GREATER OUARZAZATE, A 21ST-CENTURY OASIS CITY: HISTORICAL BENCHMARKS AND INTERNATIONAL VISIBILITY

INTERNATIONAL WORKSHOP OF URBAN PLANNING
Call for applications to select international participants for a workshop on territorial strategies and urban development projects

Ouarzazate, Morocco 3rd - 16th November 2018
ATELIERS’S TEAM
www.ateliers.org

Pilots

Nathalie Roussel
architecte DPLG - urbaniste

Michel Jaouën
architecte DPLG - urbaniste

Permanent team of Les Ateliers

Pierre-André Perissol, président
Christine Lepotitevin, directrice
Véronique Valenzuela, directrice adjointe
Moulay Abdallah Odghiri, architecte urbaniste

Associated local expert

Moulay Abdallah Odghiri, architecte urbaniste

Experts of the preparatory mission

Ahmed Boukil
Ingénieur d’État Spécialisation agronomie, option : Eaux et Forêts

Lhoussaine AQIOUH
Docteur en géographie urbaine

Visit of the Taourirt Kasbah, december 2017
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Grand Ouarzazate
Ouarzazate - Tamigle
Document Ateliers de maîtrise d’œuvre urbaine
Établi par les pilotes - Avril 2018
Source: Open Street Map

L'entrée ouest de Ouarzazate, avenue Mohammed V
Depuis l'avenue Mohammed V, vue sur le quartier de Fedragoum
Morocco is today one of Africa's most promising countries in terms of economic development. The development of its trade relations, including intra-African partnerships; its demographic dynamism; and its implementation of ambitious sustainable development and renewable energy strategies all play a key role in its success. It has also managed to maintain its touristic appeal despite a tense regional context.

Greater Ouarzazate, on the southern slope of the High Atlas Mountains and at the “Gateway to the Desert”, is a territory that fully reflects this Moroccan dynamic.

Both a province and a conurbation, and home to a millennial culture and exceptional sites, Greater Ouarzazate* has positioned itself in recent decades as a prized tourist destination and film industry host. Its vitality has earned it a strong demographic growth, which has not abated. Its major role in the newly created Drâa–Tafilalet Region and the Noor Solar Power Station, which is currently being built and is ranked among the most important in the world, introduces a new dimension to Ouarzazate’s appeal.

In this context, local authorities, such as the Governor of the Province and the municipalities of Ouarzazate and Tarmigt, sought to invite an international perspective by organizing a workshop with the association Les Ateliers Internationaux de Maîtrise d’Œuvre Urbaine to address the strategic development of the territory.

An exploratory mission led by Les Ateliers was held on-site from 15 to 17 December 2017.

It enabled the workshop team:

- to meet with local authorities (the Governor of the Province, as well as the elected officials and service representatives of the municipalities of Ouarzazate and Tarmigt, the Office of Tourism, cultural leaders, Agence Urbaine Ouarzazate- Zagora [urban development agency for the province], and Masen [a company responsible for managing renewable energy in Morocco]);

- to learn about the site(s);

- to define, through the course of a debate organized by the municipalities, the expectations and challenges for the workshop.

From the first day of the mission, the strategic ambitions for Greater Ouarzazate were clearly formulated by the Governor of the Province.

- To make it an attractive, world-class territory based on three components: cinema, the solar power industry and tourism, i.e. the gateway to Africa

- To make it into an example of an ecological city, a showcase for oasis situations.

The ambitions, which have helped guide our thoughts on Ouarzazate, have been synthesized in the workshop’s title:

**Greater Ouarzazate is not an administrative entity with a defined perimeter, in this document we use the term for descriptive ease. It can be understood as a bassin de vie [a living/residential area] or an area of influence that covers the municipal territories of Ouarzazate and Tarmigt.**

*It should nevertheless be noted that this notion of a Greater Ouarzazate is also used for the study of the Schéma Directeur d’Aménagement Urbain [Urban Development Master Plan] (SDAU) over a wider territory.*

**Greater Ouarzazate, An Oasis City of Solidarity and Sustainability in the 21st Century**

Historical Benchmarks and International Visibility
Some information on the Greater Ouarzazate territory

Administrative and Demographic Data

Ouarzazate is the capital of one of the 5 provinces in the Drâa–Tafilalet Region, according to the administrative organization implemented in 2015. The capital of the region, Errachidia, is located approximately 260 km from Ouarzazate.

According to the 2014 General Population and Housing Census, the Drâa–Tafilalet Region has 1,635,000 inhabitants (compared to 1,493,000 in 2004), i.e. approximately 4.8% of Morocco’s population. The region’s urban population is around 560,000 inhabitants, i.e. 34.2% of its total population. (Source: Drâa–Tafilalet Regional Office)

Population of Ouarzazate Province: 297,500 inhabitants
Municipal population of Ouarzazate: 71,000 inhabitants
Municipal population of Tarmigt: 41,000 inhabitants
(Source: 2016 Drâa–Tafilalet Regional Statistical Yearbook – RGPH 2014)

Altimetric and Climate Data

Altitude: approximately 1,150m

The Province of Ouarzazate belongs to an arid bioclimatic zone subject to continental climate trends. The High Atlas Mountains form an impenetrable barrier to the influences of the humid oceanic air; with rainfall often resulting in violent flooding of the wadis. (Source: Agricultural Monograph of the Ouarzazate Province)

Annual rainfall: approximately 112 mm, mostly in autumn and winter
Maximum average temperature in summer: approximately 37°C

Cold winters, especially at night. Minimum average temperature: 1.9°C in January. It snowed in Ouarzazate in February 2018.

The Urban Development Master Plan (SDAU)

A Canadian–Moroccan team is currently in charge of reviewing the Greater Ouarzazate Urban Development Master Plan (Lemay Consulting Firm), which aims to determine the major directions for the development of the Ouarzazate territory over the next 25 years. The work in progress is available at https://www.sdau-grandouarzazate.com.
Ouarzazate and Tarmignt, two towns in the Ouarzazate Province, are where the valleys of the Dadès and the Drâa meet. The landscape around these two semi-desert towns is grandiose: to the north are the High Atlas Mountains and peaks rising over 4,000 metres in elevation, a water reservoir that supplies the Ouarzazate basin; and to the south, the cliffs of the Anti-Atlas.

Here is where the Morocco of Africa and the Morocco of Europe come together; these valleys, at the threshold of the passage through the High Atlas Mountains, serving as a key stopover for the commercial caravans travelling between Marrakech and sub-Saharan Africa.

Berbers*—a generic Roman name given to the different ethnic groups that share the same economic and cultural practices—are the original settlers of these places and the ones who opened the commercial currents towards Africa.

There has thus been a great history of human interactions in this land. In addition to the Berbers are also Africans and Arabs. As a result, a unique culture has developed here, which remains vibrant today, with its most identifiable elements being the ksour and kasbahs, as seen in the emblematic images of Morocco that show the link between the landscape and these majestic constructions in ochre and red earth. The intangible cultural heritage of the Berbers is just as rich; with the “arts of Ahouache”, music, dance and the “art of meeting”, being among its principal components. With such a rich past that remains ever-present, a duality persists between an urban development that draws on Roman laws imported during the colonial era and the land usages that have been applied by the many different groups of nomads (collective land).

In addition to architectural gems such as Aït-Ben-Haddou, a UNESCO World Heritage Site, and the Kasbah Taourirt, Greater Ouarzazate is surrounded by remarkable natural sites: oases (like Fint Oasis), the valleys of the Drâa and Dadès (known as the Rose Valley), and the red deserts and dunes of Merzouga. It is a key area in the network of towns and sites on the southern slopes of the High Atlas that constitutes the region of Drâa–Tafilalet. These characteristics—landscape, heritage, culture—which first attracted knowledge-seekers are today obvious factors in its touristic appeal and what have also made it possible to open its sites to the film industry, creating a home for studios and cinematic expertise that has led to Ouarzazate being known as the “Hollywood of the desert”.

The Province of Ouarzazate also enjoys an extremely sunny exposition. Morocco, which hosted COP 22 in 2016, has a gigantic solar power complex: The Noor Solar Power Station (meaning “light” in Arabic), is one of the largest in the world and is currently being completed. It is the first of five stations that the Moroccan company Mazen has planned for Morocco.

Culture and tourism, cinema, and solar technology are the three drivers of development that Greater Ouarzazate wishes to activate in order to strengthen its regional and international appeal.

*Berbers call themselves Imazighen, meaning the “free people”
L’oued Ouarzazate, au cœur du Grand Ouarzazate
OUARZAZATE AND TARMIGT, TWO CITIES TO BE FEDERATED AROUND A COMMON PROJECT TO FORM THE GREATER OUARZAZATE

2.1 NEW BALANCES TO BE FOUND AROUND THE OUARZAZATE WADI

The two municipalities of Greater Ouarzazate—Ouarzazate and Tarmigt—are part of the same conurbation; on the banks of the wadi, their urban centres face one another: in the north, Ouarzazate; in the south, Tabounte, the centre of Tarmigt.

Different statuses, common interests

These two municipalities do not hold the same status: one is urban, Ouarzazate; the other rural, Tarmigt. This translates into a difference in means in terms of possible infrastructure and facilities. This inequality is apparently evolving towards both having the same urban status.

Some features distinguish them:

• **Ouarzazate** is a recent city, in the urban sense of the term. At first, it was a major stopover for caravans on the road to Marrakech: the Fedragoum district, a promontory located at its western entrance, was thus a place of intense commercial activity and of exchange for nomadic populations. This cultural richness, still present today, is now expressed through an “informal heritage”, folklore and crafts.

In the first half of the 20th century, during the colonial period, it became the site of the garrison, which also hosted the residence of the El Glaoui clan, the “ally of the protectorate”, in what is known as the Kasbah Taourirt. Therefore, it was around the military settlements where the city began to be built. Eventually, the municipality of Ouarzazate was created in 1959, its name coming from the fusion of two Berber words: ouar, meaning “without”; and zazate, meaning “noise”.

The population rose from 4,200 inhabitants in 1960 to approximately 63,000 in 2006, i.e. a growth rate of 3.7%, while the national average in Morocco is 1.4% (Source: Participatory territorial diagnosis of the Ouarzazate Municipality – January 2010). Today, this number has reached 71,000 inhabitants. Its municipal territory, while relatively small, is entirely enclosed with that of the municipality of Tarmigt.

• **Tarmigt**, whose urban centre is Tabounte, is located on the south bank of the Ouarzazate Wadi, constituting an extension territory for the town of Ouarzazate, known as the “Ouarzazate dormitory”.

Its municipality was also created in 1959. According to the 2004 census, its urban population is estimated at approximately 31,000 inhabitants. Its vitality is explained more by migratory flows than by the increase in births. (Source: City of Tarmigt website)

Its urban centre, Tabounte, is today the site of intense commercial activity. Its urbanisation was initially carried out in a semi-informal manner and, according to representatives of the municipality, requires major restructuring, particularly in the field of sanitation.

The construction of a new waste water treatment plant is now being studied for the Tarmigt side.

In addition, the reservoir formed by the El Mansour Eddahbi Dam, located to the east of Ouarzazate, has the role of providing irrigation and drinking water to the entire conurbation. The use of this reservoir for recreational and entertainment purposes has also been envisioned.

Finally, Tarmigt is host to the project for the **new urban centre of Zaouite Sidi Othmane**, to the west of its main urban centre.
A major urban project in progress: The new urban centre of Zaouite Sidi Othmane

Developed by the company Al Omrane, this new urban centre should enable the municipality to find a better balance with Ouarzazate. The sale of the first lots of this development operation began in early 2018.

In addition to this rebalancing effect, the objectives of this project are:
– to intensify the provision of diverse habitats within the projects integrated in the plan;
– to supply the municipality with important public facilities;
– to plan for a tourist area for the reception of new hotel units as well as a long promenade along the Ouarzazate Wadi.
(Source: City of Tarmigt website)

It was designed as a large subdivision of 7,756 lots on 350 ha, which are all ready today and not subject to development phasing, and should cover housing for the next 15 to 20 years.

The plan provides for mainly individual houses, on plots of approximately 100 m², to be built in accordance with specifications setting volumetric and installation standards. A few parcels are reserved as hosting sites for business activities/services, called Activités à génération de revenus (AGR), while others are destined for public facilities, social or cultural spaces, and administrative centres.

It benefits from an elevated situation overlooking the great landscape, the city of Ouarzazate and the High Atlas Mountains, while a central public park will also open onto this panoramic view.

This new "urban pole" will be connected directly to Ouarzazate by a bridge to be built over the wadi and will also be served by a new road to Agadir, planned for 2019.

The the north of the centre, land has been reserved fro a large hotel complex that would enjoy a view overlooking the wadi and the High Atlas Mountains. This project is currently under consideration (December 2017) and its specifications have yet to be determined.

A major regional military hospital project is also planned between the new urban centre and the centre of Tarmigt.

These projects will profoundly change the current balances between Ouarzazate and Tarmigt; and, in return, the usage value of the wadi through the creation of the new bridge.

The issues raised:

• How can the new urban polarity help develop a more concentrated city around the wadi?
• Which structuring programs or projects can be imagined that would participate in quality living situations for locals but also in a north–south rebalancing?
• How will the new bridge benefit both sides of the wadi?
• How can the two projects (the urban centre and the tourist complex) be structured around common services and recreational areas? What new types of hotel businesses can be imagined? What "marketing" strategies? What projects? What synergies between the city and its inhabitants?
• How can the grand panorama opening onto the wadi from the central park, by way of the hotel complex, be guaranteed?
A shared vision is necessary for both municipalities

Ouarzazate and Tarmigt therefore have a common interest in establishing complementarities and building a shared vision around a global strategic project, in order to:

- Reinforce the attractiveness of the Greater Ouarzazate’s polarity
- Implement a shared approach to sustainable urban development

The specific themes presented below are transversal components, to be articulated at different territorial scales so as to address these two main objectives.

2.2 FRAGMENTED CITIES

A limited territory

The development territory of Ouarzazate is limited to the north by the airport and to the south by the wadi, as such the urban extensions tend to form a city that is both linear and compact. The case of Tarmigt is different: Tabounte, the dense centre of the municipality was formed around the area serviced by national route 9. The possible extensions, in the proximity of the centre, were made to benefit the new urban centre.

An impression of a visitor: Breaks in the cities

The impressions of a visitor crossing Ouarzazate today by foot are many:

- an architectural coherence ensured by a typology of building whose heights, intersections, colours, and decorative motifs are regulated;
- urban spaces that, while lacking the presence of vegetation, are coherent.

In addition, there is the impression of fragmentation due to how the districts are separated by large empty spaces, which currently create breaks in the city. These are districts sometimes in the process of being constructed and therefore the future of these breaks and their land status is not apparent. They could, depending on their status, be an opportunity to reconnect the districts, to be liaisons rather than breaks.

In addition, the Amatime Park, an urban park, is separated from the city due to the boundaries set by the airport and the bed of the Al Mergoub Wadi.

On the Tarmigt side, the main break is located between the Tabounte centre and the new urban centre that has been built as an autonomous district.
Polarities that do little to structure the area and are poorly connected

The centrality of Ouarzazate is characterised by the Al Mouahidine Square, a public space for gatherings, outings and cultural events.

The size of the centre, its visibility, and therefore its appeal, does not seem sufficient enough to match the number of inhabitants and the touristic vocation of the city.

Nevertheless, changes are happening. Cultural centres are currently under construction, one in the El Mohamadi District near the university and the other, finished in 2018, in the El Wahda District. These projects could make it possible to distinguish the different polarities of the districts, but only if the projects dedicated to public spaces accompanying these facilities are also successful.

Other facilities, such as the bus station, event centre, the university, the Al Mouahidine Square and the weekly souk—in a peripheral location and far from housing—are structuring places that create centralities on the scale of the districts, towns and that of Greater Ouarzazate.

On the Tarmigt side, a high urban density can be observed despite the flagrant lack of quality public spaces (no pavement on the sidewalks). The central market and shops along the avenues make Tabounte a rising centrality accompanying the growing number of its inhabitants.
The issues raised:

• What role do interstitial spaces play in the city of tomorrow?
• What new balances need to be built between the two banks of the wadi?
• How can the new urban centre be integrated into Greater Ouarzazate?
• How can mobility, proximity, centrality (and polarities) be articulated?
• How can soft mobility and public transportation be developed?
• How can informal housing be provided with urban services?

2.3 SOMETIMES ARID PUBLIC SPACES WITHIN A SPECTACULAR SITE

The power of geography

Ouarzazate and Tarmigt are set in a spectacular setting: the desert landscape and the crests of the High Atlas and Anti-Atlas Mountains. The two municipalities face each other from across the wadi. Many scenic spots offering views of the landscape have already been given a status of prominence; while others still merit it, such as those in the public space, on the banks of the wadi, or at the base of the cliffs.

The issues raised:

• How can this relationship with the great landscape be enhanced from the public space?
• How can panoramic lookouts or cliffside viewpoints be valorised?
Development of a green infrastructure

For Ouarzazate, the landscape of the public space is quite heterogeneous: “groves” of trees along certain avenues and arid areas in the heart of certain districts (neglected urban areas whose land status must be understood). In general, a lack of green spaces which could provide shade during the summer can be observed, as well as a lack of recreational spaces for inhabitants.

Areas reserved for natural draining, like the Eddahab Wadi, could truly valorize the interstitial districts, provided that they are considered as public areas of exceptional landscapes and are developed accordingly.

On the Tarmigt side, the public space is very busy despite a lack of development: only the road is built and the sidewalks remain bare earth.

The issues raised:

• How can public spaces be planted to create shade in the summer and to combat the problem of “heat islands”.
• How can there be a greater offer of green spaces?
• How can public spaces that distinguish the different districts be created?
• How can the banks of the Eddahab Wadi be transformed into an urban park?
• How can landscape continuities towards the Ouarzazate Wadi be promoted?

The wadi brings water and the presence of vegetation to the centre of Greater Ouarzazate. The green belt is a project that is partially completed in the north-east. Water from the dam and energy from the solar power station are nearby. The extension of this green belt could help to reinforce local agricultural production. Can ancestral cultivation and water supply techniques (described in Chapter 2.6) be put to use for this extension?

The issues raised:

• What project(s) could there be for the border(s) between the city and the greater landscape: potential of the green belt for agricultural production, plant nurseries, recreational spaces?
• What new functions could be imagined for the wadi in this great landscape?
2-4 HOMOGENOUS ARCHITECTURE, A FAIRLY REPETITIVE URBAN FABRIC

A homogeneity of the architecture and urban fabric can be observed in all of the districts: template models, standard ochre shades for the exteriors, and fixed elements of form and contours; for example, in the design of parapets, decorative elements (differentiated according to the three main directions from Ouarzazate).

The buildings are mainly of two types: houses of two or three storeys and small buildings of up to four levels, often with a footprint covering the entire plot and a single facade allowing for openings. The dwellings are therefore mainly mono-oriented and natural ventilation is provided only by internal wells. They offer little to no private outside space, apart from the terraces on the top floor or on the roof.

The public spaces of the new districts also appear fairly homogenous and are treated in most cases in a non-organic manner.

The issues raised:

• How can new urban forms be considered in order to meet the climate demands?
  - a new and more diversified housing offer?
  - more welcoming residential and public spaces?

• How can the concept of compactness serve to create new qualities of use and sharing? These include neighbouring areas, possible scales of mutualisation, the management of certain collective spaces, collective initiatives, etc.

• How can the complex reality of collective land tenure and a form of initiative development and collective management be articulated around new projects?
2-5 KASBAHS AND KSOUR, THE GEMS OF THE GREATER OUARZAZATE’S ARCHITECTURAL HERITAGE

The Province of Ouarzazate is often referred to in Morocco as the “region of a million and one kasbahs”. Kasbahs constitute an architectural and cultural heritage of great value, the result of an extraordinary know-how in the use of raw earth to build ecological homes adapted to climate demands. Some of these kasbahs are listed as international heritage sites and are known worldwide (such the ksar of Aït-Ben-Haddou and the kasbahs of Taourirt and Tifoultoute).

Seven of them have been restored and now operate as tourist attractions. Many others could be added to the list. This phenomenon of “reinvestment” is currently undergoing rapid change. It requires a global strategy, which is presently being supported by the Centre de Conservation et de Réhabilitation du Patrimoine Architectural Atlasiques et Sud-Atlasique (CERKAS) and the United Nations Development Programme (UNDP), both organisations with whom we met during the exploratory mission.

In the heart of Ouarzazate, the Kasbah Taourirt

The Kasbah Taourirt is the architectural jewel of Ouarzazate. Built in the 17th century for Pasha El Glaoui, it is listed as a historic monument. Currently at the end of its renovation, this heritage site is a historical testimony to the expertise required in earthen construction. By its importance, its architecture and its decoration it is one of the most beautiful in Morocco. From its terrace, an exceptional 360-degree panorama opens: in the foreground is the Berber fortified village of Taourirt (13th century) and the urban landscape; while in the background, the valley of the wadi and the mountains of the Atlas and the Anti-Atlas can be seen.

The renovated section raises questions as to the balance to be found between tourism development and appropriation by the inhabitants. This is one of the questions being asked by Ouarzazate’s elected representatives as part of the workshop.
The issues raised:

- How to invest in heritage sites like the Kasbah of Taourirt?
- From a sustainable development perspective, how can ecological historical building expertise (earthen techniques) be reintroduced into contemporary architecture?
- How can a change in outlook towards earthen construction be supported?
- How can new sectors be developed around new ways of construction?
- How can the reflection around the renovation of ksour and kasbahs be articulated in terms of developing new urban forms?
- How can the richness of these architectural features contribute in influencing new models?
- How can certain terraces be reinvested in so that they become destined for the public? Or roofs as an expansion of the public space?

Organisations responsible for the restoration of cultural heritage sites

**Le Centre de Conservation et de Réhabilitation du Patrimoine Architectural Atlasiques et Sud-Atlassique (CERKAS)**

Created in 1989 by the Ministry of Cultural Affairs, its objective was to deal with the destructive effects that threaten the earthen architectural heritage. The centre sits in the Kasbah of Taourirt in Ouarzazate. Since its creation, it has participated in the restoration of the Kasbah of Taourirt, the Ksar of Aït-Ben-Haddou and the collective granary of Ighrem Nougdal.

**The “KSOUR AND KASBAHS” project for the United Nations Development Programme (UNDP)**

This is a support program for the sustainable development of ksour and kasbahs in Morocco. Working in conjunction with the Ministry of Housing and Spatial Planning, it was launched in 2015 with the objective of involving residents in the process in order to facilitate a better appropriation of the projects.

The programme operates on 10 sites; beyond architectural restoration, it works to improve the quality of life for residents and to fight against poverty.

The inhabitants who live in the ksour and kasbahs feel marginalized, they want to access the modern city. How can these places offer quality services? In the ksour, the phenomenon of “summer houses”, can be observed when applying the perspective and vigilance gleaned from the experience of the “riad effect” in Marrakech and Fez.

This notion of trust and support between inhabitants and “operators” in the process of rehabilitating the ksour and kasbahs is essential to the success of any renovation project.

The Ksar of Aït-Ben-Haddou

Located on the foothills of the southern slopes of the High Atlas, about thirty kilometres from Ouarzazate, the Aït-Ben-Haddou site is the most famous ksour in the Ounila Valley.

Inside defensive walls reinforced with corner towers and accessed through a defensive gateway are numerous houses, some modest, others small urban castles with high corner towers decorated at the top with ornamental raw brick motifs, but also buildings and community spaces including a mosque, public square, grain threshing areas outside the ramparts, a granary at the top of the village, a caravanserai (roadside inn), two cemeteries (Muslim and Jewish) and a sanctuary dedicated to Saint Sidi Ali or Amer.

The site is protected and listed as a UNESCO World Heritage Site. Today, the magnificent exterior image is an illusion. However, when you walk around it, you feel its fragility: some buildings are being renovated, others are still in very poor condition. Some people live there, but the place is mainly devoted to tourism: souvenir sellers occupy the ground floor and part of the narrow streets.

What is really striking during a first visit, beyond the precious testimony of clay construction techniques (17th century), is the harmonious insertion of the ensemble into the landscape, thanks to the continuity of colours and materials, and the topographical immersion of compact habitats covering several storeys with clear, open spaces on their roofs, which thus allow for sublime views over the great landscape.
2.6 WATER, A PRECIOUS RESOURCE

Water, a scarce and therefore precious resource, is the most vital component of the rational and sustainable development of Greater Ouarzazate.

The three main access points to water in its natural state are as follows:

- groundwater: the main aquifer is the Ouarzazate basin, which is fed by infiltrations that occur in the High Atlas and in the foothill areas;
- rainwater storage;
- reservoir of the El Mansour Eddahbi Dam.

The El Mansour Eddahbi Dam, built in 1971, is located on the Drâa Wadi, 25 km south of Ouarzazate, immediately downstream from the confluence of the Dadès and Ouarzazate wadis and at the entrance to a very narrow 45 km-long gorge. Its reservoir extends over 4,500 ha and holds 560 million cubic metres of water.

This structure was designed to tackle regional disparities and desertification. It has helped to improve the standard of living for the inhabitants of the Drâa valley. Launched in 1972, it irrigates more than 25,000 ha, including 14,000 ha of crops and 8,000 palm trees along the Drâa Balley, creating an almost uninterrupted oasis as far as M’hamid.

Today it would seem that the volume of water lost through evaporation represents nearly 7% of its total volume.

Improvement of water efficiency*

Food security requires efficient management of water resources. Large margins of progress exist: maintenance of resource sites, irrigation techniques, organisation of agricultural production, etc.

Today for information the water efficiency is 15% in Ouarzazate compared to 95% in Israel.

For Greater Ouarzazate, water is essential for:

- agriculture: innovative irrigation techniques need to be (re)developed, in particular in the framework of the green belt project;
- the development of green public spaces to create shade in summer and to combat the problem of “heat islands”;
- the operation of activities, in particular for the Noor Solar Power Station (1% of the water comes from the dam’s reservoir compared with an evaporation rate estimated presently at 20% to 30%);
- the provision of high-quality drinking water.

* Water-use efficiency is defined by the yield per unit of water. Optimal efficiency is achieved by minimizing losses due to evaporation, run-off and infiltration. In irrigation schemes, routing and distribution efficiency concerns water losses from the source to the point of arrival in the field. The concept of water productivity is often used, which means producing more food or getting more benefits with less water. In arid regions of the world, water is, by definition, the most common limiting factor to food production: it is a combination of scarcity, extreme variability, long dry seasons, recurrent dry periods, droughts and occasional floods.

Source: permabox.ressources-permaculture.fr/.
The oasis, an environmental and social model

Located about 15 km south of Ouarzazate and accessible by a path, the Fint Oasis is managed by a “tribal chief”: 600 people cultivate and maintain the irrigation network.

“A few millennia before the rhetoric preaching the need for an ‘agro-ecological revolution’, these Neolithic peasants implemented the principles of agro-ecology without giving it a name, which now is being presented to us as the new frontier of progress: agro-ecology systems that are doubly agroforestry systems since crops on the ground are protected both by date palms and, a little lower, by fruit trees; association agriculture/livestock; association food crops/forage crops/cash crops; expanded reproduction of fertility thanks to the organic manure from animals housed in stalls and the presence of legumes as ground cover, in particular alfalfa which fixes atmospheric nitrogen.

To these agronomic practices are added the particularly meticulous techniques of water pumping and management, among which are the famous draining galleries that collect water from the water tables of the foothills of the mountains and make the water travel gently up to the oasis over distances of several kilometres, if not several dozens of kilometres...”.

Henri Rouillé d’Orfeuil and Georges Toutain—Jardins d’Orient, from the Alhambra to the Taj Mahal—Exhibition at the Arab World Institute—2016

Khettara, an ancestral irrigation technique

The khettara technique, which originated in ancient Persia over 3,000 years ago, is one of the oldest systems for collecting water for cultivation. It mobilises rainwater and groundwater to supply the water table. Watersheds are therefore designed to collect the water. And an underground gallery then leads the water by gravity into the cultivation areas 10 to 20 kilometres away.

This technique, a form of collective management, is today sometimes replaced by individual electric groundwater pumping tools.

Drâa Valley

Le principe d’étagement des 3 strates de l’oasis croquis des pilotes pour les Ateliers
Moroccan “framework” documents

In a more general context of water stress, with which Morocco is particularly confronted, two “framework” documents were drawn up in parallel in 2008 to try to elaborate a national strategy in a context of a global water stress situation that is worsening:

The “Green Morocco Plan” (launched in 2008):

The agricultural development strategy (Green Plan) is based on programmes for the mobilization and responsible management of irrigation water, the valorisation of production for access to markets, sustainable economic investments, the promotion of innovations, income support for small farmers, and insurance systems against climatic hazards. As such, major projects are being implemented to optimize the management of water resources for agricultural use and increase their efficiency by modernizing irrigation systems, which are also being extended across the area. These projects are organized into three structuring programs:

- Programme National d'Économie d'Eau en Irrigation (PNEEI): a national irrigation water saving programme that aims to convert traditional irrigation systems to modern, water-saving systems, which saved more than 1.4 billion m3 of water in 2016, or 2,546 m3/ha.
- Programme d'Extension de l'Irrigation (PEI): an irrigation extension programme which aims to develop 1.5 billion m3 of water through hydro-agricultural development over an area of 160,000 ha by 2020.
- Programme de Partenariat Public-Privé en Irrigation (PPP): a public-private partnership irrigation programme whose objective is to ensure water management efficiency and ensure better use of water in existing and new perimeters as well as the safeguarding of irrigation in areas with high agricultural production potential, in particular through seawater desalination projects.


The Blue Plan for the Environment and Development in the Mediterranean


Mandated by all Mediterranean member countries to monitor the implementation of the Mediterranean Strategy for Sustainable Development (MSSD), the Blue Plan, as part of the “water” chapter, launched in 2008 as a project on water usage efficiency with the following objectives:

- Further develop the collection of basic data needed to calculate the efficiency index (MSSD priority indicator);
- Provide methodological support to countries to contribute to this indicator;
- Assess the progress made by each country in terms of water savings;
- Identify priority actions to be implemented to improve water-use efficiency, in particular within the framework of national sustainable development strategies.

Waste water treatment

A waste water treatment plant is located to the north-east of Ouarzazate. Its size, to meet the needs of Ouarzazate and Tarmigt, is probably insufficient: Tabounte’s housing network is not connected to it and the urban centre currently under construction will add thousands of new inhabitants. The construction of a new treatment plant is being studied to meet the needs of the south bank of the wadi.

**Issues raised by water resources, treatment and management:**

- How can regional cooperation and “oasis” know-how be used to improve water efficiency in Greater Ouarzazate?

Programmes are currently being studied by the United Nations Development Programme (UNDP): it is not a question of approaching the question in a virtuous manner but of relying on real water resources, which condition urban and economic development.

This complex subject calls for coordination at the watershed, regional and national levels.

- What innovative irrigation techniques should be (re)developed, in particular within the framework of the green belt project?

- How can all inhabitants benefit from a high-quality drinking water resource and be connected to sanitation networks?

- What alternative sanitation techniques should be implemented for a city in rapid expansion? Especially for the city of Tarmigt which presents a great deficit in terms of its connection to the sanitation network, in particular for informal housing.
Today, three flagship activities constitute the economic development drivers of Greater Ouarzazate to strengthen its attractiveness both regionally and internationally:

3-1-CINEMA

As early as the 1960s, Ouarzazate attracted filmmakers from all over the world for the quality of its outdoor shooting conditions—climate, light and the diversity of its grandiose landscape—and for the high level of training exhibited by its local population, which has made it highly competitive, especially with Hollywood studios.

Among the films shot in Ouarzazate, several can be mentioned:
- Lawrence of Arabia (1962)
- The Last Temptation of Christ (1988)
- Gladiator (1999)
- The English Patient
- Asterix and Cleopatra (2001)
  (the sets are still on display at Atlas Studios)
- Babel (2006)
- Days of Glory (2006)

Ouarzazate is positioned as “the leader for film shoots in Africa”.

Three film studios are located there:
- Atlas Studios: the most famous studio, which can be visited when no films are shooting. It notably houses the sets of the French film “Asterix & Obelix: Mission Cleopatra”.
- KanZaman Studios: spread across 60 hectares, it is surrounded by thousands of olive and palm trees. The studios are built in the form of three kasbahs, which also house a centre specialising in the training of cinema professionals, the Institut spécialisé dans les métiers du Cinéma (ISMC Ouarzazate).
- CLA Studio: spread across 160 hectares, it has two film sets. Its sets can also be visited.

A film museum, located on the esplanade opposite the Kasbah Taourirt, regularly serves as a film location and is part of the local tourist circuit.

The film industry has thus become one of the key vectors of the regional economy, due to its impact on several directly or indirectly related niches:
- Creation of direct and indirect employment;
- Nights spent in tourist accommodations and meals had in restaurants;
- Dynamics for transport companies and equipment manufacturers;
- Increased investments in the sector, mainly through the positive image conveyed by the cinema. For example, the golf course and its district of luxury villas near the dam’s reservoir resulted from this dynamic, with some film “stars” even owning holiday homes there.

However, despite many important productions to its credit, film activities seem to have lost some ground in recent years.
3-2  THE NOOR SOLAR POWER COMPLEX, A WORLD-CLASS PILOT SITE

The Noor Solar Power Complex is located a dozen kilometres from Ouarzazate, north of the reservoir. It extends over 3,000 hectares.

Noor is a world-class pilot site, demonstrating Morocco’s political will within the framework of its climate plan (objective of a 52% share of alternative energies by 2030). This complex includes 4 solar power plants/stations (Noor I, II, III, IV) that produce energy using different technologies.

The Moroccan Solar Energy Agency (MASEN) is the company that implements and manages this site, the first of five complexes planned for Morocco. It intends to make the one in Ouarzazate a demonstration site.

The power eventually produced (Noor III and IV are under construction) will be around 580 MW (which corresponds to half that of a nuclear reactor), and should cover 7% of the country’s consumption. Today, it is the 7th largest solar power plant in the world (Noor 1); and once the work is completed, it will be the largest multi-technology solar production site in the world.

The Noor complex also includes a research and development platform, a showroom-type “showcase” building that links together an exhibition space and an auditorium, and a panoramic tower that allows visitors to appreciate the impressive scale of this site.

For this site, 6,000 jobs have been created, with around 150 people working on the farm.

The cooling process uses 2,000,000 m3 per year due to the loss of performance of the physico-chemical properties of the water, i.e. 1% of the dam’s capacity. (Information provided by MASEN during our on-site visit in December).

The objective of MASEN, in particular for this site, is to establish its importance in solar energy at the global level, by developing local and international economic partnerships in research and development (R&D)—in particular with Japan and leading engineering schools, such as Ecole Supérieure d’Ingénierie de l’Energie (UIR)—and by strengthening its ecosystem through the creation of new training sectors and new economic segments that would accompany Morocco’s green energy strategy.

Beyond its industrial activities, each year MASEN invests a portion of its budget into local development with the objective of establishing a relationship of trust with local populations. Around a hundred projects have already been carried out, affecting 52,000 direct and indirect beneficiaries (medical caravans, bicycles, school bags, solar lighting and drinking water supplies for the municipality of Ghessate in the immediate vicinity of the site, an orphanage in Ouarzazate, etc.).

MASEN clearly expresses its wish to develop industrial tourism in order to showcase the site, with the additional hope that Greater Ouarzazate can be recognised as a “green city”, an example of sustainable development that can enhance Noor’s image as a “gateway” and thus its global resonance through the ambition of a climate plan that beneficial to both local development and business.
Le bâtiment vitrine de Noor qui permet l’accueil des visiteurs (maquettes, salle de conférences, expositions)

La tour d’observation du site

Process industriels: centrales thermiques par station.

Calendrier de déploiement

SITE WEB DE MASEN: http://www.masen.ma
Tourism is based on the great diversity of spectacular natural and historical sites, as this area is known as “the region of a thousand and one kasbahs”. However Ouarzazate is often only seen as a short stopover between Marrakech and the desert or the dunes of Merzouga, the valleys of Dadès and Drâa, etc. The wish of local authorities is to go beyond being a transitory stop for tourism (single overnight stays on average) to a holiday tourist destination, which would thereby make Ouarzazate a true regional base of influence (4/5 nights).

Among the most attractive sites in Greater Ouarzazate are: Aît-Ben-Haddou, the Fint Oasis, the Kasbah of Taourirte in Ouarzazate, Kasbah of Tifoultoute; and, near Ouarzazate, the High Atlas Mountains, Drâa Valley, Dades Valley (AKA the Rose Valley), the gorges of Todgha (Tinghir), Dadès (Boumalne), the stretch between Mgoun to Klaat M’gouna, the palm groves of the Tinghir Valley and Skoura, the dunes of Merzouga, etc.

One of the axes to be developed is that of "industrial tourism”, around the film industry and the Noor solar complex, through territorial marketing aimed at highlighting its specificities and its unique character.

A second aspect is to entice tourists to want to stay longer in Ouarzazate. In order to achieve this, it is necessary to create sufficient appeal and curiosity through the offer of quality infrastructures (hotels and restaurants), as well as through:

- the promotion of certain natural spaces, such as the wadi;
- the creation of walking routes through the city;
- the creation of an exhibition space highlighting local specificities (history, presentation of major trade routes, earthen architecture, customs, specificities of local law, Ahouach, oasis operations, etc.).

Cultural richness (intangible heritage) also has touristic appeal. The Province of Ouarzazate has many cultural associations and around forty dance and music troupes, some of which are known worldwide such as the Ahouach de Taourirt and Tifoultoute troupes.

Cultural events and festivals that already exist:

- The Kelaat Mgouna Rose Festival (May)
- Ouarzazate Tourism and Culture Week (May)
- The Sidi Daoud Moussem in Ouarzazate (August)
Issues raised by the three levers of economic development

• What kind of “territorial marketing” platform would be the best for restoring attractiveness, creating jobs for young people, and encouraging them to stay or return?

• How can ecosystems be developed around the three existing economic poles (cinema, solar power, tourism): training, partnerships, research and development, infrastructures?

• How can other ecosystems be developed around the quality of the landscape, and the site’s architectural and intangible heritage?

• How can the region’s assets be better communicated in order to make it more attractive to tourists?

• What tourism strategy should be adopted so that the area can stand out from Marrakech or Agadir, for example?

• How can the city centres of Ouarzazate and Tarmigt be strengthened?
Today, Greater Ouarzazate represents an objective shared by the elected representatives of Ouarzazate and Tarmigt who are aware of the need to make it a reality: this common future needs a shared global strategy. The workshop is a chance for participants to contribute to this strategic reflection aimed for 2050, as well as in the development of an action plan that can be carried out in the short term.

The site’s current dynamics are integral to the reflection (the new urban centre project, the regional military hospital project to the east of the latter, the rise in importance of the Noor complex, etc.).

Building the oasis city of the 21st century is a challenge that brings together and integrates all the principles of sustainable development, as it draws on solidarity-based natural and social-economic ecosystems. In this context, this concept seems sufficiently promising to stimulate new development approaches and to create a model of excellence.

How can local singularities, rooted in history and culture, be applied to support the development of a oasal model, whose very definition implies solidarity and sustainability?

All the themes developed previously make it possible to state a certain number of challenges and issues on several scales. Of these, there are several obstacles that must be addressed and which could serve as a starting point, notably the question of water management, which is a determining factor in urban development.

• What new relationships can be developed in terms of the wadi? Today, this ecological reserve in the heart of Greater Ouarzazate is under-invested. Even though there are already uses (sports fields) and areas for leisure (sitting on the ground), it still has immense recreational and agricultural potential that the second bridge project should help to reinforce.

• How can the green infrastructure be strengthened; for instance, by ensuring better water efficiency to develop quality agriculture and thereby local food systems?

• How can the effects of polarities, new mobility and local scales be articulated for a quality living situation?

• How can the built environment (thermal comfort) be improved and new urban forms developed that create high-quality usages for public/collective and private spaces? How can historical earthen construction methods be reintroduced into more contemporary architecture?

• How, from the point of view of economic development, can the richness present on-site be drawn upon to create new ecosystems (cinema/Noor> clusters/ training/ R&D/ new economic sectors to be developed locally)? A showcase for sustainable development in an arid site? A territory of innovation?

• How can new economic partners be integrated into the area’s solar power industry?

The reflection to be carried out within the framework of the workshop assumes a multi-scalar approach so as to connect proposals at the different scales of reflection and possible actions.
We can already mention three main scales of reflection that should stimulate and articulate the proposals:

1/ The strategic scale of the Ouarzazate Province (including Aït-Ben-Haddou + Noor + reservoir area)

The aim is to strengthen the regional presence of Greater Ouarzazate and its province, while also ensuring a complementarity and the creation of a network that includes the various key economic partners (including Masen) and neighbouring cities (Errachidia, Tinghir and even Marrakech). This new multipolar balance should enable the Drâa–Tafilalet Region to have a greater presence on the Moroccan territory and to have a greater influence at the international level.

2/ The scale of urban projects at the Greater Ouarzazate level

As mentioned in the previous chapter, many observations and questions have been stated and posed for the various projects planned for the different scales.

Examples:

- **The construction of green infrastructure**, which would support new recreational uses and urban agriculture, but also create sanitation alternatives structured around the Ouarzazate Wadi and its tributaries, with a view towards better water usage and dam management.
  
  **Public space projects:**
  
  - To enhance the relationship with the great landscape (cliffside and panoramic lookouts) and to create a new relationship with the wadi, the “central park” of Greater Ouarzazate.
  - To distinguish the polarities of each existing and future district (the urban centre)
  - To consolidate uses that are already present
  - To promote the use of soft modes of transportation
  - To accompany the north–south link that will be created by the new bridge planned directly to the west of the new urban centre
  - To sustainably qualify abandoned spaces, which have an important potential for valorisation as creators of new attractive destinations
  - To encourage the establishment of cafés/restaurants and their terraces so as to meet the expectations of tourists and encourage them to spend several nights on-site.
  - To enrich and “showcase” the historical heritage and points of interest through a pedestrian path within the city

- **Urban projects to better qualify the site**

  - The margins and interstices between districts
  - The banks of the wadi
  - The valorisation and intensification of the centralities on both the Ouarzazate and Tarmigt sides
  - The link between the new urban centre project and the western districts of Tarmigt
  - The “bridgehead” that will allow for new exchanges and new north–south continuities on both sides of the wadi
  - The area around the bus station, and that of the weekly souk

- **The planning aspect** is a significant factor in accompanying the desired rebalancing strategy:

  - Facilities (local and structuring): are there enough in view of the current and projected demographic growth?
• Shops? Markets?
• Housing: what new urban forms can be imagined?

3/ The scale of the short-term intervention

This scale is temporal. It invites reflection on urban manufacturing processes. It should also make it possible to identify “almost immediate” courses of action that require little investment as well as allow for a foreshadowing of future developments by activating and/or consolidating new uses that are observed. These actions can be spatial or event-based.

It serves as the beginning of a new story that brings together inhabitants, associations, economic stakeholders and elected representatives, articulating “successive present moments” and arousing interest and collective initiative—a precious local resource. As such, it is possible to imagine several scenarios of small targeted actions, making it possible to initiate a more substantial project/programme by putting an idea or principle on track based on a reasonable budget.
HOW TO PARTICIPATE TO THE WORKSHOP IN OUARZAZATE - MAROCCO

METHODOLOGY AND PROJECTED CALENDAR

The workshop will be organized according to the original workshop method, 18 professionals from different countries and professions 18 professionals from different countries and professions will meet in ouarzazaee for 14 days.

The session will be held from november 3rd to 16th. The first three days of the workshop will be devoted to meetings with local actors and tours of the area. Participants will then be divided by the workshop’s organizational staff in teams. An exchange forum will be organized for the teams to be able to present their ideas thus far to local actors and partners. The exchange forum is a decisive moment in the session as it allows different representatives from local institutions to clarify their vision of the territory, to exchange with participants on the basis of emerging problematics and to bring together, for the first time, the work of all of the teams, often complementary to one another.

The second part of the session will aim for an intensification of the collective production. As the workshops serve to be a source of inspiration, it is thus important to showcase the collective aspect of the project’s propositions, innovations, new dynamics, as much at the local as at the regional scale.

At the end, a jury composed of local and international professionals and local decision makers will be assembled to hear and analyze the propositions and methodologies of each team. The presentations will be opened to the public.

At the conclusion of the presentations, a deliberation by the jury will be organized. Their objective will not be to censor the teams but to study pertinent information and strategies which could provide a continuity to the work and create a bridge between the groups. A day of restitution and exchange with the jury may be organized before the participants’ departures. This day will allow for the establishment of a first synthesis that prioritizes the indications given by the jury and the work.

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<tr>
<th>Date</th>
<th>Event</th>
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<tr>
<td>Saturday, 3 November</td>
<td>Participant arrivals</td>
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<tr>
<td>Sunday, 4 November</td>
<td>Area visits and conferences</td>
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<tr>
<td>Monday, 5 November</td>
<td>Area visits and conferences</td>
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<tr>
<td>Tuesday 6 November</td>
<td>Official opening and start of the team work</td>
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<td>Wednesday 7 November</td>
<td>Team work</td>
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<td>Thursday 8 November</td>
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<td>Friday 9 November</td>
<td>Exchange forum with workshop partners and evening event</td>
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<td>Saturday, 10 November</td>
<td>Team work</td>
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<td>Sunday, 11 November</td>
<td>Team work</td>
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<td>Monday, 12 November</td>
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<td>Tuesday 13 November</td>
<td>Team work</td>
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<td>Wednesday 14 November</td>
<td>Completion of final presentations – Jury arrival</td>
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<td>Thursday 15 November</td>
<td>Presentation of projects to the jury and the workshop closing ceremony</td>
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<tr>
<td>Friday 16 November</td>
<td>Debrief and departure of participants and the pilot team</td>
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HOW TO PARTICIPATE TO THE WORKSHOP

Language requirements
The workshop will be held in English and French. Participants, and therefore candidates, are expected to be fully proficient in English. The documents produced by the groups during the workshop will be bilingual in French and English.

Candidate applications
Completed candidate applications must be submitted by email to the following address:
ouarzazate@ateliers.org
by 09th of September 2018 at 11pm Paris (metropolitan France) time.
Applications must be written in French or English and must include:
- the completed application form (available for download on the website)
- a CV/Resume, 2-page maximum
- a short essay (two to three pages, maximum) in which the candidate can freely discuss the problematic and explain what his/her expertise and profile bring to the session. The team at Les Ateliers encourages candidates to give their first impressions on the subject and to show an understanding of the problematics, which can be expressed graphically (designs, charts,...) for those who have mastered these forms of expression.
Candidates should submit a single application (PDF format) comprised of the elements listed above and titled LASTNAME_First name_OZT
Important: Applications are for individuals and cannot be submitted in teams.

Candidate profiles
Les Ateliers’ pilot committee will meet to make its selection among the applications, with the intention to form multidisciplinary teams composed of professionals of all ages and nationalities. The committee prioritizes gender equality, the diversity of approaches and experiences, and of course the ability to work in groups.
Participation at the workshop is open to all professionals practicing a profession or possessing experience tied to urban planning such as architects, urban planners, economists, sociologists, engineers, landscape architects, environmentalists, agronomists, geographers, artists,...
Important: The session in Ouarzazate is for professionals who have already had several years of professional experience. Candidates with less than 4-5 years of professional experience are invited to apply to sessions organized for young professionals (available on Les Ateliers’ website www.ateliers.org).

Financial conditions:
During the session, the following costs will be assumed by Les Ateliers: international flights in Economy class, on-site housing, meals, area visits, resource documents, work materials. However, participants should bring their own computers.
Workshop participants work on a voluntary basis and must pay the association’s annual membership fee.

Contacts:
For any information, please send an email to: ouarzazate@ateliers.org
Les Ateliers de Cergy, rue de la Gare - immeuble le verger, 95000 Cergy
www.ateliers.org