



The Architectural Future is Already Taking Shape in The Heritage Past:

Contemporary Architect and Artisan Builder:

Between Exchange and Innovation

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ABSTRACT

“Heritage is the oldest material of the Future”. Indeed, cultural heritage is a promising sector for the sustainable development of humanity; notably the Moroccan architectural heritage rich in architectural techniques adapted to climate change and the good management of water resources hence the need to draw on the past to save the future. After the earthquake in El Haouz, region of Marrakech, which struck Morocco on the night of September 8, 2023, some old building resisted where recent neighbouring constructions suffered significant damage. Thus, several lessons can be learned from the past in terms of the construction of architectural heritage and promote the transmission of ancestral and ingenious know-how carried by the Mâalem (Artisan Builder). This know-how that was able to withstand the earthquake. In fact, beyond the environmental aspect of traditional processes, old buildings have proven that they are as durable and as resilient as any other contemporary technology. After this disaster, several approaches were proposed for reconstruction either using new materials or adopting ancestral earth construction techniques. The latter is the most appropriate approach, provided that it is carried out correctly and respects seismic safety standards but above all aims to preserve the Moroccan architectural identity. Morocco has many earth construction experts who can play a crucial role in rebuilding after this earthquake. This article will question the role to be played by architects in order to rebuild the areas affected by the earthquake while preserving the local and national architectural identity of Morocco and especially how to reconcile the inhabitant with their ancestral architecture. This intervention will also develop the relationship between the trio : architect of the public sector, architect practicing in a liberal capacity and the Mâalem (artisan Builder) for the preservation of ancestral techniques while taking advantage of recent procedures to guarantee the safety of old buildings.

Keywords: Architectural Heritage; Ancestral Moroccan processes; Local material; Mâalem/Craftsman Builder; Reconstruction; Architect; Change Climate; Rehabilitation; Ancestral construction techniques; Ksour; Kasbah; Medina.



1. Introduction

“Until very recent times, this architecture (Moroccan local architecture) was expressed by building of remarkable beauty, combining apparent lightness with strength and majesty. But over the past thirty years, this art has collapsed; he is dying. Already the architecture of oases belongs to the past. We must therefore hasten to establish the collection and study the remains in order to save these astonishing clay castles from oblivion”, wrote Ms. Jacques Meunié in 1962 in Architecture and habitat of Dadès.

Rich in techniques, processes and architectural solutions adapted to climate change and the good management of water resources, Moroccan architectural heritage is a promising sector for the sustainable development of humanity. Drawing on the past to build the future is certainly the winning motto for any intervention concerning building. Indeed, after the El Haouz earthquake, several lessons can be learned from the past in terms of construction of Moroccan architectural heritage while keeping in mind that all architecture must be the product of its time and its environment (social, economic, cultural, natural...). With this perspective of reconnecting with the glorious past of Moroccan architecture, this intervention will focus on the role and impact of the builder of yesterday and today. Indeed, before the intervention of architects, Moroccan architectural civilization had been delivering its secrets and tips, for centuries, to the “Mâalem” (Master craftsman builder). The role of architects in Morocco has, certainly, been important since the beginning of the 20th century.

2. Methodology

Cultural heritage is a promising sector for the sustainable development of humanity; notably the Moroccan architectural heritage, rich in architectural techniques and solutions adapted to the environment, climate change and the good management of water resources. Several individual and cutting-edge initiatives, in space and time, had called on architects to draw inspiration from their architectural heritage, in terms of the use of both local materials and ancestral construction techniques. However, it is “thanks” to the earthquake that a rise in national consciousness has developed within the body of Moroccan architects. A national mobilization broth architects from all over the Kingdom of Morocco to go to the disaster-stricken region but rich in architectural heritage. The diagnostic carried out were a historic opportunity for the majority of Moroccan architects to discover and/or rediscover their architectural civilization. This article will highlight the essential role of both the Mâalem (Artisan Builder) and the architect in the process of restoration and rehabilitation of Moroccan architectural heritage. Then, it will promote the riches of Moroccan architectural heritage as an essential source of inspiration for the future of Moroccan architecture hence the need to create cultural bridges and exchange of expertise in construction between the “Mâalem” and the architect for a glorious future of Moroccan architecture and even at the global level.



2.1 Architects and Mâalem (Artisan builder): Two Sides of The Same coin:

Who is the local Moroccan architect? : Mâalem (artisan builder), namely millennial: The origin of masonry goes back to ancient times, when man needed to build a house. The mason's profession has been shaped in a disparate manner by local underground resources and the terminology used in construction is partially linked to the land and centuries-old traditions¹.

The term Mâalem comes from the Arabic "ALAMA" which means "Teach/Learn". A Mâalem (in Arabic: معلم), literally "He who knows" or "He who has know-how" is, in the Maghreb, a master in crafts or arts. The Mâalem is master craftsman with local but ingenious science, expertise and know-how with a universal dimension. This honorary title is given to people deemed worthy of instructing or transmitting know-how in a specific field. In Morocco, master craftsmen are specialists in the traditional arts and crafts of local Moroccan craftsmanship and construction. Among these numerous specialties, we distinguish:

- i. At the construction level: master construction processes and techniques and manipulation of the use of local materials (stone, rammed earth, earth, adobe...);
- ii. Decoratively: Zellige, Tadelakt, Wood, Plaster, Ceramic, Iron....

Locally, in Morocco, "Mâalem/Artisan builder" is a more general honorific term which is used to designate the Master, whether a teacher or a confirmed craftsman. For those who have seen them design a plan and lead a project, they are indeed professionals whose apparent empiricism is based on a solid foundation of technical and human knowledge. Mâalem does not start from preconceived plan. He is a construction worker who practices masonry. He is responsible for making, in a construction, everything relating to masonry. This discipline consists of creating, choosing and using construction elements composed of various materials: natural stone or artificial (brick, block...), but also other materials (straw, cob, earth, wood, metals...etc². in the 19th century, the masons were workers who carried out constructions in natural or artificial stone and coating and mortars.

They are divided into:

- Laborers and boys: Perform those parts of the job that require little more than strength;
- Companions: Lay the stone and make the coatings;
- Journeyman master: Monitor and direct several workers;
- Master: Prepares the details, directs the men and supervises the nature as well as the use of things, constitute the main elements of masonry. He is

¹ . The shortage of quality cut stone made London a brick city, Paris was built with Lutetian limestone from the Paris Basin and the mason's profession was transformed.

² . <https://fr.wikipedia.org/wiki/Ma%C3%A7on>.



distinguished by the faculty of understanding at the same time the whole and the details, the unity and the variety, the idea and its execution.

Mâalem/Artisan Builder: Guardian and transmitter of the constructive memory of Morocco.

The “Mâalem/ artisan builder”, in Morocco, has the role of transmitting know-how linked to the field of construction. Moroccan craftsmanship is not just a simple sector of production of goods and services, since it refers to a distant civilization, a traditional art and the culture of an entire population. The “Mâalem” remain, as previous centuries, divided into three main categories: Master Craftsman (Mâalem Sanâa), Ouvrier (Snayâi) and Apprentice (Matâalem).

The profession of the Mâalem/Artisan builder is still largely a matter of heritage today. In the artisanal environment, the difference in status between artisans is, above all, the result of unequal mastery of the knowledge practiced. The artisan is Master because of his superior knowledge and skill. This knowledge comes, in principle, from a rigorous division of tasks and differentiation between apprentices, workers and master craftsmen. Sometimes, a qualifier is attached to the Mâalem under the name “Mâalem Sanâa” who are the artisan workers who master the trade. They participate in production through their work, mainly manual. They carry out their activity on their own account, alone or with the help of family members (workers and apprentices) who receive a salary in return.

The techniques and know-how of the Mâalem/Artisan builder are an art that is passed down from generation to generation. In traditional apprenticeship, training is acquired “on the job”: there is no formalized technological education. The apprentice watches how the work is done, and must find, for himself, how reproduce the gestures he has seen. He will only move qualified work when he has demonstrated that he is, in reality, already capable of undertaking the task without it being necessary to show it to him. The Mâalem are traditionally trained in construction sites and/or workshops which are learning centre where old trades are taught to young people. Craftsmanship represents knowledge that has been accumulated and formed over centuries; knowledge that is often very advanced, very precise and very valuable.

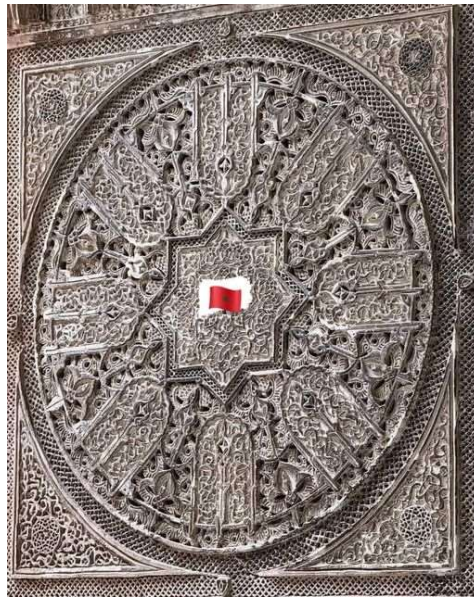


Fig.1. Plaster sculpture: For centuries, this know-how, without any technology, has been passed down from generation to generation thanks to the Mâalem/Artisan builder.

It is true knowledge whose usefulness has not disappeared and which must not be lost because if the line of transmission of this knowledge were completely cut, we would no longer find it. There are as many Mâalem/Artisan builders as there are artisanal specialities in Morocco (each Mâalem will be focused on a speciality).

2.2 Architect, New bearer of the construction torch in Morocco:

“In its classic sense, the architect is first and foremost an artist and a technician specialized in the design of constructions (buildings, works of art, etc...). He composes a work in space using the essential means of light, volumes and materials then leads the site³”.

Vitruvius, architect and engineer, defines architecture: “Architecture is a science which must be accompanied by a feat diversity of studies and knowledge by means of which it judges all the works of the other arts which belong to it. This science is acquired through Practice and Theory”

Islamic architecture is an expression which refers to the art of building (Al-Binae) which has developed from the 7th century to the present day, in an area commonly called the “Muslim World”. Arab and Muslim architectural civilization has a considerable contribution to the development of knowledge and sciences linked to construction in the world. The construction of building and monuments, however, increased thanks to the expansion of Islam and the Arabs

³ . <https://fr.wikipedia.org/wiki/Architecte>.



in a world until then dominated by the Roman Empire. Dominique Misigaro, specialist in Islamic arts and graduate of the Louvre School, explains that “*the ancient cities of Arabia and the Middle East bear witness to complex architectural practices, whether in temples or in civil monuments*”, in an article published on the website of the Arab World Institute. This expansion of Islam and the Arabs “*led to the multiplication of large constructions, particularly from the 8th century. These can be religious, but also civil or funeral*”, she adds.



Fig. 2. Typical Arab architecture

The vestiges, remaining from the old constructions, testify to rich and elaborate know-how. Thus, research carried out in the field shows that palaces “*are organized into several courtyards and pavilions, with a progression from the most accessible spaces to the most private spaces*”, underlines Dominique Misigaro. These palaces also include audience rooms, private apartments, a hammam, a mosque....

Materials, colors and mosaic for a radiant architecture

Under the reign of Moroccan Sultan Yacoub El Mansour, the great mosque of Seville, built in 1195, stands one of the most beautiful pieces of Arab architecture that still exists... famous throughout the world under the name of “The Giralda”. On the southern shore of the Mediterranean, the minarets of the Zaïtouna and Kasbah mosques, in Tunis, the Mansoûra mosque, the Sidi-Boû-Madîn and Djama Kbir mosque, in Tlemcen, Algeria, the mosques of Fez, Marrakech and Tangier, in Morocco, are also examples attesting to the richness of Arab, and in this case Islamic architecture.



Fig. 3. Koutoubia mosque, Marrakech, Morocco.

“Sculpture and painting are also present, but the architecture of the Islamic world is best known for its numerous ceramic decorations which occupy walls and floors, interiors and exteriors. The covering tiles present extremely varied shapes colors and patterns”, emphasizes Dominique Misigaro. The beauty and finesse of constructions from Arab architecture used colors as a means of highlighting the play of contrast in architecture.

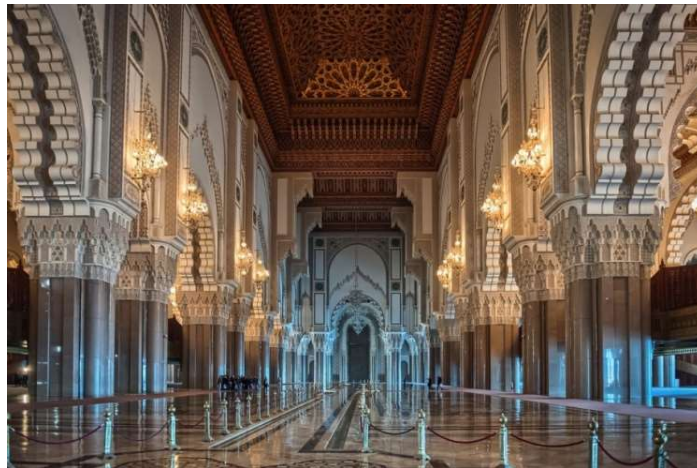


Fig. 4. Hassan II mosque, Casablanca, Morocco.

“The use of materials in contrasting colors, for the columns of a prayer room or to form an arch, is very common, because it allows the decoration to be integrated into the architectural structure”, is also described on the site of the Arab World Institute in Paris. Very present, mosaics, molded and sculpted stucco or even marble slabs often have more of an ornamental function.

Architects in Morocco

In Morocco, architecture is a regulated profession governed by Law 16-89 relating to the exercise of the profession of architect and the institution of the national order of architects. The profession, invested with a public interest, is governed by a Council or the Order of architects endowed with a legal personality, guarantor of the principles and traditions of morality, dignity, probity and



responsible for ensuring respect by its members laws, regulations and customs which given the exercise of the profession. From the design to the reception of the work, the architect, by virtue of his academic background, his training and his title, is the project manager of a project for which he has the responsibility that he has thought out, made grow and bring to fruition. The architect is an artist, a technician, guarantor of know-how. His creativity and technicality give him the ability to adapt, evolve and master. He practices in one or mor of the following modes:

- Individually, in liberal form;
- Partner of an architectural company;
- Civil servant or public agent;
- Employee of study organizations carrying out their activities exclusively on behalf of the state or local authorities in the field of development and town planning;
- Employee or associate of a natural or legal person under private law erecting constructions for its own and exclusive use and not having as its activity the study of projects, financing, construction, restoration, sale or the rental of building or the purchase or sale of land or construction materials and elements.

To practice, it is essential to hold an architectural diploma. This diploma is prepared over six years of study. Architecture studies take place within specialized schools which develop the appetite for drawing and stimulate the creativity. These schools are accessible after the Baccalaureate, rather a scientific baccalaureate, because the profession of architect requires notions of physics of materials and calculation.

Several establishments provide training giving access to the title of architect in Morocco:

- National School of Architecture : Rabat, Tetouan, Agadir, Marrakech and Fez;
- Private School of Architecture and Landscape in Casablncaca;
- Private School of Architecture (International University of Rabat);
- Private School of Architecture (EuroMed International University of Fez).

Architecture schools in Morocco have modified their curriculum of align with the LMD scheme in sex years after the Baccalaureate: A first cycle of three years (license) is followed by a second cycle of two years (master). A one-year certificate then allows professional practice leading to a state architect diploma. Most architecture graduates begin their carriers as employees in an architectural office. Subsequently, they often work as freelancers, at the head of their own office or as associates in an architectural office.

The architect is responsible for designing for the architecture of building in accordance with the rules of art, the obligations dictated in the information note



and the laws in force. The architect ensures that the plans and works comply with Moroccan construction standards and laws.

Table1: Mission of the architect practicing in a liberal form:

Mandatory missions	<ul style="list-style-type: none"> • Design or modify the architectural work; • Establish all graphic and written architectural documents relating to the design or modification of the construction, in particular those to be provided to the municipality for obtaining the building permit in accordance with the regulations in force; • Ensure compliance of technical studies carried out by specialized engineers with the architectural design; • Monitor the construction work, and check its conformity with the architectural plans and the indications of the building authorization, and establish a certificate declaring the end of the work and the conformity with the authorized plans with a view to obtaining the construction permit. to live or the certificate of conformity.
Optional or complementary missions	The architect may be responsible for carrying out, on an optional or complementary basis, any other mission falling within the scope of his professional skills.

Source: (Moroccan Law of architects)

2.3 Evolution of the building designer: between yesterday and today: Reality and Impacts:

The Kingdom of Morocco is full of undeniable vernacular constructive know-how deeply rooted in the minds of the inhabitants and in particular the Mâalem (Artisan builder). This local architecture constitutes the very identity which reflects the local culture. Indeed, this vernacular architecture has succeeded in marking the art of building and the very history of Morocco by radiating beyond its place of anchorage. Whether in an urban or rural environment, ancestral construction techniques have proven themselves by the functional comfort that they have managed to provide to a population diversified by its culture and the environment in which it lives. The coherence and integration with the specificities of the territory have given the different know-how the status of a true regional architecture. Combined with the elements of nature, Moroccan human genius has



long embodied the true meaning of the notions of resilience and sustainability, where culture and constraints are in perfect harmony.



Fig 5. Ksar Aït Ben Hadou, Morocco.

Image: Travel Photography

Earth, stone and wood was the first components of traditional architecture in Morocco. Deeply conditioned by factors linked to the context, the forms of manifestation of these local construction materials change according to the regions, the constructive know-how, the uses, the purpose and the socio-cultural traditions of local communities. A single material can, in fact, be the subject of several techniques and offer a variety of uses giving rise to forms of housing adapted to their environments. However, and faced with the change in the way of life due to intensive urbanization and the rural exodus experienced by several regions of the Kingdom of Morocco, since the protectorate, local materials have been abandoned in favour of construction materials industrial (concrete, glass, steel, etc...), requiring less labour and less production time.

The adoption of new constructive process imported, standardized and disconnected from the environment in the service of a decontextualized modernity, has given rise to new forms of housing, «hybrid”, breaking with the environment, but also with culture and identity of the inhabitants. The forms, but also, the uses have become identical whatever the region or context, and the architectural landscape rarely recalls the specificity of a territory, whether urban or rural. Beyond the deeply impacted identity aspect, these construction methods and materials remain energy-intensive and poorly adapted to the climate, thus giving rise to an inequitable and not very resilient urban model. Faced with the heavy and recognition of local materials remains essential in order to respond to the challenges linked to the environment and cultural diversity. The return to traditional know-how constitutes a key entry point to architectural production that is sensitive to the environment and respectful of the environment.



3. Results: Crosses Visions between the Public, Private Sector in Architecture and Architectural Heritage.

3.1 El Haouz Earthquake: Return to Local and Ancestral Architecture Sources of Inspiration.

On September 8, 2023, an earthquake, with a magnitude of 6.8, whose epicentre was in the province of Al Haouz (Marrakech), was felt throughout the country. It is the hardest hit province, as the majority of victims come from there. Overall, the earthquake caused extremely significant destruction. Near the epicentre, in the high Atlas Mountains, many buildings and indisputable testimony to Moroccan architectural heritage have collapsed.

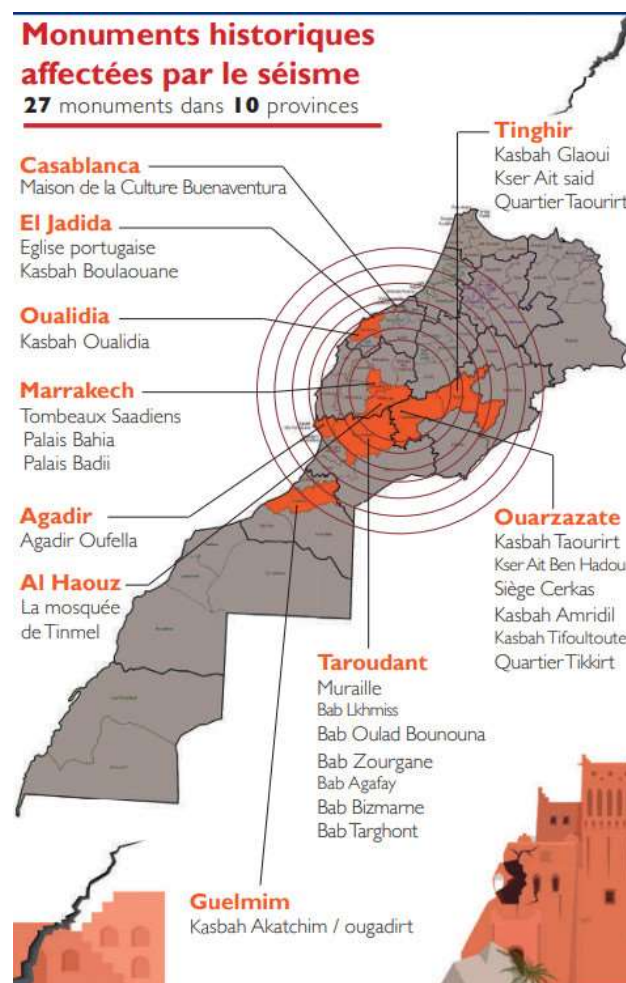


Fig.6. Monuments affected by the earthquake in Morocco.

In fact, the day after this tragedy, the Moroccan national and regional councils of architects meet urgently to study the steps to take. A call was sent to the architects of the Kingdom of Morocco to encourage them to massive mobilization and the predisposition to carry out a diagnostic of the state of the premises and participate in enriching the reflection on reconstruction. Thus, a national platform was created for the online registration of architects. A strong mobilization was



recorder in a surge of solidarity and support as Moroccans and Architects. The national council of architects has set up a national coordination commission and units in each province affected by the earthquake. These cells were responsible for assigning architects to the affected municipalities in coordination with local authorities. This council also took part in the work undertaken by the state housing supervisory department in collaboration with the architects of this public sector. A national commission made up of representatives of all the stakeholders in the framework of building bringing together architects (sector public and private), specialized engineers, topographic surveyors and laboratories, joined the official committee established by the Moroccan authorities.

Beyond the artistic and historical value of certain spatial components such as the Kasbahs or others buildings of particular value, it was specified that the villages constitute a heritage to be safeguarded. This richness appears first of all, in their composition, then by observing the impact of sedimentation generated over time; observed at the level of spatial and then generational compositions. These villages have defied time, built in stone or earth in infallible harmony and have experienced the passage of several generations, bearing witness to a sacred crystallization of their experience, expressed in stone and in the earth. The essential role of all is to raise public awareness of this heritage. It was the first mission of the architects on the ground, then to reassure them by explaining to them the possibility of rehabilitating⁴ with the same local and noble materials.

3.2 Drawing on The Past to Save the Future: Moroccan architectural Heritage, an Inexhaustible source of Lessons in Construction:

After the earthquake, certain old building resisted where recent neighbouring constructions suffered significant damage. Thus, several lessons to be learned from the past in terms of construction of the architectural heritage while keeping in mind that all architecture must be the product of its time and its environment (social, economic, cultural, natural...). Earth construction can be a topic of debate, but reconstruction and discussions about proper construction techniques come after ensuring the safety of those affected by the disaster.

⁴ . The diagnosis phase focused mainly on examining the condition of the building, assessing the possibility of restoration and rehabilitation firstly, the decision to demolish was undertaken as extreme solution.



Distribution of the Board by occupation

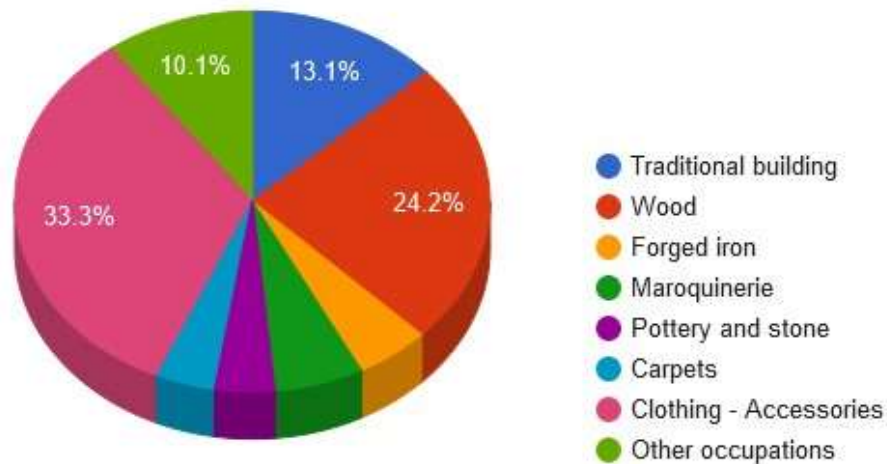


Fig.7. Three main occupations stand out by jointly generating (70%) the total turnover of crafts.

These are specifically the Clothing and Accessories (33%), the Wood (24%) and the Traditional Building (13%)

(Source: Ministry of Tourism, Crafts and Social and Solidarity Economy 2022.)

Note here that during the diagnostic carried by the architects, several of them discovered the richness of their architectural heritage for the first time. It was historic moments for the architects, initiated or not, to establish contact with the local architectural and constructive specificities of the Kingdom of Morocco. It was a return to basics to discover study and above all be inspired. Seismic safety will be the priority. After an earthquake, and in certain contexts, reconstruction using earth construction techniques⁵ is the appropriate approach, provided it is done correctly and in compliance with seismic safety standards. Collaboration between local communities and national and international earth construction experts could ensure effective and sustainable reconstruction. Moroccan experts (private and public sector architects and Mâalem/Artisan builder) in earth construction could play a key role in ensuring the preservation of ancestral techniques, and that new buildings are both earthquake resistant and adapted to local needs. But, they can also raise awareness and train local artisans and contractors in the principles of earthquake-resistant earth construction and the implementation of these techniques. Also, seismic regulations⁶ must be updated

⁵ . Fortunately, Morocco has many earth construction experts who can play a crucial role in rebuilding after an earthquake.

⁶ . Seismic Regulations for Earth Self-Construction (RPACTerre 2024) : Document providing guidelines and standards for earth construction in Morocco, taking into account seismic risks.



regularly to take into account technological advances, new research in earthquake engineering and lessons learned from past earthquakes.

After this week's earthquake disaster, some people are calling for allowing concrete construction in mountain villages, and abandoning local materials used for hundreds of years in rural construction. The problem does not lie in the rammed earth and the stone, nor that the cement agglomerations and the posts will, definitively, secure the construction. Beyond the natural landscape of these villages and their rural constructions perfectly integrated into the environment, and beyond the environmental aspect of these traditional processes, these constructions have proven that they are as durable and resilient as any other contemporary technology. The proof: they still there after centuries of life.

It must be admitted that the culture of maintenance is part of the life of rural residents. Even old women get their hands in mortar to seal a crack or to coat a wall when needed. The solution therefore lies in improving existing processes and supporting and subsidizing periodic maintenance work. It is not tolerate, under the influence of emotion, abandoning an ancestral construction culture and disfiguring our beautiful villages to end up with apocalyptic concrete landscapes, of great ugliness, which turn out to be, moreover, more vulnerable and much less solid.



Fig. 8. Morocco and Monuments

After the emergency, the challenge now is major. Everyone is mobilizing, architects, urban planners, engineers, topographers, economists, sociologists, anthropologists, public, departments, and politicians... to provide specific and lasting solutions. This is a great moment in history. This earthquake shook not only the lands of the Al Haouz region, but also the foundations of an entire community. After the chaos, came the diagnostic which revealed the need to



reinvent traditional and ancestral Moroccan architecture. Historical action which explored the winding paths of the resilience of ancestral construction processes. Questioning the relationship of the community to its environment and the capacity of the latter to organize itself in a dynamic of sustainable living is obvious today, but easier said than orchestrated. Propose a constructive alternative favouring raw and bio sourced materials technologies in an environmentally friendly innovation approach.

3.3. *Rebuild while preserving the identity of the places:*

It will therefore be a question of rebuilding, while preserving the traditional building because they are illustration of a way of life, know-how and a culture that goes back thousands of years. *“It is suitable habitat and we must reflect the specificities of the region: integrate the historic parts, integrate the rock, integrate multi-purpose uses, and integrate suitable materials. These architectures were built over millennia, now they must be restored, improved, in a few months or year or two. The challenge is immense but possible”*, recommends Salima NAJI, architect and author for the book *“Architecture of the common good, ethics for preservation”*, in which she defends the use of traditional construction techniques and geo and bio-sourced materials. *“Today, the world is decarbonising its architecture and we in Morocco, in the high mountains, are we ignoring our magnificent stone and our nourishing lands?”*, she asks to insist on the need to rely on our own resources.

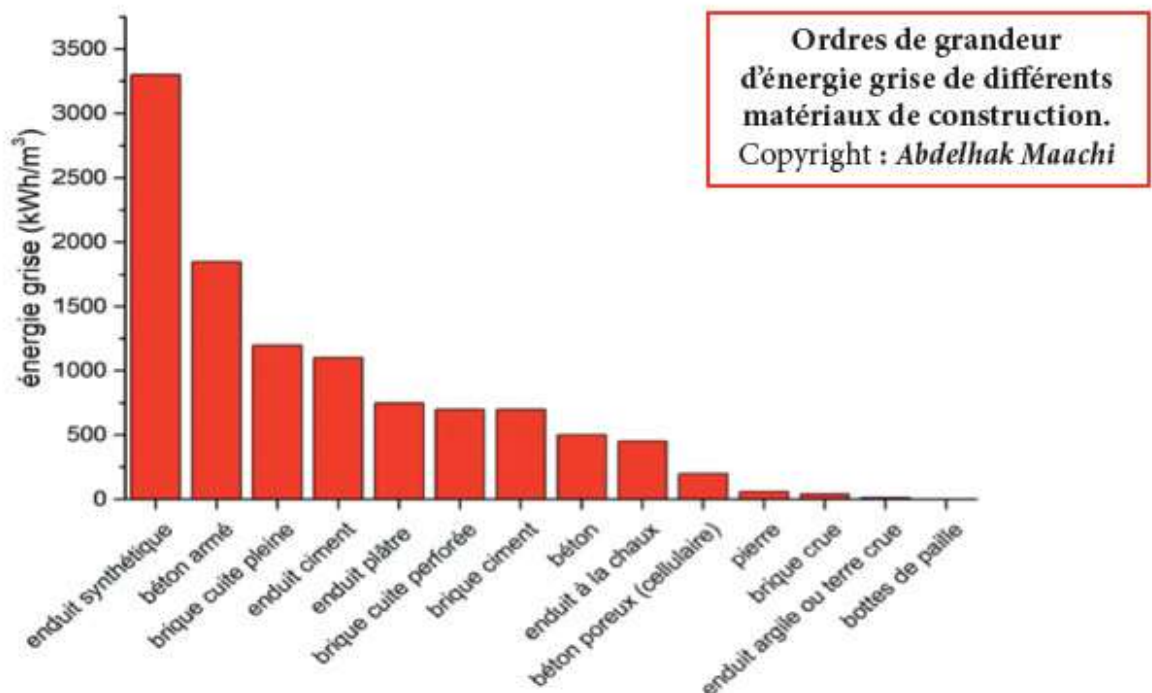


Fig. 9. Order of magnitude of embodied energy of different construction materials



And for this, consultation with local residents is essential, because they will constitute an authorized workforce. “We build better for those we know than for strangers. This aspect seems fundamental to me. They are the ones who carry this famous intangible heritage that everyone is talking about today”, explains Salima NAJI. One thing is certain, the expertise of our Mâalem/artisan builder, is recognized throughout the world and the mission will be carried out with the greatest care and in accordance with the rules of the art.

Vernacular architecture brings together all the constructions and developments specific to a geographical locality. These constructions and developments were often built using traditional techniques before industrialization, which is why we, sometime, speak of traditional architecture. When we look at bioclimatic design and the importance of designing from climate, we see that vernacular architecture is full of passive strategies and solutions for heating, cooling and natural ventilation. However, it should not be considered that everything vernacular has necessarily been determined by climate, because many other factors come into play (culture, religion, prestige etc...).

The work carried out by the ministerial departments concerned with heritage preservation should not be underestimated. There are the Mâalems and other artisans who pass on their know-how from father to son. There is training provided in dedicated establishments. When we talk about architectural heritage, we also talk about Mâalem/artisan builder: carpenters, zlaïjis, masons.... and craftsmanship. In other words, a traditional ecosystem certainly, but which is updated and modernized, local materials, between regional diversity, local know-how, varieties of uses and energy performance.

4. Pilot Experiences in Morocco to Promote and Draw Inspiration from its Architectural Heritage:

Morocco has initiated a several programs to promote its architectural heritage. These programs combine, in a systematic and categorical manner, the three pillars of construction, namely the public and private sector architect as well as the collaboration of Mâalem/artisan builder:

- **Sustainable development program for Ksour and Kasbah (since 2014 until 2028):** It is a pilot project which highlighted the importance and relevance of the revitalization of this built heritage in South East Morocco. The appropriation of the program objectives by local stakeholders, including the population, will undoubtedly contribute to the implementation of the strategy developed for the implementation of the new development model. The restoration and rehabilitation projects of the Ksour and Kasbah were carried out in consultation and collaboration between public sector architects, expert restoration architects and the Mâalems, bearers of traditional know-how in restoration using local materials in compliance with the rules of the art in this matter. These projects were construction schools for the local population and contributed to training and



establishing the pillars of the new generation of Mâalem builders specializing in the restoration of earthen buildings;

- **Protocol for improving interventions within medina in Morocco (since 2019 until 2025):** Being aware of the fact that Moroccan architectural heritage is no longer a burden but rather a wealth to be valued, the Moroccan Government has mobilized all potential stakeholders in order to reflect, within a concerted framework, new approaches to better intervene within the medina . The objective is “Preservation of the architectural character during restoration interventions in the medina taking into account the spirit of conservation of the initial state and respect for the materials used”. This protocol defines the stamp and conditions for implementing the various measures and actions, recommended by the Central Medina Monitoring Committee, and which should contribute to removing the constraints and dysfunctions observed and to improving the quality of intervention at the level of these old fabrics;

- **Standardization of the restoration of Moroccan built heritage (since 2021):** For the first time, Morocco is embarking on a national project of paramount importance. Considering the Royal will establishing the conservation of Moroccan built heritage as a national priority and aware of the importance of this heritage and the need to preserve its authenticity and its particularity, the Ministry of National Territorial Planning, Urban Planning, Housing and the policy of partnership with all the stakeholders concerned, initiated the development of standards relating to techniques and interventions in traditional fabrics. The objective is to supervise and improve these interventions by guaranteeing the quality and authenticity of the technical operation. The efforts made by the various actors resulted in the establishment of a national technical commission for the standardization of technical interventions on built heritage, and in the development of Moroccan standards making it possible to formalize and transcribe the information capital practiced. As part of this commission, it was agreed to develop draft Moroccan standards concerning: A glossary of interventions within built heritage, according to regions and traditional Moroccan waterproofing;

- **Study to identify quantitative and qualitative skills needs in the field of restoration of ancient medina and rehabilitation of architectural heritage:** Result of the desire to support the deployment of conventions relating to programs for the promotion of ancient medina and the changes that the field of study has undergone through the training of the human resources necessary for interventions to preserve and promote architectural heritage and urban areas of the ancient medina of Morocco by contributing to the improvement of the quality of intervention at the level of ancient fabrics. It aims to transmit ancestral know-how to the new generation in terms of restoration and rehabilitation of Moroccan built heritage.



4. Conclusions.

Traditional Moroccan architecture is full of real lessons from the past and reflects the wisdom of the ancestors, respectful of the environment, as well as local cultures and traditions. Indeed, it is a great basis for innovative and creative thinking, which will move away from the reproduction of ancient experiences that go back centuries whose characteristics differ widely from the multiple challenges of this era. The urban and architectural heritage is of exemplary richness, offering avenues for reflexion and possibilities for developing organizational logic, urbanization and valorisation of spatial, cultural and civilizational diversity, while meeting the requirements of originality, creativity, innovation and not only adaptation but also creative and supportive prevention. Certainly, the Ksour and Kasbahs of Morocco remain a multidisciplinary academic treasure, the ancient cities of prehistory, Moroccan's medina, modern cities and the different forms of regional and local rural habitat... are enlightening and reference models. Luminous which must necessarily lead us towards innovative, deferent and flexible thinking for the production of futuristic architecture fully anchored in its heritage roots.

The solution is, therefore, in improving existing processes and in supporting and subsidizing periodic maintenance work. We cannot tolerate, under the influence of emotion, abandoning an ancestral construction culture and disfiguring our beautiful villages to end up with apocalyptic concrete landscapes, of great ugliness, which turn out to be, moreover, more vulnerable and much less solid.

Architectural design must respond to the new requirements of today, creative imagination proving to be a recommendable alternative to give a historical continuation to a bygone past, a form of improvement of techniques where stone and fired brick are used place of adobe, but also spaces experienced by contemporary man. The advantages of earthen rehabilitation no longer need to be demonstrated, but they are not only due to the improvement of traditional techniques and materials; it still need to be able to count on a talented architect, quality master craftsmen, an accomplice entrepreneur and a client who has their complete confidence. In the same sense, it can only approve of the remarks made by H.H. the Aga Khan in Cairo in 1989: *"The Muslim world today needs innovative architects who know how to skill fully navigate to avoid the double pitfall that constitutes blind copying of the architecture of the past and irrational ignorance of its rich heritage. Our world must use the talents of those who know how to draw inspiration from the collective wisdom of past generations, the eternal Message and the ethical principles that are ours, and who thus find the strength to create the language of tomorrow"*.



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