

# Restoring mosaics in Lebanon: evaluation of earlier decision and propositions of further action based on the examples of two case studies

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**Introduction:** The aim of this poster is to draw attention to the need of constant monitoring and evaluation of the restoration's effects. Given the small territorial size of Lebanon, it seems unique how large is the variety of factors affecting the historic matter. Local climate at the site of exposure means changes in the level of humidity, temperature as well as the amount of rainfall during the year. Recognition of those factors has tremendous impact on the strategies and conservation action programs. The basilica in Chhim is a first case study presented in this paper. Twenty years after mosaic's discovery it was possible to establish a interdisciplinary team, that aimed to review methods used in the past. Second case study is the mosaic from the basilica in Jiyeh from Beit ed Dine museum. Twenty years of exposure resulted in damages that were a consequence of earlier decisions and lack of preventive care. The result of this research is an original project of securing the mosaic that has been re-laid on reinforced concrete without moving it to the new support base.



## Early byzantine mosaic from the basilica in Jiyeh.

In late 80's during the Civil War early byzantine church with rich mosaics was found accidentally at the coastal archaeological site Jiyeh.

Mosaics were removed from site and placed in Beit ed Dine museum. Most of them were relaid on reinforced concrete. Conservation of mosaics have place probably at the museum's workshop. From that period there is no photo or written documentation about conservation process.

Mosaics from Jiyeh are dated by the inscription for the 572 AD



## Early byzantine mosaic from the basilica in Chhim

In 1996 Polish - Lebanese archaeological expedition uncovered floor mosaic in the basilica in Chhim. On the basis of the Greek inscription the mosaic was dated for the 498 AD.

Mosaic was conserved „in situ” by polish conservators from Academy of Fine Arts in Warsaw. After the excavation and conservation season the whole mosaic was reburied with braided plastic foil and covered with small pebbles and sand. The height of entire reburial was at around 12 cm.

In 1999 the mosaic from the central nave and the part of the inscription were stolen. Stolen mosaic from central nave was found. It was cut and rolled by thieves. Current condition of mosaic from central nave is unstable. Since the fragment was found it is kept in the storage in Saida. The part with the inscription has not been retrieved.

## Problems



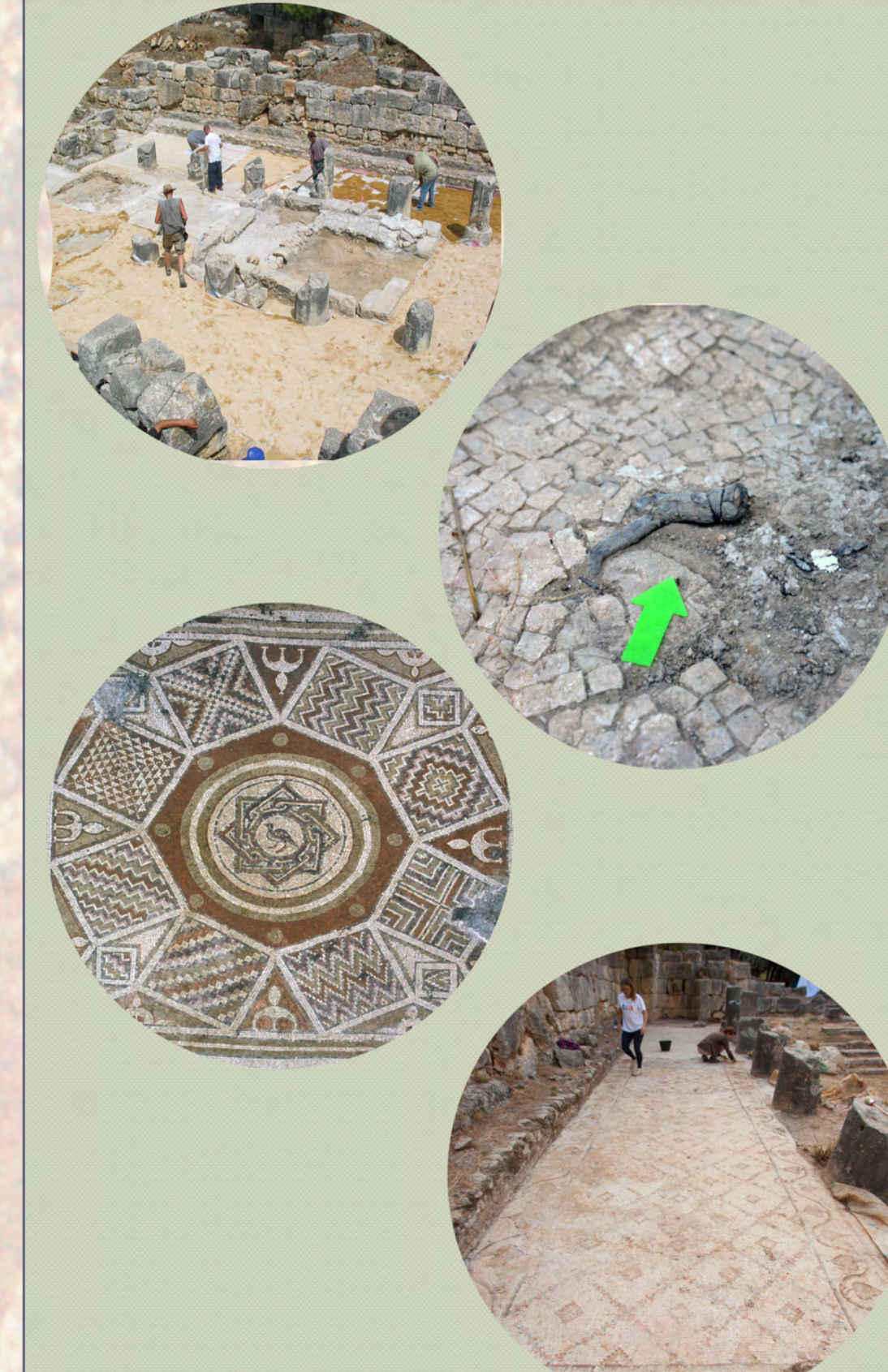
**Re-laid on concrete** Main cause of destruction was mosaic's transfer onto a reinforced concrete. Strong cement-based mortar caused mechanical damage (cracked and fractured), mostly of ceramic tesserae.

**Location** The mosaic is exhibited in the museum's gardens. Presence of grass seed and soil (carried by the rainfall) in the place of exposition causes further cracks in the concrete backing. Current location of the object prevents it's straightforward transfer to the workshop.

**Steel hooks** For exhibition purposes steel hooks were slid under the reinforced concrete backing, causing a gap under the mosaic. In time soil and grass seed began to accumulate in the empty space. The hooks removal caused a collapse resulting in a crack in the central part of the object.

**Lack of prevention** The mosaic is not sheltered nor reburied. It has a tremendous impact in the autumn-winter season (characterised by heavy rainfalls). This leads to surface accumulation of leaves and needles which in turn causes amassing of organic agents causing bio-degradation of the tesserae.

**Lack of documentation** No readily available or archived documentation concerning past works on an object.



**Low reburial** Although carried out at a high level, the lack of funding during the 90's conservation works resulted in the mosaic's reburial not being high enough.

**Lack of fencing** Until 2000 the site was not fenced and sufficiently secured, which resulted in the theft of mosaic's most valuable parts in 1999.

**Lack of prevention care** For a long time there were no prevention works carried out on the site. This resulted in the mosaic being covered by thick vegetation growth. Roots of shrubs (mostly of the *inula viscosa*) and grasses overgrew the reburial protection layers causing further damage to the tessellatum.

**Most unstable parts** The north nave which was mostly secured but not restored during the 90's is in worst condition. Most commonly observed issues are surface deteriorations, early edging repair degradation, new lacunae caused by insects underground nests and roots.

## Solutions



**Grass removal** To prevent further mosaic's damage caused by grass, a steel frame system was put in place, separating the mosaic from the lawn.

**Drainage system** To stabilise the mosaic, a drainage system has been developed. This type of protection allows easy draining of rain water and prevents soil and seed transfer under the mosaic.

**Conservation** The main purpose of conservation was reinforcing the weakened tesserae (mostly ceramic ones). Second stage consisted of cleaning tessellatum surface and protecting from the negative effects of microorganisms.

**Shelter** There is a plan to design a shelter above the mosaic after the conservation process has concluded. Considering especially harsh climate during the autumn-winter season there is a choice between a free-standing roofing and yearly reburying.

**Documentation** The aim of the project is also documenting most recent works and noting any that were carried out in the past.



**Conservation** Conservation works were carried out mostly on parts of the northern nave. During the works the main objectives were to remove the vegetation roots and to stabilise detached tesserae, new edging application, tessellatum lacunae refilling with mortar.

**Reburial** Braided plastic nets were exchanged for geotextile in the parts of the church where the conservation works took place. The new reburial is also higher and consists of multiple layers.

**Prevention** Thanks to the local authorities (Directorate General of Antiquities) constant prevention works are taking place on site. Those are mainly mowing of vegetation growing on reburial outer layers and guarding the site itself.

**Conclusion:** The base for creation of preliminary conservation projects for both objects was evaluation of earlier works and state of preservation diagnosis. Due to a low budget, limited time and small team the main focus was put on the most significant problems and destructive factors. The Chhim mosaic was conserved only in parts that required immediate intervention and the projects main purpose was the improvement of protection method (reburial). Widely propagated tendency of re-laying mosaics previously set on support panels of reinforced concrete onto a light base assumes a large budget and workforce. Beit ed Dine example shows that securement of this mosaic type is possible without the transfer onto a new base. Both projects have ended over a year ago. No deterioration or damage has been observed after this time, giving us hope that the state of both mosaics is stable, given that prevention care will be continued regularly.