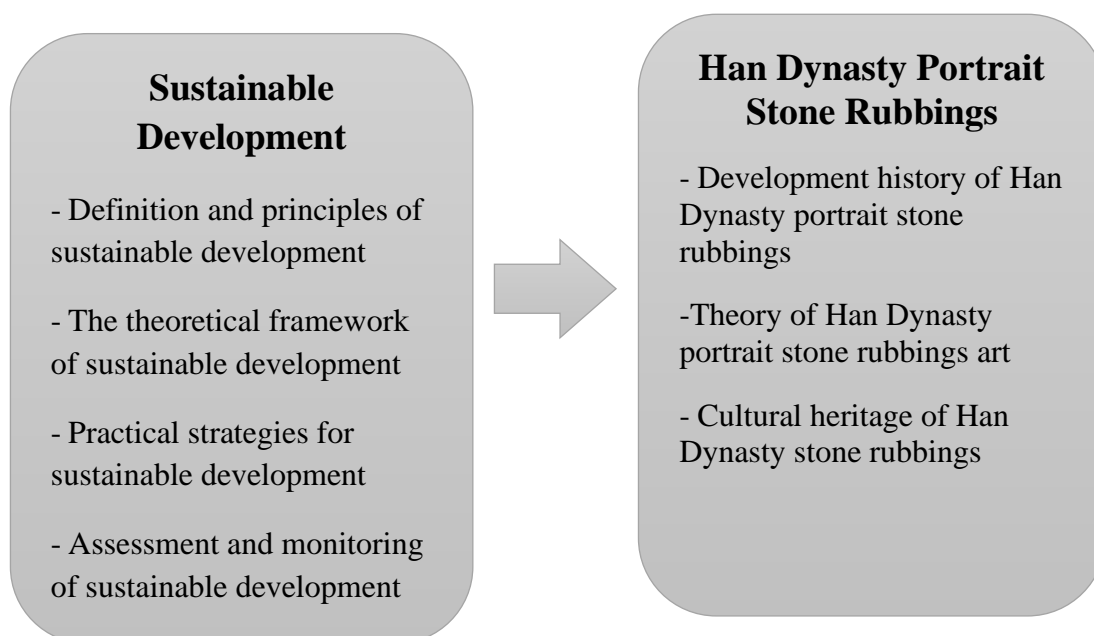
New Knowledges Remark

Figure 1: Diagram show the New Knowledges Remark of Sustainable Development Han Dynasty Portrait Stone Rubbings.

Conclusions

In conclusion, sustainable development, in the context of Han Dynasty stone rubbings in the Xuzhou area, highlights the delicate balance between environmental protection, social well-being, and economic growth while safeguarding cultural heritage. The preservation of these valuable artifacts involves applying sustainable principles such as environmental protection,

equitable social practices, economic balance, and technological innovation. By integrating circular economy models, ecosystem services, and policy support, sustainable development ensures that the stone rubbings are preserved for future generations while benefiting the local community through cultural tourism, education, and diversified economic opportunities. Through collaborative governance, community participation, and the utilization of modern technologies, the sustainable management of Han Dynasty stone rubbings can support cultural continuity, provide economic value, and maintain the integrity of this historical heritage for both local and global appreciation.

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