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A Tiered Protection and Evacuation Mechanism for Movable Museum Collections in Armed Conflict

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ABSTRACT

Armed conflict threatens cultural heritage through direct attacks such as shelling and air strikes, as well as cascading risks arising from looting, damage to buildings and infrastructure, failures of fire and security systems, and the departure of specialist staff. Museum collections are movable, but relocation is not cost-free: packing, handling, transport, and temporary storage may introduce risks of impact, environmental change, loss, or theft. The 1954 Hague Convention and its protocols, together with emergency guidance issued by UNESCO and ICCROM, provide a basis for peacetime preparation, risk reduction, in-situ protection, and evacuation when necessary. Drawing on these instruments, this paper examines risks to museum collections in armed conflict and proposes a tiered protection and evacuation mechanism based on conflict risk, object significance, vulnerability, and evacuation feasibility. The transfer of ancient manuscripts from Timbuktu, Mali, and emergency protection efforts at museums in Ukraine show that measures need to reflect changing risks and institutional capacity. Museums therefore need to coordinate enhanced in-situ protection, relocation within or near the museum, and emergency evacuation, while maintaining continuity through inventories, evacuation lists, temporary storage, and post-conflict return.

KEYWORDS

Armed Conflict; Museums; Movable Cultural Property; Emergency Protection; Evacuation.

1. INTRODUCTION

Armed conflict exposes cultural heritage to risks far greater than those encountered in peacetime. Shelling, air strikes, explosions, and fires can directly damage museum buildings and their collections. The breakdown of social order also increases the likelihood of theft, looting, illicit trade, and failures in fire protection, power supply, and temperature and humidity control. Although museum objects are movable, they cannot simply be "moved away": once removed from display cases and storage rooms, they must be packed, handled, transported, and stored temporarily, and each stage may introduce new risks. How to coordinate in-situ protection with emergency evacuation is therefore a practical question for museum emergency management.

The international community began addressing the protection of cultural property in armed conflict through legal instruments at an early stage. The 1954 Convention for the Protection of Cultural Property in the Event of Armed Conflict (hereafter, the Hague Convention) provides a key legal foundation in this field. The 1999 Second Protocol further requires States Parties, in peacetime, to prepare inventories, plan emergency measures such as fire prevention and measures to prevent building collapse, and make preparations for the evacuation of movable cultural property or its protection in situ [1, 2]. UNESCO, ICCROM, and other organizations subsequently translated these principles into operational emergency guidance. ICCROM's 2016 publication *Endangered Heritage: Emergency Evacuation of Heritage Collections* treats emergency documentation, transport, and

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temporary storage as parts of a continuous process, and discusses how to set priorities when resources are limited [3].

Existing conventions and guidance provide principles and operational frameworks for protecting cultural heritage during armed conflict. Vonnák's study of the 2022 evacuation of museums in Donbas examines factors including pre-war preparedness, risk perceptions, the allocation of responsibilities, and available resources [4]. For museums, however, decisions about when to evacuate, which objects to move first, and how to coordinate different levels of evacuation and in-situ protection still depend on institutional circumstances. Drawing on international instruments and emergency practices, this article examines protection options for movable museum objects when time, personnel, and resources are limited.

2. PROTECTION CHALLENGES FOR MOVABLE MUSEUM OBJECTS DURING ARMED CONFLICT

2.1. Multiple Risks to Movable Objects

When conflict directly affects a museum, shelling, air strikes, explosions, and fires can cause a building to collapse or damage its collections. Large or fragile objects, as well as those whose preservation depends on a specific building environment, may be exposed to further damage when the museum is compromised.

Even when a museum is not directly attacked, power and water outages and damage to fire protection and security systems can place its collections at risk. Organic materials such as paper documents, textiles, and wooden objects are relatively sensitive to changes in temperature and humidity. If environmental controls fail, problems such as mold growth and deformation may follow. Social disorder also increases the risk of theft, looting, and illicit trade.

Armed conflict can also disrupt a museum's routine management. If staff are forced to leave, objects may remain undamaged for the time being but still go without continuous monitoring, maintenance, and documentation. ICCROM's guidance on first aid for cultural heritage in times of crisis accordingly recommends coordinating cultural heritage institutions and professionals with emergency responders and humanitarian actors [5].

Because these risks can compound, collections need ongoing reassessment as the conflict develops. The assessment should account for damage to infrastructure and threats to staff as well as direct attacks on the museum building.

2.2. The Tension between In-Situ Protection and Emergency Evacuation

When a threat is imminent, a museum must decide whether to continue protecting its collections on site or move them to a safer location.

Keeping objects in situ allows them to remain in a familiar environment. Specialists can also draw on existing collection information and facilities, while avoiding risks associated with transport. This option, however, depends on the building, storage areas, and infrastructure retaining basic safety conditions. If military operations continue to approach, the museum is attacked, or fire protection, power, and security systems fail altogether, the effectiveness of in-situ protection can quickly decline.

Moving objects can increase their distance from the conflict zone and reduce the risk of military damage, but evacuation is not "risk-free." Loss or damage may occur at any stage, from inventorying, documentation, and packing to handling, transport, and renewed storage. For large objects, fragile structures, or objects with special environmental requirements, the risks of long-distance transport may even exceed those of short-term on-site storage. ICCROM's evacuation guidance identifies the timing of intervention and prioritization under resource constraints as key issues [3].

Decisions must therefore be grounded in specific conditions: given the current threat and the condition of the collection, which option would reduce the overall risk to the objects?

2.3. From "Whether to Evacuate" to "How to Choose a Protection Option"

The distance of the conflict, the intensity of attacks, the safety of the building, and the condition of the objects all influence the choice of protection. When the threat is low, remaining in the museum may be the safer option. As the risk rises, objects can first be moved to a relatively secure area within the museum; if the site can no longer provide basic safety, long-distance evacuation may then be considered.

Such decisions require a tiered mechanism that can be adjusted as risks change, as well as a way to distinguish collection priorities when resources are limited.

3. INTERNATIONAL FRAMEWORKS FOR CULTURAL HERITAGE PROTECTION AND RELATED PRACTICES

3.1. Basic Principles Established by the Hague Convention and Its Protocols

Adopted after the severe losses of cultural property during the Second World War, the 1954 Hague Convention is a major international legal instrument for cultural heritage protection [1]. It places the protection of cultural property within the international legal framework governing armed conflict.

Armed conflicts in the latter half of the twentieth century exposed shortcomings in the existing mechanisms. The 1999 Second Protocol supplemented the rules for implementing the Hague Convention, established the category of "enhanced protection," and provided for sanctions in cases of serious violations [2].

Article 5 of the Second Protocol requires States Parties, in peacetime and as appropriate, to prepare inventories, plan emergency measures such as fire prevention and measures to prevent building collapse, and prepare for the evacuation or in-situ protection of movable cultural property [2]. Protection thus involves not only prohibitions on destruction but also ongoing management through prevention, preparedness, and emergency response.

3.2. Emergency Protection Practices of UNESCO and ICCROM

Alongside legal instruments, organizations such as UNESCO and ICCROM have issued operational tools for practitioners. ICCROM's 2018 *First Aid to Cultural Heritage in Times of Crisis: Handbook* sets out a framework for first aid to cultural heritage. It emphasizes coordinating cultural heritage institutions, communities, emergency responders, and humanitarian actors through adaptable procedures so that, after a crisis begins, heritage can be stabilized promptly and risks reduced [5].

ICCROM and UNESCO's 2016 publication *Endangered Heritage* is directly relevant to the emergency evacuation of movable collections. It treats evacuation as a continuous process comprising emergency documentation, safe transport, and temporary storage, and stresses the need to set priorities when resources are limited [3].

These guidelines offer practical approaches to evacuation, but they do not provide a fixed classification system applicable to every museum. Museums must still connect risk assessment with the choice of protection measures and develop a decision-making mechanism suited to their own circumstances.

4. A TIERED PROTECTION AND EVACUATION MECHANISM FOR MOVABLE MUSEUM COLLECTIONS

4.1. Principles of Tiered Protection

Four factors inform the choice of protective measures: the level of armed-conflict risk indicates whether the current site can still provide basic safety; the significance of an object affects how limited resources should be allocated; its vulnerability determines how well it can withstand vibration, changes in temperature and humidity, and transport conditions; and evacuation feasibility depends on its size, packing requirements, transport distance, road safety, and the conditions at the receiving site.

These factors do not follow a fixed order of priority. Evacuating a highly significant object may not be the safest option if it is very large or fragile and suitable transport equipment is unavailable; in such circumstances, reinforcing protection in situ may be more appropriate. By contrast, a valuable manuscript in a building under serious threat and one that can be packed and transported without undue difficulty may warrant priority transfer. The choice of protective measure should therefore follow an overall assessment of risk rather than a ranking based on significance alone.

4.2. Three Tiers of Protection

Protective measures can be organized into three tiers according to the level of risk and the scale of intervention.

4.2.1. Tier 1: In-situ Protection

Tier 1 applies when the risk of conflict remains low, the museum building is structurally sound, and fire-protection and security systems remain operational.

At this stage, the priority is to strengthen protection where the collections are held, rather than to evacuate them. Measures may include updating collection inventories, securing and stabilizing objects, improving storage conditions, strengthening fire and theft prevention, and closely monitoring objects that are vulnerable to environmental change. In-situ protection is particularly relevant for objects that are difficult to move or unsuitable for transport.

This tier depends on preparation before conflict. Museums that maintain collection records, assign responsibilities, and prepare essential supplies in advance are better placed to act promptly when a crisis occurs.

4.2.2. Tier 2: Relocation Within the Museum or to a Nearby Site

Tier 2 may be activated when military risk has risen substantially but the surrounding area has not yet lost the capacity to maintain basic administration and security.

The objects need not immediately be transported far from the museum. Priority collections can first be moved from ordinary galleries to safer storage areas within the building, or to a nearby cultural institution with better fire protection, security, and structural safety.

Relocation within the museum or to a nearby site can create time for further decisions. It reduces the risk of direct damage while avoiding a rushed, long-distance transfer when local conditions remain manageable.

4.2.3. Tier 3: Emergency Evacuation

Tier 3 should be considered when the museum’s area is under sustained military attack, the building’s structural safety can no longer be assured, fire-protection and security systems have largely failed, or staff can no longer maintain normal operations.

Emergency evacuation may involve relocation to a safer region within the country or, where the country can no longer provide reliable protection, temporary safekeeping abroad through international cooperation. UNESCO's support to museums in Kyiv included collection-protection equipment and storage materials, as well as repairs to security and fire-alarm systems. This response shows how emergency measures can be tailored to the circumstances of individual institutions [6].

Any cross-border transfer requires clear arrangements for temporary custody, registration, assignment of responsibilities, and post-conflict return. Without such arrangements, objects may remain at risk of ownership disputes or illicit circulation after leaving the conflict zone.

4.3. Setting Evacuation Priorities

Once Tier 3 protection is activated, museum staff must decide which objects should be moved first.

Vehicles, personnel, packing materials, and safe routes are all limited during wartime. A large museum is therefore unlikely to be able to move its entire collection at once. Priorities must be set within the collection.

The assessment should consider an object's significance, vulnerability, and the feasibility of evacuation together. A highly significant object in a high-risk location may be prioritized for transfer when evacuation is reasonably feasible. If an important object is fragile and difficult to transport, staff should assess the risks carefully and, where necessary, reinforce in-situ protection first. When resources are scarce, objects of lower relative significance, large groups of objects, or items whose transport would create additional risk may be assigned a lower evacuation priority.

In general, high conflict risk combined with high significance and high evacuation feasibility supports priority evacuation. Where conflict risk and significance are high but evacuation is difficult, stronger in-situ protection may be safer. If conflict risk remains low or moderate and storage conditions are stable, objects should generally remain in situ.

Because the four factors interact, high significance alone does not mean an object must be evacuated. The risks created by removing it from its established environment also need to be considered.

5. OPERATING PROCEDURES FOR TIERED PROTECTION AND EVACUATION

5.1. Prepare Collection and Evacuation Inventories Before Conflict

The success of wartime evacuation depends substantially on preparations made in peacetime. The Second Protocol calls for inventories and emergency measures to be prepared in advance [2]. Museums can use this requirement to update collection inventories and object files and to establish an evacuation list that indicates protection priorities.

The list should record each object's basic identifying information, current location, dimensions and weight, environmental requirements, packing method, transport constraints, and responsible staff member. For priority objects, packing materials and transport arrangements should also be identified in advance. This reduces the time lost to searching for records and planning routes after a crisis has begun.

5.2. Establish Risk Triggers

A tiered system also needs clear conditions for moving from one level to another; otherwise, the tiers remain a static classification.

When military activity continues near a museum, the building is damaged, the fire-alarm system is out of service, electricity can no longer maintain basic storage conditions, or the institution cannot

organize staff coverage, its existing level of protection may no longer be adequate. The museum should then raise the protection level in response to the assessed risk.

Defined triggers can help prevent two kinds of delay: remaining with in-situ protection after danger has become imminent and losing the opportunity to evacuate, or beginning a large-scale transfer in haste while the situation is still manageable and thereby increasing the risk of transport damage.

5.3. Safe Packing, Transport, and Temporary Storage

Once the objects for evacuation have been selected, the decision must be carried through in practice. Endangered Heritage treats emergency documentation, safe transport, and temporary storage as parts of a continuous process, underscoring that evacuation involves more than moving objects from one place to another [3].

Before departure, staff should verify object identity, condition, and quantity as far as circumstances allow, and retain photographic records for checking after the move. Packing methods should reflect the materials and structure of each object; a single method should not be used for collections with different needs.

Transport routes should be adjusted as local security conditions change. The shortest route through a conflict zone is not necessarily the safest. Transport arrangements may also need to be coordinated with local authorities, transport services, and, where appropriate, humanitarian or emergency-response mechanisms.

Protection continues after objects reach their destination. Temporary storage should meet basic requirements for fire safety, theft prevention, and moisture control as far as possible. Registration records and documented handovers of responsibility should be maintained throughout.

5.4. Post-conflict Return and Reinstatement

Transfer to a safer area is only one part of emergency protection. When conditions stabilize, the museum must resume routine oversight and determine the objects' future location.

Objects stored elsewhere within the country should have complete handover and return records. Cross-border transfers require clear terms for temporary custody, ownership, and return. The 1954 First Protocol prohibits the export of cultural property from occupied territory and provides for its return in specified circumstances after the end of hostilities. It also provides that cultural property deposited in another State Party for protection should be returned to the competent authorities of the territory from which it came when hostilities have ended [7].

The evacuation process should link pre-conflict documentation, risk assessment, tier selection, evacuation, temporary storage, post-conflict inspection, and return and reinstatement.

6. INTERNATIONAL CASES AND LESSONS

6.1. Transfer of the Ancient Manuscripts of Timbuktu, Mali

During the armed conflict in northern Mali from 2012 to 2013, Timbuktu's cultural heritage was seriously threatened. Some historic buildings were destroyed, while large numbers of ancient manuscripts faced the risk of being burned or looted. A UNESCO assessment estimated that approximately 300,000 manuscripts had been transferred to Bamako, a considerable proportion of them in urgent need of protection. The transfer spared them direct destruction in the conflict zone, although storage conditions at the receiving locations still required improvement [8, 9].

Timbuktu's experience shows that evacuation can reduce the risks of direct destruction and looting when conditions for keeping collections in place deteriorate rapidly. The transfer itself, however, does

not complete the work of protection. Without suitable storage conditions, registration procedures, and professional management at the receiving location, the manuscripts may face new preservation problems.

Considered within the tiered protection mechanism proposed here, this case points to two connected decisions: the protection level should be raised promptly as on-site safety deteriorates, and any evacuation decision should be accompanied by plans for the receiving location and its preservation conditions.

6.2. Emergency Protection at Museums in Ukraine

Since February 2022, the war in Ukraine has continued to affect local cultural institutions. Following an assessment of four major museums in Kyiv, UNESCO found that some museum buildings had been damaged and that all four institutions needed equipment to protect their collections. UNESCO subsequently supplied equipment according to each museum's needs, including power generators, fire-resistant safes, storage boxes, fire extinguishers, and dehumidifiers, and repaired security and fire-alarm systems [6].

The response in Kyiv shows that collection protection can be adapted to the circumstances of each institution. Museums that remain operational can reduce on-site risks through equipment, storage, and emergency facilities; institutions with insufficient protection capacity may need to consider transferring collections. The Ukrainian-language edition of ICCROM's *Endangered Heritage* has also made evacuation guidance more accessible to local practitioners [3].

Compared with Timbuktu, the Ukrainian case more clearly illustrates the concurrent use of on-site protection and evacuation. The choice of protection measures needs to change with local security conditions, institutional capacity, and the phase of the conflict. While facilities and storage conditions remain adequate, in-house protection can be reinforced; when risks exceed the capacity for on-site protection, the protection level can then be raised.

7. CONCLUSION

Protecting movable cultural objects in museums during armed conflict requires weighing risks in highly uncertain conditions. Direct attacks, failures of infrastructure, looting, and the departure of staff can weaken existing protection systems. Emergency transfers may reduce the risk of military destruction, but they can also lead to transport damage, interrupted management, and illicit circulation. Neither keeping all objects in place nor transferring the entire collection is suitable in every situation.

The 1954 Hague Convention and its protocols, together with UNESCO and ICCROM emergency guidance, address such stages as inventory preparation, emergency planning, on-site protection, evacuation, safe transport, and temporary storage. On this basis, this paper proposes a three-tier protection mechanism guided by the level of conflict risk, the value and vulnerability of the objects, and the feasibility of evacuation. When risk is low, on-site protection should be reinforced. As risk rises, transfer within the museum or to a nearby area can be considered. Emergency evacuation should be undertaken when the existing location can no longer provide basic safety; where necessary, transfer to secure storage in another region or across a border can also be assessed.

The mechanism calls for protection levels to be adjusted as risks change, rather than assigning objects to fixed categories. When resources are limited, evacuation priorities should not be determined by value alone. Objects of high value that face high risk and can be evacuated with relative feasibility may be transferred first. For objects of considerable value whose transport also poses substantial risks, on-site protection should be reinforced in light of conditions at the time.

Emergency preparedness at museums needs to begin in peacetime and include the maintenance of collection inventories, risk assessments, and evacuation lists. Once a crisis occurs, staff can then

assess the appropriate protection level and connect documentation, packing, transport, temporary storage, and post-conflict return, making evacuation part of a continuous protection mechanism.

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