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ON CULTURAL HERITAGE CONSERVATION SCIENCE

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目录 Table of Contents

前沿研究 | **Research Fronts** | **Pesquisa de Fronteira** 04-12

韩国“U.V.E.C.”（理解、价值、享受、创造）文化遗产教育体系 | The Korean U.V.E.C. (Understand, Value, Enjoy, Create) Framework for Cultural Heritage Education | Quadro U.V.E.C. (Compreender, Valorizar, Apreciar, Criar) para a Educação do Património Cultural da Coreia do Sul

实践案例 | **Case Study** | **Casos de Investigação** 13-21

韩国文化遗产利用场所防灾减灾管理导则 - 火灾为例 | Guidelines for Disaster Prevention and Mitigation at Cultural Heritage Utilization Sites in the Republic of Korea: The Case of Fire | Orientações para Prevenção e Atenuação de Catástrofes nos Locais de Exploração do Património Cultural na Coreia do Sul: O Caso dos Incêndios

平台动态 | **Platform Dynamics** | **Dinâmica da Plataforma** 22-29

哥伦比亚国家博物馆藏“弗朗西斯科·皮萨罗纹章旗”：多分析技术方法助力揭示历史 | The National Museum of Colombia's "Francisco Pizarro's Banner of Arms": A multianalytical approach to help uncovering its history | A "Bandeira de Armas de Francisco Pizarro" no acervo do Museu Nacional da Colômbia: uma abordagem analítica múltipla para ajudar a revelar a sua história

活动报道 | **Latest Events** | **Últimas Atividades** 30-33

第 48 届世界遗产委员大会在韩国釜山闭幕 | The World Heritage Committee wrapped up its 48th session in Busan, Republic of Korea | A 48.ª Sessão do Comité do Património Mundial terminou em Busan, República da Coreia

2026 国际文化遗产保护活动周启幕 | 2026 International Cultural Heritage Conservation Week Opens | Semana Internacional de Conservação do Património Cultural 2026 inaugura

中国—东盟建筑遗产数字信息系统与可持续更新研讨会 | China–ASEAN Symposium on Digital Information Systems and Sustainable Renewal for Architectural Heritage | Simpósio China-ASEAN sobre Sistemas de Informação Digital e Renovação Sustentável do Património Arquitetónico

前沿研究 Research Fronts

韩国“U.V.E.C.”（理解、价值、享受、创造）文化遗产教育体系

The Korean U.V.E.C. (Understand, Value, Enjoy, Create) Framework for Cultural Heritage Education

资料来源：

1. Park Sang-hye：《建立 U.V.E.C.（理解、价值、享受、创造）文化遗产教育之文化遗产教育目标研究》，《韩国文化遗产研究》，第 55 卷第 4 期，2022 年 12 月，第 278－294 页。

2. Lee Hyun-kyung, Yoo Hee-jun, and Nam Soo-mi：《联合国教科文组织〈世界遗产公约〉50 周年：现状与未来任务》，《韩国文化遗产研究》，第 56 卷第 2 期，2023 年 6 月，第 264－279 页。版权所有 © 2023，国立文化遗产研究院。

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1. Park Sang-hye, “A Study on the Objectives of Cultural Heritage Education for Establishing U.V.E.C. (Understand, Value, Enjoy, Create) Cultural Heritage Education,” Korean Journal of Cultural Heritage Studies, Vol. 55, No. 4, December 2022, pp. 278–294.

2. Lee Hyun-kyung, Yoo Hee-jun, and Nam Soo-mi, “The 50th Anniversary of the UNESCO World Heritage Convention: Current Status and Future Tasks,” Korean Journal of Cultural Heritage Studies, Vol. 56, No. 2, June 2023, pp. 264–279. Copyright © 2023, National Research Institute of Cultural Heritage.

作为人类共同遗产（shared heritage）的世界遗产，已成为促进各国理解彼此多元价值的文化交流桥梁。这些世界遗产还承担着文化外交官的角色，致力于向全世界传播人类文明以及代表特定历史时期的文化遗产所具有的突出普遍价值（Outstanding Universal Value）。而基于相互尊重的世界遗产公约，则有效传递了联合国教科文组织倡导的和平建设（peace-building）精神。当下，围绕世界遗产保护的社会、政治及文化环境已发生了深刻变化。世界遗产制度重心从以专家主导的方法（expert-led approach）转向以价值为中心的方法（value-centred approach），并致力于推动遗产概念与分类体系以及保护管理体系的多元化发展。如今，进一步从价值导向型模式向以人为本的模式（people-centred approach）转型，区域社区参与遗产保护、各方利益相关者对遗产内涵的协调解读等问题已成为世界遗产保护的核心议题。

为了更好地应对变化，文化遗产教育领域最紧迫的任务，首先是确立清晰的教育目标。现行韩国文化遗产教育目标存在的主要问题在

World Heritage, regarded as the shared heritage of humankind, has become a bridge for cultural exchange through which countries can develop an understanding of one another’s diverse values. World Heritage properties also serve as cultural diplomats, communicating to the world the achievements of human civilization and the Outstanding Universal Value embodied in cultural heritage associated with particular historical periods. Grounded in mutual respect, the World Heritage Convention likewise conveys UNESCO’s commitment to peace-building. The social, political, and cultural contexts surrounding World Heritage conservation have, however, undergone profound change. The World Heritage system has shifted from an expert-led approach to a value-centred approach, while seeking to diversify heritage concepts, classification systems, and conservation and management frameworks. It is now moving further from a value-centred model toward a people-centred approach, making local community participation in heritage conservation and the coordinated interpretation of heritage significance among stakeholders central issues in World Heritage protection.

To respond more effectively to these changes, the most urgent task in cultural heritage education is to establish clearly

于：相关从业者对教育目标的概念理解不够准确；教育目标未能充分反映教学的实际内容；同时，这些目标未能充分考虑学习者的多样化能力与兴趣需求，也未能适应时代发展的变化。因此，韩国提出了“U.V.E.C 文化遗产教育”的新型文化遗产教育理念。旨在帮助人们理解文化遗产（Understand）、认识其价值（Value）、享受其魅力（Enjoy）并促进文化创新（Create）的教育形式。

1. 韩国现行文化遗产教育的目标

韩国《文化遗产保护法》及其配套实施条例，构成了文化遗产教育理论与实践的基石。《文化遗产保护法》中关于文化遗产教育的相关条款分别载于第 1 条和第 2 条第 2 款：第 1 条明确了“文化遗产保护法的目的”，而第 2 条第 2 款则对“文化遗产教育”的定义作出了如下阐述：该法律旨在保护文化遗产、传承民族文化，并促进其合理利用，从而提升国民的文化素养；为人类文化的进步作出贡献。

本法中所指的“文化遗产教育”，是指通过帮助人们认识文化遗产的历史价值、艺术价值、学术价值及景观价值，从而培养对文化遗产的热爱意识，并促进民族认同感形成的教育活动。

此外，《文化遗产保护法》第 1 条第 2 款所规定的《文化遗产保护法施行令》中，对“文化遗产教育的范围”作出了如下规定：

1. 教育通过保护文化遗产，有助于传承传统文化、促进地区文化发展，并提升人类共有的价值观以及文化多样性。

2. 旨在培养人们对文化遗产保护的意识，并鼓励开展文化遗产保护工作的教育项目。

根据《文化遗产保护法》及其配套实施条例，文化遗产教育的目标具有以下几大特征：首先，文化遗产教育以民族层面和国家层面的教育为基础，旨在传承民族文化、提升国民文化素养并强化民族认同；其次，该教育以历史价值、艺术价值、学术价值及景观价值的认知培养为核心，并致力于弘扬人类共有的普世价

defined educational objectives. The principal shortcomings of current objectives in Korean cultural heritage education are as follows: practitioners lack a precise conceptual understanding of educational objectives; the stated objectives do not adequately reflect the actual content of instruction; and they neither sufficiently accommodate learners' diverse abilities and interests nor respond to contemporary change. Against this background, Korea has proposed the concept of "U.V.E.C. cultural heritage education," an educational model designed to enable learners to Understand cultural heritage, recognize its Value, Enjoy its appeal, and contribute to cultural Creation.

1. Objectives of Cultural Heritage Education in Korea

Korea's *Cultural Heritage Protection Act* and its accompanying enforcement provisions constitute the legal and conceptual foundation for the theory and practice of cultural heritage education. Relevant provisions appear in Article 1 and Article 2(2) of the Act. Article 1 specifies the purpose of the *Cultural Heritage Protection Act*, while Article 2(2) defines cultural heritage education. The Act is intended to protect cultural heritage, transmit national culture, and promote the appropriate utilization of cultural heritage, thereby enhancing the cultural competence of citizens and contributing to the advancement of human culture.

Under the Act, "cultural heritage education" refers to educational activities that help people understand the historical, artistic, academic, and landscape values of cultural heritage, cultivate affection for cultural heritage, and promote the formation of national identity.

The *Enforcement Decree of the Cultural Heritage Protection Act* further defines the scope of cultural heritage education as follows:

1. Education that, through the protection of cultural heritage, contributes to the transmission of traditional culture, the development of regional culture, shared human values, and cultural diversity.

2. Educational programs designed to cultivate public awareness of cultural heritage protection and encourage participation in heritage conservation activities.

On the basis of the *Cultural Heritage*

值观念以及培育文化遗产保护意识。第三，文化遗产教育旨在促进文化遗产的活化利用，为文化遗产保护工作及人类文化发展作出贡献，并助力民族认同的构建；其目标不仅限于传授文化遗产知识或提升公众认知，更致力于转变人们的态度。第四，该教育将文化遗产议题从民族与国家层面延伸至地区乃至全球层面，涵盖人类文明进步、地域文化发展以及普世价值弘扬等维度。

《关于保护世界文化和自然遗产的公约》，联合国教科文组织对文化遗产与自然遗产相关的教育工作作出了如下阐述：

1. 本协议缔约国应通过一切适当手段，特别是教育与信息宣传工作，努力增强本国公民对第 1 条和第 2 条所规定的文化遗产及自然遗产的理解与尊重。

2. 缔约国承诺将向广大公众广泛宣传那些可能威胁该文化遗产的风险，以及根据本协议所开展的各项活动。

根据《世界文化和自然遗产保护公约》中关于文化遗产教育的目标，其首要目标便是提升本国公民的文化素养与保护意识：首先，是指公众对文化遗产所展现出的知识与理解，这体现在诸如参观遗址等行为中。其次，则是源于对文化遗产的尊重而形成的对其价值的认知。这种尊重意识与前文在《文化遗产保护法》分析中探讨的价值获取、价值提升、爱护意识培养以及保护意识培养等方面密切相关。

《文化遗产保护法》以及《世界文化和自然遗产保护公约》中，所涉及的文化遗产教育相关内容，与其说是文化遗产教育的具体目标，不如说更符合文化遗产教育的根本宗旨。教育目标（educational goals）是指在综合考虑教育各项条件的基础上，通过教育过程所追求的最终目标；而教育目的（objectives of education）则是指为了在实际教学实践中实现这些教育目标而具体化出的具体教育成果。《文化遗产保护法》与《世界文化和自然遗产保护公约》的相关条款，大多并非针对文化遗产教育的具体实施成果，而是阐述其终极目标。

Protection Act and its accompanying enforcement provisions, the objectives of cultural heritage education exhibit several major characteristics. First, cultural heritage education is grounded in education at the national and state levels and is intended to transmit national culture, enhance citizens' cultural competence, and reinforce national identity. Second, it centres on developing an understanding of the historical, artistic, academic, and landscape values of cultural heritage, while promoting universal values shared by humankind and cultivating awareness of heritage protection. Third, cultural heritage education seeks to promote the active utilization of cultural heritage, contribute to heritage conservation and the development of human culture, and support the construction of national identity. Its objectives are therefore not limited to transmitting knowledge or increasing public awareness; they also seek to transform attitudes. Fourth, cultural heritage education extends heritage issues beyond the national and state levels to regional and global scales, encompassing the advancement of human civilization, the development of regional culture, and the promotion of universal values.

With regard to education concerning cultural and natural heritage, the *UNESCO Convention Concerning the Protection of the World Cultural and Natural Heritage* provides that: (1) States Parties shall endeavor, by all appropriate means, and in particular through educational and information programs, to strengthen the appreciation and respect of their peoples for the cultural and natural heritage defined in Articles 1 and 2; and (2) they shall undertake to keep the public broadly informed of the dangers threatening such heritage and of the activities carried out pursuant to the Convention.

Under the Convention, the foremost objective of cultural heritage education is to enhance citizens' cultural competence and awareness of heritage protection. The first dimension concerns public knowledge and understanding of cultural heritage, as reflected in practices such as visiting heritage sites. The second concerns recognition of heritage value arising from respect for cultural heritage. Such respect is closely related to the acquisition and enhancement of value awareness, the cultivation of affection for heritage, and the development of conservation awareness discussed above in relation to the *Cultural Heritage Protection Act*.

表 1：韩国 2021 年认证文化遗产教育项目
Table 1. Cultural Heritage Education Programs Certified in Korea in 2021

认证号码 Certification No.	认证文化遗产教育项目名称 Certified Cultural Heritage Education Program	机构 / 组织名称 Institution/Organization
001	文化遗产绽放 Cultural Heritage in Bloom in Gwangsan 광산 , 문화유산 꽃이 피다	光州文化 Gwangju Culture Naru Association (사) 광주문화나루
002	安东文化遗产常识 Cultural Heritage of Andong You Must Know 꼭 알아야 할 안동의 문화유산 교육	安东文化 Andong Cultural Heritage Keepers 안동문화지킴이
003	我的颜色，风格与舞蹈 My Conical Hat, My Sogo Drum, My Dance 내고깔 내소고 나의 춤	高昌农乐保护会 Gochang Nongak Preservation Association (사) 고창농악보존회
004	阿查山文化遗产 Achasan Cultural Heritage for All 모두의 문화재 , 아차산	汉江文化研究院 Hangang Cultural Heritage Research Institute 한강문화재연구원
005	百济外交使节体验项目 Baekje Diplomatic Envoy Experience Program 백제외교사신 체험프로그램	玩转百济 Play in Baekje Co., Ltd. (주) 백제에서놀자
006	伽耶古墓与陶俑知识 Learning about Gaya Tombs and Pottery at Sancheong Museum 산청박물관에서 배우는 가야 고분과 토기	山青博物馆 Sancheong Museum 산청박물관
007	回顾与跳跃 Go,Back,Jump! 오이도 Go,Back,Jump!	始兴博物馆 Siheung Oido Museum 시흥오이도박물관
008	济州高山里遗址 Jeju Gosan-ri Site: Capturing Fire 제주 고산리 유적	济州考古研究所 (재) 제주고고학연구소
009	武士的故事 The Story of Warrior Sin Bong at Home 제주고산리 유적 불을 담다	忠清北道文化遗产研究院 Chungcheongbuk-do Cultural Heritage Research Institute 충청북도문화재연구원
010	韩流文化源头韩城百济 Hanseong Baekje, the Origin of the Korean Wave 집에서 만나는 무사 신봉의 이야기	文化与生活 Culture and Life Association (사) 문화살림

2. 韩国文化遗产厅认证的文化遗产教育项目

韩国文化遗产厅依据《文化遗产保护法》第 22 条之 6（关于文化遗产教育项目的开发、推广及认证等规定），自 2021 年起开始实施文化遗产教育项目认证制度。该认证制度的设立目的旨在“推广文化遗产教育活动，并提升文化遗产教育的质量水平”。为实现这一目标，

The provisions on cultural heritage education contained in the *Cultural Heritage Protection Act* and the *Convention Concerning the Protection of the World Cultural and Natural Heritage* are better understood as statements of the fundamental aims of heritage education than as its specific educational objectives. Educational goals refer to the ultimate ends pursued through an educational process after consideration of the relevant

经过筛选，在 2021 年公布了 10 个文化遗产教育认证项目（试点运行），如表 1 所示。

如表 2 与表 3 所示，韩国文化遗产厅认证的文化遗产教育项目分析方法分为形式（Form）与内容（Contents）两个维度，并将目标达成程度划分为高、中、低三个等级进行评估。在表 2 形式分析量表主要分为两个维度：概念理解度（F-1）和领域多样性程度（F-2）。其中，概念理解度又进一步细分为理解程度（F-1-1）和陈述水平（F-1-2）。理解程度（F-1-1）指对“目标是教育过程中期望实现的最终成果”这一概念的理解深度；表述水平（F-1-2）具体包括：对于行为目标而言，体现其可实现性的明确性；对于问题解决目标，则涵盖在问题提出及解决问题过程中允许学习者主导学习活动的具体形式；而对于表达结果，则涉及教育过程或后续阶段中能够评估学习者表达内容及其效果的开放性，以及体现对学习自主权支持的具体方式。该领域的领域多样性程度（F-2）被划分为三个维度：行为目标（F-2-1）、问题解决目标（F-2-2）以及表达成果（F-2-3）。其中，行为目标（F-2-1）涵盖认知与情感两个维度；在认知维度方面，具体包括知识掌握、理解能力、应用能力、分析能力以及综合评估能力；在情感维度方面，则涉及接纳能力、反应能力、价值认同能力、组织协调能力及人格特质形成程度。

educational conditions, whereas objectives of education denote the concrete learning outcomes formulated to operationalize those goals in teaching practice. Most relevant provisions in the two instruments therefore articulate ultimate aims rather than specific implementation outcomes.

2. Cultural Heritage Education Programs Certified by the Korean Cultural Heritage Administration

Pursuant to Article 22-6 of the Cultural Heritage Protection Act, which concerns the development, dissemination, and certification of cultural heritage education programs, the Korean Cultural Heritage Administration introduced a certification system for such programs in 2021. The system was established to “promote cultural heritage education activities and improve the quality of cultural heritage education.” Following a selection process, ten pilot programs were certified and announced in 2021, as shown in Table 1.

As shown in Tables 2 and 3, the analytical framework for cultural heritage education programs certified by the Korean Cultural Heritage Administration comprises two dimensions: form and content. The degree of objective attainment is evaluated at three levels—High, Medium, and Low. The form analysis in Table 2 consists of two dimensions: conceptual understanding (F-1) and domain diversity (F-2). Conceptual understanding is further divided into level of understanding (F-1-1) and quality of objective statements (F-1-2). Level of understanding refers to the extent to which practitioners grasp the concept that an objective is the final outcome

表 2：目标格式（Form）分析结果
Table 2. Results of the Analysis of Objective Form

认证号码 Certification No.	概念理解（F-1） Conceptual Understanding (F-1)		领域多样性程度（F-2） Domain Diversity (F-2)		
	理解程度 Level of Understanding (F-1-1)	陈述水平 Quality of Objective Statements (F-1-2)	行为目标 Behavioral Objectives (F-2-1)	问题解决目标 Problem-Solving Objectives (F-2-2)	表现结果 Expressive Outcomes (F-2-3)
001	中 Medium	中 Medium	上 High	下 Low	下 Low
002	下 Low	下 Low	下 Low	下 Low	下 Low
003	中 Medium	中 Medium	上 High	下 Low	下 Low
004	下 Low	下 Low	下 Low	下 Low	下 Low
005	下 Low	下 Low	下 Low	下 Low	下 Low
006	中 Medium	中 Medium	中 Medium	中 Medium	中 Medium
007	中 Medium	下 Low	中 Medium	下 Low	下 Low
008	中 Medium	中 Medium	中 Medium	中 Medium	下 Low
009	中 Medium	中 Medium	中 Medium	中 Medium	中 Medium
010	下 Low	下 Low	下 Low	下 Low	下 Low

表 3：目标内容（Contents）分析结果
Table 3. Results of the Analysis of Objective Content

认证号码 Certification No.	国家要求（C-1） National Requirements（C-1）		个人需求（C-2） Individual Needs (C-2)	
	传统目标 Traditional Objectives（C-1-1）	实用目标 Practical Objectives (C-1-2)	公共教育的补充 Supplement to Public Education (C-2-1)	文化享受 Cultural Enjoyment (C-2-2)
001	上 High	下 Low	下 Low	上 High
002	上 High	下 Low	下 Low	下 Low
003	中 Medium	下 Low	上 High	中 Medium
004	下 Low	下 Low	下 Low	下 Low
005	下 Low	下 Low	下 Low	下 Low
006	上 High	下 Low	下 Low	下 Low
007	上 High	上 High	下 Low	下 Low
008	中 Medium	上 High	下 Low	下 Low
009	上 High	下 Low	上 High	下 Low
010	上 High	下 Low	中 Medium	下 Low
平均分 Average Score	2.40	1.40	1. 50	1. 30

此外，问题解决目标（F-2-2）指的是问题的多样性以及预期答案的多样性程度；而表达结果（F-2-3）则指预期的表达方式及其结果的多样性程度。

如表 3 所示，目标内容分析应既符合国家要求（C-1），也满足个人需求（C-2）。目标内容分为两大类别：国家层面的目标（C-1）进一步细分为传统目标（C-1-1）和实用目标（C-1-2）。传统目标（C-1-1）涵盖《文化遗产保护法》中规定的民族文化传承、国民文化素养提升以及民族认同感强化等内容；实用目标（C-1-2）则涉及文化遗产教育对社会经济发展的促进作用。个人需求方面，则以“公共教育的补充”（C-2-1）和“文化享受”（C-2-2）作为分析维度。公共教育补充是指通过文化遗产教育来补充个人的学校课程教学或其他校园活动；而享受则指通过文化遗产教育使个人获得愉悦感、满足感及成就感等体验。

对韩国文化遗产厅认证的文化遗产教育项目目标进行分析后得出如下结果：平均得分按每项 1 分计算，其中优秀等级为 3 分，中等等级为 2 分。

从平均值来看，概念理解程度（F-1-1）和陈述水平（F-1-2）均相对较低，这表明文

expected from an educational process. The quality of objective statements includes the following: for behavioral objectives, the clarity with which attainability is specified; for problem-solving objectives, the concrete forms through which learners are permitted to lead the identification and resolution of problems; and for expressive outcomes, the openness of the forms through which learners' expressions and their effects can be evaluated during or after the educational process, together with the specific ways in which learner autonomy is supported. Domain diversity (F-2) is divided into behavioral objectives (F-2-1), problem-solving objectives (F-2-2), and expressive outcomes (F-2-3). Behavioral objectives encompass both cognitive and affective domains. The cognitive domain includes knowledge, comprehension, application, analysis, synthesis, and evaluation, while the affective domain includes receiving, responding, valuing, organization, and characterization.

Problem-solving objectives (F-2-2) concern the diversity of the problems posed and the diversity of the expected answers. Expressive outcomes (F-2-3), by contrast, concern the diversity of anticipated modes of expression and the outcomes produced through those forms of expression.

As shown in Table 3, the analysis of objective content considers both national requirements (C-1) and individual needs (C-2). Objective content is divided

化遗产教育工作者亟需接受关于教育目标概念及表述方法的培训。此外，行为目标（F-2-1）的多样性也较为不足；而更严重的问题在于问题解决目标（F-2-2）与表达成果（F-2-3）的多样性更是明显偏低，这反映出相关领域从业者对这些问题解决目标及表达成果的基本认知尚显匮乏。因此，在文化遗产教育目标中，有必要明确并具体阐述问题解决目标与表达成果的具体内涵。从内容层面来看，传统目标（C-1-1）虽具有重要意义且处于最高层级，但另一方面也可能反映出当前文化遗产教育目标仍沿袭旧有模式。此外，体验维度的文化享受（C-2-2）的平均分最低，表明有必要在文化遗产教育目标体系中新增这一维度作为补充内容。

3. 韩国 U.V.E.C. 文化遗产教育项目

迄今为止，韩国大多数文化遗产教育活动都侧重于知识的获取与再现。然而，在当今这个通过互联网等渠道充斥着海量知识的时代，单纯获取和重温文化遗产知识的意义正逐渐减弱。因此，文化遗产教育的目标不应再局限于掌握和重温相关知识，而应转变为通过多种方式对文化遗产知识进行阐释与解读。基于此，文化遗产教育的首要总体目标应定为“理解文化遗产（Understand）”。

在之前探讨过的大多数文化遗产相关资料中，一个共同出现的主题便是关于“价值”的讨论。关于价值的探讨大致可以分为三个方向：首先，正如《文化遗产保护法》所定义的那样，文化遗产本身便具有内在价值；其次，学习者应当认识到文化遗产所蕴含的价值；最后，在认识到这一价值之后，就必须采取相应的行动。对于那些本身已经具有内在价值的文化遗产，学习者首先需要认识到其价值；一旦认识到这种价值，便会产生热爱之情，并进而采取相应的保护措施。因此，在文化遗产教育中，“价值认知”这一环节贯穿于“知识获取”、“内化吸收”以及“实际行动”这三个阶段。文化遗产教育应当以实现这一完整过程为目标。基于此，文化遗产教育的第二个总体

into two broad categories. National-level objectives are further divided into traditional objectives (C-1-1) and practical objectives (C-1-2). The source text identifies the national-level category as C-2 at one point, although Table 3 consistently labels it C-1. Traditional objectives include the transmission of national culture, the enhancement of citizens' cultural competence, and the reinforcement of national identity, as stipulated in the Cultural Heritage Protection Act. Practical objectives concern the contribution of cultural heritage education to socioeconomic development. Individual needs are analyzed in terms of a “supplement to public education” (C-2-1) and “cultural enjoyment” (C-2-2). The former refers to the use of cultural heritage education to complement school curricula or other campus-based activities, whereas the latter refers to experiences of pleasure, satisfaction, and achievement derived from cultural heritage education.

The analysis of the objectives of programs certified by the Korean Cultural Heritage Administration produced the following results. Average scores were calculated on a three-point scale, with High assigned 3 points, Medium 2 points, and Low 1 point.

The mean values for level of understanding (F-1-1) and quality of objective statements (F-1-2) were relatively low, indicating an urgent need to train cultural heritage educators in the concept and formulation of educational objectives. The diversity of behavioral objectives (F-2-1) was also insufficient. More seriously, the diversity of problem-solving objectives (F-2-2) and expressive outcomes (F-2-3) was markedly limited, suggesting that practitioners lacked even a basic understanding of these categories. It is therefore necessary to define and specify the substantive meaning of problem-solving objectives and expressive outcomes within cultural heritage education objectives. In terms of content, traditional objectives (C-1-1) remain important and received the highest score; however, this result may also indicate that current objectives continue to reproduce established models. Cultural enjoyment (C-2-2), which represents the experiential dimension, received the lowest average score, demonstrating the need to incorporate this dimension into the cultural heritage education objective system as a complementary component.

目标被明确设定为：“认识文化遗产的价值（Value）”。

为适应全球化发展，并且必须能够适应快速变化的时代潮流。因此，文化遗产教育的目标需要具备足够的灵活性，能够从特殊情境延伸至普遍适用场景，并实现灵活运用。应关注两个方面：

其一，是促进学习者的各项能力发展；文化遗产教育因其所涵盖的文化遗产本身兼具历史性、学术性、艺术性及象征性等多种特质，因此非常适合作为培养各类能力的教育内容；

其二，教育应当以“学习者为中心”，而非以教师为中心。以学习者为中心的教育体系的根本基础在于学习者的学习兴趣。也就是说，学习者必须对学习过程充满兴趣，并能够享受并乐在其中。没有任何一种教育方式能比让学习者在兴趣与愉悦中学习取得更显著的效果。

文化遗产教育因其内容涵盖无形与有形等多种形式，且可通过视觉、听觉、触觉等多种感官进行体验，具有极高的趣味性，因此相较于其他学科，更适合采用以学习者为中心的教学模式。此外，人们对文化遗产教育的个人需求中，有很大一部分体现在对文化遗产的享受（即“体验”）上。目前文化遗产教育在很大程度上忽视了这种“体验”环节的重要性。《文化遗产利用指南》中提出“应当享受（Enjoy）文化遗产”的观点是继知识获取与内化之后，教育所能实的最积极的“行为转化”形式。“享受（Enjoy）文化遗产”是文化的重要组成部分，能够最直观、最清晰地展现文化的精髓。

《文化遗产利用指南》中明确指出：“要培养文化公民”，以及“推动文化创新”。在文化遗产教育中，培养文化公民意识与促进文化创新都是不可或缺的核心内容。《为可持续未来而发展的文化遗产管理》中提出的六大愿景中，“通过技术创新重新认识文化遗产”下的“运用先进技术创造文化遗产的新价值”，以及“作为在全球共存的文化遗产中的‘我们

3. The Korean U.V.E.C. Model of Cultural Heritage Education

To date, most cultural heritage education activities in Korea have emphasized the acquisition and reproduction of knowledge. In an era characterized by the abundance of information available through the internet and other channels, however, the significance of merely acquiring and recalling knowledge about cultural heritage is gradually diminishing. The objectives of cultural heritage education should therefore no longer be confined to the mastery and repetition of relevant knowledge; instead, they should emphasize the interpretation of cultural heritage knowledge through diverse approaches. Accordingly, the first overarching objective of cultural heritage education should be defined as “Understand cultural heritage.”

A recurring theme across most of the cultural heritage materials discussed above is the question of value. This discussion can be divided into three broad directions. First, as defined in the *Cultural Heritage Protection Act*, cultural heritage possesses intrinsic value. Second, learners should recognize the values embodied in cultural heritage. Third, once those values have been recognized, corresponding action should follow. With respect to cultural heritage that already possesses intrinsic value, learners must first recognize that value; such recognition can generate affection and, in turn, motivate protective action. In cultural heritage education, value recognition therefore extends across three stages: knowledge acquisition, internalization, and practical action. Cultural heritage education should seek to complete this entire process. On this basis, the second overarching objective is defined as “Value cultural heritage.”

To develop within a globalized context and respond to rapidly changing social conditions, the objectives of cultural heritage education must be sufficiently flexible to extend from specific circumstances to broadly applicable settings. Two aspects require particular attention: (1) The development of learners’ diverse competencies. Because cultural heritage embodies historical, academic, artistic, symbolic, and other attributes, it is especially well suited as educational content for cultivating a wide range of abilities. (2) A learner-centred rather than teacher-centred orientation. The fundamental basis of a learner-centred

遗产’”下的“利用文化遗产打造国家品牌并塑造国家文化强国形象”等条款，均体现了将文化遗产教育作为实现文化创新不可或缺目标的重要性。从这个角度来看，文化遗产教育的第四个总体目标被设定为“文化创新（Create）”。

（郭恒杰、朱煜暄编译）

educational system is the learner's interest in learning. Learners must be interested in the learning process and be able to experience enjoyment within it. Few educational approaches are more effective than learning grounded in interest and pleasure.

Cultural heritage education encompasses both tangible and intangible forms of heritage and can be experienced through multiple senses, including sight, hearing, and touch. It is therefore highly engaging and, compared with many other fields, particularly suitable for learner-centred pedagogy. Moreover, a substantial proportion of individuals' needs in relation to cultural heritage education concerns the enjoyment, or experience, of cultural heritage. Existing practice has largely overlooked the importance of this experiential dimension. The proposition advanced in the *Guidelines for the Utilization of Cultural Heritage*—that cultural heritage should be "enjoyed"—represents the most active form of behavioral transformation that education can generate after knowledge acquisition and internalization. To "Enjoy cultural heritage" is an essential component of culture and provides one of the most direct and intelligible ways of revealing its essence.

The *Guidelines for the Utilization of Cultural Heritage* explicitly call for the cultivation of "cultural citizens" and the promotion of "cultural innovation." Both are indispensable components of cultural heritage education. Among the six visions proposed in Cultural Heritage Management for a Sustainable Future, the objective of "creating new value for cultural heritage through advanced technologies" under the vision of "reinterpreting cultural heritage through technological innovation," and the objective of "using cultural heritage to build a national brand and shape the image of a culturally powerful nation" under the vision of "our heritage as cultural heritage coexisting globally," both demonstrate the importance of treating cultural heritage education as an essential means of achieving cultural innovation. From this perspective, the fourth overarching objective of cultural heritage education is defined as "Create cultural value through heritage."

(Translated and edited by Guo Hengjie and Zhu Yuxuan)

实践案例 Case Study

韩国文化遗产利用场所防灾减灾管理导则 - 火灾为例

Guidelines for Disaster Prevention and Mitigation at Cultural Heritage Utilization Sites in the Republic of Korea: The Case of Fire

资料来源：
《文化遗产利用现场安全管理手册》，文化遗产厅利用政策科，2023 年 3 月。
Source:
문화재 활용현장 안전관리 매뉴얼 [Safety Management Manual for Cultural Heritage Utilization Sites], Utilization Policy Division, Cultural Heritage Administration, March 2023.

本导则适用于韩国文化遗产厅、地方政府、文化遗产管理机构、受委托负责文化遗产利用工作的组织，以及运营各类文化活动项目（包括参观、体验、教育、演出、展览等）的寺庙、乡校 / 书院、王陵、城郭、传统村落、官邸、书院遗址及近代文化遗产等场所。

1. 韩国文化遗产利用现场安全管理体系与相关法律法规

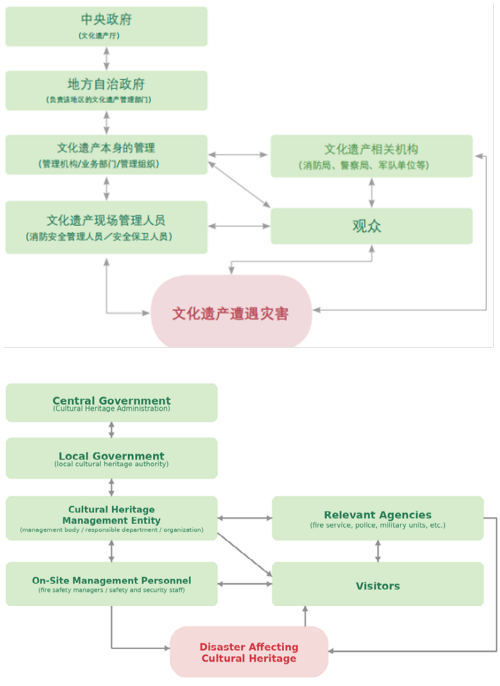


图 1：文化遗产再利用安全管理组织
Figure 1. Organizational Structure for Safety Management at Cultural Heritage Utilization Sites

These guidelines apply to the Cultural Heritage Administration of the Republic of Korea, local governments, cultural heritage management institutions, organizations commissioned to undertake cultural heritage utilization, and sites that operate cultural programs - including visits, hands-on experiences, education, performances, and exhibitions - such as temples, hyanggyo (local Confucian schools), seowon (Confucian academies), royal tombs, fortresses, traditional villages, official residences, academy ruins, and modern cultural heritage sites.

1. Safety Management System and Relevant Legislation for Cultural Heritage Utilization Sites

As shown in Figure 1, the central government (Cultural Heritage Administration), as the central administrative authority responsible for coordinating cultural heritage administration, oversees matters related to the protection, management, utilization, investigation, and research of cultural heritage. Local governments (cultural heritage management departments) are responsible for all cultural heritage not under the direct jurisdiction of the Cultural Heritage Administration and for local administrative affairs relating to cultural heritage. Organizations involved in cultural heritage utilization, including program organizers and implementing entities, operate and manage activities at cultural heritage utilization sites and must respond promptly to emergencies such as disasters affecting cultural heritage and visitor safety incidents. To strengthen fire safety management at key fire-protection facilities, the owner or manager of the facility

如图 1 所示，中央政府（文化遗产厅），作为负责统筹文化遗产行政工作的中央行政机关，承担文化遗产保护、管理、利用、调查及研究等相关事务的管理工作。地方自治政府（文化遗产管理部门）负责管理除韩国文化遗产厅直接管辖的文化遗产外的所有文化遗产，并承担与文化遗产相关的地方行政管理工作。文化遗产利用相关机构（主办方、承办方等），作为负责管理文化遗产利用场所内各类活动的运营机构，需及时应对可能发生的文化遗产灾害、游客安全事故等突发情况，并做好相关管理工作。消防安全管理人员，为加强消防重点设施的消防安全管理，应任命该设施的所有者、管理者担任消防安全管理人员；对于木结构文化遗产，则必须强制实施此项任命制度。文化遗产安全保护员预先防范包括火灾在内的各类破坏行为，并实现对文化遗产及其周边区域的全天候监控。自由消防队，是由民间组织组成的消防队，其职责是预防管辖区域内文化遗产所面临的火灾等灾害；在灾害发生时能够迅速响应并投入救援行动。所有者 / 管理员，作为文化遗产管理的第一责任者，负责消防设施的维护与管理；配合文化遗产的安全管理工作；在必要时开展文化遗产保护及转移相关工作。相关机构主要负责为应对可能发生的灾害提供协作与支持，包括消防局、警察局、军队单位以及电力和燃气公司等。观众（使用者）是参与文化遗产利用相关实践项目及活动的人员。

2. 文化遗产利用现场的安全管理流程

1）程序规划制定阶段。主要包含在项目运行期间，需制定设施使用规划（包括规模、布局及数量）。文化遗产建筑的利用程度、临时性结构设施的安装情况等；应编制安全管理计划书，制定详细到具体项目单元的安全管理计划书，包括移动路线规划以及可能发生的安全事故应对方案等; 应制定安全人员部署计划，并制定与事故及伤害相关的保险投保方案；应根据天气恶化情况，制定分阶段的活动运营计划。

2）周围环境等检查阶段。主要包含检查

must be appointed as the fire safety manager; such appointment is mandatory for timber cultural heritage structures. Cultural heritage safety guards prevent destructive acts, including fire-related threats, and provide continuous monitoring of the heritage property and its surroundings. Volunteer fire brigades, composed of civilians, work to prevent fires and other disasters affecting cultural heritage within their jurisdictions and provide rapid response and rescue when an incident occurs. Owners and managers, as the parties primarily responsible for cultural heritage management, maintain and manage fire-protection facilities, cooperate in cultural heritage safety management, and, where necessary, undertake the protection and relocation of cultural heritage. Relevant agencies - including fire departments, police agencies, military units, electricity suppliers, and gas companies - provide coordination and support in disaster response. Visitors (users) are individuals who participate in programs and activities conducted at cultural heritage utilization sites.

2. Safety Management Procedures at Cultural Heritage Utilization Sites

1) Program planning stage. During program implementation, a facility-use plan must be prepared, specifying the scale, layout, and number of facilities, the extent to which cultural heritage buildings will be used, and the installation of temporary structures. A detailed safety management plan should be developed for each program component, including circulation routes and response measures for potential accidents. Plans must also be prepared for the deployment of safety personnel and for insurance coverage against accidents and injuries. A phased operational plan should be established to address deteriorating weather conditions.

2) Inspection of the surrounding environment and facilities. The surrounding environment must be inspected to identify sudden hazard zones, sloped areas, and other outdoor safety risks. Facilities should also be examined to determine the condition of cultural heritage buildings, temporary structures, fire-protection and other disaster-related infrastructure, and systems such as electrical and gas installations. Visitor movement routes and evacuation paths must likewise be reviewed.

3) Pre-event briefing and operational stage. Safety training must be provided to the program director, safety managers, and all staff. The principal safety management

表 1：文化遗产利用现场安全管理相关法律法规
Table 1. Legislation Relevant to Safety Management at Cultural Heritage Utilization Sites

法律法规 Legislation	条项 Provision	内容 Principal Content
《文化遗产保护法》Cultural Heritage Protection Act	第 6 条（《文化遗产基本规划》的制定）Article 6 (Formulation of the Basic Plan for Cultural Heritage)	文化遗产的保护、安全管理，以及与文化遗产的保护、管理及利用相关的其他事项。Protection and safety management of cultural heritage, together with other matters concerning its protection, management, and utilization.
	第 14 条（制定防火等预防措施，并开展相关教育培训及宣传活动）Article 14 (Establishment of fire-prevention and other preventive measures; education, training, and public awareness)	关于制定保护指定文化遗产及登记文化遗产免受火灾、灾害和盗窃 的政策措施；开展初期应对措施及日常预防管理相关的教育培训；以及开展面向全社会的文化遗产防火宣传工作的具体事项说明。Policies and measures to protect designated and registered cultural heritage from fire, disaster, and theft; education and training on initial response and routine preventive management; and public awareness activities concerning fire prevention for cultural heritage.
《灾害与安全管理基本法》Framework Act on the Management of Disasters and Safety	第 66 条之 4（为促进安全文化而制定）Article 66-4 (Measures to Promote a Culture of Safety)	关于安全行为准则、标准流程等相关指南的制定与推广工作 Formulation and dissemination of guidelines concerning safety codes of conduct, standard procedures, and related matters.
	第 66 条之 11（地方节庆活动安全管理措施）Article 66-11 (Safety Management Measures for Local Festivals)	对地区节庆活动安全管理计划的执行情况进行监督与检查；针对检查中发现的问题，采取必要的整改措施以完善相关工作。Supervision and inspection of the implementation of safety management plans for local festivals, together with necessary corrective measures to address deficiencies identified during inspection.
《关于重大灾害处罚等相关事项的法律》Act on Penalties and Other Matters Related to Major Disasters	第 9 条（经营者及管理人员保障安全与健康的责任义务）Article 9 (Duties of Business Owners and Responsible Management Officers to Secure Safety and Health)	针对因公共设施或公共交通工具在设计、安装及管理方面 存在的缺陷而可能危及人员生命与人身安全的情况，应建立相应的安全卫生管理体系，并制定相应的实施措施。Where defects in the design, installation, or management of public-use facilities or public transportation may endanger life or personal safety, a safety and health management system must be established and corresponding implementation measures adopted.
《产业安全与健康法》Occupational Safety and Health Act	第 5 条（雇主等的义务）第 6 条（劳动者的义务）Articles 5 and 6 (Duties of Employers and Workers)	雇主有义务维护并促进员工的安全与健康；劳动者则有义 务遵守工业事故预防标准，并采取相应的预防措施。Employers are obligated to maintain and promote worker safety and health, while workers must comply with industrial accident prevention standards and take appropriate preventive measures.
《消防基本法》Framework Act on Firefighting Services.	第 12 条（火灾预防措施）Article 12 (Fire-Prevention Measures)	为预防火灾，针对那些被认定为具有危险性的行为或会妨 碍灭火工作的行为，应采取相应的预防措施。Preventive measures shall be taken against acts deemed hazardous or likely to obstruct firefighting operations.
《演出法》Public Performance Act	第 11 条（灾害预防措施）Article 11 (Disaster-Prevention Measures)	通过制定包含演出场所工作人员职责与岗位分配等内容的 灾害应对计划，从而实施有效的灾害预防措施。Effective disaster prevention shall be implemented through a disaster-response plan specifying the responsibilities and allocation of duties among performance-venue personnel.
	第 12 条（包括舞台设施的安全检查等）Article 12 (Safety Inspection of Stage Facilities, etc.)	关于舞台设施的设计审查、注册前的安全检查、定期安全检查、精密安 全评估以及自主安全检查的程序、方法及实施时间等相关事项的规定。Provisions governing the procedures, methods, and timing of design reviews, pre-registration safety inspections, periodic safety inspections, detailed safety assessments, and self-inspections of stage facilities.

周围环境，需要识别突发性危险区域、斜坡地带以及各种户外安全隐患因素；检查设施，了解文化遗产建筑、临时性结构设施、消防等与灾害相关的基础设施，以及各类设备与设施（如电气系统、燃气系统等）的基本状况；了解游客的移动路线以及疏散路径等。

3）节目发布会以及运营阶段。为项

requirements for each type of facility should be clarified, including basic fire-prevention and first-aid training and emergency-response procedures. Emergency communication channels with relevant nearby personnel and organizations must remain available in the event of an accident. Modes of operation should be adjusted in accordance with weather conditions, such as heavy rain or snowfall, and visitor flows should be continuously monitored during

目负责人、安全管理人员及全体员工开展安全培训。针对各类设施，明确了安全管理的重点事项。基本的消防与急救培训，以及紧急情况下的应对措施等；发生安全事故时，需与周边相关人员保持紧急联系渠道畅通；根据气象条件的不同（如暴雨、大雪等），活动的举办方式也会相应调整；在运营期间，注意观众的流动情况。

4）结束阶段。应确认该文化遗产建筑是否遭到破坏；在拆除过程中必须严格实施安全管理措施，并负责设备的后续管理；在编制结果报告书时，需对安全管理领域的各项内容进行自我评价。

3. 文化遗产利用现场火灾应对措施

1）火灾发生前的应对措施

在日常运营文化遗产利用项目的过程中，相关负责人及管理人员必须制定包含防火措施的安全培训方案及安全应急预案。

需要制定一项涵盖文化遗产场所的运营人员及管理人员、文化遗产利用相关组

织、安全工作人员、相关机构以及居民（参观者）在内的安全教育与培训计划。

了解文化遗产的规模、地理特征以及周边环境特点；同时掌握在利用文化遗产过程中可能发生的各类灾害及其应对措施。

文化遗产安全管理人员在被派往现场之前，必须接受以下培训并确保充分掌握相关知识。

针对小型文化遗产保护项目的相关管理方案，其操作人员及负责人均需充分了解相关内容。（包含火灾应对及疏散引导要领、灭火器位置及使用方法、观众安全疏导引导方式、突发状况发生时处置要领、停车场引导员工作须知、伤者急救处置方法）。

需要对火灾应急设备检查。对文化设施内安装的消防设施进行检查；如发现需要改进之处，应立即采取相应措施。

需要与消防部门合作，制定应对活动期间

operation.

4) Closing stage. The cultural heritage building must be inspected for damage. Safety management measures must be strictly enforced during dismantling, and follow-up management of equipment must be undertaken. The final report should include a self-assessment of all safety-management activities.

3. Fire-Response Measures at Cultural Heritage Utilization Sites

1) Pre-Fire Preparedness Measures

During the routine operation of cultural heritage utilization programs, responsible personnel and managers must formulate safety training programs and emergency plans that incorporate fire-prevention measures.

A safety education and training plan must cover site operators and managers, organizations involved in cultural heritage utilization, safety personnel, relevant agencies, and local residents and visitors.

Personnel should understand the scale, geographical characteristics, and surrounding environment of the cultural heritage site, as well as the types of disasters that may occur during utilization and the corresponding response measures.

Before deployment, cultural heritage safety-management personnel must receive the required training and demonstrate adequate knowledge of the relevant procedures.

For small-scale cultural heritage protection programs, operators and responsible personnel must be familiar with relevant management procedures. Training should cover fire response and evacuation guidance, the location and use of fire extinguishers, crowd guidance and visitor safety, procedures for unexpected incidents, instructions for parking attendants, and first-aid treatment for injured persons.

Fire emergency equipment must be inspected. Fire-protection facilities installed at cultural heritage sites should be checked, and any deficiencies must be corrected immediately.

In cooperation with the fire service, site-specific measures for responding to fires affecting cultural heritage during program activities and customized equipment deployment plans should be formulated.

Safety plans must be prepared for

文化遗产火灾的措施以及定制化设备部署方案。

为灾害易受影响群体（老年人、儿童、孕妇、残疾人、外国人等）制定安全计划。在灾难发生时，需为易受灾害影响的群体制定专门的疏散路线。

在夜间营业期间，若因灾害导致人员疏散困难时，需制定针对灾害易受影响群

体的疏散路线保障方案以及安全协助服务计划。

火灾应对手册的编写与使用：在被列为文化遗产保护区域的场所，至少必须自行制定并完善火灾应对应急预案。定期开展利用《火灾应对手册》进行的火灾预防教育活动。针对在使用《火灾应对手册》过程中出现的各种问题，持续进行改进与修订。

2）火灾发生期间的应对措施

目睹事件发生现场的人应立即大声呼喊，向周围的人通报情况。与周围人员一同进行初步应急处理，或在迅速完成人员疏散后，立即拨打 119 报警。

可利用周围的灭火器或消防栓迅速进行初步应急处理。运营人员及相关负责人应主动主导初期应对措施，并尽可能争取周围各方的支持以协助事件的顺利解决。

当初期灭火无法实现时，运营方及相关负责人应将观众和参与者的安全撤离置于首位，确保他们能够冷静、有序地完成疏散工作。对于户外人员，应与火灾发生地点保持尽可能远的距离，并立即撤离。如果身处建筑物内部，应利用楼梯等设施迅速撤离（使用电梯存在安全隐患）。

确保入口通道畅通，并部署引导人员，确保消防车能够迅速抵达文化遗产受损区域（同时实施对普通车辆及游客的管控措施）。消防车及急救医疗车辆的通行通道原则上应至少设置双向车道；为确保车辆顺畅通行，需清除所有障碍物。

在观众及参与者撤离过程中，确保秩

groups particularly vulnerable to disasters, including older adults, children, pregnant women, persons with disabilities, and foreign visitors. Dedicated evacuation routes should be established for these groups.

Where nighttime operations may make evacuation difficult, plans must be prepared to secure evacuation routes and provide safety assistance services for disaster-vulnerable groups.

Preparation and use of a fire-response manual. Sites designated as cultural heritage protection areas must, at a minimum, independently formulate and maintain a fire-response emergency plan. Fire-prevention education based on the Fire Response Manual should be conducted regularly, and the manual should be continually revised in response to problems identified during its use.

2) Response Measures During a Fire

Any person who witnesses a fire should immediately raise the alarm verbally to inform those nearby. Initial emergency action should be taken with nearby personnel, or, after promptly evacuating people from immediate danger, the witness should call 119 without delay.

Nearby fire extinguishers or hydrants should be used to undertake initial firefighting. Site operators and responsible personnel should take the lead in the initial response and mobilize support from surrounding parties wherever possible.

If initial suppression is unsuccessful, operators and responsible personnel must prioritize the safe evacuation of visitors and participants and ensure a calm and orderly process. Persons outdoors should move as far as possible from the fire and evacuate immediately. Persons inside buildings should leave promptly via stairways and other safe routes; elevators should not be used because of the associated risks.

Access routes must be kept clear, and guides should be deployed to ensure that fire engines can rapidly reach the affected area while ordinary vehicles and visitors are controlled. Access routes for fire engines and emergency medical vehicles should, in principle, provide at least two-way traffic, and all obstructions must be removed.

During the evacuation of visitors and participants, order must be maintained and evacuees guided to leave calmly and systematically.

序井然，并引导他们冷静、有序地撤离。

在穿过烟雾时，可用毛巾等物品蘸水涂抹面部和鼻子以防止吸入烟雾，并保持低姿态迅速撤离。对于以家庭为单位的游客群体，应防止儿童出现突发行为，并保持冷静，首先组织其安全撤离。

在发生电气火灾的情况下，应切断电源或关闭建筑物内的所有电力供应；因此尽量避免使用电梯。

为应对夜间疏散需求，使用照明弹和夜光引导标志来确保疏散过程顺利进行。

3）灾后阶段应对措施

确认所有人员是否均已安全撤离，并进行相应的检查。在疏散工作完成后，需确认游客的健康状况及身体状况。

在迅速疏散人员后，如果出现烧伤患者，应立即向消防部门报告紧急情况；并在救护车抵达之前持续进行急救处理。

为防止文化遗产在火灾中全部损毁或遭受严重破坏，平时应对文化遗产面临损失风险的相关方针、具体措施以及使用设备等内容进行全面审查。在迅速评估火灾情况后，立即针对相关的文化遗产（如动产文化遗产等）采取相应的抢救措施。

4）火灾事故的处理与恢复工作

1. 对文化遗产所遭受的损害情况的评估。调查在文化遗产利用过程中因灾害所导致的人身伤亡及文化遗产损失情况；运营人员、相关负责人以及安全管理人员必须掌握灾害安全状况及疏散人员的动态，并及时向相关部门报告相关信息。

2. 充分利用受损报告书及评估结果。负责保存受损案例相关的视频、记录等资料，并详细记录从火灾发生到应对结束的整个处置过程中的各项操作细节；对火灾应对工作的各项措施及其实施效果进行评估，并将评估结果公之于众。

3. 准确评估文化遗产因火灾造成的损失

When moving through smoke, evacuees should cover the face and nose with a damp towel or similar material, maintain a low posture, and leave rapidly. For family groups, adults should prevent impulsive behavior by children, remain calm, and prioritize their safe evacuation.

In the event of an electrical fire, the power supply should be disconnected or all electricity within the building shut off; elevators should therefore be avoided.

For nighttime evacuation, emergency lighting and photoluminescent guidance signs should be used to support safe movement.

3) Post-Fire Response Measures

All persons must be verified as having evacuated safely. After evacuation, the health and physical condition of visitors should be assessed.

If burn injuries are identified after evacuation, the emergency must be reported immediately to the fire service, and first aid should continue until an ambulance arrives.

To prevent total loss or severe damage to cultural heritage in a fire, policies, specific measures, and equipment for reducing potential losses should be comprehensively reviewed in advance. Following a rapid assessment of the fire situation, rescue measures should immediately be taken for relevant heritage objects, including movable cultural heritage.

4) Fire Incident Management and Recovery

1. Assessment of damage to cultural heritage. Casualties and heritage losses caused by disasters during cultural heritage utilization must be investigated. Operators, responsible personnel, and safety managers must maintain an accurate understanding of the disaster and safety situation and the status of evacuees and report relevant information promptly to the competent authorities.

2. Effective use of damage reports and assessment findings. Video footage, records, and other documentation relating to damaged cases must be preserved, and all response actions from the onset of the fire to the completion of the response must be documented in detail. Fire-response measures and their effectiveness should be evaluated, and the results made public.

3. Accurate assessment and restoration

（如毁损、损坏等情况）并开展修复工作。当地方政府或上级主管部门派遣联合调查组及修复团队时，请务必予以全力配合。向受灾地区派遣当地的联合调查小组，以了解灾情并开展必要的恢复工作所需的调查；当文化遗产需要修复时，应成立专门的修复咨询委员会并负责相关工作；在修复过程中，将基于原有的实地测量数据及图纸图案，尽可能实现建筑的原貌还原。将受损文化遗产中的残骸、碎片等原始材料收集起来并妥善保存，以便在修复工作中重新加以利用；当与非物质文化遗产相关的传承活动设备、服饰、乐器等物品遭受损坏时，应在传承人的同意下编制损失清单，并将其作为修复所需的预算支持依据；为防止再次发生类似的灾难性损失，在制定预防措施的同时，还需同步制定恢复计划。

5）明晰火灾应对组织（人员）的构成及职责

文化遗产灾害与安全管理机构（及相关人员）根据文化遗产的类型及实际情况，完善安全管理机构；在组建该机构时，应任命具有安全管理工作经验的专业人员。

对于那些组织结构较为复杂、规模较小的文化遗产保护机构而言，运营人员及

负责人可兼任相关职务；如条件允许，还应配备专门的安全管理人员。

对于专业能力不足的人员，应通过教育培训来提升其在相关工作领域的专业素养。

文化遗产安全管理机构（人员）在文化遗产利用现场承担多项工作，包括观众管理与保护、巡逻巡查、预防性维护、突发事件初期应对以及文化遗产本身的保护等工作。

6）强化文化遗产的灾害风险与安全管理检查

为应对文化遗产现场利用过程中可能发生的火灾事故，应以文化遗产利用机构、项目运营方及相关负责人为核心，开展消防安全检查工作。

对于规模较大的项目，应通过地方政府及

of fire-related loss and damage to cultural heritage. Full cooperation must be provided when local governments or higher-level competent authorities dispatch joint investigation teams and restoration teams. Local joint investigation teams should be sent to affected areas to assess conditions and conduct the investigations required for recovery. Where restoration is necessary, a dedicated restoration advisory committee should be established. Restoration should, as far as possible, reproduce the original appearance of the building on the basis of existing field-survey data, drawings, and graphic records. Original materials, including debris and fragments from damaged cultural heritage, should be collected and properly preserved for reuse during restoration. Where equipment, costumes, musical instruments, or other items used in the transmission of intangible cultural heritage are damaged, a loss inventory should be compiled with the consent of the bearer and used as the basis for restoration funding. To prevent recurrence of comparable catastrophic losses, recovery plans must be formulated in parallel with preventive measures.

5) Composition and Responsibilities of Fire-Response Organizations and Personnel

Cultural heritage disaster and safety-management organizations and relevant personnel should be structured in accordance with the type and actual conditions of the heritage property. Professionals with experience in safety management should be appointed when establishing such organizations.

In small cultural heritage protection institutions with complex organizational arrangements, operators and responsible personnel may concurrently perform relevant duties; where conditions permit, dedicated safety-management personnel should also be assigned.

Personnel lacking adequate professional competence should receive education and training to strengthen their expertise in the relevant areas.

At cultural heritage utilization sites, safety-management organizations and personnel undertake multiple responsibilities, including visitor management and protection, patrol and inspection, preventive maintenance, initial emergency response, and the protection of the cultural heritage itself.

相关机构（消防部门、燃气与电力公司等）的协作，针对文化遗产利用现场的具体特点开展消防安全联合检查。

定期检查消防设施是否处于正常运行状态。运营方及相关负责人需对消防设施的实际使用状况进行核查。在文化遗产利用现场及项目实施场所内，需定期检查消防设施周边是否存在任何妨碍或安全隐患（每月至少一次，且应在项目实施前完成检查）；对蓄水池、动力泵的试运行情况以及供水系统的可靠性进行了检查；

对大型项目内的餐厅及锅炉房进行全面检查；当使用火源设备时，还需同步核查火灾报警器、灭火器等消防设施的可接近性及管理状况。检查灭火器是否处于正常充气状态，并确认灭火器是否安装在正确的位置（每月至少一次）。

应对符合文化遗产利用现场相关标准的电线及电气用品的使用情况进行检查。

检查每个分支电路是否都配备了漏电保护器（每月至少检查一次）。

对于户外场所，需检查外部暴露的电气设备是否存在遭受雷击损坏的风险。包括对文化遗产利用现场中暴露在外的电线及其外皮是否存在异常情况进行检查。

对文化遗产利用场所内的防渗设施安装情况进行检查。包括检查文化遗产利用场所内是否使用了适用于海底电缆的专用插座。

在文化遗产利用场所内，严禁在危险物品周围使用火源（如香烟等），同时需加强对游客突发行为的管控。禁止使用各类火器，并对火器的使用过程中的安全管理措施进行严格检查。检查各类建筑物周边是否存在易燃物质或危险物质的堆放情况。在使用火炉或火坑时，必须严格遵守防火管理规定；使用完毕后务必彻底清除残留的火星。对于位于建筑物内部的系统（如锅炉等），需审查相关的维护要求以及防火安全方面的合规规定。

住宿型文化遗产设施的使用现场，文化遗

6) Strengthening Disaster-Risk and Safety-Management Inspections

To address potential fire incidents during on-site cultural heritage utilization, fire-safety inspections should be led by the cultural heritage utilization organization, program operator, and responsible personnel.

For large-scale programs, joint fire-safety inspections tailored to site-specific conditions should be conducted in cooperation with local governments and relevant agencies, including fire services, gas companies, and electricity providers.

Fire-protection facilities must be inspected regularly to confirm proper operation. Operators and responsible personnel must verify their actual serviceability. At cultural heritage utilization sites and program venues, the areas surrounding fire-protection facilities should be checked regularly for obstructions and safety hazards - at least once per month and before program implementation. The trial operation of water reservoirs and powered pumps and the reliability of the water-supply system should also be inspected.

Restaurants and boiler rooms in large-scale program venues must be comprehensively inspected. Where open-flame equipment is used, the accessibility and management of fire alarms, extinguishers, and other fire-protection facilities must be verified. Fire extinguishers should be checked for adequate charge and correct placement at least once per month.

Electrical wiring and appliances should be inspected to ensure compliance with standards applicable to cultural heritage utilization sites.

Each branch circuit should be checked to confirm that it is equipped with an earth-leakage circuit breaker, with inspections conducted at least monthly.

At outdoor sites, externally exposed electrical equipment should be inspected for vulnerability to lightning damage. Exposed wiring and cable insulation at cultural heritage utilization sites should also be checked for abnormalities.

The installation of waterproofing measures at cultural heritage utilization sites should be inspected, including special-purpose outlets suitable for submarine cables are used.

产夜间活动项目的消防安全管理与检查措施需全面了解住宿型文化遗产建筑内外的周边环境以及火灾隐患因素，并提前予以消除。位于文化遗产保护区域内的住宿设施，必须根据《消防法》的相关规定对设施的安装情况及运行状况进行检查，并采取相应措施以确保游客能够安全地入住。

对于用于文化遗产夜间游览项目的电气设备（如照明装置、电器等）以及与餐饮相关的消防器材等设施，需对其使用状态进行检查，并确认其安装是否安全。

发生火灾时，需预先设置可供观众安全疏散的专用通道及避难空间；在客人入住前必须明确告知这些疏散路线与区域位置，以便大家能够迅速撤离。应制定相应的安全指南，并将其张贴在各关键位置，确保所有相关人员都能熟练掌握相关知识。

（郭恒杰、朱煜暄编译）

At cultural heritage utilization sites, the use of ignition sources, including cigarettes, near hazardous materials is strictly prohibited, and unexpected or unsafe visitor behavior must be controlled. The use of fire-producing devices should be prohibited, and strict inspections should be conducted of safety-management measures where such devices are used. The surroundings of buildings should be checked for accumulations of flammable or hazardous materials. When stoves or fire pits are used, fire-safety rules must be strictly observed, and all residual embers must be completely extinguished after use. For systems located inside buildings, such as boilers, compliance with maintenance requirements and fire-safety provisions must be reviewed.

For accommodation-based cultural heritage facilities and nighttime cultural heritage programs, fire-safety management and inspection measures should include a comprehensive assessment of the interior and exterior surroundings of the accommodation buildings and the advance elimination of fire hazards. Accommodation facilities within cultural heritage protection areas must be inspected, in accordance with the relevant fire-safety legislation, for the installation and operating condition of relevant systems, and appropriate measures must be taken to ensure visitor safety.

Electrical equipment used for nighttime cultural heritage tours, including lighting and appliances, as well as fire-protection equipment associated with catering activities, must be checked for operating condition and safe installation.

Dedicated evacuation routes and refuge spaces must be established in advance to enable safe evacuation in the event of a fire. Guests must be informed of these routes and locations before check-in so that they can evacuate promptly. Corresponding safety guidance should be prepared and posted at key locations, and all relevant personnel should be familiar with its contents.

(Translated and edited by Guo Hengjie and Zhu Yuxuan)

平台动态 Platform Dynamics

哥伦比亚国家博物馆藏“弗朗西斯科·皮萨罗纹章旗”：多分析技术方法助力揭示历史

The National Museum of Colombia's "Francisco Pizarro's Banner of Arms": A multianalytical approach to help uncovering its history

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1. 引言

历史与考古纺织品在文化遗产研究中始终具有重要意义，因为其制作往往与当时实际使用的原材料密切相关，例如纺织纤维、天然染料以及金属线，而这些材料反过来又可能与制品的生产地点和年代存在紧密联系。

针对古代纺织材料及其支撑材料和装饰构件已有大量研究采用多种分析技术进行综合考察。在纺织类文物中，旌旗和旗帜尤受文化遗产领域关注，因为它们常被用作凝聚群体的象征，以政治或宗教观念为基础，形成对某一国家、社会或群体的归属感。

从材料构成来看，历史旗帜往往由多种异质材料复杂组合而成，例如用天然或人工染料染色的天然或人造纤维、用于织造或装饰的金属线，甚至还可能包括宝石。工匠对材料的选择可能与纺织品的功能、所有者的身份与财富，以及特定制作工艺有关；而这些因素最终都可能指向某一具体的生产年代与地点。将考古科学分析与图像学研究相结合，可获得更多与生产时间和地点相关的数据，从而有助于判定历史纺织品的真实性。

本研究聚焦于一面现藏于哥伦比亚国家博物馆的旗帜。据认为，这面旗帜曾由弗朗西斯科·皮萨罗在1532年征服今秘鲁地区时使用（见图1）。据称，在秘鲁独立战争期间，安东尼奥·何

1. Introduction

Historical/Archaeological textiles have been always of significance to cultural heritage studies because their manufacturing can be related to the use of the raw materials originally used such as textile fibres (cotton, silk, linen), natural dyes (cochineal, weld, indigo, etc.) and metal threads (silver, gold) that, in turn, may be strictly linked to the location and time period of their production.

Several studies on ancient textile materials, their support and their decorative elements such as metal threads, paper, and dyes/mordants have been carried out combining different analytical techniques. Amongst textile artefacts, banners and/or flags are of particular interest in the cultural heritage sector because they were commonly used as a unifying symbol to create a sense of belonging to a nation/society/group on the basis of political and/or religious ideas.

From a material point of view, historical banners and/or flags may be composed of a complex array of heterogeneous materials such as: natural or artificial fibres dyed with natural or artificial dyes, metal threads (used in the textile making or for its embellishment) and even gemstones. The choice of which materials were used by the artisans can be related to the textile function, to the owner status and wealth, and/or to a specific production technique, which in turn can

塞 · 德 · 苏克雷将军从库斯科大教堂取走了这面旗帜，并于 1825 年在哥伦比亚波哥大将其交给政治与军事领袖西蒙 · 玻利瓦尔。旗帜中央为卡斯蒂利亚和莱昂纹章，使用黄、红、蓝色丝织物构成，外围环绕金羊毛骑士团链饰。纹章和绿色条带上可见金、银金属线。由于南美洲其他地点还保存着两面相似的旗帜，哥伦比亚国家博物馆所藏这面旗帜的真实性长期以来一直是学者与政治人物争论的话题。历史资料也保留了另一种可能性，即该旗可能是西班牙国王卡洛斯一世的正式王旗，并曾用于西班牙征服印加帝国的过程中。尽管其重要性突出，此前从未对哥伦比亚国家博物馆的这面旗帜以及上述南美洲另外两面相似旗帜开展过材料分析研究。

因此，本研究的主要目标，是首次调查所谓“弗朗西斯科 · 皮萨罗纹章旗”的制作材料，以评估其是否与传统上赋予该旗的历史时期相容。



图 1：弗朗西斯科 · 皮萨罗纹章旗（哥伦比亚国家博物馆）。右侧为旗帜若干局部细节（自上而下：主体织物上的生物侵蚀与湿度环斑；项圈饰徽部位的染料褪色、结构与材料缺失；织物补片；主体织物上的不同纺织层；纹章上的蓝色城堡；旗帜中部使用的绿色绳带）。

Figure 1. The Francisco Pizarro’s Banner of Arms (National Museum of Colombia). On the right side, some selected details of the banner (from top to bottom: biological attack and humidity circles over the main fabric; fading dyes, loss of structure and material over the collar emblem; textile patches; different textile layers on the main fabric; blue castle on the emblem; green cord used in the middle of the banner).

eventually be linked to a time and a place of production. Combining archaeometry and iconographic studies, additional data can be gained which eventually can be linked to a time and a place of production, contributing to establish the authenticity of a historical textile.

The study focuses on a banner, currently stored at the National Museum of Colombia, and believed to be the one used by Francisco Pizarro during the 1532 conquest of the region that is currently Peru (see fig. 1). Supposedly, it was General Antonio Jos´e de Sucre who, during the Peruvian war of independence, removed this banner from the Cathedral of Cuzco, handing it to the political and military leader Simon Bolivar in Bogota, Colombia, in 1825. The Banner has the emblem of Castilla and Leon (with yellow, red and blue silks) in the center surrounded by the Chain of the Order of the Golden Fleece. Metal threads (gold and silver) are visible in the emblem’s Banner and in the green stripe”. Due to the existence of two similar flags/banners at other South America locations, the Colombia National Museum’s banner authenticity has always been a matter of debate among scholars and politicians. Historical sources leave open the option that the same banner could be the official Royal Banner of King Charles I of Spain, which was used during the Spanish conquest of the Inca Empire. Despite its importance, no analytical study has ever been carried out on the National Museum of Colombia’s Banner nor to the other two similar South American flags mentioned above.

The main goal of this study was, therefore, to investigate for the first time the materials used in the making of the so-called Francisco Pizarro’s Banner of Arms to assess whether they could be compatible with the historical period traditionally associated with it.

2. Materials and methods

2.1 Reagents

The following reagents were used: N,N-dimethylformamide (analytical grade) from Panreac (Barcelona, Spain), EDTA dissodium salt and tetramethylammonium hydroxyde (TMAH) from Sigma-Aldrich (Milwaukee, WI, USA). Methanol, acetonitrile and formic acid (HPLC gradient

2. 材料与方法

2.1 试剂

所用试剂包括：Panreac（西班牙巴塞罗那）的 N,N- 二甲基甲酰胺（分析纯）；Sigma-Aldrich（美国威斯康星州密尔沃基）的乙二胺四乙酸二钠（EDTA 二钠盐）和四甲基氢氧化铵（TMAH）；Merck（德国达姆施塔特）的甲醇、乙腈和甲酸（HPLC 梯度级）。本研究全程使用 Millipore Simplicity UV 系统制备的水。

2.2 取样方案

共分析 25 个微量样品，均由哥伦比亚国家博物馆纺织品保护团队采集。样品仅取自取样过程不会对历史文物造成明显或可见损伤的区域。根据组成将样品分为：线、纺织物（纬纱和经纱）以及金属线（纤维芯与金属部分）。

2.3 光学显微镜（OM）

研究使用一台配备 10 倍目镜、5 倍相机适配器及 LED 照明系统的体视显微镜（LEICA M205C，LEICA Microsystems）。另使用一台暗场 / 明场显微镜（LEICA DM2500-M，LEICA Microsystems），配备 10 倍、20 倍和 50 倍的 FLUOTAR 物镜，对分割后的样品分别在两种模式下进行细部观察。

2.4 液相色谱 - 二极管阵列检测 - 质谱联用（LC/DAD/MS）

LC/DAD/MS 分析采用 LCQ Fleet Thermo Finnigan 质谱仪，配备电喷雾电离（ESI）源、离子阱质量分析器和 DAD 检测器。质谱分析条件为：毛细管温度 300 ℃；离子源电压 5.0 kV；离子源电流 100.0 μA；负离子模式毛细管电压 -20.0 V，正离子模式 22.0 V。分析物在全扫描 MS 模式（m/z 100－800）下检测，并分别在离子源有 / 无碎裂以及正、负离子模式下采集数据。

2.5 热裂解 - 气相色谱 - 质谱联用（Py-GC/MS）

Py-GC/MS 分析采用配备 Frontier Lab PY-3030D 双击式热裂解器的系统，接口温度维持

grade) were purchased from Merck (Darmstadt, Germany). Water from a Millipore Simplicity UV system (Billerica, MA, USA) was used throughout this work.

2.2 Sampling protocol

A total of 25 micro-samples, collected by the textile conservation team of the National Museum of Colombia Museum, were analysed. The samples were collected only from areas where the procedure did not create any relevant/visible damage on the historical object. Samples were grouped according to their composition: threads, textile fabric (weft and warp) and metal threads (fibre core and metal).

2.3 Optical microscopy (OM)

A stereomicroscope equipped with an Eyepiece (10×), a camera adapter (5×) and a set of illumination LEDs (LEICA M205C LEICA Microsystems Switzerland) was used. A dark/bright field microscope (LEICA DM2500-M, LEICA Microsystems Switzerland) coupled with a set of FLUOTAR lenses of 10×, 20×, 50× was used to detail the split samples in both modes.

2.4 Liquid chromatography coupled with diode-array detection and mass spectrometry (LC/DAD/MS)

For the LC/DAD/MS analysis, an LCQ Fleet Thermo Finnigan mass spectrometer instrument equipped with an ESI source, an ion trap mass analyser and a DAD detector was used. The conditions of MS analysis were: capillary temperature of 300◦C; source voltage of 5.0kV, source current of 100.0μA, and a capillary voltage of −20.0V in negative ion mode and 22.0V in positive ion mode. Analytes were detected in full MS mode (m/z 100–800), with and without fragmentation at the ion source, and in positive and negative ion modes.

2.5 Pyrolysis gas chromatography mass spectrometry (Py-GC/MS)

For Py-GC/MS analysis, a system with a Frontier Lab PY-3030D double-shot pyrolyser was used. The interface was maintained at a temperature of 280◦C. The pyrolyser was coupled to a Shimadzu GC2010 gas chromatographer, also coupled to a Shimadzu GCMS-QP2010 Plus mass spectrometer. A capillary column Phenomenex Zebron-ZB-5HT was used for separation, with helium as a carrier gas, adjusted to a flow rate of 1.5mL/min. Data

在 280 ℃。热裂解器连接 Shimadzu GC2010 气相色谱仪，并进一步连接 Shimadzu GCMS-QP2010 Plus 质谱仪。分离采用 Phenomenex Zebron-ZB-5HT 毛细管柱，以氦气为载气，流速 1.5 mL/min。数据处理使用 AMDIS 软件，并结合 NIST 和 Wiley 质谱数据库。

2.6 可变压力扫描电子显微镜 - 能量色散 X 射线能谱（VP-SEM-EDS）

采用可变压力扫描电子显微镜（VP-SEM Hitachi S-3700，Hitachi-Technologies Corporation），并配备能量色散 X 射线能谱检测器（EDS XFlash 5010，Bruker；Mn/Kα 峰半高宽能量分辨率 129 eV）。为表征不同材料的表面形貌并获取元素信息，工作条件设为：加速电压 10 kV，真空度 40 Pa，工作距离（WD）10 mm。样品无需进行镀金或镀碳处理。

2.7 放射性碳测年

从旗帜不同区域选取 7 个微量样品，在意大利萨伦托大学 CEDAD（测年与诊断中心）开展加速器质谱（AMS）^{14}C 测年。为去除可能存在的污染，每个样品均进行化学预处理，并交替接受酸 - 碱 - 酸处理。随后将纯化后的样品材料转化为二氧化碳，再以氢气为还原剂、铁粉为催化剂还原为石墨。放射性碳测量采用 AMS 系统进行，并以国际原子能机构（IAEA）C6 蔗糖作为参考标准。测得的同位素比值在扣除化学处理本底并校正同位素质量分馏后，用于计算常规放射性碳年龄。

3. 结果与讨论

3.1 光学显微分析

从旗帜主体织物采集的所有纺织微样品均显示为简单平纹组织。不同纱线均呈 I 类捻度（无明显加捻）。纤维劣化明显，在操作过程中极易断裂。部分样品（织物与线、染色与未染色）的纤维均表现出相同的形貌——表面平滑的管状结构——以及相似的光学特征（光衍射），这些特征均不符合植物纤维或合成纤维；另一部分则呈卷曲的扁平形态并带有环圈（见图 2）。

treatment was done using AMDIS software, integrated with NIST and Wiley mass spectral libraries.

2.6 Variable pressure scanning electron microscopy coupled with energy dispersive X-ray spectroscopy (VP-SEM-EDS)

A variable pressure scanning electron microscope (VP-SEM Hitachi S-3700, Hitachi-Technologies Corporation), coupled with an energy dispersive X-ray spectroscopy detector (EDS XFlash 5010 detector - Bruker, USA; 129eV Energy Resolution an Mn/Kα FWHM) was used. To characterize topography as well to obtain elemental information from the different materials, operating conditions were as follows: voltage 10kV, vacuum = 40Pa; WD = 10mm. Neither gold or carbon coating was required.

2.7 Radiocarbon dating analysis

Accelerator Mass Spectrometry (AMS) ^{14}C dating was performed on seven micro-samples from different areas on the banner and was performed at the CEDAD (CEntre for Dating and Diagnostics) of the University of Salento, Italy. To remove any possible contamination, each sample was chemically processed and submitted to alternate acid-alkali-acid attacks. The purified sample material was then combusted into carbon dioxide through acidification and reduced to graphite by using hydrogen as a reducing agent and iron powder as a catalyst. Radiocarbon measurements were performed with the AMS system by using International Atomic Energy Agency (IAEA) C6 sucrose as a reference standard. The measured isotopic ratios were then used for calculating the conventional radiocarbon ages after correcting them for chemical processing background and isotopic mass fractionation.

3. Results and discussion

3.1 Optical microscopy analysis

All textile micro-samples collected from the main fabrics of the banner show a simple plane weaving. The weaving shows the use of yarns of 200μm of diameter in average, in similar dimension for both wefts and wraps. The different yarns used showed a class I twist (no apparent twisting). Degradation of the fibres was evident, with easily breaking

对破布纸样品的分析识别出多种纤维形貌，其中以植物纤维为主，另含少量动物纤维，说明其制作使用了多种材料。部分纸样表面可见黑色线条，亦可见制作缝合过程中针具造成的孔洞。未发现使用现代工具（如缝纫机或工业化以后工具）的证据；相反，纺织物和金属线均显示出明显的手工制作特征，与该旗帜制作于 15—16 世纪的年代判断相容。

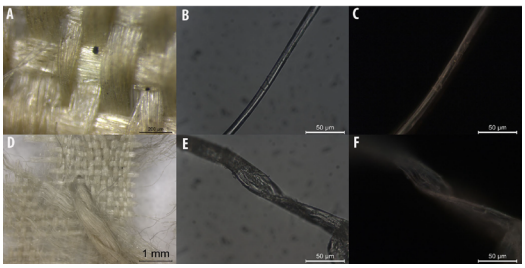


图 2：旗帜中鉴定出的两类纤维的光学显微图
Figure 2. Optical microscopy example of the two kinds of fibres identified on the banner

3.2 VP-SEM+EDS 分析

VP-SEM 研究证实，旗帜制作过程中使用了不同类型的纺织纤维。样品 M5 中的线被确认为棉纤维。所有织物纤维样品均被确认为脱胶蚕丝纤维；其表面仍可见丝胶残留，表明脱胶过程并不完全，这种情况通常见于前工业化工艺。样品中粗织物的纤维（对应于作为纹章底层的厚织物）被鉴定为未脱胶蚕丝纤维，可观察到包覆在两根丝素蛋白纤维外的蜡状丝胶层（见图 3）。

对丝纤维进行 EDS 元素面扫描后，可将其表征为天然蛋白质纤维 (主要检出碳、氧和氮)，从而排除了在光学显微镜下外观可能类似蚕丝的合成纤维。部分样品纤维表面以分散颗粒形式清晰检出硫化银和土壤尘粒杂质。红色和黄色染色纤维表面均匀检出铝，表明使用了明矾媒染剂；绿色、蓝色及已褪色纤维表面则未检出类似均匀分布的金属元素，因此其制作过程中使用媒染剂的可能性很低。自中世纪以来，多种文献均记载使用明矾作为丝织物红色和黄色染色的媒染剂。

旗帜主体以及纹章中，无论染色或未染色织物，均以丝作为主要原料；同时，纤维所表现出的劣化程度与长期使用或存世造成的老化

during handling. The fibres from some samples (fabric and threads, dyed or not) showed the same morphology (smooth tubular shape), and optical features (light diffraction) characteristic of a neither vegetable nor synthetic fibre, some are curly plane shape with loops(fig. 2).

The analysis of the rag paper samples identified different morphologies on the fibres (mainly vegetable, with animal fibres in minor proportion), demonstrating the use of diverse materials for its elaboration. Black lines over some paper samples were observed as well as some holes due to the use of needles from the sewing process of manufacture. No evidence of the use of modern tools (sewing machine or post-industrial tools) were detected and typically handmade features were evident on the textile and metal threads, which is compatible with a manufacture date of the banner in the 15–16th centuries.

3.2 VP-SEM+EDS analysis

VP-SEM investigation confirmed the use of different textile fibres in the making of the Banner. The thread of sample M5 was confirmed as a cotton fibre. All textiles fibre samples were confirmed as degummed silk fibres, with traces of sericin on top, showing an incomplete degumming process typically from pre-industrialized processes . Fibres coming from the coarse textile on Sample M15 (corresponding to the thick textile used as the base of the emblem) were identified as non-degummed silk fibres . It was possible to observe the wax coating (sericin) around the two filaments of fibroin (fig. 3).

EDS mapping over the silk fibres allowed to characterize them as natural protein fibres (mainly carbon, oxygen, and nitrogen elements detected), discarding the use of synthetic fibres (which can look as silk under OM). Impurities due to silver sulfide and soil dust were clearly identified, being found over some samples in form of grains dispersed on the fibre surface. Red and yellow dyed fibres showed the presence of aluminum along the entire fibre which indicates the use of an alum mordant. Green, blue and faded fibres did not show evidence of any equally dispersed metallic element on its surface, making the use of a mordant in their manufacture highly unlikely. Alum as mordant is reported extensively in several bibliographical

相似。据此可以提出以下推断：

1) 与其他已报道历史纺织品相比，这些纺织物的劣化符合自然老化过程。

2) 由于旗帜尺寸很大，且主体织物使用丝，其最初制作成本应当较高，通常只有经济地位较高的个人或组织才能负担，并需由训练有素的手工艺人完成。

3) 在 15—16 世纪的美洲，丝尚未作为纺织材料投入使用。因此，该旗帜有可能在欧洲制作后输入美洲。

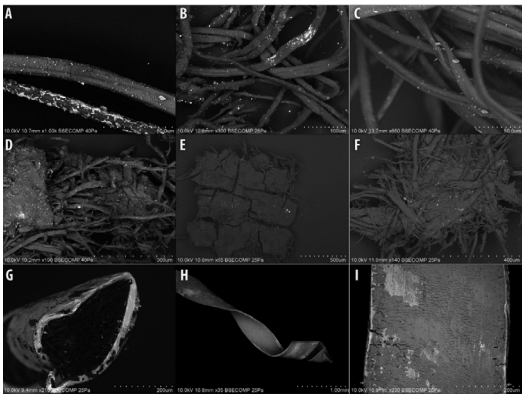


图 3：旗帜微量样品的 SEM 图像
Figure 3. SEM images from the micro sample analysis of the Banner.

为更清楚地观察金属的原始表面，将金属带置于温和酸浴（5% HNO_3）中，并在超声槽内处理 5 min。处理后的样品表面更加洁净，硫化银晶体被去除。对清洁后暴露的表面及边缘进行 EDS 测量，检出 Ag、Au 以及少量 Al（见图 4）。SEM-EDS 结果表明，其制作方法可能是先在银丝芯外包覆一层薄金层，进行鎏金，再通过加压将其压扁成带状。该制作技术连同未染色丝芯的使用，与伊比利亚半岛中世纪文物所见相似工艺一致，从而支持该旗帜可能出自西班牙工坊的判断。

综上，VP-SEM+EDS 分析结果从材料组成、制作工艺风格以及材料所呈现的自然劣化特征等方面，与该旗帜预期的年代范围及可能的欧洲来源相吻合。

3.3 染料、纸张与胶黏剂的色谱分析

从有色纤维中提取染料后，使用 LC/DAD/MS 技术进行分析。破布纸与胶黏剂样品

sources since medieval times for dyeing silk in red and yellow hues.

The fact that silk was used as main raw material on the banner's manufacture (i.e. on the full banner's body plus on the coat of arms, dyed and not dyed textiles), and the fibres presented a degradation which resembles that obtained through a long lifetime, it allows to hypothesize that:

1)The degradation of the textiles follows a natural ageing process as compared with other historical items reported elsewhere.

2)Due to the large dimensions of the banner, where the main textile used is silk, its original making price should be probably have been afforded by a person or an organization with a high economic status and executed by well-trained handcrafters.

3)Silk as a textile material was not employed in America at the time (i.e. 15–16th centuries). It is therefore possible that the banner provenance relied on a European manufacture and import.

To have a better look at the original surface of the metal, the stripes were immersed in a soft acidic bath (HNO_3 5%) for 5 minutes in an ultrasonic chamber. Treated samples presented, in fact, a cleaner surface devoid of silver sulfide crystals. EDS measurements over the cleaned/exposed surface and borders allowed the identification of Ag, Au, and minor Al (fig. 4). SEM-EDS results indicate that the manufacturing process of the stripe was performed by attaching a thin gold layer around a silver wire core, gilding it and finally flattening it by pressure. This manufacturing technique, together with

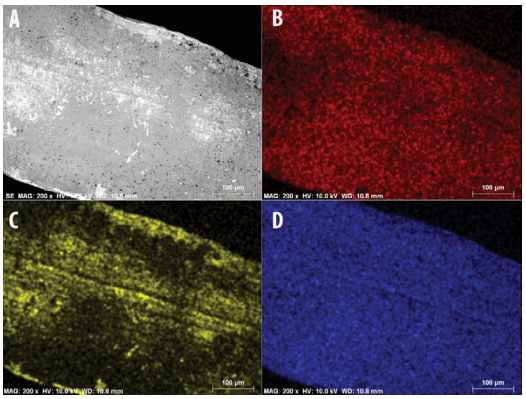


图 4：旗帜样品 6 金属线表面的 EDS 元素面分布图
Figure 4. EDS elemental mapping over the metal thread surface of sample 6 of the Banner.

采用 Py-GC/MS 进行分析。破布纸的热裂解色谱图中鉴定出多种碳水化合物衍生物，并伴有少量蛋白质和脂类。材料组成证实该破布纸以纤维素为基础，并含少量动物纤维，与光学显微镜和 VP-SEM+EDS 的观察结果一致。这种制作方法具有 16 世纪西班牙造纸工艺的典型特征。

在 ESCAPE 工作簿中，蛋白质鉴定通过检查标志性化合物表格，并结合这些化合物在样品中的总峰面积进行判断。当某种材料对应的多个标志性化合物同时出现时，鉴定结果的可信度更高。实践表明，血液和胶类在样品中的识别相对直接，因为这两类材料均可形成多个标志物。胶黏剂样品的热裂解色谱图中分离并鉴定出甘氨酸、若干与参考材料中血液和蛋白质存在有关的生物标志物、L- 脯氨酸和羟脯氨酸，以及其他见于动物胶参考材料的生物标志物。借助 ESCAPE 专家系统，研究人员利用相关系数寻找最接近的参考材料。鉴定出的多种化合物共同反映出动物胶的组成，但无法进一步确定其动物来源。

3.4 放射性碳测年分析

由表 1 可见，子样 FP1、FP15C、FP15M 和 FP16 所得年代范围彼此相近，并与旗帜拟定的制作时期（15—16 世纪）相容。FP1 和 FP15M 分别对应旗帜主体织物的两个不同区域，其结果提示主体织物各层和各部位可能制作于同一时期，或基本同时制作。样品 FP15F、FP17 和 FP22 的放射性碳数据表明，这

表 1：7 个送交 AMS ^{14}C 放射性碳测年的纺织样品结果
Table 1. Results obtained from the seven textile samples sent for AMS ^{14}C radiocarbon

样品 Sample	放射性碳年龄（BP） Radiocarbon age	δ¹³C（‰）	校准年代（2σ置信水平） Calibrated dating (confidence level 2σ)
FP1	384 ± 40	−21.5 ± 0.5	1430 AD（57.3%）1530 AD 1540 AD（38.1%）1640 AD
FP15C	394 ± 45	−25.3 ± 0.5	1430 AD（59.6%）1530 AD 1540 AD（35.8%）1640 AD
FP15F	80 ± 35	−23.1 ± 0.4	1680 AD（26.2%）1740 AD 1800 AD（69.2%）1930 AD
FP15M	290 ± 40	−27.9 ± 0.3	1480 AD（93.4%）1670 AD 1780 AD（2.0%）1800 AD
FP16	325 ± 40	−26.8 ± 0.3	1460 AD（95.4%）1650 AD
FP17	85 ± 35	−23.1 ± 0.3	1680 AD（26.4%）1740 AD 1800 AD（69.0%）1940 AD
FP22	203 ± 45	−26.0 ± 0.3	1630 AD（74.6%）1890 AD 1910 AD（20.8%）1950 AD

注：BP 为"距今"（Before Present），惯例以 1950 年为基准年。

the undyed silk core used, can be related to artifacts from medieval times on the Iberian Peninsula which present the same style of manufacturing, an aspect supporting the origin of the banner from a Spanish workshop .

To sum up, the analytical VP-SEM+EDS results are in agreement with the expected timeframe and the possible European provenance of the banner for its composition, style of manufacture and natural degradation present on the materials.

3.3 Chromatographic analysis of dyes, paper and adhesive

After dye extraction from the coloured fibres, samples were analysed by the LC/DAD/MS technique. The rag paper and adhesive samples were analysed using Py-GC/MS. Analysis of the rag paper pyrogram allowed to identify several carbohydrate derivatives, accompanied by some minor proteins and lipids. The material composition confirms that the rag paper was a cellulose based paper with a minor amount of animal fibres, confirming what had been observed by optical microscopy and VP-SEM+EDS analyses. This manufacturing procedure is typical for Spanish manufacturers during the 16th century.

Analysis of the pyrogram from the adhesive sample showed the separation and identification of glycine, several biomarkers related with the presence of blood and protein in reference materials, L-proline and hydroxyproline, and other biomarkers that were found in animal glue reference materials. Identification was done by using correlation coefficients to find closest matching reference materials, with the help of the ESCAPE expert system. The different compounds identified reflected the composition of an animal glue, although it was not possible to identify the animal source.

3.4 Radiocarbon dating analysis

From table 1, it is possible to see with a high degree of confidence that the results obtained for subsamples FP1, FP15C, FP15M and FP16 all show similar time frames, compatible with the period proposed for the manufacture of the banner (15th–16th centuries). Results from sample FP1 as well as sample FP15M, which correspond to the

些织物的制作时间比旗帜其余部分晚约 100—200 年。结合现场检查数据，这一结果提示这些材料很可能在后期被添加到旗帜上，目的或与保护 / 修复有关。

4. 结论

通过分析从哥伦比亚国家博物馆所藏历史旗帜“弗朗西斯科 · 皮萨罗纹章旗”采集的微量样品，本研究得以对该文物的年代原真性及可能来源提出判断。微量样品研究中未发现任何能够支持该旗为仿制品或赝品的材料矛盾。

放射性碳测年结果以较高概率表明，旗帜的部分组成制作于 15—16 世纪，并在 18—19 世纪经历过修复干预。其非工业化制作风格及材料技术体系包括：a）旗帜各处使用丝织物，包括未脱胶与脱胶丝；b）采用天然染料——胭脂虫、巴西木、木犀草和靛蓝 / 菘蓝——单独或组合用于纹章 / 盾徽丝织物的着色；c）黄色和红色染料使用明矾作为媒染剂；d）以动物胶作为胶黏剂；e）以包含多类组分的手工破布纸作为纹章支撑底层；f）以镀金银质金属带包裹未染色丝芯，制成装饰性金属线。上述特征共同表明，该旗帜由在当时（甚至在今天）均可视为珍贵且成本较高的材料构成，而这类材料需要由技术熟练的手工艺人加工，方能制成供社会上层个人或机构使用的高价值物品。

结合该历史文物的图像学特征——卡斯蒂利亚和莱昂纹章——这些证据支持如下观点：该物可能是在西班牙国王卡洛斯一世统治时期，由欧洲人携带进入美洲的一件物品。

main banner textile in two different areas, suggest that the main fabric on all its layers and sections was manufactured in the same period or simultaneously.

Radiocarbon data for samples FP15F, FP17 and FP22 suggests that those fabrics were manufactured about 100–200 years after the rest of the banner. This result, combined with the in situ inspection data, suggests that materials were later added to the banner very likely for conservation/restoration purposes.

4. Conclusion

The analytical results obtained from the analysis of micro-samples taken from the historical banner of the National Museum of Colombia denominated “Francisco Pizarro’s banner of arms”, allowed us to postulate the originality of the object in time and probable provenance. No incongruences were found on the study of the micro-samples that could support the idea that the banner is the product of an imitation, forgery.

Radiocarbon dating results indicated, with high probability, that parts of the banner were manufactured in the 15–16th centuries and underwent restoration interventions during the 18–19th centuries. The non-industrialized style, the manufacturing technique with the use of materials such as: a) silk throughout the textile (pure and degummed); b) natural dyes (cochineal, brazilwood, weld and indigo/woad) used alone or in combination for colouring the silk textiles in the emblem/coat of arms; c) alum as mordant for yellow and red dyestuffs; d) animal glue as adhesive; e) handmade rag paper with a broad matrix of components as a support base for the emblem; f) silver gilded metal to wrap undyed silk as decorative metal threads, all of this seems to confirm that the Banner is made up of materials classifiable as precious and of high cost at the time (and even today) which could only be transformed by an expert handcrafter to produce a valuable object for a person or institution belonging to the higher sections of society. In combination with the iconography of the historical object (Castilla and Leon coat of arms), this allows to support the idea of an object arrived in America carried by Europeans during the reign of King Charles I of Spain.

活动报道 Latest Events

第 48 届世界遗产委员大会在韩国釜山闭幕

The World Heritage Committee wrapped up its 48th session in Busan, Republic of Korea

资料来源 Source:
https://www.unesco.org/zh/articles/lianheguojiaokewenzuzhishijieyichanxinzeng25chu?hub=68246



图 1：大会现场
Figure 1. Conference Scene

2026 年 7 月 19 日至 29 日，韩国在釜山主办联合国教科文组织世界遗产委员会第四十八届会议。世界遗产委员会由 21 个成员国组成，其成员从 196 个国家中选举产生。根据《世界遗产公约》，委员会承担核心职责，负责决定将哪些新遗产地列入《世界遗产名录》，并监督已列入名录遗产地的保护状况。

本届会议期间，所有列入《世界遗产名录》的决定均以协商一致方式通过，体现了支撑 1972 年《世界遗产公约》的合作精神。本届会议还首次将科摩罗、圣多美和普林西比以及南苏丹三个非洲国家的遗产地列入联合国教科文组织《世界遗产名录》，彰显了本组织致力于推动《世界遗产名录》更加均衡、更具代表性的承诺。委员会还将 6 处遗产地列入《濒危世界遗产名录》，既认可这些遗产地的突出价值，也强调对其加以保护的必要性。

在对话与协商一致的基础上，委员会将 25 处新遗产地列入联合国教科文组织《世界遗产

From 19 to 29 July 2026, the Republic of Korea hosted the 48th session of UNESCO's World Heritage Committee in Busan. Members of the 21-member World Heritage Committee, elected from among the 196 countries, exercise a central responsibility under the World Heritage Convention by determining which new sites to inscribe on the World Heritage List and monitoring the conservation of already listed sites.

All inscriptions during the session were adopted by consensus, reflecting the cooperative spirit that underpins the 1972 World Heritage Convention. This session also marks the first-ever inscriptions on the UNESCO World Heritage List for three African countries - Comoros, São Tomé and Príncipe and South Sudan - showcasing the Organization's commitment to a more balanced and representative List. The Committee also added six sites to the List of World Heritage in Danger, recognizing both the sites' outstanding value and the need to protect them.

Building on dialogue and consensus, the Committee inscribed 25 new properties on UNESCO's World Heritage List (19 cultural sites, five natural ones and one mixed); and approved the extension of two already inscribed sites. The Committee also agreed on the renomination of the Garamba National Park in the Democratic Republic of the Congo, meaning the value of the site already inscribed revealed the new criteria and the Committee proceeded to re-examine it.

With 196 States Parties, the World Heritage Convention is one of the most universally ratified in the world–proof of its influence and popularity across

名录》（其中包括 19 处文化遗产、5 处自然遗产和 1 处文化和自然双重遗产），并批准扩展两处已列入名录的遗产地。委员会还同意对刚果民主共和国加兰巴国家公园进行重新提名，即该已列入名录遗产地的价值显示其符合新的列入标准，委员会据此对其进行了重新审议。

《世界遗产公约》现有 196 个缔约国，是世界上获得最广泛批准的国际公约之一，这证明了其在全球各地的影响力和广泛认同。本届会议展现出非凡的对话精神，使委员会得以通过协商一致方式通过所有列入名录的决定，并在包括遗产保护状况报告审议在内的各项工作中进一步培育协商一致文化。

本届委员会会议还标志着小岛屿发展中国家（SIDS）迎来一个历史性里程碑：会议在釜山通过《2026-2034 年小岛屿发展中国家（SIDS）世界遗产战略》，配套预算 1300 万美元。该战略旨在加强小岛屿发展中国家识别、保护和管理世界遗产地的能力，同时应对这些国家面临的特定挑战，尤其是气候变化带来的影响。

作为《非洲世界遗产战略》的补充，这一新战略将有助于为所有小岛屿发展中国家提供量身定制的支持，同时推动遗产成为可持续发展、气候韧性和包容性的驱动力，并将当地社区置于遗产保护、管理和传承工作的核心。上述成果体现了联合国教科文组织及其合作伙伴为提升《世界遗产名录》的代表性所作的持续努力，以确保名录更充分地反映世界丰富的文化和自然多样性。

every corner of the globe. The session was marked by an exceptional spirit of dialogue, enabling the Committee to adopt all inscription decisions by consensus and fostering a renewed culture of consensus across its work, including on State of Conservation reports.

This Committee session also marks a historic milestone for Small Island Developing States (SIDS) with the adoption in Busan of the World Heritage Strategy for Small Island Developing States (SIDS) 2026-2034, backed by a budget of US$13 million. The Strategy aims to strengthen the capacity of SIDS to identify, protect and manage World Heritage sites, while addressing the specific challenges these States face – particularly the impacts of climate change.

Complementing the World Heritage Strategy for Africa, this new Strategy will help provide tailored support to all SIDS while making heritage a driver of sustainable development, climate resilience and inclusion, placing local communities at the heart of its protection, management and transmission. This achievement reflects the sustained efforts undertaken by UNESCO and its partners to make the World Heritage List more representative and to ensure that it better reflects the world's rich cultural and natural diversity.

2026 国际文化遗产保护活动周启幕

2026 International Cultural Heritage Conservation Week Opens

资料来源 Source：
https://m.toutiao.com/article/7662957400055349801/

2026 年 7 月 15 日晚，“美美与共 共筑未来”2026 国际文化遗产保护活动周在山西省晋中市榆次老城启动。约旦、北马其顿、马尔代夫、拉脱维亚、孟加拉国驻华大使，国际文博专家、海外汉学家等，聚焦文化遗产保护与文明国际互鉴，以古今交融、中外联动的形式，开启一场跨越时空的文化对话。

On the evening of July 15, 2026, the 2026 International Cultural Heritage Conservation Week, themed “Beauty in Harmony, Building the Future Together,” opened in the Ancient City of Yuci in Jinzhong, Shanxi Province. Ambassadors to China from Jordan, North Macedonia, the Maldives, Latvia and Bangladesh, together with international museum and cultural



图 2：活动现场
Figure 2. Event Scene

heritage experts and overseas sinologists, gathered around the themes of cultural heritage conservation and international exchanges and mutual learning among civilizations.

In recent years, cultural relics from Shanxi have been exhibited in Fiji, Georgia and Paris, while treasures from Cambodia and sculptures from ancient Greece and Rome have been showcased in Shanxi. As Wang Xiaoyi, Director of the Shanxi Museum, noted, genuine mutual learning among civilizations is a two-way journey: understanding differences through exchange and finding resonance through dialogue.

Evandro Menezes de Carvalho, Associate Professor of International Law at Fluminense Federal University in Brazil and recipient of the 2023 Chinese Government Friendship Award, noted that climate change, regional conflicts and large-scale tourism development are creating new challenges for cultural heritage conservation. “This requires us to innovate the way we cooperate internationally. I hope this event will help us build a future that is more peaceful, inclusive and closely connected,” he said. Against the backdrop of the China-Brazil Year of Culture, he also proposed deeper cooperation between Shanxi’s cultural heritage institutions and historic cities in Brazil, as well as the establishment of a joint digital heritage research platform to contribute to the protection of global cultural diversity.

The activity is hosted by Shanxi Daily and the Center for the Americas of China International Communications Group (CICG), and organized by the Shanxi International Communication Center.

孟加拉国驻华大使纳兹穆尔在致辞中赞扬了山西文物数字化、社会化传承成果，并期待双方在古建修复、联合考古、数字遗产、青年交流四大领域深化合作。

近年，山西文物赴斐济、格鲁吉亚、巴黎等地展出，同时，柬埔寨珍宝、古希腊古罗马雕塑等也在山西亮相。正如山西博物院院长王晓毅所言，真正的文明互鉴是双向奔赴，是在交流中理解差异、在对话中寻找共鸣。

巴西弗鲁米嫩塞联邦大学国际法副教授、中国政府友谊奖得主高文勇坦言：气候变化、地区冲突、大规模旅游开发等对文化遗产保护提出新课题。结合“中巴文化年”契机，他还倡议推动山西文化遗产相关机构与巴西历史名城深度合作，建立数字遗产联合研究平台，助力全球文化多样性保护。

本次活动由山西日报社、中国外文局美洲传播中心主办、山西国际传播中心承办。包含圆桌对话、“中国古建看山西”国际传播光影山西行、系列学术讲座、Z 世代建造工坊、主题展览、研学活动等。

中国—东盟建筑遗产数字信息系统与可持续更新研讨会

China–ASEAN Symposium on Digital Information Systems and Sustainable Renewal for Architectural Heritage

资料来源 Source：
https://caup.gzu.edu.cn/2026/0803/c17209a278123/page.htm

2026 年 7 月 30 日，“中国—东盟建筑遗产数字信息系统与可持续更新研讨会”在贵阳中国—东盟教育交流周永久会址 2 楼东盟论坛厅举行。本次研讨会聚焦建筑

On July 30, 2026, the China–ASEAN Symposium on Digital Information Systems and Sustainable Renewal for Architectural Heritage was held in the ASEAN Forum Hall on the second floor



图 3：研讨会嘉宾合影
Figure 3. Group Photo of Symposium Participants

遗产的数字化保护与可持续更新，汇聚了中国与东盟国家政府部门、国际组织、高校及驻华使馆的代表，旨在共同探讨数字技术赋能文化遗产保护与区域合作的新路径。

开幕式上，中国—东盟教育交流周组委会原执行秘书长、教育部国际司原副司长兼巡视员刘宝利，教育部中外人文交流中心主任于长学，中国—东盟中心教育文化旅游部主任贺迪，东南亚教育部长组织区域高等教育与发展中心主任乔蒂斯·迪拉提蒂，印度尼西亚共和国驻华大使馆副大使梁玉宁，泰王国驻华大使馆公使衔教育参赞秀英，贵阳学院校长樊铁钢，贵州大学党委副书记彭洁及天津大学校长助理肖松山出席会议并致辞。各方一致认为，本次研讨会是落实中国—东盟命运共同体建设的务实学术行动，期待凝聚共识、产出可落地实践成果，携手促进区域文化遗产永续传承与可持续繁荣。

主旨报告环节中，中国工程院外籍院士、英国皇家工程院院士、欧洲科学院院士、天津大学建筑学院名誉院长、伦敦大学学院康健教授作了题为“建筑遗产的声环境”的报告；全国工程勘察设计大师、清华大学张杰教授作了题为“文脉场域传承引领城市更新——数智化技术探索与应用”的报告。下午的专家报告环节，来自马来西亚、泰国、柬埔寨、尼泊尔等国的 12 位学者围绕建筑遗产数字化、可持续更新等议题分享研究成果。

本次研讨会汇聚中国与东盟多国高校及机构代表，促进了建筑遗产保护领域的学术交流与合作，为推动区域可持续发展与文化传承贡献了智慧。

professionals from the fields of the permanent venue of the China-ASEAN Education Cooperation Week in Guiyang. The symposium focused on the digital conservation and sustainable renewal of architectural heritage. It brought together representatives from government departments, international organizations, universities and embassies in China and ASEAN countries to explore new pathways for leveraging digital technologies to advance cultural heritage conservation and regional cooperation.

At the opening ceremony, officials from China and ASEAN countries delivered speeches, including representatives from the Ministry of Education, the ASEAN-China Centre, SEAMEO RIHED, and several universities. They agreed that the symposium was a practical step toward building a China-ASEAN community with a shared future, and expressed hopes for consensus-building and concrete outcomes.

During the keynote session, Professor Kang Jian, Foreign Member of the Chinese Academy of Engineering, Fellow of the Royal Academy of Engineering, Member of the European Academy of Sciences, Honorary Dean of the School of Architecture at Tianjin University, and Professor at University College London, delivered a presentation entitled “Acoustic Environments of Architectural Heritage.” Professor Zhang Jie of Tsinghua University, a National Engineering Survey and Design Master, delivered a presentation entitled “Urban Renewal Guided by the Continuity of Cultural Context and Place: Exploration and Application of Digital and Intelligent Technologies.” At the afternoon expert session, 12 scholars from Malaysia, Thailand, Cambodia, Nepal and other countries presented their research findings on topics including the digitalization of architectural heritage and sustainable renewal.

Bringing together representatives from universities and institutions across China and several ASEAN countries, the symposium strengthened academic exchange and cooperation in architectural heritage conservation and contributed expertise and ideas to regional sustainable development and cultural heritage transmission.



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