

Tafilelt Tajdit, Algeria

Tafilelt Tajdit is a new extension of Béni Isguen, a traditional city in the M'Zab valley, 600 km south of Algier. It protects the oasis from scattered urbanisation, and mixes vernacular architecture with modern comfort, waste treatment, water management and an eco-parc. It is one of Algeria's only community-led subsidised housing developments. The 1,050 houses, home to 5,420 people, were built in several phases, the selling of the first 100 funded the construction of the next 100, and so on.



Submitting organisation: Amidoul Foundation

Type of organisation: non-profit community developer

Key elements of the project:

- **Partnership development based on community solidarity.**

10 notables from the community gave the foundation an interest-free loan to start the project, the State sold and provided the land and contributed 25% in subsidies. Residents buy their own homes.

- **Affordable homes: 44% of the price of social housing.**

A social mix between buyers on low incomes (29%), middle income (66%), and upper incomes (5%). No mortgage loans were used.

- **Community governance and rules.**

Some residents participated in the planning and the establishment of a charter on behaviour and preservation of the homes. All residents must clean public spaces and plant trees in the eco-parc.

What inspires us ...

In the face of the climate emergency, more and more places on Earth are becoming arid deserts. The revival of environment-friendly high-density settlements through vernacular architecture is the perfect antidote to both mass developments of social housing, ill-suited to the local context, and energy-hungry "eco cities" like Masdar City in Abu Dhabi or The Line in Saudi Arabia. This model could be transferable to arid regions.

Introduction

Tafilelt Tajdit is a new eco-housing development built on a rocky hilltop overlooking an oasis in the northern Sahara Desert. The M'Zab valley, the region in which the development lies, is a UNESCO world heritage centre with a long history of human settlement. It's eleventh century fortified cities known in Arabic as *ksour* (singular *ksar*) are renowned for their well-preserved "Mozabit" architecture which is extraordinarily well adapted to the desert climate and preserves the fragile ecosystem of the oasis. City walls, tunnels and blind facades made of local natural materials, optimise shade and sunlight to increase comfort and reduce energy use both in hot and cold seasons. This is particularly important in the context of the climate emergency, which is making life in the region harder by exacerbating heatwaves in summer and further reducing the few days of annual rainfall.

Due to a population boom and new job opportunities after the discovery of oil fields in the 1960s, the valley has seen significant growth and a subsequent housing availability crisis. Over the years, informal settlements and private condominiums have sprawled outside the walls of traditional *ksour*. These new low-density and anarchic developments largely invaded the palm grove and rare fertile soils of the oasis, contaminating it with solid waste and greywater.

Furthermore, homes built by the government-subsidised national program since the 1990s are neither suited for the Saharan climate nor to Mozabit cultural traditions. They are aimed at middle-income families and characterised by cast concrete apartment blocks and detached houses purchased through bank loans.

In the 1990s members of the Mozabit community of the *ksar* of Béni Isguen decided that an alternative offer was needed. They wanted to build affordable and sustainable housing, based on traditional architecture and the Ibadite solidarity mechanism which excludes bank loans. They formed the Amidoul Foundation, a not-for-profit organisation, which would raise funds from the local community and public housing subsidies and develop a new town as an urban extension of the original *ksar* of Béni Isguen. This is how Tafilelt Tajdit was born.

Replicating and modernising the vernacular Mozabit architecture, Tafilelt Tajdit has shops, education, sports, health, and religious facilities and is surrounded by an eco-park tended to by residents. By offering culturally adequate, sustainable, and affordable housing options, the project tries to limit damage to the environment, emigration of local young families to the north of the country whilst passing the cultural legacy and traditions of mutual aid and solidarity onto future generations.

Context

Algeria is the largest country in Africa. The Sahara Desert covers 90% of its surface but is home to only 10% of the population. The rest of the population live in cities on the Mediterranean coast and the northern slopes of the Atlas Mountains.

The [M'Zab region](#) lies on the northern edge of the desert, 600 km south of Algiers. The valley is populated by Mozabites, decedents of a Zenetes berbere tribe which settled in this region in the tenth century. They are a religious minority which follows the Ibadism movement of Islam.

Half of Algeria's population is aged under 30 years old (2024) which implies a strong annual demand for housing from new households. Affordable housing options are lacking in the M'Zab, and middle-income young families often move to the north coast in the hope of purchasing a subsidised home.

Project Description

[Tafilelt Tajdit](#) is home to 5,420 residents living in 1,050 houses which were built in distinct phases between 1997 and 2014, on land located three kilometres away from the ancient city of Béni Isguen. With a density of 24,100 inhabitants/km², this new settlement is denser than the city of Paris.

Traditional Mozabit construction techniques and local materials were employed to reproduce the architecture of Béni Isguen with modern comfort inside the homes. The traditional passive cooling design reduces the energy need.

A circular public garden called eco-park surrounds the settlement and contributes to a micro-climate that reduces the heat. It is a place for both leisure (zoo with desert animals, playgrounds, public spaces with ponds) and educational activities for residents to learn about environmental protection (tree planting, waste collection and recycling, cleaning of public spaces).

The developer (Amidoul Foundation) sold the homes at cost price to the selected beneficiaries which include those on middle-incomes and those considered to be vulnerable, e.g. widows and families of people with disabilities. The homes are much cheaper than standard subsidized housing programmes, but their quality is much better.

Organisation implementing the project

[Amidoul Foundation](#) is a non-profit association set up by notables from Beni Isguen to develop Tafilelt Tajdit. The foundation has multiple roles before, during and after construction.

Before and during the construction it:

- acts as the developer of the new project, coordinating different stakeholders and funding;
- fundraises donations or interest-free loans from notables from Béni Isguen to kickstart the project;
- selects the beneficiaries and applies for public housing subsidies with them;
- collaborates with architects on the design and modernisation of traditional techniques to be applied;
- trains craftspeople in building techniques and coordinates the works;
- convenes the community of the *ksar* and beneficiaries to mutual aid works (*Touiza*);
- defines the charter of rules with future residents.

After construction is complete it:

- participates in the governance and management of the new settlement;
- educates and raises awareness amongst the population about environmental conservation (professionals, farmers, schoolchildren, residents);
- coordinates with public authorities and carries out maintenance works in the city and eco-parc.

Aims and Objectives

The main aim of the project was to develop environment-friendly affordable homes that mix traditional bioclimatic principles with modern comfort, offering an alternative to the destruction of the M'Zab valley's oasis by rapid and chaotic urbanisation.

Another explicit objective is a commitment to restore and preserve the cultural legacy of the Mozabite doctrine based on mutual help and solidarity.

Amidou Foundation's social committee selects beneficiaries together with Mozabit family clans and encourages them to pay their contributions for their homes in Tafilelt Tajdit.

- **Community criteria:** Tafilelt Tajdit is exclusively for Ibadi Mozabit, mostly from Béni Isguen. No Arab families were initially accepted. Ninety percent of the current residents were already living in the M'Zab valley, the rest was living in other regions.
- **Economic criteria:** Beneficiaries cannot possess another home or ever have received funding from the National Housing Fund (*Banque Nationale de l'Habitat*).
- **Demographic criteria:** The Foundation prioritises married couples. It only accepts single people if they have dependent parents or are widowed; and divorced people only if they have children. Large families have priority over small ones, older applications have priority over more recent ones.

Some of the homes are not occupied, as the last part of the development is not served yet. The maximum number of residents in Tafilelt Tajdit is 6,000, to keep the community close-knit with social control and mutual respect.

Social and community life is connected to Béni Isguen where most people have relatives, and where the market (*souk*) and middle- and high-schools are located. Tafilelt is connected to an industrial area (1km away) and the main city of Ghardaïa (7km away) by shuttle buses and taxis.

Key Features

Ksar Tafilelt (1997) is one of a series of projects which applied the "Ghardaïa Formula" fostered by the wilayah of Ghardaïa. The formula aims to produce affordable housing projects respectful of the traditions and the oasis, through a collaboration between public authorities (subsidies, servicing of the land), the organised community of the original *ksar* (participatory planning and development) and the beneficiaries of the homes (mutual aid works to reduce costs).

The first application of this principle was seen in 1992 with the new [ksar of Tinemmirine](#). A local notable civil engineer led the development of 70 homes in the old way with local materials for very low-income Mozabit residents of Béni Isguen. The project received public funding and families had to contribute 120 days of mutual aid to construct their house and communal areas, and a small financial amount (under \$800 USD). Similar private projects started in 1995-1996 close to the other *ksour* of the M'Zab valley, and four others later in the 2000s, but not all of them were completed¹.

As Tinemmirine was being developed, Amidoul Foundation started a new project of 870 homes, but has in fact ended up constructing 1050 homes.

The Foundation established a revolving mechanism to finance the whole development in phases. Initial capital was fundraised from ten Mozabit notables interested in supporting the project with interest-free loans or donations. This fund enabled it to purchase land from the State and build one hundred homes. The sale of these homes funded the next one hundred, and so on.

The first 54 finished homes were occupied by buyers in November 2000. Eight other allocations happened after each new phase was finished. Tafilelt had 750 homes in 2005, 950 in 2010 and finally 1050 in 2014.

Future residents participated in different spaces during the works:

- Some of the future residents with technical skills (engineers and architects) contributed to the design of the homes. A committee of beneficiaries volunteered to monitor technical aspects of the work.
- Once the first homes were inhabited, residents were asked for feedback to improve the design of indoor spaces for the next phases.
- A charter was established with future residents during several meetings. It is a contract between the Foundation and the household attached to the deed. It contains recommendations about living together, respect for neighbours, and information about the house. It prohibits alterations to the exterior appearance and form of the house but allows modifications to the interior.
- Each household is encouraged to plant one palm tree, one fruit tree and an ornamental tree in the eco-park and is responsible for looking after them.

Once they move in, residents continue to participate in the governance and management of the neighbourhood:

- The general assembly of residents elects a committee. Four of the elected residents participate with three members of the foundation in a management board which is responsible for the supervision of works, the upkeep of the estate and its green spaces, the respect of the charter and resolution of conflicts between neighbours, as well as the organisation of awareness-raising activities on environmental protection and citizenship.
- In each block of houses, owners take turns to manage the cleanliness and hygiene of the block for one week.

¹ Gueliane, Nora. (2019). *Les nouveaux ksours du M'Zab Quels enseignements pour l'étude de l'urbain en Algérie ?* [Available online](#)

Innovation

The main innovation of Tafilelt Tajdit is that it demonstrates the sustainability and efficacy of traditional design and building techniques in protecting the environment of the M'Zab valley and responding to the challenges of the wider Sahara Desert. Furthermore, Amidoul Foundation updated certain elements of the traditional *ksar* to adapt it to modern life and social practices.

Traditional elements adapted to the Saharan environment:

- Human-scale settlement easy to administer.
- Compact urban fabric with terraced houses, narrow streets that criss-cross each other to break the sandy winds.
- Shading provided by changes in the direction and the depth of the streets, covered passageways, and corbelled balconies.
- Traditional painting of walls and houses with desert colours suited to the scorching temperatures and landscape integration, and blue paint on the terrasses.
- Traditional symbolic elements: city wall, large wooden gates, wells, a minaret, and a watchtower.
- Houses with a standard height of 7.60m providing the benefit of natural lighting. Introverted design of the houses to minimise heat: blind facades and rough claddings, wooden grids on the windows which let in air and light but not the heat.
- Houses composed of a ground floor with a kitchen, family living room, bathroom, parental room, the first floor with children's rooms and another bathroom; the rooftop with a terrace and laundry space.
- Ibadism egalitarian society principles: all the houses look the same with no signs of wealth, whatever the social status of the owners. They respect the intimacy and autonomy of each family.

Modern elements:

- Larger streets inside the *ksar* suitable for cars.
- Patios and wells of light to increase natural ventilation and lighting in each house.
- Larger homes with more roomy inner spaces for modern furniture, kitchen, and bathrooms.

Funding

The total cost of the project was 2,352,000,000 DZD (\$ 29.2 million USD at 2014 exchange rate).

Bank loans are prohibited by the Ibadi rite, so funding came from a combination of community loans and donations, savings and the mutual aid of the beneficiaries, and public housing subsidies.

Amidou Foundation benefited from a public funding scheme for “Participatory Social Housing” (Logement Social Participatif - LSP), which became a national programme after the success of *ksar* Tinemmirine. It subsidises housing developments for middle-income households who have never received public funding for housing. In each development phase, the foundation had to send the applications of the households to the National Housing Fund to get the corresponding subsidies to build the homes.

Financial scheme:

- Community contributions (100 million DZD - \$1,44 million USD): interest-free loans by ten notables and donors from Béni Isguen to the Foundation, repaid during the following years.
- The plot of public land was bought by the foundation from the Algerian state at a price of 17.4 million DZD (\$250,600 USD). The State carried out 80% of the servicing of the plot of land, 10% was paid for by the Foundation, and 10% by the beneficiaries.
- 25% from public funding in the form of an average of 450,000 DZD (\$6,480 USD) per household through the LSP scheme.
- 75% from savings and mutual aid from the home buyers.

The *touiza* mutual aid corresponds to 2-3% of the cost of the house. It takes the form of labour during weekends (cleaning, tree planting, construction and furnishing of common spaces and the mosque) and is not dependent on the home buyers’ building skills, as unlike in Tinemmirine, beneficiaries did not participate in the construction of the houses.

The Foundation raised additional community donations and public subsidies to develop the eco-park and the water treatment plant.

Impact

Financial²

The financial model developed by Amidoul Foundation is based on public funding and Mozabit community solidarity has made the homes affordable to young families of Béni Isguen, as well as people facing poverty (widows, elderly, people with a disability).

To reduce costs and development time, only three different housing categories are available amongst the 1050 homes. The monetary cost for beneficiaries (after the subsidy and the mutual aid value) are:

- 33% of “Small homes” (living area 110m², three bedrooms): (\$ 5,700 USD of 2007) ³

² Due to the lack of details about the costs in the information provided by the applicant, numbers below are taken from the following publication:

Adad, Mohammed Cherif. & Redjem, Ali., "Production de l’habitat dans les nouveaux ksour, symbiose entre intervention de l’Etat et action Communautaire : cas du Ksar Tafilelt dans la vallée du M’Zab. *Revue Perspectives & Sociétés*, Vol 3, N°2, Juillet 2012, pp. 124-148 [Available online](#)

³ The current exchange rate in 2024 is \$1 USD = 139,5 DZD, but it was \$1 USD = 69,44 DZD in 2007 at the time the data was produced.

- 60% of “Medium homes” (living area 170m², five bedrooms): (\$12,500 USD)
- 7% of “Large homes” (living area 220m² eight bedrooms): (\$18,900 USD)

The Amidoul Foundation’s social commission analyses the eligibility of applicants for a home. Accepted applicants must deposit 25% of the cost of the home upfront. Then they have two years to deposit another 50%. Once they have contributed 75% a draw is held to determine which house they receive. They can move in and pay the remaining 25% in instalments, which depend on the household’s payment capacity. As the Foundation knows the families and their situations, they can be flexible and allow different arrangements for families with little incomes or temporary economic difficulties.

As households facing poverty are not able to deposit 25% of the cost of a home upfront, they can receive donations from Mozabit families through the *zakat* Islamic finance obligation which directs a certain proportion of personal wealth to charitable causes each year.

In 2007, at a point when 870 homes were already built, the price per square meter in Tafilelt of around (\$115 USD) was only 57% of the price of state social housing, 44% of the cost of Participatory Social Housing and 31% of the cost of public promotional housing.

However, the price per square meter is 1.8 times higher in Tafilelt Tajdit than in neighbouring *ksar* Tinemmirine, where mutual aid and self-construction was central to make the 70 homes affordable to the lowest-incomes household.

Social

The whole project is based on the Mozabit community solidarity system with self-management of public housing subsidies. Paternalism is against Ibadi rules. Each time solidarity is needed, all the families and individuals have a moral duty to help the community through mutual aid, charitable acts, political support, etc. The whole project is therefore non-profit and benefits from a lot of voluntary management work of the Foundation’s members, but also architects and other stakeholders.

This generational support from the elderly to younger generations transfers the legacy of their ancestral system of values, beliefs, and their cultural identity.

Seen from another point of view, this conservative system mainly accepts Mozabit people into the project. The same applies to the new extensions of Béni Isguen and the other *ksour* of the valley. The parent city always exercises social control over new settlements and their populations. Moreover, due to these rules, only families can become owners, not single people except if they have dependent parents or children.

The project has reached a social mix between low-, middle-, and upper-income groups. The division of social categories is as follows: **29%** day-labourers (incomes between 1-2 times the minimum salary); **66%** liberal workers and civil servants (4-5 times the minimum salary); **5%** are senior executives (7-8 times the minimum salary). In terms of property, 69% of the homes are owned by men and 31% by women.

In terms of employment opportunities, the construction of Tafilelt Tajdit provided work for 500 masons and labourers. Some residents work in local shops and tourism to this increasingly famous site has also started to generate incomes. Women work mainly in education and social facilities (creche, primary school, psycho-educational centre for people with mental disabilities) or at home.

A small number of homeowners live in other cities or abroad and only use their home in Tafilelt a couple of times in the year for holidays. Long term rental is allowed. There are no specific resale mechanisms to prevent speculation or gentrification, but the fact of having acquired such an affordable home prevents people from leaving because it would be impossible to match the price and quality elsewhere.

To date, only 15% of the 1050 homes have been resold. New buyers or tenants must sign the charter. If a buyer fails to meet their social obligations (lack of hygiene, mistreatment of neighbours, use of the house for purposes considered pernicious...) the neighbourhood committee has the right to evict them from the house (90% of the *ksar* members need to agree with the decision).

Environmental

The development always set out to demonstrate an alternative to the destruction of the M'Zab oasis. Built on a rocky plateau, Tafilelt Tajdit does not destroy agricultural land. On the contrary, it contributes to the greening of the area with its eco-park. Palm trees protect the fruit trees from the sun, and below, local farmers grow vegetables, aromatic and medicinal plants.

Drinking water from the aquifer that irrigates the valley is managed by the state-owned water company. Tafilelt Tajdit has a borehole that supplies residents with water. Every house has a water tank in case the pump fails. A water-treatment plant cleans part of the greywater and provides half of the water used in the eco-park.

Tafilelt Tajdit's rules try to shape more environmentally conscious and respectful citizens: educational activities for school children and residents on the protection of the flora and fauna; the obligation to plant and look after trees; strict rules regarding solid waste recycling and cleaning of public spaces. Photovoltaic solar panels provide electricity for streets and Eco-parc lightings.

Like in the old *ksar* of Béni Isguen, the compact fabric and design of the facades and interiors of the houses optimises natural heating and cooling properties. Local materials found on or close to the site (limestone, lime, clay and *Timchint* plaster) were used for the construction. These local materials are cheaper, have good insulation properties and low carbon emissions compared to cement, steel, glass, etc. Wood is used for small window-shutters, and doors. However, concrete was introduced when considered necessary to reduce costs or modernise traditional homes (foundations, floor, roofs).

Amidou Foundation claims that the homes are "highly energy-efficient" and have a "very high thermic comfort", with a reduction of heat of "up to 5°C" inside during the summer⁴.

⁴ This result does contradict the idea of thermal efficiency if the temperature is 45°C outside and 40°C inside and air conditioning is needed for several hours a day during hot seasons. About winter comfort, a comparative study made on one house in Tafilelt Tajdit and one in Béni Isguen points out that the use of hollow concrete roofs in Tafilelt Tajdit leads to cold indoor temperatures, while the traditional terrace roofs made of palm branches, stones, clay, and lime layers ensure a better insulation keeping more comfortable temperatures and relative humidity. See Kadri, Meryem. (2020). The impact of the roof on indoor thermal comfort in traditional cities. Case of Béni Isguen's *ksar*. *Algerian Journal of Engineering Architecture and Urbanism*. Vol. 4. 77-87. [Available online](#)

Learning, evaluation, and recognition

Several academic papers by researchers have studied Tafilelt Tajdit and reached different opinions. Most of them are positive. The only paper with interviews and quotes from residents and local stakeholders shows good levels of satisfaction for comfort, costs, and the social structure at Tafilelt⁵. However, the authors question the community's self-isolation and segregation between Mozabit and Arab⁶.

Another author notes that Amidoul Foundation acts like a classical developer by offering only three housing options. This contrasted with another local development: Tinemmine, where beneficiaries participated in the conception and construction of the houses and all of them are different, in Tafilelt the Foundation decided to standardise options. As a result, the homes are less adapted to the specific needs and preferences of each household⁷.

On the resilience aspect, a more recent article criticises the lack of a strategic circular economy (waste, water, and energy management), the introduction of cars and the absence of autonomy as Tafilelt has no market⁸

Recognitions

By promoting its work to scholars and dozens of influential international guests from embassies and multilateral organisations (World Water Council, UNESCO), Amidoul Foundation achieved worldwide recognition. Some of the recognitions are:

- 2013: third price of the National Architecture Competition
- 2014: Best urban, ecological, and social project award (*Arab Administrative Development Organization*).
- 2016: second price of the Grand Jury for [Green City Solutions Awards](#) (*Construction 21, COP22 Marrakech*).
- 2020 & 2023: [National Energy globe Award](#) and [International Eco-towns Prize](#) (*Energy Globe Foundation*)

Some video reportages from [ARTE](#), [Brut](#) and [Algerie-Focus](#) are available online. Papers about Tafilelt Tajdit in English:

- Adad, Mohamed & Messaoud, Aiche (2014). *Involvement of inhabitants in housing: case of new ksurs in M'Zab valley (Algeria)*. [Available online](#).
- Rezaei, Naimeh (2021). Lessons from Tradition in the Building of Contemporary Settlements: The Case of Tafilelt in the M'Zab Valley, Algeria. *Architecture and Culture*, 9(2), 310–334. [Available online](#)
- Souidi, Manel & Bestandji, Siham. (2018). Tafilelt, the Neo Traditional Model of Ksour in Algeria: Assessment of the Multifunctionality of Urban Spaces. *Journal of Contemporary Urban Affairs* (JCUA). 3. 99 - 107. [Available online](#)

⁵ Gueliane, Nora. (2019). Op. Cit.

⁶ Gueliane, Nora (2015). Op. Cit.

⁷ Adad, Mohammed Cherif. & Redjem, Ali. Op. Cit.

⁸ Denche, Imen & Debache, Samira. (2022). La réinterprétation des ressources patrimoniales comme levier d'éco conception au prisme de la durabilité saharienne – cas du nouveau Ksar Tafilelt dans la vallée du M'Zab – Algérie. 66. 79-95. [Available online](#)

Transfer and future plans

Amidou Foundation is involved in the management of Tafilelt and actively develops the eco-park, three new mini-water-treatment plants to clean and reuse all the wastewaters (against 50% currently). It also looks for funding for research on how to improve waste management and renewable energy production to reduce the environmental impact of the settlement.

The foundation has no plans to develop new projects. During the 1990s and 2000s Each *ksar* community created its own associations to develop similar projects. Many of them failed to conclude the constructions or sell all the homes. Amidoul Foundation shares its experience with other projects currently being developed in the valley (Hamrayate, Tinaâm, and Ioumade).

Amidou Foundation often receives architects, PhD students and researchers studying the example of Tafilelt Tajdit.

The community solidarity mechanism used to finance and develop Tafilelt Tajdit is strongly linked to the Ibadi Mozabit doctrine and therefore quite unique. However, participatory management and the modernised *ksar* architecture surrounded by an eco-park is a transferable concept to other regions of the Sahara, the Sahel, or the Persian Gulf. The foundation would be keen to work with a research centre to disseminate its model in Sahel countries.

World Habitat Reflections

This project reflects the desire of a community to protect its traditions and beliefs. The genesis of this project stems from local observation of a global issue: the need to rethink and adapt human settlements for the preservation of natural resources and to the (changing) climate.

The new citadel of Tafilelt stands as a counter-model to both standardised state urbanisation and chaotic speculative private development. The homes produced by this community initiative are significantly cheaper and of far better quality and climatic adaptation than public or market housing. In addition to the frugal low-tech architecture, the Foundation has made significant efforts to reduce the environmental impact of residents, particularly through training the younger generation.

This project has already received international recognition for these elements. Nevertheless, sharing experience on adapting to climate change and preserving biodiversity with members of the WHA network could be mutually beneficial.