

A Sustainability Assessment of the Urban Rehabilitation Project of the Medina of Fez, Morocco

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Abstract:

The old city of Fez, Morocco, classified as Heritage of Humankind by the UNESCO, is subject to an integrated rehabilitation plan running over 15 years. The plan aims at restoring and preserving the economy, cultural value, and social heritage of the old city. The study follows a system dynamics approach to describe and analyze the rehabilitation plan in order to identify the strengths and defects of the plan. This study shows that while the plan is giving relatively satisfying results over the short and medium terms, it is unlikely to attain long term sustainability.

Table of contents:

I- Introduction:	2
II- A Systems Dynamics Approach to Sustainability:.....	2
III- Historic Background:	3
IV- Defining the Rehabilitation Plan System:	3
V- Assessing sustainability:.....	5
V-1- Social sustainability:.....	5
V-2- Economic sustainability:.....	5
V-3- Environmental sustainability:.....	6
V-4- Integrated sustainability:	6
VI- Conclusions:	7
References:	8

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I- Introduction:

As part of the Heritage of Mankind, the old city of Fees in Morocco is subject to an extensive rehabilitation program which started in the year 1989 and runs over fifteen years. The rehabilitation program insures short-term reviving and restoration of the city's economic activity, social welfare, and environmental quality. On the long term, however, investigation is needed to reveal whether the project is able to achieve sustainability.

This paper investigates sustainability in the rehabilitation of the old city of Fees through a systems theory approach. By studying the dynamics of the rehabilitation of the old city, the paper will attempt to answer the following questions:

Is the rehabilitation plan sustainable over different temporal dimensions?

What reasons are behind the success or failure of the program within different sectors and time scales?

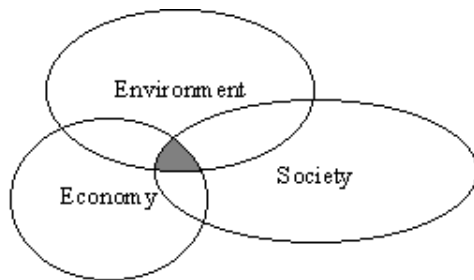
Throughout the paper, environmental, economic, and social aspect will be dealt with in order to achieve an integrated sustainability study.

To conclude, emphasis is put on the key actors and dynamics of the system to enlighten the way for a sound sustainable continuity of the old city.

II- A Systems Dynamics Approach to Sustainability:

"Sustainable development is a term that everyone likes, but nobody is sure of what it means."[†] Sustainability was raised up into discussions around development following the 1987 Brundtland report, *Our Common Future*, where sustainability is defined as the ability of humanity to "[meet] the needs of the present without compromising the ability of future generations to meet their own needs."[‡]

To fulfill humanity's needs, economic, social, and environmental systems interact with each other to produce development of the human wealth and welfare. System dynamics suggests that these three systems (economy, society, and environment) merge into a larger system, which has to come to a balance to reach sustainability (figure 1).



The dark area represents the optimal equilibrium between economic, social, and environmental subsystems of the larger development system, i.e. Sustainable development

Figure 1: sustainability as a compromise between the environment, society, and the economy.

In basing the study on a system dynamics approach, equal focus is put on the actors involved in the system and on the links between them. This is important in order to track the dynamics of the system, and thus define its strengths, weaknesses, and the positive implications provided through its dynamics and their negative drawbacks.

[†] Daly, 1996.

[‡] The World Commission On Environment and Development, 1987.

III- Historic Background:

Fez was founded in the year 789 AC. In 809, the city became the royal residence of Idriss II, son of the Idriss I the founder of the city[§]. During the medieval ages, Fez became one of the greatest cities of the Muslim world and was a center for religion, arts, science, crafts works, and trade, with a unique cultural identity. After Morocco became a French protectorate in 1912, the city of Fez was expanded outside its fortified walls, separating the new modern city from the old medina^{**}.

Today, the medina of Fez is still an active economic, social, religious, and cultural, as well as tourist center. The medina houses around 181,000 inhabitants and 10,000 businesses in approximately 13,500 parcels^{††}. However, over the centuries the medina of Fez has been undergoing a continuous process of degradation due to overpopulation, aging infrastructures, and under-investment in maintenance and restoration. The deteriorating physical environment and built heritage of Fez threatened the ability of the medina to survive as a historical and cultural patrimony for Moroccans and for humanity. In 1980, the UNESCO designated the medina of Fez as a Heritage of Mankind City^{‡‡}.

IV- Defining the Rehabilitation Plan System:

In order to limit the scope of the study, it is important to define the system boundaries. While the medina is obviously an open system, with inflows and outflows of people, goods, money, and services, the study will only investigate the actors and interactions comprised within the medina walls. Figure 2 shows a Causal Loop Diagram (CLD) that summarizes the system.

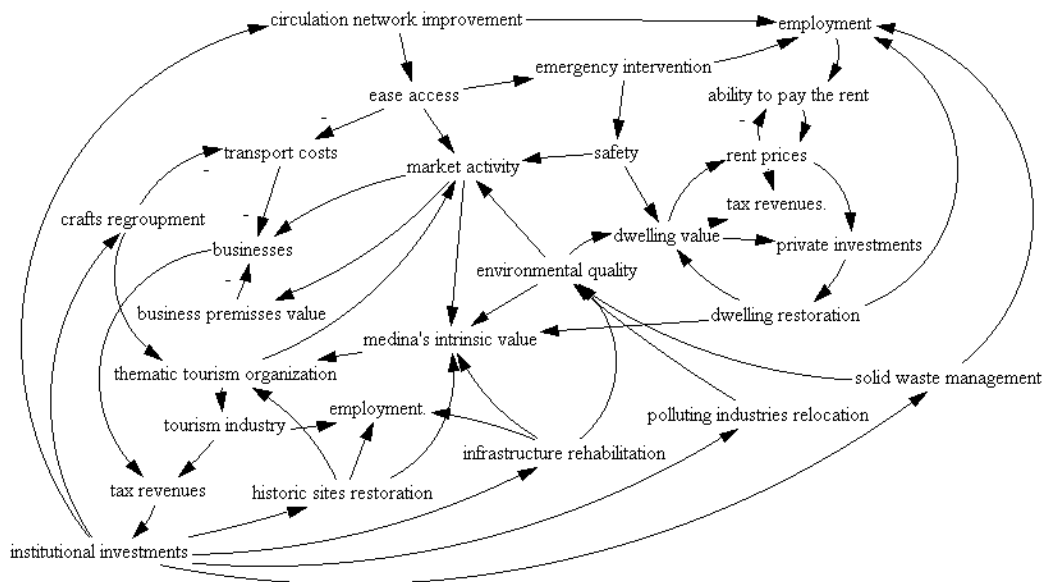


Figure 2: CLD of the medina's rehabilitation system (unmarked arrows are reinforcing connections, while arrows marked with "-" apply a hindering action)

The CLD in figure 2 is centered on three main cells: medina's intrinsic value, market activity, and environmental quality. The intrinsic value of the medina stands for the cultural

[§] <http://www.moroccoweb.com/fes/en/heritage/history/history.html>

^{**} Medina is the Arabic word for city, it also refers to a historical walled city.

^{††} http://www.worldbank.org/html/fpd/urban/regions/mna/fes_detail.htm

^{‡‡} <http://www.unesco.org/whc/archive/repco/mx99.htm>

and human substance of the old Fez. The market activity refers to the economy within the medina. Finally, the environmental quality represents the attribute of the physical environment. As expected, the three nuclei interact with one another directly and indirectly.

Figure 2 also summarizes the seven basic principles of the rehabilitation plan^{§§}.

- 1- Improving the circulation network, based on the existing urban network of streets, will ease the access to the medina and create temporary job opportunities. An eased access will stimulate trade and decrease goods transportation costs, thus valorizing and promoting the medina's businesses. Revenues from the economic activity generated are supposed to sustain tax revenues to the municipalities. These tax revenues will be reallocated within the medina for financing different public works.
- 2- The creation of an emergency intervention vehicular network aimed at urgent and rapid intervention in cases of fire or pressing structural repairs. This intervention increases the safety of the dwellings of the medina and thus increases their economic value as well. The emergency intervention service will also provide new employment opportunities.
- 3- Environmental improvements include relocating the polluting and mechanized industries outside the medina walls, developing and maintaining a solid wastes management system, rehabilitating the traditional infrastructures of the medina^{***}, and enhancing public spaces. This aspect of the rehabilitation program has direct positive impacts on the economy, the dwellings value, and the historic value of the medina.
- 4- Encouraging private investments in the housing sector through economic incentives such as loans, but mainly by making the owners aware that restoring the built environment increases its market value and the profits generated from rent. This strategy seems to be working as a World Bank study reported an increase in private restoration permits from 700 in 1993 to over 1,000 in 1997, not including repairs without permits^{†††}. The housing repairs also create occasional work opportunities in the building sector and related activities (joinery and metal works, electricity and plumbing, goods transport...). As the housing standards are improved, their prices increase, thus limiting the ability of tenants to pay.
- 5- Restoring historic monuments helps directly in preserving the heritage of the medina. Besides creating jobs for the traditional craftsmen, the restoration work will enhance the planning of tourism, which links to the sixth point of the rehabilitation plan.
- 6- Organizing tourism and designing thematic tours increases tourists' interest in the medina heritage as access is eased and historic and cultural information is appropriately provided. Organization is even more important in order to control and canalize the revenues from tourism for continuing public works in the medina.
- 7- The final pillar of the rehabilitation scheme is the reinforcement of the local institutions. This is mainly achieved through securing funding to the rehabilitation works from the World Bank and other organisms and private donors.

^{§§} http://www.worldbank.org/html/fpd/urban/regions/mna/fes_detail.htm,
<http://www.casamet.net.ma/users/ader-fes/contexte%20du%20projet.htm>

^{***} The traditional medina infrastructure comprises mainly sanitary systems and water distribution networks.

^{†††} http://www.worldbank.org/html/fpd/urban/regions/mna/fes_detail.htm

V- Assessing sustainability:

V-1- Social sustainability:

The original design of the rehabilitation plan for the medina of Fez targeted the integration of the local society into the sustainability aim of the project. On a short to medium time perspective, the project has relatively succeeded. On the longer time scale however, the project will probably experience counter-effects from its own mechanisms that will hinder the long-term social sustainability.

To analyze the involvement of the local community in the rehabilitation effort, two main points are relevant to be evaluated, namely employment and housing.

Jobs for the local community are largely provided through the intensive reconstruction and restoration works undertaken in the medina on a 15 years range, starting from the year 1989⁺⁺⁺. Over this time period, some 10,000 jobs will be generated in formal and informal construction and construction related works, micro-enterprises, and services. The work force mobilized for the informal construction and micro-enterprises will have a permanent unemployment rate of 30% as workers await new jobs^{§§§}. Moreover, although the number of jobs generated is important for the medina population, the statistics actually include already employed workers mainly in the construction field. Considering these aspects, the job market created by the rehabilitation program actually shows some weaknesses and instabilities, but is still substantially profitable to the population in the short and medium terms. In the long run, however, the non-private investments in restoration will come to an end with the end of the rehabilitation program fifteen years after its start. This will significantly cut down labor demand virtually bringing the job market to the point where it was before the program started. Nevertheless, it is hoped that continuing private investment and an expected economic growth will create new job opportunities. This issue will be further investigated within the economic sustainability.

Housing statistics show that less than 40% of the population living the old medina actually own their dwellings^{****}. The remaining majority occupies the dwellings through rent. As private investment in housing improvement is encouraged and public investment in environmental quality is becoming more and more important, the economic value of the houses increases. With this increase, rent costs also rise. This has a direct impact on the ability of the population to afford for rent as its cost increases substantially above the usual rent-income ratio of 25%. As a consequence, households have to move outside the medina into lower standards habitation districts with lower rent prices. Moreover, as the population decreases, rent revenues for the owners also decrease, compromising the fragile mechanism of private investments in housing improvement. This causality, however, has a positive impression as a more wealthy population moves into the medina, thus valorizing property and land value.

V-2- Economic sustainability:

While the economy of the medina of Fez is currently experiencing a reviving boost ensuing from the rehabilitation program, there is evidence that the economic growth will not be sustained over the long term. In a study by the World Bank, the economic rate of return resulting from the leveraged private investments due to public investments will increase over the 15 years of the project, but ultimately stabilize afterwards. Thus, while depreciation

⁺⁺⁺ <http://www.casamet.net.ma/users/ader-fes/contexte%20du%20projet.htm>

^{§§§} http://www.worldbank.org/html/fpd/urban/regions/mna/fes_detail.htm

^{****} http://www.worldbank.org/html/fpd/urban/regions/mna/fes_detail.htm

continues to increase, a stabilized rate of return will be unable to cope and the economy will weaken over the long run.

Within the economic system of the medina, disfunctioning mechanisms of the rehabilitation project will impact the economic activity. This is obviously illustrated by the case of traditional crafts works. In this case, while mechanized and partially mechanized industries are relocated outside the medina, their products can still compete on the medina market with traditionally produced goods. The advantage in productivity costs is evidently for the mechanized industries (lower costs, faster production delays), and so putting the future of traditional crafts works in peril. This in turn will have drawbacks not only on the traditional market jobs, but also on the durability of the traditional crafts works as part of the heritage of the medina.

V-3- Environmental sustainability:

As illustrated in figure 2, the environmental quality is essentially improved through public investments in solid waste management, infrastructure works, and industries quarters organization. It is then expected that a decline in public investment will mean a decline in the environmental quality of the medina.

Public investments have been initialized with the securing of the rehabilitation project funds and will rely on them for the duration of the project. On a longer temporal dimension, public funds are expected to be maintained through a tax system drawing from the increased economic activity, land and building value, tourism, and crafts works. However, with only 16% of all issued tax bills paid (1997 number^{****}), the medina's municipalities' financial resources are expected to redistribute only 6.6% of the expected investments in public works. Beside public investments, there is no guaranty that the private investments will continue to maintain the physical environment of the medina. Instead, because the rehabilitation funding will come to an end, private investments will lack incentives coming from an improving infrastructure and would probably decline. Then, the scenario that most likely presents itself is one resembling the initial cause of deterioration of the environment of the medina due to a lack of investment in maintenance and improvement of the environment.

V-4- Integrated sustainability:

From the previous discussion, it becomes evident that the investments accompanying the rehabilitation plan are the main pillar for restoring and reviving the medina of Fes, as they boost the economy, rehabilitate the cultural heritage, and ameliorate the physical environment. At the same time, the fact that the rehabilitation program's funding will come to an end also winds up being the ultimate impediment facing long term sustainability in the medina. To mitigate this drawback, it is necessary to secure funding for maintaining public investment in the medina. Another option is to base the investment on the private sector instead of the public one.

Investigating the first option (securing public funds) goes beyond the boundaries of our system. The reason for this separation lies within the creation of the rehabilitation plan. The planning process was made in a top-down manner, where the people of the medina did not participate. Also, funds for the rehabilitation plan were secured outside the medina by officials of the central government. It is however appropriate to state that, within the medina, the trust in the redistribution of the tax-collected money into relevant public investments is low. This trend however is changing, as the medina people perceive more improvements in their living environment as a result of an increase in investments in the public goods. The next step then is to involve the people in investment decisions and to reestablish their trust in

^{****} http://www.worldbank.org/html/fpd/urban/regions/mna/fes_detail.htm

the financial dynamics of the public sector. By involving the people in the decision making process, investments will prove more efficient and their results more tangible. As a result, people are likely to show more willingness to respect the tax system and insure durability of public funding.

The option of relying on private investments is considerably problematic as it faces hindrance within the medina dynamics. Resulting from the old age of the medina, property ownership is very fragmented and complicated. Aspects such as joint ownership^{****}, habous^{§§§§}, and rent customs^{*****} make it difficult to generate economic activity beyond the existing level. However, internal organization of the city community is presumably able to improve the environmental quality and maintain the infrastructure. This principle suggests a high degree of community involvement and organization, but it also compromises the central financial system of tax collection. Still, while investment in the public goods can improve environmental quality, it is not efficient in providing long term stable jobs, vital to the sustainability of the medina.

The integrated sustainability analysis suggests the importance of taking into account the larger system hosting the medina itself. This system could go from the entire city (old and modern Fes) to the whole country's dynamics of economic, social, and environmental development. The rehabilitation of the medina is not to be successful if it is not considered as an open subsystem within a larger one. The larger system would absorb the surplus of population and working force present in the medina, and would support maintenance of tourism, economic vitality, and infrastructure functionality.

VI- Conclusions:

While the rehabilitation plan succeeded in integrating a three-dimensional frame including the environment, society, and the economy into its strategy, it actually fails to achieve sustainability. The defect in the rehabilitation plan comes from the fact that it was not created as an integral part of the medina system. Although the program refers to the existing dynamics in the medina, its decisive actor of change (rehabilitation investments) is outside the system and is limited in time. When the rehabilitation investments flow into the medina, they disturb its dynamics temporarily (in a positive trend) but are unable to initiate a change important enough to last after the investments are cut. Under these conditions, the medina of Fez is most likely to return to its initial state of deterioration (similar to what was before the rehabilitation effort started) in a relatively medium time perspective. However, because of the importance of the medina, new trends are very likely to emerge within the city's dynamics (not intruded) in order to maintain the cultural, social, and economic wealth it generates. These new dynamics could result from the medina's own pre-existing ones, but will not be successful if not assumed within the larger system that holds the medina.

The rehabilitation plan still represents a positive move to trigger change in the dynamics of the medina of Fez. It is unfortunately not integrated enough to provide long term sustainability.

^{****} Joint ownership results mainly from long successions of inheritance and financial arrangements.

^{§§§§} The state of a property as it is donated to a religious institution and is not to be sold in the future.

^{*****} Habits such as the "key money" regulate the rent arrangements. Key money is to be paid by the tenant to move in, and back by the owner to the tenant when the latter is to move out. The amount ranges from 5 to 13 times the price of the rent, depending on the occupation period by existing tenants (http://www.worldbank.org/html/fpd/urban/regions/mna/fes_detail.htm).

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