

Research Article

Urban Mobility and Resilience; Planning and Design A Commercial Zone and Zone of Activities for Efficient and Healthy Town

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Abstract:

The sustainable development strategy based on appropriate population density considered as a flexible strategy for achieving urban resilience of mobility in healthy town. And since the appropriate urban density is considered an indicator directly related to regional planning. The indicator of transportation use and the availability of traffic flow is considered a decisive indication for the success of integration between serving and served spaces in town. In this search we plan the zone of activities and the commercial zone in Ouzera Town considering the resilience in urban mobility and the integration between urban spaces for a town that serves health. We use biomimetics to design a harmonious urban fabric in an ecological environment without heat island and traffic jam.

Keywords: Town planning, Urban mobility, Resilience, urban efficiency, healthy town.

1. Introduction

Many cities face urban planning challenges overcrowding leads to difficulties in providing potable water and inadequate sanitation impacting the urban mobility environment and the resilient of urban facilities and public spaces.

If urban planning is carried out from beginning with an urban strategy that ensures the appropriate urban density for a healthy environment. how can all integrated spaces of urban mobility that enables the community of town to adapt to social and economic changes?

2. Serving and served spaces in Ouzera town.

Ouzera town is located directly on the North South Motorway. The town has a vital road that supplies the services in town passing through Wilaya Road N°51.

The scientific and service spaces are directly located in the town with a regular distribution that ensures smooth traffic flow.

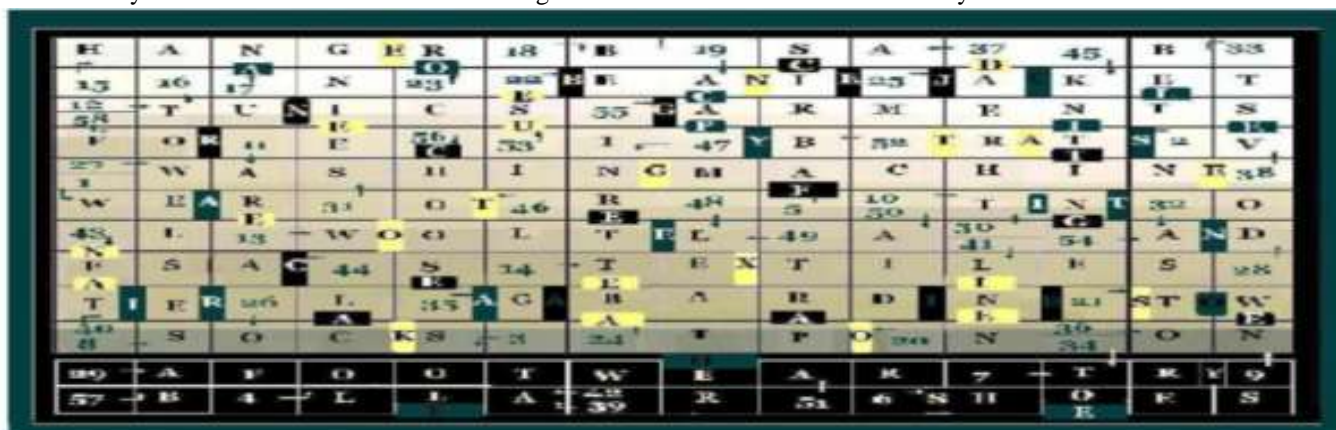
The urban pole is located in a prime location with a direct road connecting it to the vital road to the Motorway.

The road network along with the public squares are designed as served spaces for serving spaces particularly for scientific and healthcare facilities which are already completed or planned for implementation.

While a commercial center designated for construction in a vital location is considered a space for effective commercial services. The vital commercial zone and the zone of activities require strategic location to ensure resilient mobility and efficient sustainability of facilities achieving optimal service between serving and served spaces within urban areas.

3. Cognitive observatory from urban fabric of Ouzera Town

In the urban observatory completed in Ouzera town using a cognitive model from serving and served spaces we find the basic design with vocabulary of urban life. Which is drawn in its general form of furniture found in every home.



MODELING OF URBAN LIFE

Lecture Notes I

A STORE OF GARMENTS AND FOOTWEARS

55: That is a school reopening, a man and his son are going to a store of and footwears for purchasing a new clothing 7: A child to on shoes in a store of shoes 20: A child to an athletic shoes 33: A of leather 29: A trader to expose of leather 9: A clothes of men 49: A ticket of clothes to know a country of making 32: We find gloves in of garments 40: A trader of clothes to arrange pants of men in a 43: shaken dust used for restore and expose clothes in appearance 21: A trader of garments to an everyday clothes 54: A purchasing selling of outdoor clothes 57: A trader to dispose shoes on of shoes tiers 34: A size of shoe to belong to a of foot 3: A of buskin 6: A trader of shoes to sell a running for an athletic children

Barbershop

12: In barbershop children to wear special of haircut 16: A barber to put a hand on towel rack 1: A barber to a tunic of haircut 22: In winter a child to go to a barber where he left a for cutting hair 58: A barbershop equipped with a a good work 53: a barber to use scissors for cutting a hair 37: A coat stand reserved although hanging coats such a overcoat

Lecture Notes II

TEXTILES AND CLOTHINGS

31: In a classroom pupils have a same sight of an overall 45: A thread for 14: Woven fabrics 18: A beanie of child can made with a wool material 2: A child to wear a holding of sport and a training in sports ground of school 4: A citizen to buy a rug 25: In a store of garments we find a down for man 8: The cotton is a material for making and underwears 24: A poplin is a fabric for sewing a short sleeved shirt 19: A maker to wear of work 15: A for blazer 35: A material used for making the raincoats 48: A fabric used for manufacturing jackets and shoes 11: A synthetic fabric using for making a tunic of barber 42: A doctor to order a flat footwears for pregnant women 51: The laces are of shoes 23: A citizen to wear a in winter a topcoat an overcoat 13: A is a material for making rugs and knits 50: A model of clothings to a tailor for choosing a type of pattern 17: A child to bung up uniform 10: A professor to have glasses of dark 41: A is a natural fabric 30: A short piece of clothes worn under jacket 46: A tailor do a seam of pant with thread 30: Continious strand made from fiber by throwing 44: A child to wear a scarf in of snowy weather 39: A work boots is an incumbent wearing building site 26: Shoes lather for child 36: In a store of garments a trader to set tiers the series of pants for children 28: A child to a sport training with sweatshirt and sweatpant 5: The pants made through many such as corduroy and denim

LAUNDRY

56: A citizen to a laundry detergent for cleaning clothes 27: A citizen to 47: A child to put an overall laundry basket 52: A washing machine to operate an electric current and a water for making a working of cleaning

4. Spaces of activities and regional plan.

The provincial plan for industrial zones and zones of activities in the wilaya of madeais considered a basic tool for designing a main activity zone in specific region.



Fig1: Plan of industrial activities in the territories of Médéa
(Source ANIREF ***2014)

In the plan we find the region of Ouzera with a main zone of activities. In order for it to be vital we choose the clothing industrial activity as the main activity, which is in a factory that does not produce industrial waste. We attach the industrial zone with only main activities to a commercial zone taking into account traffic flow and healthy and scientific character of Ouzera Town.

5. Urban design for strategy of urbanresilience

Biomimetic design helps designers to organize serving and served spaces in public facility with resilience. This innovation in space distribution is a tool for the strategic design for large urban scale based on scientific principles. It takes into account urban resilience and traffic safety within an ecological urban fabric that doesn't suffer from heat island problems.

5.1. Commercial zone in active area

The commercial area is located in front of Daira seat on the vital road that extends directly to the motorway from the southern and western entrances of town and is shown in the urban resilience model for the scientific and healthy space of Ouzera town. This area is currently being used as activity zone and is not homogeneous with the scientific space. Therefore commercial urban area have been designated for wholesale food trade as well as a wholesale center of clothing and textiles, in addition to a business tour, the commercial area is accompanied by a hotel. The currently built space in the old activity area is used as a leather garment production workshop. This activity is compatible with sanitary space and preserves an ecological environment. Workshops are also dedicated to the manufacturing of traditional dress and weaving.

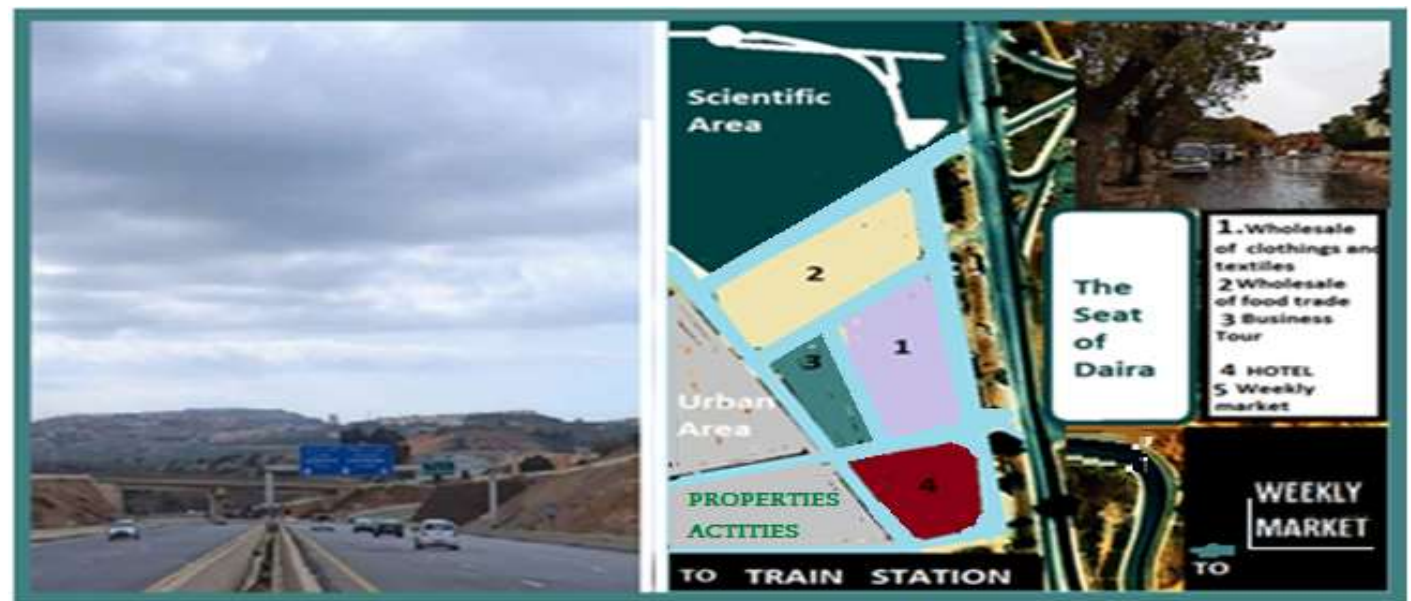


Fig2: Model of mobility and resilience in Area of Commercial zone (Author 2025; photography **)

On opposite side near the oak slope, an area at the end of urban space has been designed for a weekly market.

The resilience in mobility on the vital road passing through the sailing crossroads of Ouzera town achieved by using the roundabout near the fuel station as a traffic control element especially in the north direction coming from the south via the Motorway slope to the scientific space and commercial area.

This vital road ensures resilience for civil protection intervention in the event of emergency in all facilities. Due to the building being located directly on the vital road near an important roundabout and the smooth flow of traffic along the route.

5.2. biomimetic design in Commercial zone.

The chain of wholesale grocery stores draw an urban pattern derived from the primary protein structures. The stores are decorated with circular roofs forming a ring chain and the façades are illuminated in a distinctive architectural view on the façade of sailing intersection roads. The height is on the ground floor extending over an area sufficient to be active and urban resilience is taken into account by the parking for wholesalers and retailers. The green space adds an ecological character with carob trees. The active commercial area is bordered on the north by palm trees. A store of rapid food is located on the front of vital chain a wholesale cleaning supplies stores is located. There is a water closet near the parking on the northwest side ensuring the sanitary aspect of the commercial area.

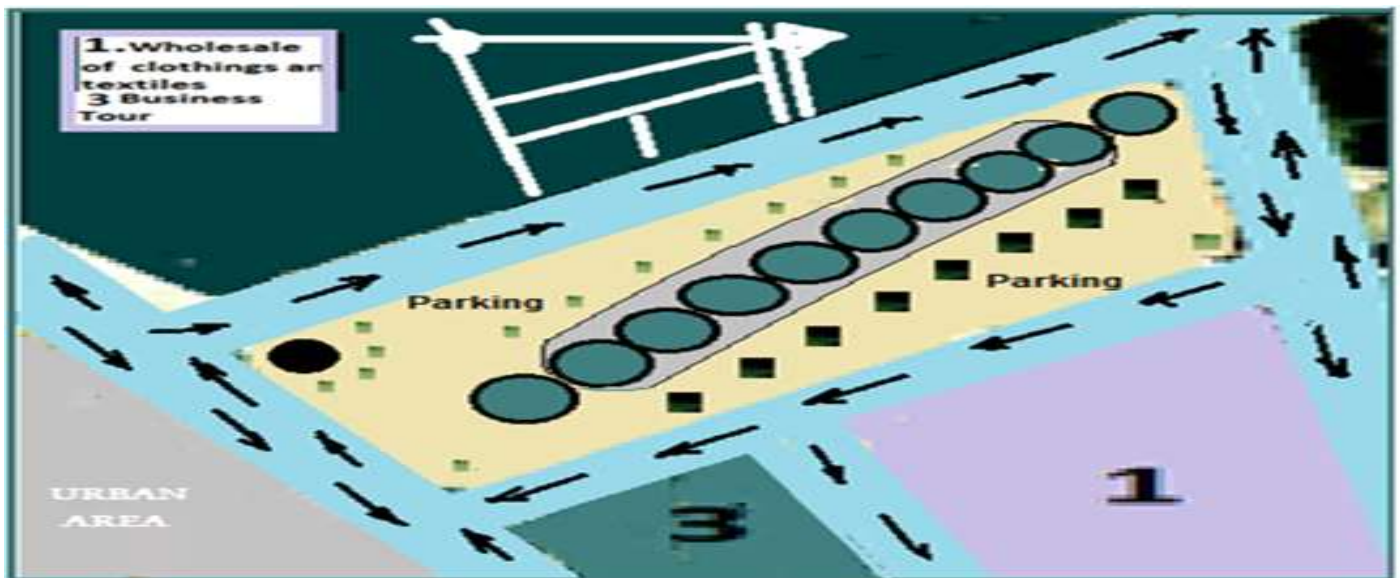


Fig3: Urban Modeling; Wholesale market of Grocery (Author 2025)

The wholesale grocery market is adjacent to the wholesale market of clothings and textiles, which features a modern urban style with solar panels that draws in façade special shape like a linen flower in an aerial view. The solar panels ensures the energy efficiency of building in termes of heating and air conditioning. The architectural from of building draw a distinctive façade facing the vital road of town with its green spaces on both sides. The building consists of floors with façades characterized by arches in their general form overlooking the parking from the east and west sides. In front of the Daira Seat there is an excellent restaurant and shelters in an aerial vieaw that draws the shape of special belt for Athletics



Fig4: Urban Modeling; Wolesale market of textiles and clothings (Author 2025)

6. Planning and urban design on Zone of activities for vital and resilient urban fabric in Ouzera town

The location of activity zone in Ouzera town is chosen to ensure urban balance and achieve an economic growth for the region. We are designing in large scale a commercial and industrial zone of activities adjacent to the urban pole ensuring urban efficiency in healthy and scientific town. The design of urban system based on resilience in mobility and flexibility in adapting to the environment and the built environment. The activity area is designed on a sloping ground and the plan inspired from several form of plant to ensure resilience of mobility within the facility. The flexibility in the urban system is also found by planting trees in the watercourse area and building the facilities at the top, so that the biotope area factor is 0.45.



Fig5: Biomimetic design on zone of activities (Author 2025)

A hightech water collection system designed in green area of urban system based on rain water collected from buildings roofs and water collected from slopes. The area of collect water are shaped like the water drops and form a landscaping with forest area in ecological continuity and resilient urban system. This system of collecting water provides automatic watering of surroundings green spaces for urban landscape sustainability. The zone of activities includes a wholesale fruits and vegetables market designed in the shape of cherries. A building for craft and commercial activities shaped like an oak leaf. The main activity building designed in the shape of a cotton plant is dedicated to clothing factory. The energy efficiency in factory ensured in factory through solar panels in shape of lienen flowers. This urban system ensures resilience in mobility between buildings of each facilities the road linking the urban pole to the vital road as well as route number 51 ensures resiliences in mobility across the region and integration by the main commercial area and the facilities of town.

6.1. biomimetic design of wholesale vegetables and fruits market in urban fabric.

The wholesale market for fruits and vegetables is designated on an area of one hectare in addition to the green area. It has a north eastern façade towards a green network of clothings factory. On the northern side ; a building is designated for craft and commercial activities in the shape of an oak leaf with for commercial activities and the internal façade facing the green space of gum and evergreen trees designed for craft activities. The design of the wholesale fruits and vegetables market is inspired from cherries fruits and is interwoven with building of activities and trading with a main entrance from the northwest facing a crossroads that connects the area of activities to the urban pole and the main road extending to the vital road of town. The biomimetic design and selection of shapes help in distributing the active spaces within the market and organizing the roads leading to it and a parking to ensure flexibility in mobility and urban efficiency.

The wholesale market is reached from the vital road of town via main road; in the front there is a hotel a restaurant and services of truck repair. In the front of the market there is a large parking and green space designated in the shape of a pistachio plant designed such as public space for urban agglomeration. The green space inside the market also draw a natural landscaping and appears in the shape of pistachio in areal view.

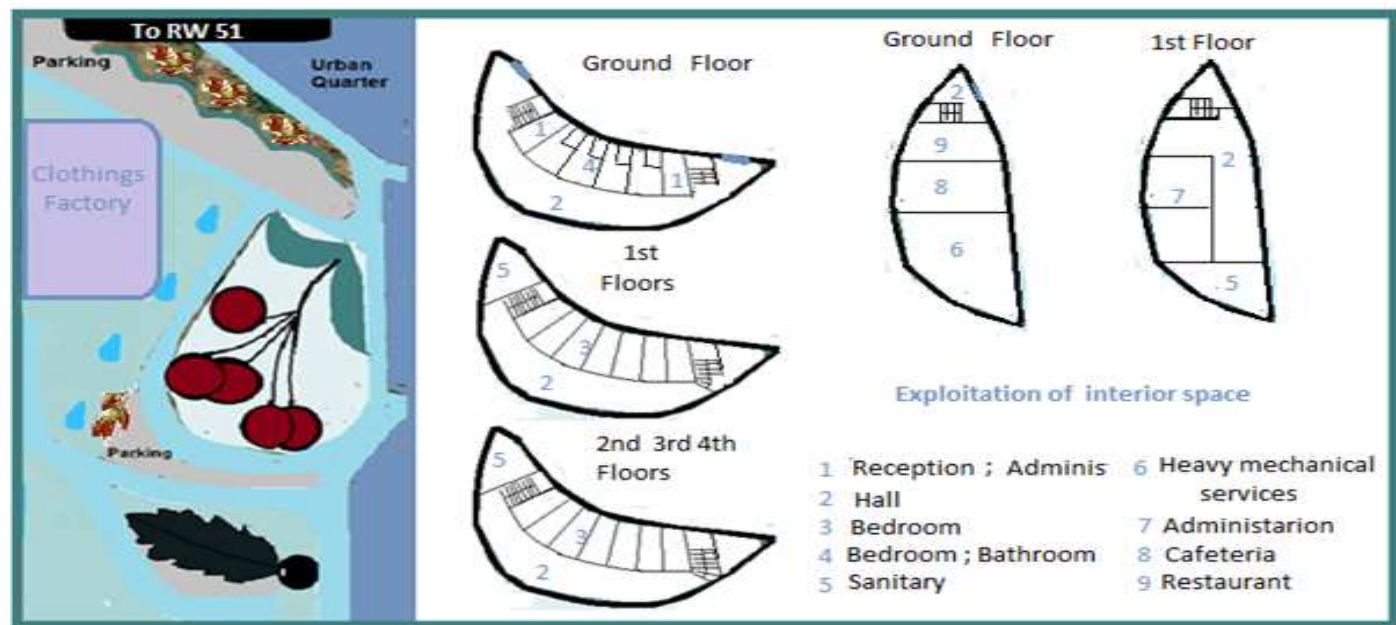


Fig6: Biomimetic design of active zone (Author 2025)

6.2. General presentation of commercial surface in market of fruit and vegetables.

The wholesale fruit and vegetables market contain two pavilions each pavilion has cold rooms. The commercial space is estimated at 14 acre each pavilion contains 12 squares arranged in a layout that ensures easy transportation of produces between th outdoor truck space and the commercial space.

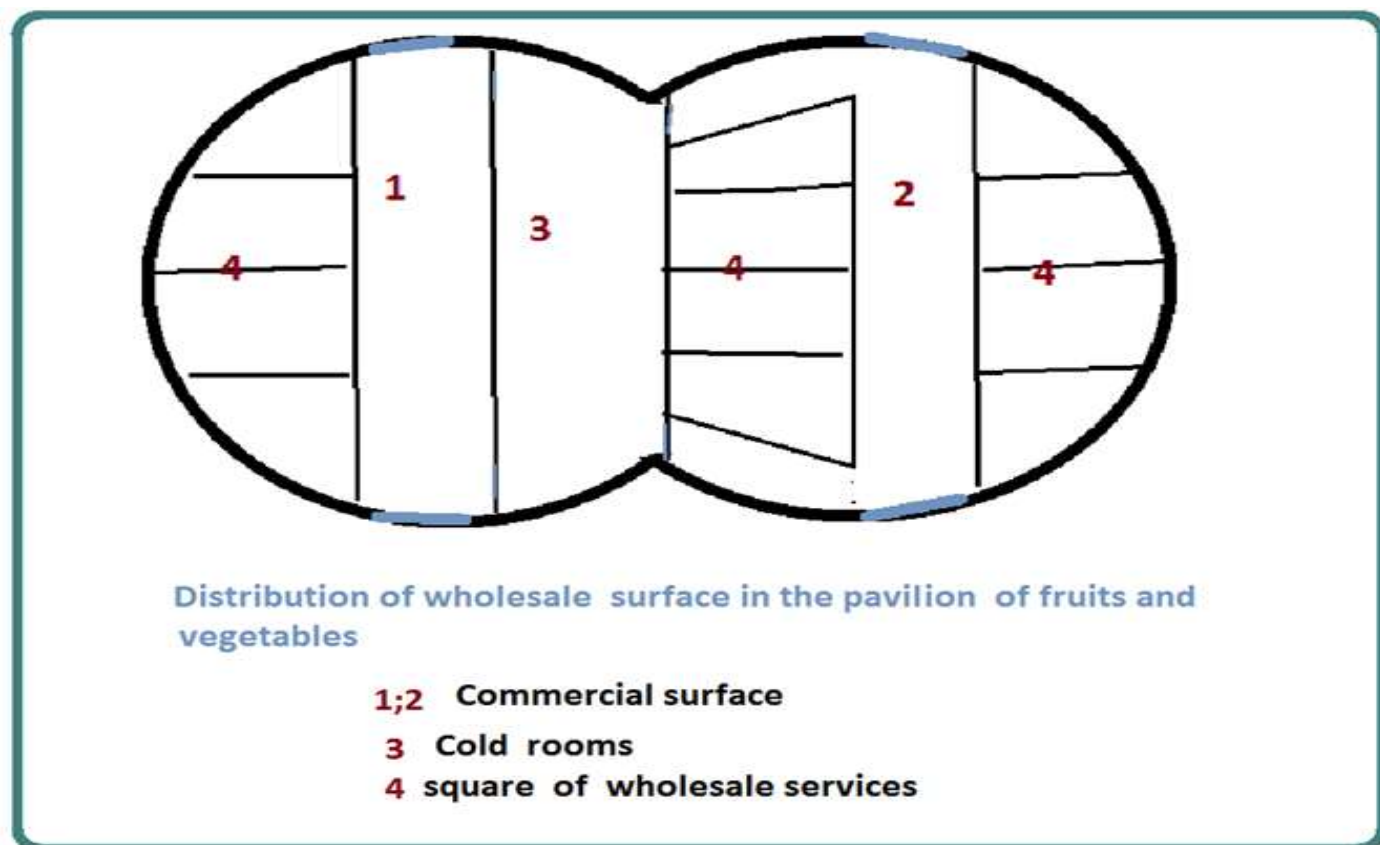


Fig7: Exploitation of commercial surface in wholesale market (Author 2025)

6.3. biomimetics for urban design of clothing factory

The design of clothing manufactory depicts a series of buildings on shape of a cotton plant appearing as an interconnected fabric facing north by administration block surrounded on the east and west by buildings in the shape of linen flower.The factory forms an urban fabric distinguished by its solar panels.

The main interconnected buildings are dedicated to design and tailoring,while the surrounding buildings are dedicated to storage

and marketing via roads leading directly to each unit.

The resilience within the factory block is ensured by internal shelters and a parking space adjacent to administration building.

6.4. Urban continuity in the scale of town

The evergreen trees and the area covered with gum trees ensures urban ecological continuity with water surface for the biodiversity in ecosystem of health.

A water harvesting system achieves urban sustainability within the forest network and landscaped green spaces inspired from pistachio plant.

7. Conclusion

The urban model of Ouzera town shows a range of industrial and commercial zones and the integration planning of urban facilities in scientific and healthy environment, while ensuring the resilience of urban mobility. Achieves a basic standard of sustainable development represented by an effective planning strategy based on resilience which is directly related to the development of sustainable region.

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**Source of picture :Facebook account allowed to everyone.

(From the municipality of Ouzera).

*** National Agency For Real Estate Mediation And Regulation