THEMATIC REPORT

CONSERVATION OF THE “SHQIPËRIA” MOSAIC ON THE FACADE OF THE NATIONAL HISTORICAL MUSEUM



Funded by the European Union

MINISTRIA E TURIZMIT, KULTURËS DHE SPORTIT

UNOPS

EU4CULTURE

Cover Photo Caption

Unveiling of the conserved mosaic façade at the inauguration ceremony marking the completion of works

Table of Contents

Foreword **6**

1. Introduction **10**

1.1 Purpose of the thematic report 10

1.2 Objectives of the conservation work 12

1.3 Importance of the site 14

2. Historical description **14**

3. Condition Assessment **17**

3.1 Overview of Pre-Intervention Condition 17

4. Conservation philosophy and approach **19**

4.1 Conservation philosophy 19

4.1.1 Authenticity 20

4.1.2 Minimal Intervention 20

4.1.3 Compatibility 20

4.1.4 Legibility 21

4.2 Conservation approach 23

4.2.1 Ethical consideration 23

4.2.2 Criteria for decision making 23

4.2.3 Risk Assessment and Prioritisation 24

4.2.3.1 Prioritisation Strategy 25

5. Conservation interventions **26**

5.1 Phases of conservation work 26

5.2 Setting the construction site 26

5.3 Detailed Documentation of the Mosaic 27
5.4 Conservation 29

6. Results and Outcomes 31
6.1 Mosaic facade 31
6.2 Challenges encountered during intervention 32
6.3 Unexpected findings 32

7. Maintenance and Monitoring Plan 33

8. Project Management and Funding 35
8.1 Condition assessment and conservation scope 35
8.2 Stakeholder Coordination 35
8.3 Design Development and Technical Preparation 35
8.4 Compliance and Approval Process 35
8.5 Procurement and Contractor Management 36
8.6 Oversight of implementation of works and quality assurance 36
8.6.1 Health and Safety 36
8.6.2 Documenting and reporting 37
8.7 Testing, Commissioning, and Hand-Over 37
8.8 Final Hand-Over 38
8.9 Overall Added Value of UNOPS Project Management 38

9. Acknowledgments 39

Foreword

The *EU4Culture Thematic Report Series* has been developed by UNOPS to document and share the experience and lessons learned from the conservation works implemented under the EU4Culture programme. This Series aims to serve as a professional resource for those engaged in the field of cultural heritage conservation, contributing to knowledge exchange and the continuous advancement of conservation practices in Albania and beyond.

The *EU4Culture Thematic Report Series* includes:

1. Conservation of the "Shqipëria" Mosaic on the Façade of the National Historical Museum
2. Conservation of Wall Paintings
3. Handling Artefacts
4. Conservation of Fortified Architecture and Archaeological Ruins
5. Conservation of Engineering Works and Historic Residential Dwellings
6. Restoration of the National Puppet Theater and the Building of the Formerly Persecuted

The EU4Culture programme, funded by the European Union and implemented by the United Nations Office for Project Services (UNOPS), was launched in the aftermath of the 2019 earthquake, which caused significant damage to cultural heritage sites and monuments in Albania. While conceived as a heritage recovery initiative, its objectives extended beyond the conservation and restoration of damaged sites. By improving the physical condition, accessibility, safety, and interpretive value of cultural monuments, the programme sought to enhance public understanding and appreciation of Albania's cultural heritage, attract more visitors to restored sites, strengthen their role as tourism assets, and contribute to local socio-economic development. The programme also placed strong emphasis on capacity building, fostering a lasting sense of stewardship and supporting the continued preservation and sustainable use of Albania's cultural heritage.

The EU4Culture programme, running from October 2020 to June 2026, was carried out in close collaboration with the Ministry of Tourism, Culture and Sport[1], as well as its subordinate institutions — including the National Institute for Cultural Heritage and the Regional Directorates of National Culture in Tirana and Shkodra.

1. Formerly Ministry of Culture (2020–2024), and Ministry of Economy, Culture and Innovation (2024–2025)

Cooperation also extended to the Municipalities of Durrës, Kavaja, Lezha, Kruja, Kurbin, Rrogozhina, and Tirana ensuring a locally grounded and inclusive approach to heritage conservation.

Recognizing the importance of capacity building, the project established a strong link with academic institutions, notably the University of Tirana (Department of Archaeology and Cultural Heritage Management) and the Polytechnic University of Tirana (Faculties of Architecture and Civil Engineering). These partnerships enabled young professionals and students to engage directly in fieldwork, transforming ongoing conservation activities into valuable platforms for experiential learning.

In total, the EU4Culture programme engaged 14 licensed conservation contractors, two multidisciplinary design companies, one supervision firm, and one commissioning company. The conservation and restoration interventions alone accounted for approximately 70,000 working days, representing the daily efforts of around 70 professionals from diverse disciplines and contributing to the timely and high-quality completion of the works.

Through this collaborative effort, 19 cultural heritage assets across Albania were restored, while four were equipped with the tools and equipment needed to support improved conservation, documentation, and operation. The outcomes, methodologies, and insights gained from these interventions are presented in a series of six thematic reports, each focusing on a different typology of conservation work: mosaic conservation; wall paintings; artefact handling; fortified architecture and archaeological ruins; engineering works and historic residential dwellings; and the restoration of selected public heritage buildings.

Read together, the six publications offer a comprehensive record of the EU4Culture programme’s technical approach and practical lessons learned. They reflect not only the tangible achievements of the programme, but also the collective dedication of all those who contributed to its implementation — from national and local institutions, conservation professionals, designers, contractors, supervisors, academics, students, and community representatives, to the many individuals who supported the works on site. Their commitment, expertise, and collaboration were essential to safeguarding and celebrating Albania’s cultural legacy.



IN NUMBERS

Months taken for Design development	Design inherited from former donors, revision of design took 10 months
Months taken for Implementation	24
Start date	6th of May 2021
End date	3rd of May 2023
Material approvals	2
Number of approvals received	2
Workforce for implementation	8741 labor days
Number of students	10
Workforce for supervision	3
Financial investment	109 322 050.00 ALL (approx. 940.000 EURO)
Number of tessera	Hundreds of thousands

1. Introduction

1.1 Purpose of the thematic report

The conservation of monumental mosaics represents one of the most intricate and symbolically significant endeavors within the field of cultural heritage protection. In Albania—where artistic expression has long served as a vehicle for collective identity, historical narrative, and civic memory—the mosaic façade of the National Historical Museum occupies an unparalleled place within the country's visual and cultural landscape. "Shqipëria (Albania)," extending across 565 m^2 and composed of an extraordinary range of 123 tonalities, stands as one of the most iconic public artworks in Albania, embodying the aspirations, values, and artistic vision of its time.

This thematic report presents the comprehensive conservation process carried out for the restoration of this monumental mosaic, drawing upon the complete documenta-

Photo Caption: Left: Upon completion in 1981; Right: During construction in 1980
© Archive of the Institute of Construction, Tirana, Albania





tion generated through the EU4Culture programme. The work systematically records each phase of the intervention—from historical research and diagnostic investigations to methodological decision-making, treatment implementation, and long-term maintenance planning. The objective extended beyond the stabilisation of deteriorated materials; it sought to preserve the authenticity, visual integrity, and symbolic significance of the mosaic amid the complex challenges posed by decades of environmental exposure, structural failures, and the compounded impact of the 2019 earthquake.

Central to the restoration was a rigorous interdisciplinary collaboration involving conservators, engineers, scientists, institutions, and, notably, the original artists. Their combined expertise ensured a holistic understanding of the mosaic’s material characteristics, deterioration mechanisms, and structural behavior, enabling the formulation of a conservation strategy rooted in international best practices and adapted to the specificities of this national landmark.

The restoration of “Shqipëria” differs from conventional mural conservation not only in scale but in the technical, architectural, and symbolic dimensions it encompasses. The façade’s role as a dominant urban feature, its construction using diverse tesserae[2] materials, and its integration within a major public building demanded an approach that balanced aesthetic preservation with structural resilience and sustainability. The insights gained from addressing such complex conditions contribute valuable knowledge to the broader field of mosaic conservation, both within Albania and in the wider region.

Through the documentation of methodologies, analytical results, decision-making processes, and conservation outcomes, this thematic report aims to support the advancement of heritage practice on multiple levels. It serves as a detailed technical record for professionals, a reference for institutions responsible for cultural stewardship, and a reflection on the broader role of conservation in maintaining cultural continuity and reinforcing collective identity. By sharing the challenges encountered, the solutions developed, and the lessons learned, this work aspires to strengthen ongoing and future efforts dedicated to the safeguarding of Albania’s monumental art and the built heritage it enriches.

2. Small, individual cube-shaped tiles—made of stone, glass, ceramic, or shell—used to create mosaics

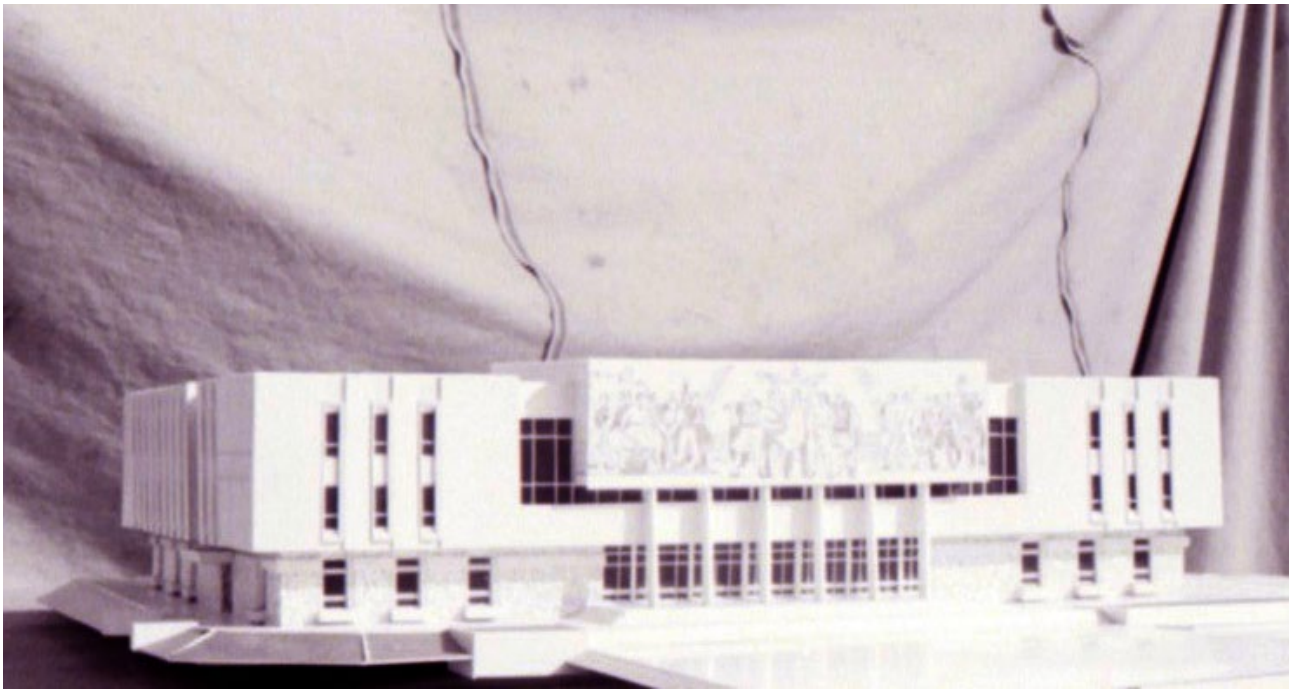


Photo Caption: Design proposal model (3d model)

1.2 Objectives of the conservation work

The conservation of mosaic “Shqiperia” evolved around following objectives:

Safeguard the Material Integrity of the Mosaic:

- Stabilise deteriorated tesserae and substrates to prevent further material loss caused by weathering, pollution, structural movement, and seismic activity.
- Ensure compatibility and durability of conservation materials, respecting the original construction techniques and adhering to international conservation standards.
- Mitigate active deterioration mechanisms identified through diagnostic investigations, such as moisture infiltration, adhesion failure, or micro-cracking.
- Preserve the Authenticity and Visual Integrity of the Artwork:
- Retain the mosaic’s original artistic expression, including its chromatic range of 123 tonalities, compositional qualities, and aesthetic character.
- Reintegrate losses ensuring legibility.
- Protect surface finishes from further degradation through appropriate consolidation and environmental protection measures.

Strengthen Structural Stability and Long-Term Resilience:

- Address structural vulnerabilities of the façade system, particularly those exacerbated by the 2019 earthquake, ensuring safe adhesion between support layers and tesserae.
- Improve the structural performance of the mosaic façade through engineering interventions that remain sensitive to its artistic nature and architectural context.
- Enhance the mosaic’s capacity to withstand future environmental and seismic challenges while minimizing visual or material intrusion.

Establish a Scientifically Grounded Conservation Strategy:

- Base all interventions on comprehensive diagnostic research, including material characterisation, decay mapping, structural analysis, and environmental monitoring.
- Apply international best practices, adapting them to Albania’s climatic conditions, local materials, and the mosaic’s unique technical composition.
- Document methodologies, analyses, and decisions to ensure transparency, reproducibility, and professional accountability.

Foster Interdisciplinary Collaboration and Knowledge Exchange:

- Integrate expertise from conservators, engineers, architects, scientists, institutions, and original authors to cultivate a holistic understanding of the mosaic’s condition and significance.

- Promote collective decision-making grounded in dialogue between technical, artistic, and heritage stakeholders.

- Contribute to the regional and international body of knowledge on monumental mosaic conservation through research dissemination and professional engagement.

- Preserve the Cultural, Historical, and Symbolic Significance of “Shqipëria”

- Protect the mosaic as a key expression of Albanian cultural identity, recognizing its role in shaping civic memory and national narrative.

- Ensure that conservation interventions respect the historical context, iconography, and intentions of the original artists.

- Promote public awareness of the mosaic’s significance, reinforcing its place within Albania’s collective cultural heritage.

1.3 Importance of the site

The National Historical Museum, together with its façade mosaic as an integral component of the building, holds the status of a Cultural Monument of Category II. This designation was formally granted by the Ministry of Tourism, Culture, Youth and Sports through Decision No. 122, dated 5 March 2007. This legal status recognises the architectural, historical, and artistic value of both the museum and the mosaic, and places them under the protection framework established by national cultural heritage legislation.

In addition to its individual designation, the National Historical Museum—and consequently the mosaic on its southern façade—is located within the boundaries of the Protected Zone of the Historic Center of Tirana. This broader territorial protection imposes further regulatory constraints and conservation requirements, ensuring that any intervention respects not only the integrity of the monument itself but also the historical and urban context in which it is situated. As a result, all conservation, restoration, or maintenance works affecting the mosaic are subject to heightened scrutiny and must comply with both monument-specific regulations and the guidelines governing the protected historic area.

2. Historical description

The monumental mosaic “Shqipëria” (“Albania”), adorning the façade of the National Historical Museum in Tirana, stands as one of the most emblematic public artworks produced during the late socialist period in Albania. Conceived and executed in 1980–1981 by a team of distinguished Albanian artists—Vilson Kilica, Josif Droboniku, Agim Nebiu, Anastas Kostandini (Taso), and Aleksandër Filipi—the mosaic was envisioned as both an artistic statement and a symbolic gateway to the nation’s principal historical institution. Its creation coincided with a period in which large-scale public art was employed to communicate national narratives, idealised historical continuity, and the collective aspirations of the Albanian people.

Occupying an impressive surface of 565 m^2 and composed of tesserae in 123 tonalities, “Shqipëria” is among the largest and most technologically ambitious mosaics in the Balkans. Its placement on the museum’s main façade transforms the building into a monumental stage, where history is visually performed through a dynamic procession of figures representing key epochs of Albanian resistance, identity formation, and cultural pride.





Photo Caption: Above - Left: Creating the mosaic; Right: Principle designers of mosaic
Below - rincipal authors working on the model of mosaic





The central composition depicts a forward-moving group of historical protagonists—Illyrians, medieval warriors, Renaissance patriots, partisans, intellectuals, and symbolic archetypes—each rendered in a stylised yet expressive manner characteristic of late 20th-century Albanian monumental art. At the center stands the allegorical female figure of Albania, embodying the nation's endurance and sovereignty. Although executed within the ideological framework of the socialist period, the mosaic transcends its political origins through its craftsmanship, iconographic richness, and synthesis of ancient mosaic traditions with modern artistic language.

The design process reflected a rigorous approach typical of monumental art programs of the time. Detailed preparatory drawings, full-scale cartoons, materials testing, and collaboration between artists, architects, and engineers ensured that the mosaic integrated harmoniously with the architectural volume of the museum while maintaining visual power at an urban scale. The use of specialised tesserae fostered a distinct chromatic palette that contributed to the mosaic's iconic presence.

Following its unveiling in 1981, "Shqipëria" quickly became a visual landmark of Tirana and an enduring symbol of national identity. Over the decades, the mosaic witnessed significant political and social transformations, to be affected by it directly in 1993, when communist symbols of star and a labour party manifesto were removed from the composition.

The passage of time revealed inherent vulnerabilities in the mosaic's construction, materials, and exposure to environmental conditions. Episodes of water infiltration, material decay, and structural instability—intensified by the effects of the 2019 earthquake—highlighted the need for urgent conservation intervention. The historical significance of the mosaic, coupled with its emblematic role in national heritage, thus framed the restoration undertaken within the EU4Culture programme as a crucial step in safeguarding an irreplaceable cultural asset.

Today, "Shqipëria" remains not only a masterpiece of Albanian monumental art but also a testimony to the artistic collaborations, cultural narratives, and societal values that shaped its creation. Its conservation ensures that this symbol of national identity continues to communicate the resilience, history, and aspirations of Albania to future generations.

3. Condition Assessment

3.1 Overview of Pre-Intervention Condition

Prior to the commencement of conservation works, the monumental mosaic on the façade of the National Historical Museum was in a fragile and problematic condition, characterised by both material degradation and significant uncertainties in documentation and project planning. The initial restoration project was prepared on the basis of limited information and low-quality aerial photographs. As a result, the project did not accurately reflect the mosaic’s actual condition, leading to notable discrepancies between the approved design proposals and the reality observed on site.

A detailed technical analysis involving mosaic and cultural heritage specialists revealed that many of the pathologies affecting the mosaic had been misinterpreted at the design stage. In several cases, areas where grout was missing were mistakenly identified in the project documentation as structural fractures of the support. Furthermore, the original project lacked precise chromatic documentation, referring only generally to “warm” and “cold” colors, without a systematic recording of the original color palette used in the mosaic.

Photo Caption: Corrosion and cracks



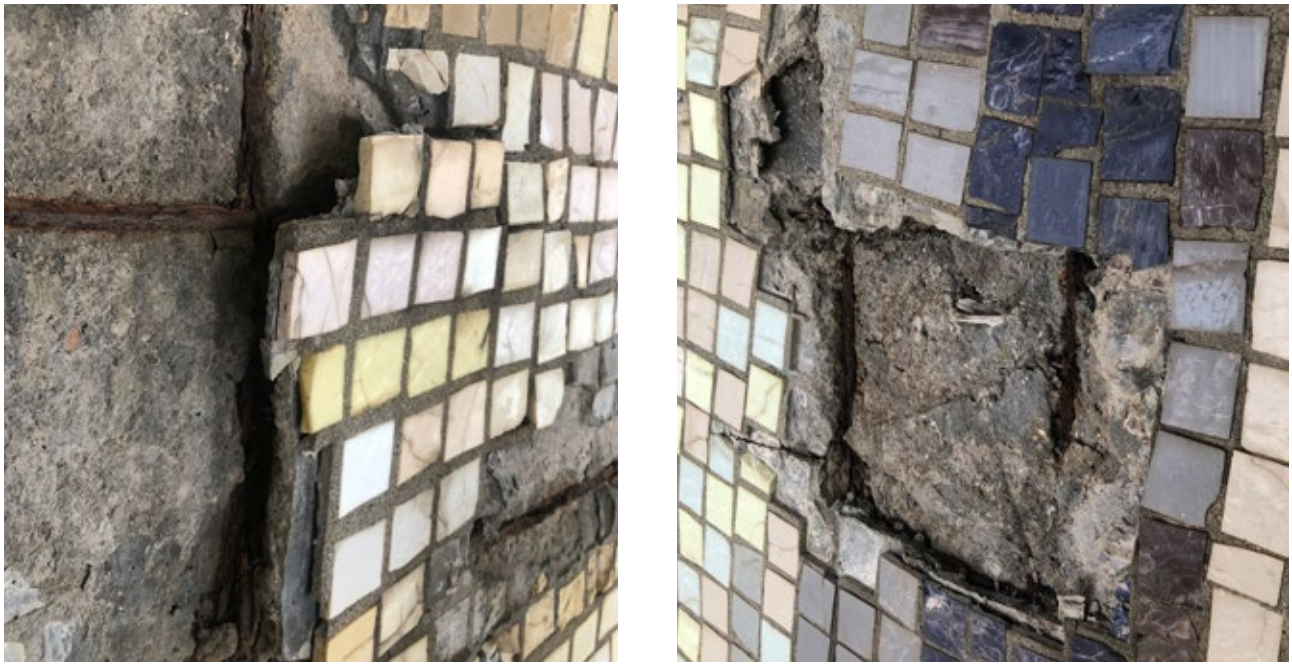


Photo Caption: Left: Corrosion and cracks; Right: Pulverisation of tesserae

Consultations in the early onset of the project in 2021 involved surviving original artists and members of the 1980s execution team, together with conservation specialists, made it clear that the mosaic had been suffering from long-term deterioration well before the 2019 earthquake. While the seismic event brought certain damages into sharper focus, it did not constitute the primary cause of the observed pathologies. Instead, the earthquake exposed pre-existing weaknesses that had developed gradually over decades.

One of the most critical problems identified was the prolonged infiltration of water through inadequately sealed joints, roofing elements, and other vulnerable points of the building envelope. Over time, moisture penetration had caused corrosion of the metal reinforcement embedded within the cementitious substrate supporting the mosaic panels. As the reinforcement oxidised, it expanded in volume, generating internal stresses that led to widespread cracking of the support. These cracks, in turn, facilitated further water ingress, accelerating the cycle of decay and compromising the structural stability of the mosaic.

On the surface, this deterioration manifested in the loss of grout, displacement and loosening of tesserae, weakened zones, and an increasing risk of detachment of mosaic fragments. The cumulative effect of these issues posed a serious threat to both the material integrity and the long-term conservation of the artwork.

Major deterioration forms included:

- Corroded steel armature, resulting in expansion and pressure on the mosaic surface.
- Water infiltration from the terrace, parapet, and defective drainage systems.
- Missing or degraded grout, allowing water ingress.
- Fissures and cracks due to thermal stress and mechanical impacts.
- Poor original mortar composition, lacking lime and therefore too rigid.
- Fragmented or pulverised tesserae caused by atmospheric agents and low-quality original materials.
- Localised mechanical damage, including bullet impacts from 1997.

At the time prior to intervention, there was therefore no fully reliable or comprehensive understanding of the mosaic’s true condition. Only after an in-depth assessment combining on-site investigation, critical review of the approved project, and extensive consultations with the original authors and conservation experts did the extent of the degradation become clear. Initial estimates suggested that conservation measures would be required on approximately 30% of the mosaic’s total surface area, particularly in zones affected by water infiltration. However, it was acknowledged from the outset that this figure could increase depending on the actual state of the corroded reinforcement and the underlying structural support, necessitating a flexible and carefully calibrated conservation strategy.

4. Conservation philosophy and approach

4.1 Conservation philosophy

The conservation of the façade mosaic “Shqipëria” of the National Historical Museum required a carefully calibrated approach that addressed both its artistic significance and its structural vulnerability. As a monumental work of late-20th-century public art, integrated into a modernist architectural ensemble and protected as a Category II Cultural Monument, the mosaic occupies a complex position between architecture, fine art, and urban heritage. Its conservation therefore demanded a methodology that balanced the safeguarding of original material and artistic intent with the technical necessity of ensuring long-term stability and durability under contemporary environmental conditions.

The project was guided by a values-based conservation approach, rooted in international conservation theory and aligned with Albanian cultural heritage legislation. Particular reference was made to the principles articulated in the Venice Charter (1964), the Nara Document on Authenticity (1994), and relevant ICOMOS guidelines for the conservation of artworks integrated into architectural structures. Central to this framework was the recognition of the mosaic not only as a visual symbol, but also as a historical document bearing the material, technical, and ideological traces of its time of creation.

4.1.1 Authenticity

Authenticity was understood as a multidimensional concept encompassing material, technique, design, workmanship, setting, and historical context. The conservation strategy prioritised the retention of original tesserae, mortars, and construction methods wherever feasible. Great emphasis was placed on understanding and respecting the original execution techniques of the 1980s, a process reinforced through direct consultation with the surviving original artists.
The mosaic's authenticity was also interpreted through its accumulated history, including material aging, previous repairs, and visible traces of environmental and historical events. Rather than aiming for a "new" or visually homogenised appearance, the intervention sought to preserve the mosaic's historic stratigraphy and legibility as a work that has evolved over time, while arresting active processes of decay.

4.1.2 Minimal Intervention

In accordance with international conservation principles, the intervention followed a minimal intervention strategy. Actions were strictly limited to those necessary to halt ongoing deterioration, ensure structural stability, and secure the mosaic against future loss. Large-scale removal or replacement of original material was avoided wherever conservation solutions could be applied in situ.

The initial proposal of dismantling and fully reconstructing the mosaic was ultimately rejected in favor of a more conservative approach that preserved maximum original fabric. Replacement of tesserae was carried out only in cases of irreparable loss, severe fragmentation, or complete detachment, and always based on precise documentation and material analysis.

4.1.3 Compatibility

Material compatibility was a fundamental concern, given the mosaic's exposure to extreme environmental conditions and its integration with a reinforced concrete structure. All new materials—tesserae, mortars, grouts, and consolidation products—were selected based on their chemical, physical, mechanical, and visual compatibility with the original materials. Special attention was given to the sourcing of replacement tesserae, which were produced by the same Venetian manufacturer that supplied the original mosaic. Color,



Photo Caption: Mosaic specialists creating panels of mosaic to replace the damaged sections

texture, size, and surface reflectivity were carefully matched, while acknowledging minor, honest distinctions inherent in contemporary production. This ensured visual coherence without falsifying the original work.

4.1.4 Legibility

The principle of legibility guided the treatment of restored and reconstructed areas. While the intervention aimed for visual continuity at the scale of the overall composition, close inspection allows the distinction between original and replaced material through subtle differences in texture, tooling, or joint treatment. This approach respects the ethical requirement that restoration should not falsify history, while maintaining the aesthetic integrity of the monumental image.



Photo Caption: Visual testing of material compatibility

Technical interventions—such as structural stabilisation measures and surface treatments—were designed to remain visually discreet and subordinate to the artwork itself. The mosaic continues to be read as a unified composition, while the conservation process remains intellectually and materially traceable.

In summary, the conservation philosophy adopted for the façade mosaic was grounded in respect for authenticity, restraint in intervention, material compatibility, and methodological transparency. By integrating rigorous documentation, interdisciplinary expertise, and international conservation standards, the project ensured that the mosaic's historical, artistic, and symbolic values were preserved, while securing its long-term survival within the urban and architectural context of Tirana.

4.2 Conservation approach

4.2.1 Ethical consideration

The conservation of the façade mosaic *“Shqipëria”* was guided by internationally recognised ethical standards and national cultural heritage legislation, ensuring respect for its artistic integrity, historical significance, and public value.

ICOMOS Charters provided the core ethical guidance. The Venice Charter (1964) informed principles of authenticity, minimal intervention, and conservation over reconstruction, supporting the decision to preserve maximum original material. The Burra Charter (2013) reinforced a values-based approach, ensuring that all interventions were grounded in an understanding of the mosaic’s cultural significance. The ICOMOS Principles for Structural Restoration (2003) guided proportionate and minimally invasive responses to structural and seismic vulnerabilities.

National heritage legislation governing Category II Cultural Monuments required that the mosaic’s composition, iconography, and relationship with the museum façade remain unchanged. Replacement of original tesserae was permitted only where loss was irreversible and was carried out using compatible materials and techniques.

Overall, the ethical approach emphasised authenticity, restraint, transparency, and respect for original authorship, ensuring that conservation safeguarded both the material fabric and the cultural meaning of the mosaic.

4.2.2 Criteria for decision making

Decision-making for the conservation of the façade mosaic *“Shqipëria”* followed a structured and transparent process, integrating cultural significance, material condition, and regulatory constraints.

1. Significance Assessment

Interventions were prioritised according to value:

- High value: original tesserae, mortars, figurative elements, gold tesserae, and original compositional structure, which were preserved in situ wherever possible.
- Medium value: earlier repairs and altered areas that remained historically meaningful and were selectively conserved.
- Low value: incompatible or deteriorated non-original materials, which were removed or replaced.

2. Condition Assessment

Full-scale documentation, visual surveys, and material investigations defined the level of intervention required, ranging from consolidation to selective replacement where original material was irrecoverable.

- Risk of Loss
- Areas affected by active water infiltration, corroded reinforcement, detached tesserae, or structural instability were treated as priorities to prevent further loss.
- Environmental and Technical Requirements
- Decisions addressed exposure to moisture and thermal stress, ensuring long-term durability of the mosaic without altering its visual or symbolic role.
- Regulatory Framework

All interventions complied with national legislation for Category II Cultural Monuments and regulations governing the protected historic center of Tirana.

Overall, interventions were guided by necessity, proportionality, and respect for authenticity, ensuring the mosaic's long-term conservation.

4.2.3 Risk Assessment and Prioritisation

A comprehensive risk assessment identified the following primary risks affecting the façade mosaic *"Shqipëria"* and its supporting architectural system:

1. Structural Risks:

- Corrosion and volumetric expansion of embedded metal reinforcement beneath the mosaic surface.
- Cracking and detachment of plaster layers caused by internal stresses and thermal movement.
- Seismic vulnerability revealed by the 2019 earthquake, exacerbating pre-existing weaknesses.
- Localised instability of mosaic panels and loss of adhesion between tesserae and substrate.

2. Moisture Risks:

- Persistent water infiltration from the roof and parapet zones.
- Inadequately sealed joints and missing grout allowing moisture penetration.
- Accumulation of moisture behind the mosaic surface, accelerating corrosion and material decay.
- Cyclical wetting and drying contributes to progressive weakening of the support layers.

3. **Material Risks:**
- Fracturing and loss of original tesserae due to moisture exposure and temperature fluctuations.
- Degradation of mortars and plasters with inconsistent composition and reduced bonding capacity.
- Use of incompatible repair materials from earlier interventions, increasing stress and decay.

4. **Visual and Artistic Risks:**
- Loss of chromatic coherence due to tessera loss, surface alteration, and inappropriate past repairs.
- Distortion of the original composition caused by uneven deterioration across the façade.
- Reduced legibility of figures and background areas due to material loss and surface instability.

5. **Environmental Risks:**
- Continuous exposure to intense solar radiation and extreme day–night temperature variations.
- Atmospheric pollution contributes to surface soiling and material fatigue.

4.2.3.1 Prioritisation Strategy

Risk prioritisation followed the sequence:
- Immediate stabilisation of areas at risk of detachment or collapse, including securing loose tesserae and weakened substrate zones.
- Elimination of moisture sources, primarily through roof repair, waterproofing, and improvement of water drainage systems.
- Structural consolidation, addressing corroded reinforcement and cracked support layers.
- Material conservation, including consolidation of original tesserae, selective replacement of irreversibly damaged elements, and compatible re-grouting.
- Visual reintegration, ensuring chromatic and compositional coherence while maintaining legibility of original and restored areas.

This structured approach ensured that the most urgent risks to the mosaic were addressed first, while supporting the long-term preservation, stability, and authenticity of the artwork.

5. Conservation interventions

5.1 Phases of conservation work

The implementation of conservation was undertaken through following phases:

- **Setting the construction site**
- **Detailed documentation**
- **Conservation**

5.2 Setting the construction site

The construction site for the conservation of the mosaic was primarily focused on the challenge of installing a scaffolding. The 565m2 of its surface had to be covered with a scaffolding which would be used for work. Given the fact that mosaic is a protected work of art, 22m high scaffolding could not be anchored to the mosaic facade itself. Hence a highly specialised solution had to be found so that scaffolding would be self standing and would be stable to accommodate all the conservators. It took approximately six months to calculate and develop a scaffolding design, which was then erected.

Photo Caption: Installing the banner on the scaffolding





Photo Caption: Documentation 1:1 of mosaic tesserae

5.3 Detailed Documentation of the Mosaic

Once the scaffolding was set the conservation process began with an extensive and highly detailed documentation phase, which formed the methodological and scientific foundation for all subsequent restoration interventions. Initially, the seven-member conservation team ascended the scaffolding in order to examine the mosaic of the National Historical Museum façade at close range and to gain a direct understanding of its construction techniques, materials, and condition. This preliminary inspection was essential for identifying the typologies of execution and the stratigraphic relationships between the tesserae, mortar, plaster, and structural support.

Following this first assessment, every single tessera of the mosaic—covering a surface of approximately 560–565 m^2—was documented at a 1:1 scale. This meticulous process involved the manual tracing of the entire mosaic directly on site, using tracing paper (calque), and required exceptional precision and consistency. The documentation resulted in a full-scale record of the mosaic’s composition, allowing specialists to map each individual stone and its exact position within the overall composition.





Photo Caption: Left: Chromatic documentation; Right: Production of mosaic panels for installation

As part of this process, conservation specialists carried out a comprehensive analysis of the chromatic range of the mosaic. The documentation revealed the use of 123 distinct color tones, including gold tesserae, significantly exceeding the general and imprecise color descriptions contained in earlier project documentation. Each tone was carefully identified, recorded, and catalogued, enabling accurate ordering of replacement tesserae and ensuring fidelity to the original material and visual language of the artwork. In parallel, a complete photographic record of the mosaic's condition was produced, capturing both overall views and detailed close-ups of areas affected by deterioration.

In addition to chromatic documentation, the team conducted a systematic identification and mapping of all visible pathologies, including cracks, losses, detachments, corrosion-related damage, and areas of weakened adhesion. Based on this information, the necessary conservation and restoration interventions were precisely defined. To further clarify the construction system and the condition of the underlying layers, three exploratory test pits were carried out on the central façade and subsequently on the western section. These investigations provided critical insight into the build-up of materials and informed decisions regarding restoration techniques. At the same time, a series of tests were undertaken to evaluate and refine the most appropriate conservation methodologies.

The scale and complexity of the manual documentation process was impossible without additional support. A significant contribution was therefore provided by a group of ten students and young interns from the University of Tirana, who worked under the close supervision of professional conservators. Their involvement not only made the documentation feasible, but also contributed to capacity building and professional training in the field of heritage conservation.

5.4 Conservation

The conservation process began with careful removal of damaged tesserae and with detailed cleaning and replacement of rusty iron rebars.Following the documentation phase, all chromatic tones required for the restoration were identified, allowing for the ordering of appropriate materials and enabling the start of direct intervention on the artwork. Simultaneously with the on-site works, new mosaic fragments were produced in a temporary workshop set up in the basement of the museum adjacent to the construction site. Based on the documentation, restoration interventions on both the figures and the background of the mosaic—on the main façade as well as the lateral sections—were carried out using a combined approach of prefabricated panels (tabakë) and in situ intervention. The preparation of the panels involved placing a 1:1 image, plastic mesh, or traced drawing beneath a transparent plastic sheet, over which a mesh was laid. Pre-selected tesserae corresponding to specific areas of the composition were then fixed onto the mesh using vinavil as a temporary bonding agent.

Photo Caption: Conservation works in progress



Once prepared in the atelier and fully dried, the panels were transported to the site and installed onto the mosaic. Cleaning of the mounted sections was carried out after the adhesive had set. Depending on atmospheric conditions and panel size, this process typically took approximately one week.

A substantial portion of the restoration work was executed directly on site. All damaged tesserae were carefully removed and replaced with new ones bearing the appropriate color codes, using adhesive mortar as the binding material. Interventions were initially concentrated on the background areas and subsequently extended to the figurative elements. Every area subjected to restoration was thoroughly cleaned and documented at all stages of the intervention, ensuring full traceability and transparency of the conservation process.
Important to note is that prior to the replacement of damaged tesserae, a comprehensive program of material analysis was carried out to evaluate both the compatibility and durability of the new tesserae in relation to the original mosaic materials from 1981, while also ensuring compliance with European Union regulations restricting the use of hazardous substances.

From initial estimation that the conservation intervention would affect 30 % of mosaic surface the numbers changed during the implementation. Due to many discrepancies in between initial design and the actual situation on site, and much worse condition found then estimated, the conservation of mosaic included 64% of the mosaic surface.

6. Results and Outcomes

6.1 Mosaic facade



Before

After



6.2 Challenges encountered during intervention

The implementation of the conservation works at the Mosaic facade of the National Historical Museum faced many challenges. Those included:

- The actual condition of the facade differed from what was outlined in the conservation design. The design identified a very limited number of colors of tesserae. Design defined only 4 tones, while the documentation process at the onset of conservation identified 123 color tones. This meant that design had to be amended and it also meant larger costs during the implementation.
- The damages at the mosaic identified through conservation design were very limiting, since the design was produced from low resolution drone images. Once the scaffolding was erected and after a full documentation was produced, a full investigation of damage was conducted and revealed a number of problems. This meant that the design needed to be completely revised, and re-approved for implementation.
- Erecting a scaffolding without anchoring it to the mosaic facade, required additional design and prolonged the implementation.
- Identification of original producer of the tesserae and subsequent delays in delivering to site prolonged the implementation of work

6.3 Unexpected findings

Part of the intervention was as well roof repair over the mosaic facade. The initial assumption was that the roof had additional 15cm of protection layers. Once implementation started and test pits were conducted, thickness of layers reached 60cm at some sections of the roof. All the existing layers resulting from previous roof repairs needed to be striped off. This has had effects on implementation deadlines, and it also resulted in increased costs due to large quantities of materials needing to be removed.

Photo Caption: Roof repair over the mosaic facade

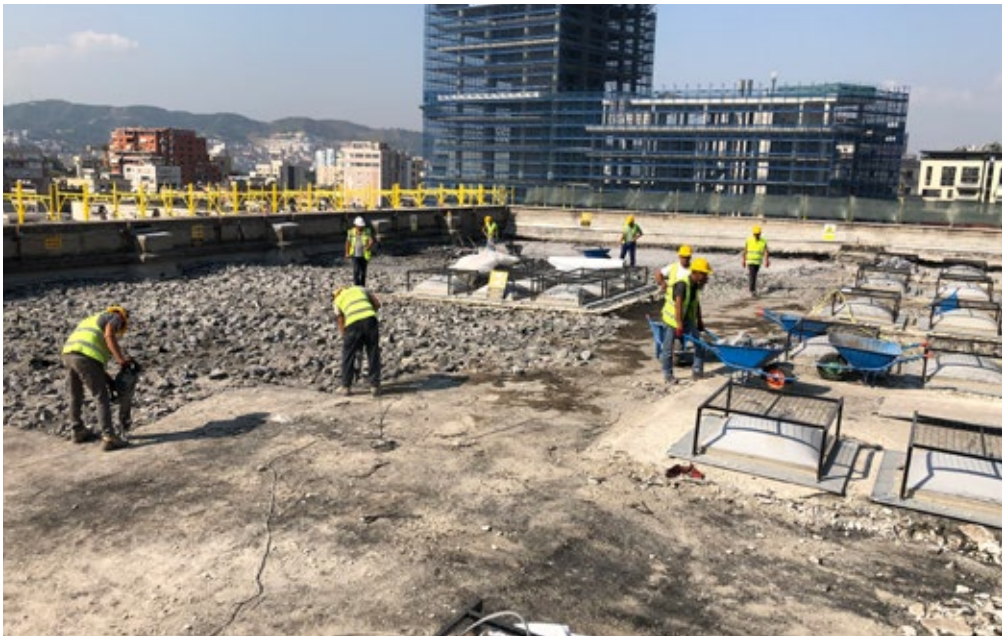




Photo Caption: Daily supervision of works

7. Maintenance and Monitoring Plan

Towards the end of conservation interventions at the Mosaic Facade of the National Historical Museum, UNOPS has produced manuals of maintenance. The manual defines daily, weekly, monthly, seasonal, and annual maintenance cycles for various categories of interventions.

Daily, weekly, monthly, seasonal, and annual maintenance cycles including:

- Periodic inspection of the mosaic, once every year
- Application of protective treatments every 3 years
- Inspections following earthquakes or other natural disasters
- Monitoring of decibel levels related to activities in the square

Emergency Maintenance

The manual specifies targeted actions to be carried out after particular emergency events such as:

- Earthquakes
- Extreme weather events or other natural disasters

Actions:

- Immediate visual assessment for structural damage or displacement
- Detailed technical inspection if any anomalies are detected
- Emergency stabilisation measures if required

The manual emphasises that the maintenance document itself must be reviewed periodically, especially after emergency events that may alter the structural condition of the monument. Periodic updates ensure that the maintenance strategy remains accurate, effective, and aligned with the building's evolving conservation needs.



8. Project Management

UNOPS applied a unified, structured project management approach for the conservation of the Mosaic Facade at the National Historical Museum, implemented under the EU4Culture programme. UNOPS followed a consistent methodology designed to ensure quality, transparency, risk control, and long-term sustainability.

8.1 Condition assessment and conservation scope

UNOPS began by conducting:

- Technical assessment and Documentation
- Preliminary condition assessment
- Development of conservation scope

8.2 Stakeholder Coordination

- Collaboration with the Regional Directorate of National Cultural Heritage
- Engagement with original mosaic authors and experts in the field
- Alignment with national heritage legislation and EU cultural preservation standards

8.3 Design Development and Technical Preparation

Throughout the duration of implementation of EU4Culture programme, UNOPS was supported by an external licenced conservation design team for development of conservation designs.

The conservation designs were controlled and coordinated by the UNOPS infrastructure and cultural heritage team, which closely controlled all the portions of design.

8.4 Compliance and Approval Process

- Reviews by UNOPS - Once designs were controlled by the internal UNOPS team, and were defined as ready, they were sent for additional control by UNOPS Infrastructure and Project Management Group (IPMG). Only after designs were revised and IPMG certificate was issued, the designs were considered finalised.
- Reviews by heritage authorities - As per the Albanian legislation, once conservation designs are finalised, they are submitted for approval to the National Scientific

Council at the National Institute for Cultural Heritage. If the Scientific Council does not have any comments, the designs are forwarded to the National Council of Material Heritage. Once approved and respective conservation permits are received, the design can be procured for implementation. Important to note is that if during implementation changes arise, designs need to be revised and re-sent for approval.

- Incorporation of safety, fire-protection, and energy-efficiency measures

8.5 Procurement and Contractor Management

Once designs are equipped with all respective permits, UNOPS ensured transparent, competitive procurement, including:

- Selection of qualified contractors licensed for conservation of heritage assets
- Procurement followed UNOPS global procurement rules, ensuring integrity and value.

8.6 Oversight of implementation of works and quality assurance

- During the implementation of works, UNOPS provided:
- On-site supervision on behalf of UNOPS, which meant that at least one associate civil engineer employed by UNOPS was daily on the site, monitoring progress, quality and controlling environmental, health and safety requirements. An important role for UNOPS engineers was risk management, where engineers were tasked with filing daily and weekly health and safety reports, risk assessment reports, and daily logs.
- Third party supervision: an external licensed supervision company was hired to support UNOPS in controlling implementation, certification of quality, implemented volumes, etc. throughout the duration of work. This was important, especially since the National Institute for Cultural Heritage which initially provided this support, was lacking capacity specifically in areas of structural, mechanical and electrical engineering.
- Highly important was a follow up on all conservation measures which was done by UNOPS cultural heritage adviser regularly

8.6.1 Health and Safety

UNOPS applies a rigorous Health and Safety Management system designed to ensure that all restoration and construction activities are carried out with maximum protection for workers, visitors, and the surrounding community. This system is grounded in international HSE standards and includes comprehensive risk assessments, method statements, and safety protocols developed prior to the start of any work. On-site supervision ensures strict adherence to protective measures such as the use of personal

protective equipment (PPE), scaffolding safety, fall-prevention systems, controlled access zones, and fire-prevention procedures—especially critical in heritage buildings containing combustible materials. UNOPS continuously monitors worksites, conducts safety briefings and toolbox talks, documents incidents, and enforces corrective actions to prevent reoccurrence. Through this structured approach, UNOPS maintains a safe working environment while safeguarding the integrity of cultural monuments and the well-being of everyone involved.

During the implementation of works, infrastructure project manager, lead construction management engineer and civil engineer were tasked with daily coordination and support to ensure all the Health and Safety Measurements are met.

Furthermore and to increase the capacity of local contractors, regular tool box talks and training when it comes to risk management, health and safety and daily operations of conservation sites.

8.6.2 Documenting and reporting

UNOPS follows a rigorous documenting during implementation. Documentation is done through following:

- Shared digital drive-based documentation system , where all data regarding the design, contract, meetings, reporting, daily photo documentation, are stored and available to the engineering team
- The documentation as well includes all segments related to environmental management, risk management, HSSE management, logs and inspections.
- Reporting as well is done on several levels:
- Initially biweekly, and later monthly reporting to donor
- Biweekly detailed progress reporting to donor and beneficiary
- Regular technical and coordination meetings with both donor, beneficiary, asset managers and similar
- Reporting in the UNOPS field data collection platform (UNOPScollect system) where daily logs, daily and weekly HSSE reports are collected.

8.7 Testing, Commissioning, and Hand-Over

Prior to the contractor declaring final completion, UNOPS, together with the supervisor, checks:

- Structural integrity and stability
- Quality of surface finishes, and restored façade elements

Once all remarks have been addressed by the contractor, the works are subject to inspection. UNOPS, together with the contractor, supervisor, the National Institute for Cultural Heritage, the relevant Regional Directorate of National Culture, the site beneficiary, and the site manager, jointly conduct the site inspection. In parallel, and following the final supervisor's approval, all project documentation is handed over to a commission, which issues the Commissioning Act. Once the Commissioning Act is issued, the site is provisionally handed over to the beneficiary.

This moment also marks the start of the Defects Notification Period (DNP). The DNP for all sites restored under EU4Culture was 12 months, with the exception of one site, which was an emergency stabilisation and did not require a DNP due to the temporary nature of the intervention.

8.8 Final Hand-Over

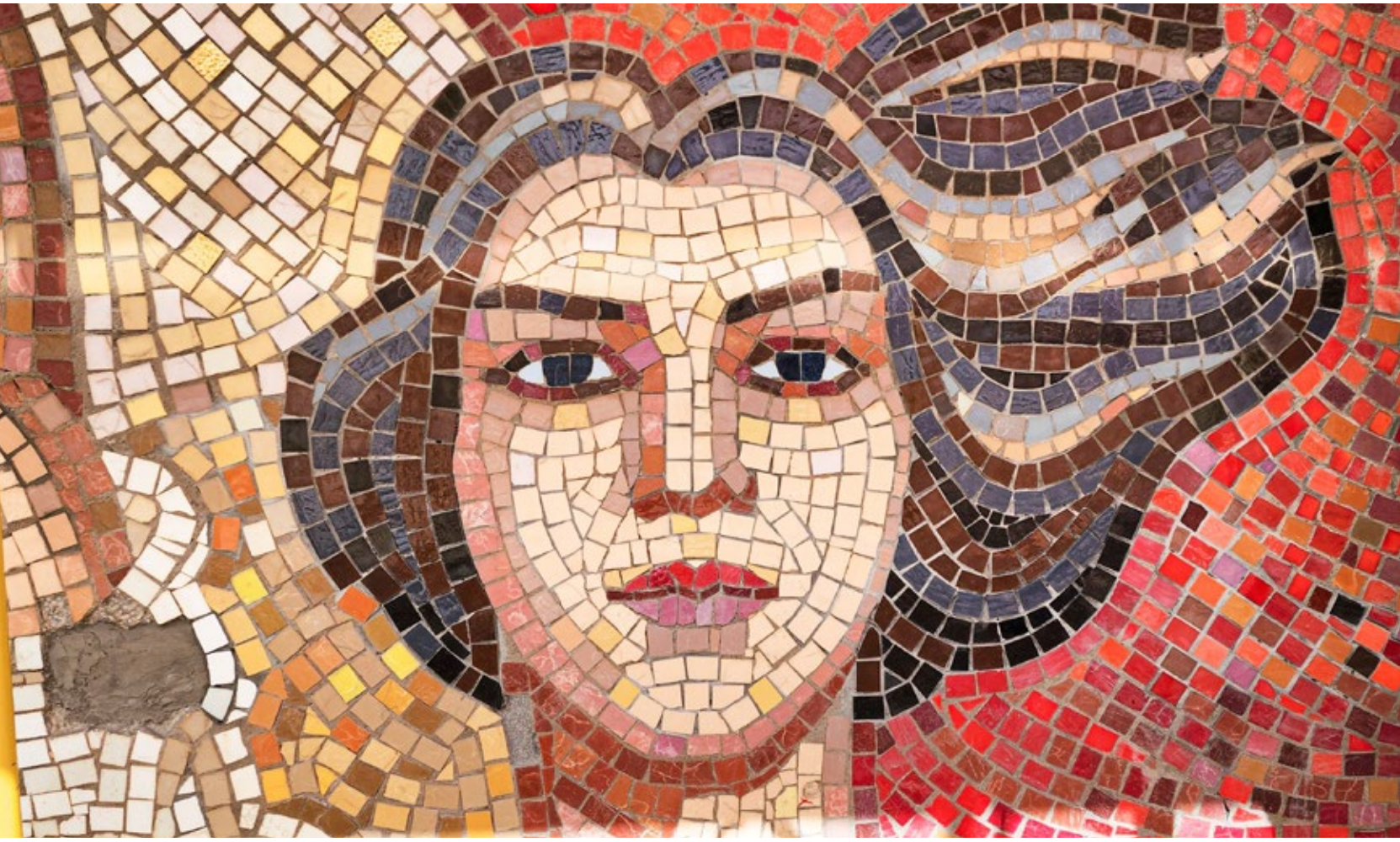
During the DNP period, UNOPS conducts periodic inspections and coordinates between the beneficiary and the contractor in the event of any defects. At the end of the 12-month period, a final inspection is carried out. If there are no remarks, the final handover certificate is signed by all parties, marking the full completion of the works by UNOPS.

8.9 Overall Added Value of UNOPS Project Management

By applying its globally recognised project-management system, UNOPS ensured:

- Transparency and adherence to international procurement standards
- High-quality conservation outcomes
- Strong safety management and risk mitigation
- Efficient use of EU4Culture funds
- Sustainable long-term maintenance frameworks
- Capacity building and knowledge transfer to national and local stakeholders
- Engagement of academic institutions and students through on-site learning opportunities
- Promotion of inclusive participation, including gender-balanced involvement of experts and professionals

UNOPS implemented interventions that not only restored important cultural buildings but also strengthened institutional capacity for ongoing stewardship.



9. Acknowledgments

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