

**Arezoo Khazanbeig, Nima Tabrizi, Niloofar Ghobadi, Amirreza Azadeh, Sonia Beygi**

***Workshop on Regeneration:  
Project Taar-2, Isfahan Province, Iran***

***Taller de Regeneración:  
Proyecto Taar-2, Provincia de Isfahan, Irán***

***Oficina sobre Regeneração:  
Projeto Taar-2, Província de Isfahan, Irão***

**Abstract | Resumen | Resumo**

The villages of Iran are forgetting their wise and sustainable methods of living. They are transforming themselves from primary producers to mass consumers. The value of their vernacular heritage is being neglected and there is a rural exodus towards the cities. Villages are left abandoned for the sake of an unbalanced development. We tried to contribute to overcoming this situation by designing a bottom-up teamwork procedure called "Workshop on Regeneration". The workshop aims to frame the problem in the context of conservation, sustainability, indigenous construction, and resiliency. It also investigates possible solutions through lectures, discussions, and hands-on work.

Los pueblos de Irán están olvidando sus formas de vida prudente y sostenible. Se están transformando de productores primarios en consumidores masivos. El valor de su patrimonio vernáculo se está descuidando y hay un éxodo rural hacia las ciudades. Las aldeas están quedando abandonadas en beneficio de un desarrollo poco equilibrado. Intentamos contribuir a superar esta situación con el diseño de un procedimiento de trabajo en equipo de abajo hacia arriba al que hemos llamado "Taller de Regeneración". El taller tiene por objeto enmarcar el problema en el contexto de la conservación, la sostenibilidad, la construcción autóctona y la adaptabilidad. También investiga posibles soluciones a través de conferencias, debates y trabajo práctico.

As aldeias do Irão esquecem-se dos seus modos de vida sábios e sustentáveis. Estão a transformar-se de produtores primários em consumidores em massa. O valor do seu património vernacular está a ser negligenciado e está a dar-se um êxodo rural rumo às cidades. As aldeias são deixadas ao abandono na busca de um desenvolvimento desequilibrado. Nós tentámos contribuir para ultrapassar esta situação concebendo um procedimento de trabalho de equipa de baixo para cima chamado "Oficina de Regeneração". A oficina visa enquadrar o problema no contexto da conservação, sustentabilidade, construção local, e resiliência. Investiga também possíveis soluções através de palestras, discussões, e trabalho prático.

## Introduction

With the collaboration of INTBAU Iran, Terrachidia Association, the University of Tehran, Atelier SigmaN, and The CatMap group, the first Workshop on Regeneration took place from September 11<sup>th</sup> to September 20<sup>th</sup>, 2019 in Tehran, Natanz, Targhrood and Taar village.

During the first two days in Tehran, seven lectures and discussions were held about regeneration and bilateral cooperation between craftspeople and academia by both our team and other professionals. The next two days were dedicated to observing and analyzing the context, visiting the towns of Natanz and Targhrood, surveying the buildings in Taar, and communicating with the local inhabitants and stakeholders. This was finally followed by eight days of hands-on work in Taar village.

The regeneration of the main watermill in the Sarar neighbourhood, in Taar village, was the second Workshop on Regeneration experience we carried out. We chose a public space where we could further involve local people in our project during all the phases. Until around sixty years ago, wheat was one of the most critical agricultural products and economic resources of Taar village and of the region. Hence, the watermill, as a place for wheat grinding, played an important role in the local economy. According to Taar's written information and oral history, there are more than five watermills in the village. They are all abandoned now and some of them are entirely in ruins.

1: Aerial view, part of the village and the location of the watermill (Google Earth)

2: Aerial view of the watermill and its neighbourhood (Ali Javaheri)



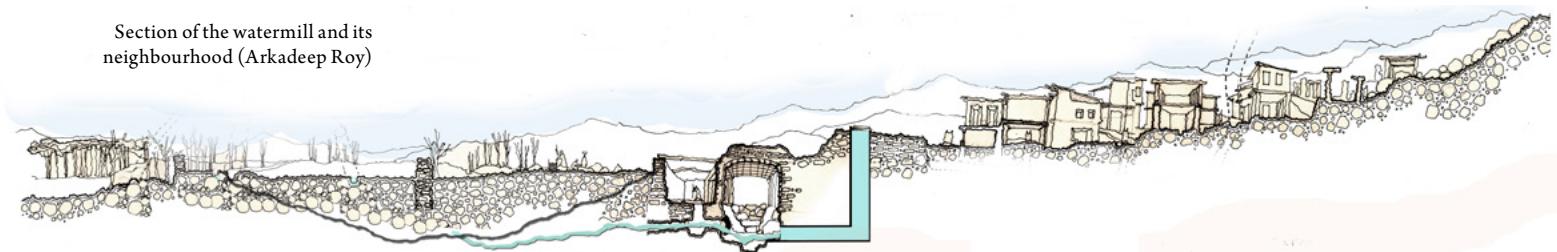
## Sarar's watermill

Sarar's watermill was one of the most important watermills and is located in the center of the village. It has been abandoned for almost fifty years and was entirely blocked with debris and trash. The mill was chosen for the case study due to its importance as a public space, its location within the context, its history and social significance, and its current physical state.

The layout of Sarar's watermill consisted of a water channel, a wooden water wheel, a blade, a stone wheel, a driving shaft, a tower mill, a wooden funnel, a main chamber, and a storage room.

Besides exploring and studying the site, the work started, in accordance with the rules of Iran's Cultural Heritage, Handicrafts, and Tourism Organization, by the workshop requesting permission from the mill's owners and heirs to carry out the work on this building. Once permission was granted, the excavation of the mill was carried out by local workers until the start of the hands-on workshop.

Section of the watermill and its neighbourhood (Arkadeep Roy)



## The Work

Almost sixty people participated in the workshop, including more than thirty students, five tutors, fourteen lecturers, six local tutors, six local assistants, and the local hosts. International academic partners supported the theoretical aspects of the workshop, and local partners took part in executing the project. Together, they provided a multilayered approach to the initiative.

In Iran, it is usually difficult to get the funds required for a conservation and restoration project, especially in rural areas. Unfortunately, the annual budget allocated to the Ministry of Cultural Heritage, Handicrafts, and Tourism is not sufficient to meet the needs of the country's vast heritage, and only a portion of it can be dedicated to conservation projects across the country. Moreover, receiving funding from other organizations requires a complicated bureaucratic process. As a result, the financial support for these workshops had to come from fundraising among local people, which provided the budget required for the restoration project. Several generous local families also hosted the students and our team during the workshop.



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- 1: The main chamber after its excavation  
 2: The storage chamber after the roof construction  
 3: The main chamber after its excavation  
 4: The wheel reassembling at the main chamber  
 5: The wheel once it was reassembled  
 (Sonia Beygi)



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Once the workshop started, the group was first introduced to the different stakeholders of the building, such as the heirs of the mill and the family of the miller, as well as to local craftspeople, in order to understand the Sarar watermill's morphology, mechanism, building techniques and anthropological implications. The team developed a participatory procedure through surveys and sessions for discussion and brainstorming about the watermill and the water resources of the village, from various perspectives. This process included several meetings with the local community.

In the process of restoration and regeneration, students worked on several parts of the buildings and learned different traditional construction and restoration techniques from local craftspeople. The main materials and traditional techniques, as well as the different parts of the watermill, were explained to them.

### Mud Mortars

Mud mortar is one of the oldest building techniques. It is widely used in the vernacular architecture of the Iranian plateau.

The binder of the mud mortar is clay. In order to make mud mortar, a sufficient amount of water should be first poured in a pile of earth (*akhoreh*), then one must wait for the clay to soak in the water, and finally knead the mortar well by treading on it. It is then ready to be used. Straw is added to the mixture to prevent the mud mortar from cracking while drying.

- 1: Making *akhoreh*
  - 2: Kneading the mortar
  - 3: Each day an *akhoreh* was made to allow the clay to soak in water
  - 4: The existing soil have to get sifted in order to use it for the mortar
- (Nima Taghizoghi)



This kind of mortar was used in the restoration of Sarar's watermill, according to tradition, to bind stones and adobe blocks, for plastering, and as insulation and covering for the stone vault and the flat wooden roof.

### Wooden Roof

The entrance chamber to the watermill was originally covered with a flat roof made of wooden beams. These beams were already rotten and had to be replaced. Wooden beams from other dilapidated buildings in Taar were gathered and checked by local experts and then reused to restore the roof. These works were carried out by the students under the supervision of local craftspeople. The wooden roof was finally covered with local bushes, as natural insulation, and mud mortar was used for the final layer.

The only innovation in the roof was adding an opening for sunlight, right in the center of the entrance hall.

### Stone Vault

The shape and materials of the vault made it a significant element. This stone vault was constructed with heterogeneous pieces of stone, with irregular shapes and sizes. The first course of stone was repaired with the same type of stone and gypsum mortar. A large amount of debris was then removed from the roof over the vault and the vault was reinforced in order to increase its cohesion. Finally, mud mortar was applied on the roof.

- 1: The chamber after its excavation
  - 2 and 3: Reconstruction of the chamber's ceiling
  - 4: Chamber's ceiling after its reconstruction
- (Sonia Beygi)



### The Outcome

After a week of hard work, the watermill and its main chamber had been restored. The works carried out included repairing the wooden wheel and its blades, repairing the tower mill and the water channel path, redesigning the surrounding area and the entrance of the chamber, reconstructing the wooden ceiling, reinforcing the stone arch and finally redefining the accessibility route by constructing new stairs made out of stone. All these works were carried out with the traditional construction techniques of the place under the supervision of both the academic and the local experts.

Alongside the physical regeneration of the building, there was an ongoing discussion led by The CatMap group during the workshop about the watermill's future prospects. Three possible functions were considered for the building: to keep it working as a traditional watermill, to transform it into a museum, and to transform it into a small tea house.

One of the most important public places of the village was revived, alongside this ancient method of wheat grinding. Meanwhile, bilateral cooperation between local craftspeople and the academic team was enriching for both. While local residents were not initially interested in their village's future development, after this experience they started to creatively think about their land and their architecture as development assets. At the same time, participants learnt important lessons from the locals and they became more aware of how their work can bring positive change. The whole event was an example of how we can think globally and act locally, and of how the heritage of tradition can play an important contemporary role.

Final group picture of participants,  
local craftsmen and local  
inhabitants (Arezoo Khazanbeig)





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1: Initial condition of the abandoned watermill (Amirreza Azadeh)

2: The watermill after its restoration (Sonia Beygi)

## The Exhibition

A few weeks later, an Exhibition on the project was held in the College of Fine Arts of the University of Tehran. The Exhibition presented the whole story in a graphical timeline made of photos, movies, and briefs about the everyday tasks of the workshop. Some documentary films and numerous photographs and drawings about the procedure and about the Sarar watermill were exhibited too. All the work for the exhibition was developed by the workshop participants.

## Biographies | Biografías | Biografias

### Amirreza Azadeh

Amirreza Azadeh is a media architect and holds a Master's in Architecture and Situated Technologies (MArch.) and a Master of Media Arts (MFA) from the State University of New York, at Buffalo (2018). He works as a Product Manager in Balad, an online maps and navigation platform.

### Sonia Beygi

Sonia Beygi is a freelance architect, photographer and designer. She holds a B.Arch from BIHE (Baha'i Institute for Higher Education) and her work has focused on earthen architecture for the last three years. She has been teaching in the field of architecture for the last four years in collaboration with different entities, such as Esfahk Mud Center and Atelier SigmaN. She has also participated in various festivals and workshops on earthen architecture in Iran and around the world, including the Festival Grains d'Isere in Grenoble in 2017, organised by CRAterre, and the Chantier Construction Pise in Paris in 2017.

### Niloofar Ghobadi

Niloofar Ghobadi is an architect and a materials and crafts researcher. She holds a Master's in Architecture in Material Culture from The State University of New York, at Buffalo. Niloofar has gained experience at Bauhaus University, Weimar, Nolan Studio in Texas and Ensamble Studio in Madrid, before joining NESHA in Tehran, where she is now a design-build architect.

### Arezoo Khazanbeig

Arezoo Khazanbeig is an architect and conservation specialist. She is a PhD candidate in the conservation of monuments and sites from KU Leuven, Belgium, from 2020, and holds an Advanced Master's in Structural and Architectural Analysis of Historical Building and Construction (Erasmus Mundus program from the Universidade do Minho, Portugal, the Università degli Studi di Padova, Italy, and the Universitat Politècnica de Catalunya, Spain). Arezoo has worked as UNESCO coordinator in Tashkent (Uzbekistan) during her studies.

### Nima Tabrizi

Nima Tabrizi is an architect, designer and sustainable development specialist and an Adjunct Professor at the School of Architecture of the University of Tehran. Nima holds an MSc in Architecture and Energy from the University of Tehran, with focus on water sensitive urban design and urban ecology. He is also a co-founder of Atelier SigmaN, in which he practices regenerative architecture.