

Methods for the Economic Valuation of Urban Heritage: A Sustainability-based Approach

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Extended Abstract

Urban heritage has become a credible economic subject in the past few years, which is in a large part due to the growth of tourism that has become a major source of direct and indirect income. Such heritage now is considered as a driving force for local development, thanks to the spending by visitors of such sites in the surrounding areas, and certain major cultural establishments are now close to being run as enterprises. This consideration of the economic role of such heritage and its changing funding methods, which see a clear decrease in public contributions, invite the setting up of instruments for more accurate economic and financial evaluation and intervention than were available until now.

The objective of this study is thus to set up a systematic approach for evaluating the economic interest of urban heritage development projects. Based on an analysis of the various ways of considering the urban heritage, Part 1 proposes an inclusive definition of this concept. Part 2, which presents a synthesis of the methods for the economic valuation of heritage, stresses the questions of the input of environmental evaluation methods of the urban heritage. Part 3 establishes an evaluation grid based on sustainability, for identifying and estimating the economic and social consequences of a heritage project. Part 4 illustrates the use of this analytical grid by applying it to two different cases of urban heritage: Saint-Louis in Senegal and Sousse in Tunisia.

Part 1: Heritage and heritage policies

The concept of a cultural heritage (monuments, archaeology, movable, etc.) dates from the late 18th century and in France the methods of its protection (listing, registration) were laid down in the Law of 1913. However, the concept of a specifically urban heritage only evolved in the 1920s and it was not until 1964 that the first doctrine of preserving historical urban centres was formulated in the Venice Charter. The concept of urban heritage is a multi-dimensional one that, for a full understanding, requires the combination of historical, sociological and economic approaches. In fact, it encompasses—hence the term of ‘inclusive definition’—in addition to the material elements of the heritage, the historical structuring of the town and its evolution. A value is then attributed to this composite unit, based on an intellectually and socially progressive construction; the latter is realized either through designation by scientists, experts or politicians, or through appropriation by a socio-economic group.

The urban heritage thus consists of a mixed capital that can generate services, producing value. Such capital sources are grouped into four main categories:

- Economic capital, in the narrow sense of the word, encompasses mainly buildings, equipment and infrastructure;
- Human and social capital is composed of the competences and dynamics of the population, including the variety of existing social connections;
- Natural capital consists of the quality of air, water and sanitation, including the presence of green spaces;
- Cultural capital, finally, is a more diffuse concept as it is composed of a combination of immaterial goods, traditions, and skills that were accumulated by earlier generations.

The diverse heritage policies as set up and implemented in each country strongly affect the creation and evolution of such capital, as each country has its own methods and priorities. Moreover, such policies will very much depend upon the capacity of the public authorities to arbitrate between the different socio-economic groups. Once these points have been settled, the procedures as implemented will essentially depend upon the stakeholders in the urban heritage field.

In the specific case of developing countries, the intervention of major international donors is essential for the funding of heritage projects. In fact, though such funding may come from different (international, national, local, public or private) sources, great importance should be attached to the inherent risks of such operations, regardless of the dominant stakeholders and the methods of funding the projects for protecting and valorizing the urban heritage. Such risks are manifold, going from turning the city into a museum with a touristic mono-activity to the starting of property speculation and certain forms of gentrification. It is thus not surprising that most attempts at drawing up a typology of historical urban centres are a particularly delicate exercise that is easily open to criticism. The complexity of the urban heritage approach is further complicated by the need of integrating this approach in the process of territorial development as a whole. In fact, the presence of an urban heritage generally concerns a much larger area, whose territorial limits and methods for its social and economic development, and the type of intervention of the stakeholders in this development, should be defined as well. Because of this approach, the urban heritage acquires a specific aspect: Contrary to the other types of heritage (monuments,

archaeology, museums, immaterial, etc.), its valorization faces very strong economic and social constraints. This implies that its management involves the setting up of specific technical, human, financial and legal provisions that will ensure the sustainability of the development.

Part 2: The methods for economic valuation of patrimony

The economic valuation of heritage is based on several standard tools for economic analysis, to which the specialists of heritage analysis have added specific complements for considering the induced effects on job creation and the costs related to heritage projects.

The economic rate of return and the net discounted value are standard economic valuation methods that can also be used for evaluating urban heritage renovation projects. However, this type of method raises the delicate problem of determining the future expected profits of the project. For instance, it is particularly difficult to identify the effects that are due to the cultural dimension of the project. Impact methods, such as are commonly used for the economic valuation of the museum and monument heritage, try to overcome this problem by stressing the induced effects of such projects. They identify the direct, indirect and induced overall effects of the heritage, in terms of both expenses and employment. This illustrates the economic impact of the urban heritage projects, even though the multiplier effects are very difficult to estimate.

However, evaluating all dimensions of an urban heritage also involves the use of other methods that were mostly developed for environmental analyses, as such analyses have to answer questions that are often similar to those posed by the urban heritage. The reference frame of decomposing the values of a *natural* heritage is that of the total economic value (TEV), which covers use and non-use values, the first of which are relatively easy to evaluate. The methods used thus fall into two main categories:

- Direct methods use polling surveys among the economic agents. The contingent valuation method allows the approximation of non-use values by demanding the consent from the polled individuals to pay or to receive. Nevertheless, this method comprises many biases, such as hypothetical and non-real payments. Another group of direct methods consists in multi-attribute methods. Here, the individuals are polled on several scenarios, which they select, rank or weigh according to the methods used. However, such methods are relatively complex in terms of scenario definition and estimation procedure;

- Indirect methods use the effective behaviour of economic stakeholders on the property market and of those additional services that cannot be exchanged in a market place. In the case of a hedonic price method, this means the search for a market on which goods are exchanged for which the environment is an attribute. Thus, the use of a displacement cost method supposes that the individuals move in order to benefit from the environmental or heritage goods under consideration. The effective transportation cost, in time and in money, thus makes it possible to estimate the value allotted to the good being considered.

A multi-criteria analysis in its different variants, for its part, allows aspects that are not easily expressed in monetary terms to be integrated. This approach seems to be particularly useful in multi-dimensional situations with numerous conflicts of interest, which is true for both the natural and the urban heritage. Various methods of this type exist, such as the outranking methods that are based on direct comparison of the planned actions, which is easier than a precise evaluation of their performances. Such methods, which allow the consideration of highly complex situations, seem to be relatively well adapted to the urban heritage case, but their implementation is rather difficult and not suitable for all cases.

The proposed assessment of environmental evaluation methods leads to a highly pragmatic conclusion: No single method exists that can be used for all urban heritage projects. On the contrary, the specific context of each project will dictate which method is the most suitable. The inventory presented in Part 2 thus consists of a toolbox in which no single method is better than the next.

Part 3 - Economic analysis grid for the sustainability of urban heritage

When using the inclusive approach as adopted, the economic valuation of urban heritage must consider its multi-dimensional aspects as well as its eminently dynamic character. The proposed analysis grid allows the definition and grouping—within a coherent framework—of the main data needed for the evaluation of urban heritage based on its sustainability. This concept of sustainability is the central point of the analysis, as it makes it possible to define the conditions for transmitting today's treasures to future generations, which at least supposes to maintain their overall value over time. The two approaches generally retained are weak sustainability and strong sustainability.

Weak sustainability supposes that the economic, social, cultural and environmental values can be substituted. In this case, the sustainability standard concerns the net overall investment that should be positive in all. Strong sustainability supposes that the various dimensions of the heritage cannot be substituted, but are complementary in terms of certain thresholds. The characteristics of the urban heritage rather lead to an interpretation in terms of strong sustainability, thus requiring the identification of thresholds beyond which complementarity effects become dominant.

Several economic analysis frames exist for the evaluation of this heritage, in particular those of the Inter-American Development Bank (IDB, 2010) and of Ost (2009), which are key references. However, their limits have led us to propose our own grid, which distinguishes the dimensions of stock and flow as well as those of value and sustainability. Two criteria were retained for ranking the pertinent indicators and data. These concern (i) the condition of the urban heritage based on the size of the stock, and (ii) the evolution of this heritage based on investment and depreciation flows of the stock.

The collected information then allows the urban heritage to be evaluated according to the two criteria of economic value and sustainability. The projects for rehabilitating urban heritage will be judged on these two criteria, in terms of flow (*Will the new investments compensate degradation and depreciation?*) and of stock (*Is a threshold reached below which irreversible degradation occurs?*).

Part 4: Applying the analysis grid to the cases of Saint-Louis (Senegal) and Sousse (Tunisia)

Part 4 illustrates the operational effectiveness of the proposed analysis grid, based on the study of two quite different types of urban heritage, those of Sousse in Tunisia and Saint-Louis in Senegal. However, it should be clear that this is only a methodological approach which is not meant to conclude upon the suitability of any project concerning these two cities.

- The first stage is that of identifying the urban heritage, or the analysis in terms of *stock*. In both cases, this allows the characterization of the urban heritage in its four dimensions from available or newly collected indicators. From an economic viewpoint, for instance, the importance of public services on the Island of Saint-Louis contrasts with the important role of tourism-related commercial activity in the Medina (old town) of Sousse.

- The second stage is that of identifying the rendered services (*flow* values). This allows, for instance, the user value of the built heritage for both residents and tourists to be measured. However, lacking long and expensive survey results, the values of not using the environmental dimension for both territories could not be measured.
- The third stage, in terms of sustainability, is the central part of the analysis. Examining the rates of accumulation, investment and depreciation for the four dimensions of the urban heritage, allows their visual synthesis and expression in a sustainability diagram. For instance, based on estimates made from insufficient data, it appears that the situation on the Island of Saint-Louis is characterized by a clear degradation of the built heritage when using the most favourable hypothesis, whereas the accumulation in the other dimensions (human, economic and natural) remains close to the sustainability threshold. For this reason, the sustainability of the urban heritage as a whole seems to be questionable. The Medina of Sousse, however, is characterized by almost no net degradation according to the retained estimates, whereby the accumulation in the other dimensions (human/social, economic and natural) remains close to the sustainability threshold.
- The fourth and final stage of the proposed analysis concerns the existence of potential threshold or risk effects. In Saint-Louis, for instance, an economic threshold seems to exist that is related to poverty: The incomes of most of the present-day resident population cannot pay for the conservation of the existing urban heritage.

Introduction

The objective of the present study is to propose a coherent framework for evaluating the economic interest of projects for developing urban heritage. The study is based on an analysis of the main problems affecting this type of work, using a complex approach that integrates the familiar concepts of heritage—conservation, restoration, protection and promotion—as well as strong economic and social dimensions. First, however, we must stress that the concept of urban heritage is relatively new, when compared with the other types of heritage, such as monuments and archaeological remains, or movable patrimony. A town, even a historical one, is a complex network of services, transportation, commerce and housing, which profoundly affects the perception and treatment of the urban heritage.

Second, the general cultural and natural heritage has become a credible economic and social subject, and a major factor in local development. This new understanding requires a better evaluation of the economic and social reality of the heritage, and has an impact on selecting the management type of urban as well as other types of cultural and natural heritage. These provisions require the use of management techniques and evaluation methods that consider financial and social reality, though not neglecting the fact that patrimony remains a collective good, a support for knowledge, exchange of ideas and identity, for which reason it should retain a special status.

Third, an urban heritage, because of its marked economic and social role, fits—possibly even more than cultural heritage in general—in movements for implementing sustainable development principles. As such, it must be integrated into the new rules that govern the management of energy performance, even though this may pose many technical problems. Similarly, it is no longer imaginable to protect and manage cultural goods without an active participation from the local population. Sustainable development principles have strongly influenced our proposed new method for economic valuation of urban heritage as developed hereafter. This method is primarily based on an approach in terms of sustainability, an analysis that considers not only the global—*i.e.* planetary—character of the development process, but also the necessary inclusion in this process, of the natural and social domains in addition to the economic one.

Finally, from a methodological viewpoint, it should be stressed that the various economic valuation approaches of the natural and cultural heritage, as commonly

used, clash with the dominant use of monetary indicators that, in the case of heritage, tend to hide a good part of the positive effects of protecting and managing the heritage. This is in particular the case for any socio-cultural spin-offs. Though the method proposed here—based on a sustainability approach—limits this difficulty, it does not make it entirely disappear.

Based on this analysis, the following work proposes an operational definition of urban heritage. Such patrimony is qualified “inclusive” as it consists of four series of interdependent elements that make it into a complex system, with contours that are variable from one case to the next. The four element units are economic, social, cultural and environmental. This definition resembles the, more classical, notion of *integrated heritage*—considering all variables that influence heritage management—while conferring a determinant place to the economic approach, which is not the case with integrated heritage.

- The economic elements consist of market services, in particular touristic ones, and non-market ones, such as the availability of public buildings or services directly provided by infrastructure.
- The social elements of urban heritage are represented by the combined competence of its related population and by the social links that it helps to maintain.
- The cultural elements refer directly to the most restrictive dimension of heritage, *i.e.* its memorial function that is linked to the history of the area under consideration—a function valued by both historians and the population—and to its architectural qualities.
- The environmental elements depend as much on the existence of green spaces and water, as on sewage and other networks.

Faced with such a complex subject for analysis as urban heritage, any attempt at economic valuation is particularly delicate and the usual methods of economic analysis are commonly inadequate, even those used in the environmental field. In fact, notwithstanding certain similarities, in particular the fact that many characteristics of both subjects cannot be directly expressed in monetary terms, their differences do not allow a simple transposition—without adaptation—of environmental evaluation methods to the urban heritage domain. However, once individually selected in terms of the urban heritage specifics considered, such methods allow the sustainability of

developing this urban heritage to be considered, *i.e.* the capacity of the project to answer today's needs without compromising the situation of future generations.

In fact, one of the inputs of environmental economics is to propose an economic definition of sustainability that stresses the conditions of transmitting the heritage and the existence of thresholds of irreversibility as part of the economic valuation. This, however, presupposes an evaluation of the actual economic value. A literature search has shown that many evaluation methods were used, including profitability analysis, impact analysis (the most common), or contingent valuation. These methods were more or less suitable for the various types of urban heritage and, to be operational, commonly required data that are unavailable in developing countries and thus particularly costly to acquire. When searching for the most appropriate method, one of the preoccupations of any evaluation should thus be the definition of its degree of feasibility in view of this major constraint of availability and cost.

The contents of the present work reflect these considerations. Part 1 explains the adopted heritage approach that leads to an inclusive definition of urban heritage as mentioned above. The chapter also sheds light on the need of considering—especially from a perspective of feasibility—the type of policies implemented and the behaviour of the various stakeholders concerned by the urban heritage and by the territorial development processes.

Part 2 provides an overview of the most commonly used evaluation methods, by stressing their contributions and limits. In addition, we specifically discuss the questions of transposing environmental evaluation methods to the field of the urban heritage.

Part 3 presents the general framework of an operational evaluation frame, insisting upon the dimension of sustainability and proposing both monetary and non-monetary indicators for the different dimensions of urban heritage. This diagram proposes a four-step approach that, after identification of the urban heritage, allows the successive evaluation of the different types of economic value, of sustainability, and of the existence of threshold effects.

Part 4 illustrates the use of this evaluation grid by means of two concrete cases, those of the urban heritage of the towns of Saint-Louis in Senegal and of Sousse in Tunisia. Comparison of the differences in the type and structural context of these two examples shows the operational effectiveness of the proposed grid as well as how to adapt its implementation to the specific elements of each case.

1. Heritage and Heritage Policies

1.1. Historical, sociological and economic approaches

1.1.1. *The historical approach. Urban heritage is a recent phenomenon*

The term “urban heritage” covers the entire range from monumental buildings to their surrounding pedestrian architecture, in particular housing. Far from being the sum of different monuments taken in isolation, the urban whole is a tight fabric of minor and major buildings, which explain and complete each other. Taken alone, none may have the value of a masterpiece, but the whole has considerable value because of its coherence, due to the common rules that governed construction and determined both site and size. Each building is part of the urban composition. In this sense, the urban heritage stands out from cultural heritage in general, which usually concerns some isolated exceptional elements (monuments, archaeological sites, and movable pieces such as paintings and sculptures). However, even there we have recently seen a change in this approach, which increasingly tends to consider complex heritage units that cover a region, such as including the Loire Valley or the Routes of the Way of St James as World Heritage. This new heritage dimension associates buildings and (cultural) landscapes in a coherent manner, but also includes the immaterial heritage (usage, traditions, knowledge). Regardless of whether this is a monumental, natural (immaterial) or urban heritage, we see a shift from the traditional historical and artistic approach to a more anthropological one that values a set of complex links between the elements that constitute the heritage, without excluding the specific economic dimensions of territorial development.

The spatial definition of an historical centre, rooted in its territorial setting, is commonly done by opposing it to its surrounding areas. This centre was a core of human settlement that, at least during parts of its history, played a role of political, economic and cultural coordination. In this sense, the historical centre is also the spatial translation of a society model that remains legible in its town planning structure and its buildings.

Compared to the more descriptive terms of “old quarter”, “urban unit”, “townscape”, “urban fabric”, or “urban composition”, the *concept* of *urban heritage* is the result

of a process of heritage designation, during which the authorities or certain social groups have reinvested in the architectural heritage. This process of *heritage designation* concerns buildings whose earlier use is unclear and whose conservation is threatened. It can be triggered by an event, such as a demolition project, or an outside opinion, such as an expert evaluation demanded by an international organization. Observation of the escheat condition of a place then encourages the preservation of its significant elements, in order to transmit them to future generations.

This concept of urban heritage has marked the passage of attention being paid to a single historical monument to considering the urban fabric as a whole, in a context of rejecting functionalist town planning. It was first mentioned in the 1930s, in the writings of the Italian architect Gustavo Giovannoni, who formulated its three main principles:

- All urban fragments should be integrated in a local and regional development plan;
- Monuments cannot be considered in isolation, without their surroundings and their environment;
- An urban ensemble calls for preservation and restoration procedures that respect its scale and morphology (building plots, roads, etc.), though with a certain flexibility.

This was the first time that the theory of restoring heritage elements considered their social function, combining the protection of an urban centre with maintaining local life, with the aim of avoiding a “museumization” (turning the town into a museum) effect.

Even though the term “urban heritage” appeared in Italy in the 1930s, it was not until the 1960s that it obtained operational value in France, in reaction to the destructive renovation adopted throughout the preceding decade for the renewal of “old”, degraded and insalubrious districts. The concept was the basis for the French law of 1962 on areas to be safeguarded, aiming at protecting old town centres with an *“historical or aesthetic character, justifying its conservation, restoration and development of all or part of an ensemble of buildings”*. In the words of André Malraux, *“nations are no longer aware of only masterpieces, but they now are also aware of just the presence of their past”*. In fact, in the France of Gaullism, this policy

of safeguarding the local heritage went hand in hand with a modernization of town centres.

In Europe as a whole, this approach was consecrated by the International Charter on the Conservation and Restoration of Monuments and Sites, the “Venice Charter”, adopted in 1964 by a conference that created ICOMOS (International Council on Monuments and Sites): *“The notion of historical monument comprises isolated architectural creations as well as urban or rural sites that witness of a specific civilization, or of a significant evolution”*. Territorial, urban and rural management had become a major concern, all the more so as the equilibrium between town and country had been durably disturbed. In the 1970s, a generalized urban heritage concept became indivisible from the idea of a new urban culture, popularized by the Bologna experience.

Box 1 *The Bologna experience*

After a phase during which the reconstruction projects of Italian towns—partially destroyed during World War II—followed the urban renovation precepts as defended by modern town planning, a debate started on safeguarding the ancient town centres, and the need of considering them not only as a heritage good, but also as an economic good.

In this context, the City of Bologna acted as pioneer with a project that went against the “disembowelling” and considered its historical centre as a monument in itself. The objective was to “construct the future of the city on its own past”, by fighting urban sprawl and the exodus of inhabitants toward the suburbs. The historical centre became the central and federating element of a new overall development strategy of the metropolitan area. Started in 1969, the plan for the historical centre of Bologna, seat of the Italian Communist Party, had to be the model of urban policies for the Italian Left. Its watchwords were: participation by inhabitants, maintain disadvantaged inhabitants in their district, combat housing speculation, and rebalance the presence of tertiary activities (banks, etc.) favouring residential functions. The plan was based on an exhaustive and rigorous inventory and a typo-morphological study of the buildings, carried out beforehand by the municipal services.

The boldness of the experience, and this search for an equilibrium between the conservation of monuments and of the urban fabric, and the needs of today’s society, the whole based on citizen involvement, made Bologna into the focal point of “democratic” urban experimentation. In the decade following 1968, many European observers mentioned these points in the specialized press.

At a worldwide scale, the Convention Concerning the Protection of the World Cultural and Natural Heritage, was adopted in 1972 by the UNESCO member States. This opened a new, wider-ranging and more flexible perception of heritage, leading to a profound renewal of the concept of historical monuments. Article 1 of the Convention distinguishes three categories of cultural heritage, which are monuments, sites and groups of buildings, defined as *“Groups of separate or connected buildings, which, because of their architecture, their homogeneity or their place in the landscape, are of outstanding universal value from the point of view of history, art or science”*.

During the 20th century, the population pressure on towns grew with growing urban density. Except in the case of towns where evolution was frozen before the industrial revolution, the historical centre from now on represented only a small part of the modern town, a few dozen or a few hundred hectares at most. Moreover, its relative part kept on shrinking with the spread of urban development. To this pressure on historical towns, due to the worldwide population increase in urban areas, had to be added the fact that many urban centres became driving forces in regional growth, involving stakeholders from outside. These two phenomena were not without consequences for the physical and visual integrity of world heritage towns, in terms of circulation, tourism, high-rise buildings, and the transformation of town centre functions.

These preoccupations led UNESCO (2011) to draw up the concept of “Historic Urban Landscape” (HUL), which extends the approach based on the material elements of heritage to the historical structuring of the town and its dynamic evolution. This upset the international theory of conservation/restoration, and the two types of aesthetic and memorial values it attributes to the materiality of a place. Whereas the inscription of monuments and sites during the first years of the World Heritage Convention answered the criteria of Giovannoni, the concept of HUL, which remains controversial, was a radical change. The transformation of an historic site or a group of buildings, seen until then as a necessary evil for good conservation, now was considered as an inherent component of the importance and meaning of a site. This implied not only the conservation of the urban fabric, but also its rituals, integrating the conservation plan with an urban management concerned about socio-economic development and improving the quality of life of the inhabitants. The main guidelines of a HUL consider the importance of the landscape as an element that stratifies the past and present urban dynamics, and the interaction between the natural and built-up environments.

The identification of urban heritage implies a knowledge-based approach, concerning monuments, archaeological remains, the urban fabric with its road system and public spaces, gardens and green spaces. This approach takes the institutional form of surveys and descriptions, feeding normative inventories that act as a base for protective and valuing actions, for instance in the framework of protected areas. The history of such towns, which for long focused on the political and legal institutions and on economic and social structures, only recently became interested in the urban space. Earlier erudite monographs on towns extolled the monuments symbolizing them. The history of architecture only started treating towns as a whole with the pioneering study on the Halles district of Paris in 1977. This knowledge approach is the basis for attributing values, as was formalized by an important meeting organized in 1994 by the World Heritage Centre of Japan (Nara Document).

1.1.2. *The sociological approach. New ways of identifying urban heritage*

Urban heritage, like heritage in general, is an intellectual construction that evolves with changing tastes, economic necessities, technical discoveries, power ideologies, and population management (health, representation of authority). The heritage ensemble corresponds to a system of representations that varies with social groups and according to the times. Two principal means of heritage identification coexist, each corresponding to sets of representations, but also to explicit designation procedures:

- *Identification through designation* is essentially based on scientific contributions adopted by politicians. It is a process of collective credit reconnaissance in the scientific (research, publications, conferences), legal (delimitation of property rights), financial, fiscal, and technical (obligation to use restoration specialists) fields. This method concerns all types of heritage, be it archaeological, monumental, movable, urban, or immaterial.
- *Identification through appropriation*, the second way, is of growing importance. Here, a specific socio-economic group, e.g. aristocracy, upper middle class, elected officials, or tourist operators, appropriates and transforms a good into a form of heritage that is not necessarily identified as such by the scientific specialists. The good thus finds itself turned into "heritage" for reasons of economic and, very often, touristic (charming hotel) development, but also for to confirm the social position of those that have taken it over (status marker). This new heritage is not protected by national law, but by a network of specific

interests, and can cover material (quality of materials, decoration, green environment), behavioural (parking, organized sociability) or immaterial (commemorative places) aspects. It may also develop with the return of scattered population, or through the identical reconstruction and extension of damaged places, or even goods that only existed in the project stage (drawings, plans). This second phenomenon today tends to grow in importance.

The heritage through appropriation is commonly later integrated in the officially designated heritage for reasons of public management and authority. It then passes from the status of putative heritage to that of legitimate heritage. This means that an intervention on an urban ensemble that initially was damaged and/or without specific cultural character, may lead to its heritage designation. This possible evolution is not without effect on the economic impact of an intervention on an old urban centre.

Urban heritage: between local and universal values

Heritage buildings orient the urban issue by questioning a town's relation to identity and memory. Straddling the intersection between the constructed and historical towns, heritage is a strategic element for its future and is thus logically vested with values belonging to local, national and worldwide registers.

The heritage image of a town, on adding its major monuments, now also integrates the old town that has become a certified historical centre. All this functions as a melting pot for recognizing local, or even national, identity. Inhabitant associations integrate problems of the living surroundings, urban development and heritage, and, more recently, of the environment and sustainable development. This means that heritage has become much more than just an historical and aesthetic stake. In a world where rampant modernity and globalization have created fear of homogenization and trivialization, the symbolic value of patrimony has become much stronger. We now find ourselves in a phase of real estate revaluation and gentrification of certain central urban spaces. Though this phenomenon essentially occurs in developed countries, where we see a move back to the old town centres for sociological (group membership, status) and economic (transportation cost and time, services) reasons, we also see it in certain developing countries. There, it may include foreign buyers (retirees and holiday homes), but this requires that the country has laws authorizing the unrestricted purchase of national real estate by foreigners, as in Morocco. Though this is not yet a common feature, it will without doubt become so in the near future. The old town centres, which earlier housed the popular classes in run-down housing, now are commonly at the heart of a re-qualification process, through the renovation

of residential areas that are upgraded to standards of modern habitability, and the creation and upgrading of public spaces. In addition, the impact of a heritage label means that where earlier just the inhabitants of the town centre identified with their historical urban landscape, those of the entire conurbation now do so as well.

Urban heritage: a constantly evolving system of values

Heritage, like any other set of values, is a system of representations that evolves over time and varies with the social groups interacting with it. The perception of urban heritage has enormously changed in a very short time. In 1925, Le Corbusier produced an urban development plan for Paris, proposing the destruction of the entire old urban fabric, except for some major monuments, and the building of a utopian city consisting of large identical buildings and wide perpendicular roads. Almost at the same time, we saw that the Italians (Giovannoni) started to speak of the historical town that conserved its heritage though developing its habitat and all types of activity.

The value system of urban heritage thus gradually imposed itself in the West. The attraction of the past, the recognition of building qualities and materials, and the consideration of natural elements, in any case for certain periods, were a form of exoticism and distinction. To live in the past associated temporal distancing with a social sign, two ways of standing out.

The appreciation of patrimony evolved as well. In the Western countries, the middle classes found a sign of identity in the historic town that brought them closer to a reference group consisting of the dominant classes. Living in old buildings and buying art or flea market objects are acts that bear witness to this infatuation. Nevertheless, this observation does not hold for most developing countries. The rich Lebanese abandoned their great and beautiful villas, constructed in the 19th century, preferring the huge apartments proposed by the real estate promoters of the reconstruction. In most cases, the problem of intervening in historical urban centres clashed with a complete disinterest in the urban heritage. This disinterest does not mean unawareness of identity, but rather the rejection of discomfort and a strong attraction of ostentatious modernity. Such a rejection often explains the fact that residents of old buildings sell them to foreigners at prices well above their local value. In some cases this situation can reverse, when certain "emigrants", returning home, repossess the most visible or most profitable parts of their goods. However, during a procedure of intervention on the urban heritage, this temporary disinterest of the local population can cause major difficulties and additional costs.

In fact, this phenomenon produces contradictory effects. On the one hand, the—often poor—local population living in the old run-down centres are pushed out to other housing tracts, commonly on the edges of town. On the other hand, the arrival of new people with economic and cultural means creates a movement of urban heritage restoration that is very favourable for its preservation and for the development of—commonly touristic—activities, such as agreeable hotels and restaurants, specialized souvenir shops, or major chain outlets, that contribute to the local economic development.

The question of authenticity

The concept of authenticity first appeared in the foreword to the Venice Charter of 1964, that mentioned the duty for humanity to transmit monumental works “*in all their richness and authenticity*” to future generations. At the time, the writers of the Charter, who shared the same cultural references, wished to frame the decision-making concerning the restoration of monuments. In the late 1970s, the World Heritage Committee adopted the criterion of authenticity as a measure of the truth of values, concerning the design, materials, execution, knowledge and environment of the considered sites. In practice, however, this criterion is difficult to use. During the following three decades, the heritage concept was considerably enlarged, including “the representative” and no longer only “the best”, the “ordinary” and no longer only “the monumental”. It integrated new types of heritage, such as vernacular heritage, but also a wide range of regional expressions. From the conservation of the material integrity of a monument, the thinking now also includes the conservation of traditional processes, techniques and crafts that shaped the materials.

In 1994, UNESCO drew up the Nara Document (Japan) on authenticity as the conceptual extension of the Venice Charter, but aiming at defining the concept of authenticity in a universal context, acceptable to Westerners as well as non-Westerners.

For the specialists, authenticity is a key concept of heritage management, though in most cases the concept of authenticity is difficult to define. In fact, almost all heritage elements known today were thoroughly restored over the past two centuries. For heritage specialists, it is a subject of much debate to know which period of a monument or site is being restored, or which type of restoration is to be preferred, and in general modern materials are used.

In the urban heritage domain, the question of authenticity is even more sensitive. Housing and its environment saw profound changes over the centuries. Any remains in their “original condition”, using the time-honoured expression, are extremely rare.

Moreover, the concept itself of authenticity that was valid for heritage, as the latter bore witness to the age and thus the identity of a community (great religious and civil buildings) or of a family (portrait gallery, an expression of legacy), has changed as well. The distance between true and false has lost its strength with the arrival of new populations (middle classes) without ancestors or family heritage to protect. For these new social arrivals, the copy may be as good as the original and, in any case, the distinction is not essential. This is very well shown by the entire artistic production of multiples (lithographs, photos, casts), as well as by the great flexibility—or even absence—of legislation in this field, such as when we are dealing with copies of ancient monuments.

Today it is thus impossible to start an intervention on urban heritage by rigidly referring to the recommendations concerning the authenticity criterion, as defined by a scientific elite of several decades ago. In fact, the principle of authenticity has been rapidly overtaken by the reality of technical, economic, social and cultural changes.

1.1.3. The economic approach. Urban heritage and sustainable development. The imperative of sustainability

The concepts of urban heritage and capital

In the economic approach, urban heritage can be assimilated to a capital, producing a flow of services and a source of values. To varying degrees, the urban heritage represents a stock mixing different types of goods and services.

Heritage, however, because of its exceptional character, differs from the concept of capital as generally used by economists for two main reasons. First, heritage, because of its cultural dimension, partly covers non-use values that are difficult to value in an economic sense. Second, the authenticity value of an urban heritage—according to its unique character—even though strongly debated, confers an irreversible dimension to its potential loss. For Vivien (2009), as earlier for Siriex (2003), “capital” and “heritage” should not be synonymous when adding the qualifier “cultural”. Nevertheless, some authors consider that cultural values can be the subject of economic valuation (Ost, 2009; Throsby, 2003a and 2003b).

Capital and heritage thus converge on two main dimensions: these are stocks of material or immaterial assets, or a wealth, which are potential sources of income. When no market exists, such as for “natural assets” or certain “cultural assets”, such as a historic site, the exchange value is unknown. In that case, it can simply be replaced

by the use value, through the income generated by the goods and services rendered by the asset in question, whose market value will derive from their exchanges. The heritage (natural or cultural) then can be monetarily evaluated *via* its use value, which opens the way to all sorts of substitutions between the different forms of capital. However, a monetary valuation of the services rendered by a natural or cultural heritage in fact proves problematic, contrary to the other forms of capital in general, whether physical, technical, financial or human. Here, we quite simply are faced again with the historical split between the value of a good or of a service, as we have to know whether this is an exchange value, fixed on a supply and demand market, or a use value.

Heritage as an asset portfolio

Article 211.1 of the French General Accounting Plan defines an asset as being an identifiable element of the heritage of an economic entity or agent (household, company, etc.) with a positive economic value, *i.e.* generating a resource that the entity controls because of past events and from which this entity expects a future economic advantage. Thus, from the viewpoint of an economist, an asset portfolio, a capital, reflects the heritage of an individual.

According to the definition by Fisher (1906), capital constitutes a stock of wealth that exists at all moments in time. It creates a flow of services over time, thus generating income. From this viewpoint, capital is a production factor, just like labour.

The various forms of capital

Economics distinguishes several types of capital, composed of more or less homogeneous assets grouped into categories. To the initial capital categories of physical, technical or financial capital, were successively added the concepts of human capital (Becker, 1964), natural capital (Solow, 1974*b*), and social and cultural capital (Bourdieu, 1986).

Human capital, a term contributed by the work of Becker (1964), designates all physical and intellectual aptitudes of the labour force that are favourable for economic production.

Solow defined natural capital during his famous communication to the American Economic Association in 1974, which followed in the footsteps of the Meadows report to the Club of Rome in 1972. Natural capital qualifies the marketable natural resources (renewable but especially finite) as assets because of their contribution to productive activity.

Throsby (2002) grouped further assets with a mostly cultural component under the term of cultural capital. This expression demonstrates the fact that an essentially heritage asset can generate specific incomes.

The sustainability of urban heritage

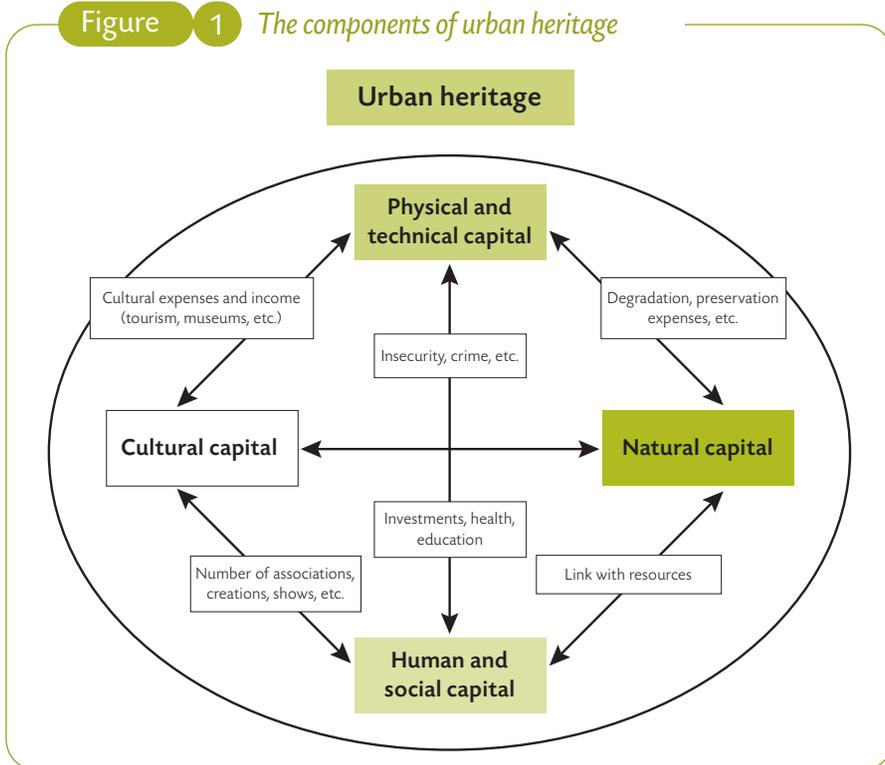
• *The different dimensions of urban heritage*

Urban heritage is mostly multi-dimensional (Figure 1). It covers, to varying degrees, four dimensions or different asset series in the same area: physical and technical capital (economic in the narrow sense), human and social capital, natural capital, and cultural capital (this approach is further developed in Part 2, hereafter).

- The economic dimension essentially groups physical assets such as economic infrastructure (transportation), networks, buildings without any particular historical merit, business equipment, and community facilities.
- The human and social dimension encompasses the main characteristics of the resident population, in particular its qualifications and the details of its social life.
- Natural capital, such as parks, landscapes, ponds, etc., is an integral element of the urban heritage.
- The cultural dimension mostly consists of the historical buildings and cultural manifestations in the area under consideration.

The variable combination of these four dimensions defines—from one area to the next—the nature of urban heritage, though these elements are partly interdependent. This is one of the essential characteristics of urban heritage that must be considered for the economic valuation of any project concerning such heritage. In fact, a valuation project for this heritage should not be considered if it is not sustainable in the future.

Figure 1 The components of urban heritage



Source: Authors.

From the viewpoint of economic analysis, urban heritage projects stand out from standard urban projects through their cultural dimension. From an evaluation point of view, this cultural dimension raises specific questions (c.f. Throsby, 2003a and 2003b). However, several authors considered that it is possible to study the cultural capital and the urban heritage by using standard economic valuation tools (e.g., Ost, 2009).

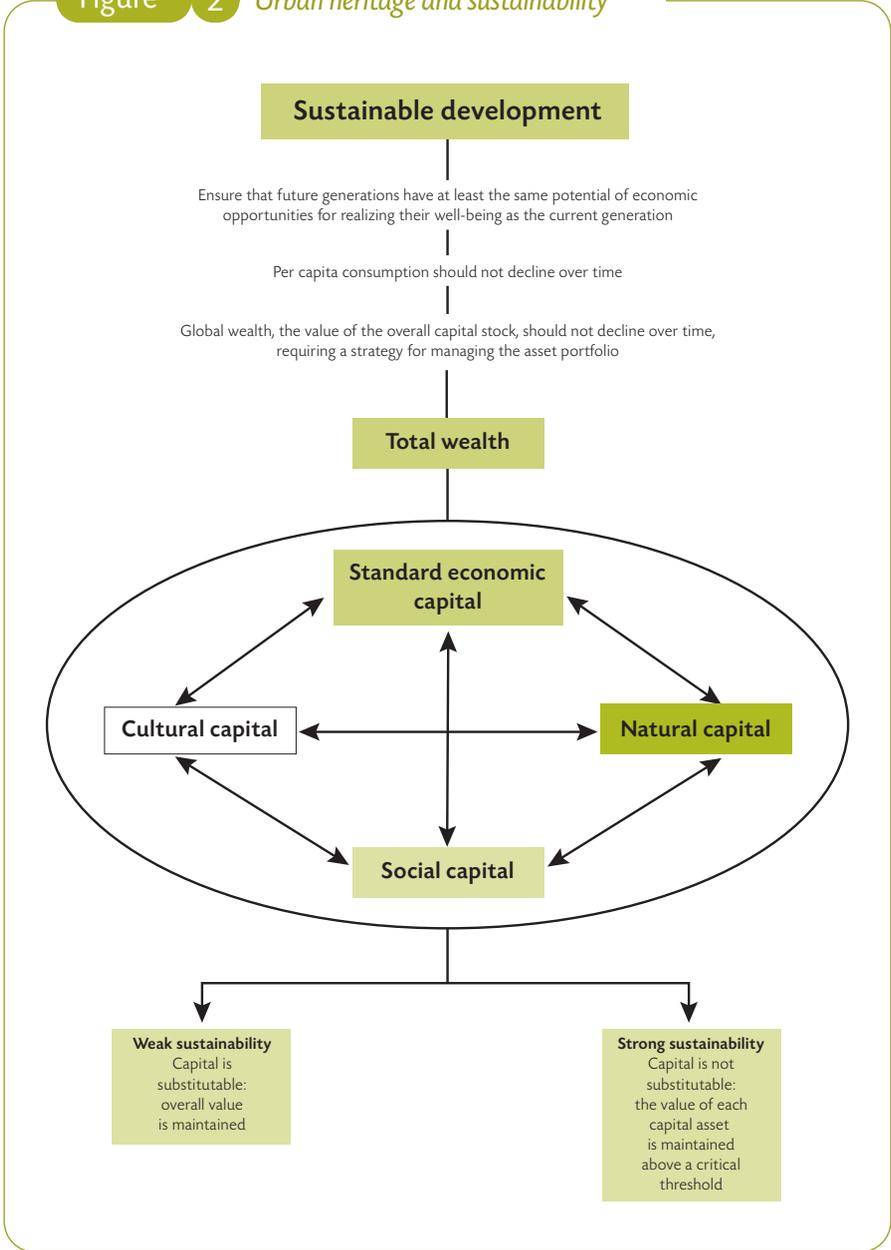
• **An economic approach to sustainability**

“Sustainable development meets the needs of the present without compromising the ability of future generations to meet their own needs” (Bruntland Report, 1987).^[1]

The economic approach to sustainability requires defining the conditions for transmitting today’s wealth to future generations. The articulation between the

[1] C.f. UN (1987).

Figure 2 Urban heritage and sustainability



Source: Authors.

different dimensions of urban heritage can allow sustainability to be defined. Transmission of the urban heritage to future generations supposes, at least, that its overall value is sustained over time (Fig. 2).

Here, we depart from a definition where sustainability of the urban heritage is defined by the economic attractiveness of an area. Such attractiveness may be a necessary condition, but it is not a sufficient condition for sustainability. Specific risks related to simply considering the economic attractiveness are “Disneylandization” or “façadism”.

Generally, economic literature retains two approaches to sustainability, *i.e.* weak sustainability and strong sustainability. The approach in terms of weak sustainability (Hartwick, 1977) assumes that the economic, social, cultural and historical values are substitutable. The sustainability norm then covers the net global investment, which should be net positive (the investment in the economic dimension might compensate a degradation of the other dimensions of the urban heritage, such as a loss in historic value).

An approach in terms of strong sustainability (Daly, 1990) assumes that the different heritage dimensions cannot be substituted, but are complementary in terms of certain thresholds. For instance, without at least a minimum of social cohesion, it is likely that economic yield will decrease.

The characteristics of urban heritage rather lead to an interpretation in terms of strong sustainability, supposing the identification of thresholds beyond which complementarity effects will prevail.

Figure 2 schematically shows these two approaches. For strong sustainability, this figure suggests stressing the critical thresholds, the interdependence between the different dimensions of wealth, and thus the dynamic dimension of urban heritage. In this case, the question of valuing this heritage then refers back to evaluating the different components of wealth, and to the different sources of its value.

How can we measure sustainability? In Hamilton’s (1994) approach to natural capital, an indicator of sustainability is genuine savings, which accounts for all investment and capital depreciation flows in order to obtain an image of the evolution of overall value and wealth. Transposed to urban heritage, this sustainability approach identifies investment flows in real estate heritage, but also in infrastructure and all other elements that constitute urban heritage. After that, this investment flow should be

compared to the damage suffered by urban heritage. This leads us beyond the approach that essentially insists on real estate investment flow.

- ***Spinoffs from protecting and valuing the urban heritage: A capital gains economy***

The spinoffs from enhancing heritage can be many, whether they are direct, indirect or induced. This can be as direct, indirect and induced jobs; as spending around the sites in shops and on services, in particular touristic ones; as increased turnover for the firms working with the sites; and as growing awareness and participation by the local population. Such spinoff highlights an important element of the economic valuation of heritage. In fact, the value of heritage varies in terms of the level of proposals, whether existing or future, and of the services and facilities in the area where the heritage is located. This correlation between the economic value of the heritage and the level of facilities and services in its area has led economists to define the heritage economy, in particular its tourist economy, as an added-value economy. Estimating the existing goods and services and those to be created, serves to estimate the multipliers which, based on the expenditures in the sites by tourists and residents, allow their total spending in the area to be evaluated. In most cases, the protection and valuation of a heritage is not enough to create local development dynamics that allow major investments needed to create useful facilities and services for visitors and residents. However, this protection and valuation of the heritage gives existing nearby facilities and services a complementary activity that may be essential for their survival. An economic valuation should thus start with assessing the potential of local services and facilities in terms of benefit, whether existing or to be created.

1.2. Heritage policies. Integrating economic and social aspects

Heritage policies reflect the ideas that the different dominant groups have of such heritage. They also bear witness to an awareness of reality and of the—more or less developed—capacity of States of arbitrating between their various socio-economic interests. Such policies, which govern the interventions on urban heritage, can facilitate or complicate the actions, cause major cost overruns, and increase intervention time. They may also help to manage the inherent difficulties of this type of operation, such as the transformation of buildings, maintaining resident populations, or balanced development of tourism. In any case, such policies must be taken into account for any economic valuation of urban heritage.

1.2.1. The French case

We will start with the French case, which associates a very complete set of legal, financial and technical arrangements, and can be seen as one of the most complete examples.

In France, urban heritage policies are relatively recent, having mostly been formulated after the 1960s. The Malraux law on “preserved areas and building restoration”, creating the preservation and development plans of heritage (French acronym: PSMV), dates from 1962.

These and other laws extended to urban heritage the main provisions for protecting the monumental, archaeological, movable and natural heritage. Such provisions existed in France since the laws of 1913 (cultural heritage) and 1930 (natural heritage). They define two levels of protection: classification and registration in the Supplementary Inventory of Historical Monuments. These two provisions (classification and registration) were set up to protect cultural and natural sites, monuments and movable heritage. They restrict the property rights by forcing the owners to ensure the conservation of their goods, but within a framework of specific procedures and under the technical responsibility of specialists (heritage architects, chief architects of historical monuments, and architects of French buildings). In return, interventions on the protected sites, monuments and movable goods benefit from government aid. This can be direct (subsidies) and indirect (freedom of inheritance tax, exemption from wealth tax, fiscal relief for work carried out, or subsidies for restoration and conservation, but not for maintenance work).

- **Protecting the urban heritage in France. An evolving system**

The 1962 provision on preserved areas was strongly inspired by the earlier procedures for the protection of the monumental heritage and of sites. This involved a central role of the State, the definition of a protection perimeter, a description of the protected heritage (surveys, inventory), a conservation, restoration and development plan, the definition of the technical specifications for interventions, and financial and fiscal advantages for the owners. Nonetheless, after the first years of start-up and when financial aid began to decrease, the provision rapidly faced implementation difficulties. In fact, most of the urban areas to be preserved had minimized the importance of private property and the economic reality of urban centres (presence of services, market forces, tourist development, and housing), a reality that was almost inexistent in the case of monuments and sites. The mostly “conservationist” vision

and the resulting long and rigid procedures thus turned out to be partly unsuitable for the reality of urban development.

To overcome these difficulties, a new legal provision came into force in 1983. This is the Architectural and Urban Heritage Protection Zones (French acronym: ZPPAU), that became Architectural, Urban and Landscape Heritage Protection Zones (French acronym: ZPPAUP) in 1993. This new provision, part of the law on decentralization, gave the territorial governments more powers and, especially, set up a combined decision-making procedure associating the State, local government and economic stakeholders, and triggering greater financial aid. This was much more adapted to economic and social reality, while conserving the principles of heritage protection. In addition, in the matter of property, the local governments obtained extended pre-emption rights, allowing them to intervene more rapidly for the implementation of protection and valuation actions. In fact, it had become clear in the preserved areas that the financial provisions (direct aid, tax facilities) had certainly very much improved heritage protection, but that they also had led to increased housing speculation, thus limiting the intervention capacity of local—in particular municipal—government. In addition, the extended pre-emption rights for the community also favoured solving the problem of dangerous situations, for instance where an edifice had a strategic place in the urban fabric that was in the process of changing, but also where an important private building found itself threatened by ruin because of personal reasons, or because the owners had not been formally identified. The ZPPAUP straightened the system out by allowing it to consider conservation and development, and by giving the public sector more important legal means. The numbers show this: today in France there are less than 100 preservation areas (97) and about 600 ZPPAUP (596 approved, 400 under investigation), many of which are tourist towns, such as Pont-Aven in Brittany. The protection of urban heritage associated with local development, or even the driving force of local development, was further strengthened by the creation of legal settings dedicated to improving housing and modernizing commerce and services, operations that can be jointly implemented with the ZPPUAP provisions. In addition, other town planning actions favour activities to protect and enhance the urban heritage, which find their place within the larger “territorial coherence” programmes.

In 2011, and in order to integrate the provisions resulting from the European directives on sustainable development (Grenelle-2 law), the ZPPUAP were replaced by a new provision, the Architecture and Heritage Enhancement Areas (French acronym: AVAP).

The existence of these possibilities allows the public authorities to implement heritage policies that, today, play a significant role in local development, often through tourism.

Urban heritage policies in France

The 1960s witnessed the development of a preservation strategy coupled with the reuse of minor monuments as offices, cultural facilities and, very sporadically, as housing. The latter remained a private initiative, aided by financial and fiscal provisions. The public authorities have only more recently become involved in the field of preserving and transforming old buildings into housing. This strategy concerned in priority those buildings that were already community property. After that, the movement marginally extended to social housing and to historical buildings of character, *e.g.* transforming castles or other historical buildings into council housing. The National Agency for Habitat Improvement (French acronym: ANAH) contributed to this movement. In 2003, the State set up a National Agency for Urban Renovation (French acronym: ANRU), with the task of intervening in run-down urban areas and devoting part of its means to the renovation of historic centres in escheat. However, most of the vast movement of repossessing the urban heritage by new occupants was fuelled by private investment through real estate promotion. In some cases, the investors could benefit from fiscal advantages, for instance when they rented out the renovated apartments in the old buildings.

Finally, in the case of tourism development, rare are the major French heritage towns and cities that have adopted and carried out concerted policies for managing tourism, such as off-centre car parks, drop-off lanes for buses, favouring pedestrian circulation, directional and informative sign-posting, suitable communication means and visitor support, or participation of local tourist operators in the protection and valuation programmes. However, many typical small communities, such as historical villages of less than 2,000 inhabitants, have very largely opted for a tourism valuation strategy and have drawn the consequences in terms of development and management.

1.2.2. Foreign cases

In almost all countries, the legal approach to heritage protection is based on protection provisions that are very similar to the French classification and registration system, though policies can differ. In many cases, the provisions for study, protection and valuation concern especially monuments and sites, whereas the approach in terms of urban heritage commonly depends upon opportunities. Moreover, a legal framework and the means for financial assistance and expertise lack in some cases.

Developed countries

In most developed countries outside the Anglo-Saxon domain, the provisions for protecting and enhancing urban heritage are similar to the French system, though their perception may differ beyond the legal and financial framework. As was seen above for Bologna, a consideration of economic and social reality, as well as a strong feeling for the urban framework, have meant that Italy has been able to conserve and keep alive its historic cities, under conditions that are generally more favourable than those seen in most other Latin countries.

In Anglo-Saxon countries, more than in France, private financing is the driving force behind the protection and valuation of heritage. Much of this funding comes from private “non-profit” structures (trusts or foundations), but also from private commercial entities. This type of investment goes hand in hand with a different “culture” of heritage management. Fiscal advantages are clearer and greater than in France for the operators that finance actions of restoration and renovation. In addition, the ownership structure is often less broken up than in France, thus favouring collective actions. This situation is largely due to the inheritance provisions that favour the maintenance of great properties.

Developing countries

In many less well-endowed countries, the situation is quite different. The legal framework may exist (heritage laws or protective legislation), but covers in priority the archaeological and monumental heritage, though urban heritage forms part of this logic. In historical centres, the first actions are often the restoration of major monuments in the public or religious domain. Only a few years ago, the effort concerned primarily monuments with a touristic character, commonly with technical and financial assistance from international aid organizations. Where such monuments did not have a pronounced touristic character, they were used for hosting public services (town halls, administrative and educational services), or cultural services and facilities, such as libraries, museums, theatres, etc.

After that, heritage policy covered more specifically housing and public spaces, by promoting several types of intervention:

- Moving the original population to new housing built outside town, such as in Ghadames, Libya. Done with public funds;

- Constructing housing outside the historical centre, inspired by traditional local architecture (Gardaia, Algeria). Done with public funds and contributions from the inhabitants to the work;
- Progressive renovation of historical centres, maintaining part of the original population by means of financial aid to owners and moderate rent levels, improving roads and networks and installing public and cultural services in the great mansions and palaces, favouring commerce and handicrafts and very often tourist facilities such as restaurants and hotels. Done with public and very partially private funding;
- Reconstructing part of the historical centre in modern semi-mimetic architecture was done in the post-modern Hafsia district of Tunis, with public funding assisted by a procedure of real estate promotion;
- Restoring part of a historical centre based on traffic flow rather than districts, benefits residents and tourists as in Kairouan (Tunisia). Done with public financing, a World Bank loan, and contributions from other donors, including AFD;
- Orienting the historical town to a predominantly touristic activity generates private investments that enhance the heritage without major injections of public funding, except work on networks, infrastructure and public spaces. Here, the modest local inhabitants are often relocated outside the town centre and “local identity” is strongly manhandled;
- Creating a complete false urban heritage ensemble was done in the fake Medina of Hammamet (Tunisia), entirely paid for from private funds. Here, part of the Tunis Medina was rebuilt on about ten hectares with traditional methods and materials, though the accessibility is much better, and one finds restaurants, shops and tourist accommodation. This type of product is more and more common, especially in China, turning the town increasingly into a recreation park.

The least-developed countries (LDCs)

In LDCs, provisions for heritage preservation are often incomplete or lacking, and the human, technical and financial means are insufficient. This implies that interventions on the urban heritage are subject to the vicissitudes of international aid, or to the assistance from sponsors acting through personal foundations. In addition to the

heavy renovation work, it is often necessary to raise population awareness of their heritage and to train them in its conservation through:

- Training sites and workshops;
- Sites for information and technical aid open to the population;
- Operations that serve as examples and are destined to become reference sites;
- Publishing restoration manuals, simple works proposing simple and relatively cheap solutions to the local population, for the conservation of their heritage;
- Setting up aid “in kind” (materials), as advice (assistance from an architect), and more rarely as financial aid.

1.3. Urban heritage problems as seen by international funding agencies

The present study is part of an overall movement of reflection by the main international funding agencies on the economic value of heritage. This movement, which started in the 1990s, relates to the growing consideration of the economic role of heritage, which until then had been confined to an educational and cultural function. Numerous university and other studies have improved our understanding of the subject, but essentially in its monumental or archaeological dimensions. Urban heritage, which is far more complex to appreciate, is now starting to be the subject of more in-depth analyses as well; this work is mostly carried out by the major inter-governmental donors that are asked for technical and financial interventions in the action plans for the conservation and valuation of the urban heritage. It was thus deemed useful to analyse their approaches to this subject.

1.3.1. *The case of UNESCO*

It should first be restated that UNESCO is an indirect international funding agency, contributing very largely to the funding of World Heritage and of heritage in general, by means of aid provided by foundations, sponsors, States, and international organizations. In fact, UNESCO is not really a donor organization, but rather a manager of funds provided by international funding agencies.

The vision of urban heritage problems by UNESCO differs from that of other international actors, such as the World Bank, as its primary mission is the conservation and protection of heritage. The economic dimension is thus not its main interest. When referring to the management plans that are the support for UNESCO interventions or, more precisely, for those of the World Heritage Centre, the executive secretariat of the World Heritage Convention of 1972, urban heritage is subject to the same obligations as the other types of heritage, such as monuments and sites. Suitable legal provisions must protect it, and it has to be studied and conserved by specialized operators (architects, artisans, curators) and valued by means of presentations and activities. As for all patrimony, it should be managed from a viewpoint of complete integration within the local population. However, what is relatively easy for a site is much more complex for an historical centre. UNESCO asks candidates to pledge not to evict permanent residents, to promote a reasonable tourist activity, and to revitalize the commerce and services needed for daily life.

It is obvious that economic and social concerns are present in UNESCO's preoccupations, but its competence in this field is far more modest than in that of conservation. As far as the economic valuation of urban heritage is concerned, the World Heritage Centre has supported several studies on economic, social and cultural impact, often by non-specialists. The results show some obvious points. The impact of an inscription on the World Heritage List is greater if the town organizes suitable means for enhancing this fact, such as communications, events and networks, and if the services, in particular touristic, are suitable and well-organized. For the moment, the only available economic valuations of a World Heritage inscription are based on impact methods that are rather poorly controlled from a methodological viewpoint. However, such methods have the merit of showing that, under certain conditions, the World Heritage label can lead to good management and a notable increase in visitors. Having said this, a large majority of towns belonging to this group and benefiting from a significant economic activity, in particular touristic, hardly mention that they are part of the World Heritage. A case in point is the town of Arles in southern France.

1.3.2. *The World Bank practice*

Over the period 1975-1995, the World Bank contribution to heritage projects remained modest, essentially as part of a tourism enhancing logic.^[2] In 1980, it was

[2] For the Middle East and North Africa, only three projects: Jordan Tourism (1976), Egypt Luxor Tourism (1979), and Tunisia Urban Development III (1982), with limited results according to the World Bank itself (World Bank, 2001).

decided to halt aid to tourism. This decision further strengthened the lack of interest in projects related to urban heritage renovation. Such projects were thus part of an overall development strategy rather than of an essentially sector-based logic (World Bank, 2001). Finally, starting with the period 1996-2001 we saw an increase in funding and support operations for heritage. This increase also led to considering the socio-cultural impact and environmental protection in projects with a heritage component.

In the World Bank's own words, this involved privileging projects with a capacity for capturing the synergy between urban development and cultural heritage, or between developing tourism and heritage conservation. The multi-dimensional value of culture and heritage often exceeded the objectives of national construction and cultural self-preservation. The World Bank thus considered the cultural patrimony as a *"powerful driving force for economic development"* (World Bank, 2001, p. 4). The 1999 framework for action *"asserts the Bank's readiness to go beyond CH (cultural heritage) safeguard measures toward proactive capture of the patrimony's economic value [...]. In particular, it highlights the exploitable synergy between a proactive CH position and the Bank's central objectives of employment creation and poverty reduction"* (ibid., p. 32). *"The Bank's policy toward CH rests on two cornerstones: the patrimony's economic value and its educational value. [...] It holds that the patrimony can become an auxiliary engine for generating growth and development"* (ibid., p. 33).

Over the past years, patrimonial interventions by the World Bank have become sub-components of major economic and social-development—in particular urban—projects, whereas certain older projects, such as "Tunisia 2002", benefited from a full project status. This evolution follows quite closely the theories concerning heritage economics, which commonly consider the latter as a support of an added-value economy based on pre-existing facilities and services. In fact, enhancing a patrimony in an empty environment, without installation or services, will not generate real economic gains. However, heritage valuation in a fully equipped area generates an additional economic flow that can be important.

1.3.3. *The doctrine of the Inter-American Development Bank (IDB)*

The Inter-American Development Bank (IDB) has adopted an approach that is quite similar to that of the World Bank for evaluating projects related to urban heritage. It emphasized a balance between private and public investments, as well as the need to evaluate projects in the light of their economic impact. The IDB proposes an approach through renovation and conservation efforts in terms of sustainability,

whereby “sustainability” is defined as “*the capacity of such programs of retaining the existing activities, and of attracting a diversified ensemble of new economic activities, residents and users for the historic centres*”. When the urban heritage is sustainable, private investment will ensure its economic development, whereas public investment maintains urban infrastructure, compensates for negative social impact and supports private initiatives. This approach to the sustainability of urban heritage highlights the importance of the economic “attractiveness” criterion of historic centres. Nevertheless, by insisting on just the economic dimension, it ignores part of the challenges associated with the sustainability of urban heritage.

1.4. Urban heritage: The funding systems

The funding of heritage comes from several international and national, public and private, and direct and indirect sources. Part of such financing corresponds to project strategies, and another part to the types of systematic institutional intervention.

During the past years, the financial distribution has changed. In most Western countries, except the Anglo-Saxon world, the public sector and especially States have reduced their contribution by transferring the charge to other territorial public authorities and the private sector. Legislation was adapted for facilitating private investments (sponsors, delegating public services to the private sector for heritage management). At the same time, certain sites, under pressure from their supervising authorities, launched themselves into a policy of increasing their direct and indirect incomes, by looking for a notable increase in visitors, and by developing the loan of works and project engineering, and even through franchising their brand name, such as the Louvre or Guggenheim. Such a strategy does not necessarily lead to better visiting conditions and a greater respect of the works. In the Anglo-Saxon countries, where the non-profit private sector plays a major role in managing the cultural and natural patrimony, funding requirements lead to a greater appeal to public institutions. In any case, it is increasingly clear that heritage financing becomes a private, associative (non-profit) or commercial affair, and that the role of the public sector decreases noticeably.

1.4.1. Public and private international funding of the heritage

Public international institutions

International inter-governmental donors play a major role in countries that lack the necessary financial, technical and institutional means. They provide financial assistance through loans or aid as well as technical assistance, in some cases leading

them to carry out projects themselves through suitable legal structures (project management units). In the case of urban heritage, donor intervention can cover different types of action, such as institutional or legal strengthening, inventories, programming of actions, execution of actions through specific legal support, checking of the operations (works, financial management), training, setting up the management conditions, or even managing themselves through suitable legal and financial support systems. In almost all cases, donor interventions associate urban heritage protection and development.

The international donors active in patrimonial affairs are inter-governmental organizations, such as the World Bank; the United Nations Development Program (UNDP); the United Nations Environmental Program (UNEP); the European Union; the European, Asian, African and Inter-American development banks; UNESCO.

In some cases, several donors are active in the same project. Variants of such interventions are the management of trust funds or sponsors, or the case of UNESCO. In this case, the institutions manage private or public financing from certain countries, as specific funds and in addition to their normal national contributions. Both Japan and Italy play a significant role where patrimony is concerned.

Cooperation and decentralized cooperation agencies

National cooperation agencies play a major role in the protection and valuation of patrimony for development ends. Like the international institutions, they contribute funding as loans or aid. They can mobilize recognized technical skills in the fields of conservation and restoration (GTZ in Aleppo, Syria), of institutional and legal strengthening, of executing works, or of management and development. Bilateral State-to-State cooperation exists as well, but is rather modest in terms of the total financing of heritage projects. Decentralized cooperation occupies an increasingly important place, for support as well as for protection, conservation and valuation of urban heritage, though the sums involved are, again, modest compared to the funds provided by inter-governmental and cooperation institutions.

Depending on the operators, the intervention concerns studies and/or work. However, it is quite common for the financing proposed by the cooperation agency not to cover management of the operations (equipment, development, renovation) once the work is completed. In countries that have sufficient institutional means to handle such management tasks, this fact has no consequences. However, in countries without sufficient institutional means, the management phase can pose

insurmountable problems, which can jeopardize the investments made. Some donors have developed a different strategy. The Chinese in Africa do not fund studies but only works, and will monitor the management if they do not handle this task themselves through specific companies.

Foundations (non-profit private sector)

Finally, among the donors and especially in the case of patrimony, the pivotal role of great non-profit foundations–institutions under private law–must be mentioned. In most cases, they provide financial aid as subsidies. Such aid is generally more modest than that provided by the inter-governmental donors and cooperation agencies.

Most foundations contribute technical and scientific expertise through direct intervention and training (*e.g.* Getty). Others ensure the development of cultural establishments (museums), whether directly or through a franchising system, a method that is rapidly developing as seen by the Louvre of Abu Dhabi or the Guggenheim in Bilbao. Some intervene as donors, though supplying a marked technical and scientific assistance as well, leading them to conservation and valuation actions (World Monument Fund, Aga Khan Trust for Culture, Arab Fund for Economic and Social Development).

Such funds may be given to States or local authorities (commonly covered by the State), and even to the private sector. They can also directly ensure the financing of actions. In this case, the donors will execute the works through intermediate structures controlled by them. For heritage operations, the average amount of aid provided per operation, by inter-governmental organizations and development agencies, is in general around EUR 3 to 5 million when provided as subsidies, though it can be as much as EUR 150 million in the case of loans, such as the World Bank loan to Saint Petersburg, Russia.

1.4.2. Direct national funding

Both private and public sectors can cover national financing. Generally speaking, private sector contributions from persons and companies, as well as from non-profit organizations, are higher than those from the public sector.

In developed countries, and in particular in France, the public sector contributes direct financing to conservation operations concerning protected monuments, though State participation is less than that of territorial authorities. This institutional system is not directly linked to the type of project. Today, however, aid to protected monuments is

more easily accorded if the restoration-and-conservation project is coupled with a valuation project. In the urban heritage domain, public funding of unprotected patrimony can involve several donors, such as the State, local government and the private sector, in programmes coordinated by a national agency, such as ANRU in France. For renovation operations on unprotected patrimony, most funding comes from the private sector.

In most Anglo-Saxon countries, the situation differs. Foundations or trusts (non-mercantile private operators) ensure the financing of heritage, whereby they benefit from major tax exemptions. An example is the National Trust in the United Kingdom, which manages a very important part of the cultural and natural heritage in Britain. Scotland has its own National Trust. State and local authorities can contribute additional means, in particular to boost conservation and raise awareness in schools and among the local population. These private operators are very intimately involved in the collective life of the territories. They draw their resources from lotteries, donations, contributions from their members (2.2 million members of the National Trust), the sale of derivative objects, tourist activities (rentals, boarding houses), exploitation of the natural domains they manage and, marginally, from entrance fees. They can receive properties as gifts, according to several types of tax provisions, and they are subject to the principle of inalienability.

1.4.3. Indirect national funding

A patrimony can benefit from indirect financing, such as:

- Tax advantages (freedom of wealth and inheritance taxes, deduction of work costs) accorded to owners of protected goods and, in certain cases, to lessor donors;
- Fiscal advantages related to specific provisions, such as the French provincial tax on sensitive natural spaces, levied on building permits and returned to the province (“département”) for the acquisition and maintenance of natural spaces on which building is not permitted;
- Products from taxes on gambling (*i.e.* lotteries in many European countries and, since recently, online poker games in France);
- Traditional taxation on activities generated by conservation and valuation work on heritage sites.

Such direct and indirect funds are collected according to three main methods:

- Increased partial privatization of the public space by means of concessions for restaurants, ticket offices and shops;
- “Safeguarding” the heritage-income circuit in order to ensure a return that benefits the patrimony itself. In fact, in some cases the direct and indirect operating income from heritage is used for other ends than its protection and management;
- Taxation in a form to be further defined, such as the model of Provincial tax on sensitive natural spaces in France, of the income induced from exploiting the heritage.

1.5. Urban heritage protection and valuation: Risk management

An intervention on urban heritage can lead to a certain number of risks that may be limited through anticipation. Regarding economic valuation, such risks must be considered from the outset as they may require discussion in advance, in terms of variants, that can have a decisive influence on the future of the heritage town and its economic value.

1.5.1. Urban marketing that may be excessive

The success of the creation of the Guggenheim museum in Bilbao has opened a new era that may be qualified as “urban marketing”, marked by the construction of iconic buildings. As part of the competition between towns, the spirit of the place, strongly related to the urban heritage and urban leisure market, is a factor of differentiation and attractiveness, not only for heritage tourists, but also for new residents and investors. The challenge is to show the town as a pleasant spot for living, offering an efficient working environment, and suitable for organizing a conference or as a holiday destination. The heritage has to answer inherent requirements: quality of life, sustainable development, no mass tourism, recovery of the public space, and civic participation. In Europe, many small and middling towns seek to reconvert a traditionally agricultural or industrial economy into one based on culture and heritage, to obtain a heritage label. In an increasingly competitive context, it is not rare that they consult professionals on the steps to be taken with regard to obtaining the World Heritage status. Local heritage policies lead the towns to display their

singularities, in order to position themselves in the game of symbolic competition, at the national and international levels. The *genius loci* is seen as a trump card that can be mobilized as part of local economic politics. It stimulates the production of emblematic spaces and goes hand in hand with invented titles such as “Wine Capital” or “Cherry Capital”. Heritage now lies at the core of the strategic management of a town’s image and an inscription on the World Heritage List is one of the most sought-after labels of urban marketing. The listed good, whether an historical centre or monument, is used as a promotional tool for the town as a whole. Moreover, the dissemination of this image largely takes place through cultural events, by means of modernizing symbols in a townscape or through the instrumentalization and reinvention of the historical heritage. The reactivation of old customs and the promotion of handicrafts and gastronomic products feed the urban leisure and tourism market. Even though the work by a municipality on raising the town’s attractiveness based on developing its historical centre—directed to both inhabitants (“good to live in”) and tourists (“good to visit”)—is legitimate, care should be taken that the work on a building that—in the eyes of the experts—is worthy of a heritage label, preserves its value and its architectural, historical and symbolic meaning.

The marketing of historic centres, often decried, may turn out to be counterproductive if the patrimonial resource is too obviously maltreated, and it may reveal an absence of political vision. In the long term, only well-informed management that respects the old constructions will guarantee the durability of the labelling. Initially, for a period of about twenty years, urban heritage was developed by many municipalities with their own resources, thus asserting themselves as a centre of innovation and development as well as creating a market of cultural tourism, such as the city of Lille in France. This has now made way for a phase where major cities wish to consolidate the obtained results, without redefining their projects. The problem is that, when heritage development is supported by weak “social demand” and by just the determination of the “keepers of the patrimonial flame”, the risk is that this will lead to development without much significance and marked by a few simplistic emblematic elements.

1.5.2. Museumization

The term “museumization” designates a movement of “devalorization” of the built-up, movable and intangible urban heritage, which is turned into an outdoor museum. This process is commonly seen in tourist towns, accused of transforming themselves into windows on the past and thereby gradually dispossessed of the expressions of daily life. This problem is certainly true for a few emblematic places, but the vitality

of most great patrimonial cities usually has the upper hand. Nevertheless, any intervention on urban heritage must consider the risk of “devitalization” in aid of a mostly cultural presentation, designed and implemented by specialists in the field. This is especially true in a configuration where heritage and its museum variant play an increasingly clear role as elements of identifying and strengthening an image. Today, the number of new museums in Europe and the Gulf States is impressive and, in most cases, this effectively concerns an urban gesture involving ever more creative architecture. However, despite the fact that the architects involved in these new museums are well known, such as Z. Hadid, I.M. Pei, B. Tschumi, Sanaa or J. Nouvel, little is said about the collections they host.

1.5.3. Property speculation

Immovable property (real estate) speculation is a common feature in areas where urban heritage is restored and rehabilitated. In the Western countries, the first areas thus preserved have generated this type of problem. Helped by local authorities and the State, a few owners profited from this “windfall” effect, but this has not only happened in Europe. Property speculation around patrimonial sites exists in developing countries as well. Means for limiting such practices are a reduction in aid levels or subjecting them to specific constraints, such as a special tax on the resale gains. Intervention by the public sector is another way of reducing the risk of speculation. In areas of protected urban patrimony, the right of pre-emption helps the authorities to carry out a more balanced policy, buy old buildings which they allocate partly to housing at modest rents and partly to shops and cultural facilities.

1.5.4. Tourist mono-activity

Tourist mono-activity is a major risk that is difficult to manage. The profitability of tourism can be so high that any arbitration will be to its advantage. The case of how cruise passengers are received in Venice is a radical case in point. The city has handled tourist flow for several decades in a mostly satisfactory manner, by strictly limiting the growth in the number of hotels, which meant that the number of tourists remained more or less stable. However, it has had more difficulty in regulating the flow of day-trippers. Very recently, Venice’s mayor and his team have allowed the creation of a huge hotel (Hilton) in the former mills on Giudecca and the mooring of cruise ships in the harbour of Tronchetto. Both decisions have immediately led to the presence of an additional 3,000 to 5,000 persons each day in the city, destroying the fragile equilibrium that existed until now.

1.5.5. The management of resident populations

The relocation of residents is often a difficult problem. In some cases, the inhabitants themselves, seduced by financial offers they cannot refuse, accept to sell their property and move, such as in Marrakesh. Generally, such offers come from foreign buyers, but also from former inhabitants, who moved abroad or to other towns in the country, and who return to the place of their youth or their family home if they still own the property.

Maintaining the indigenous population is commonly complicated by its relative insolvency. In that case, public aid may help, for instance through purchasing the buildings by the public sector (State, municipality) or by semi-public collective (council) operators, who finance the transformation and maintain the property afterwards. In some cases, public operators or religious communities (Habou or Waqf properties in Muslim countries) carry out the renovation work directly on goods that are already owned. Such systems are suitable for rental properties, but are much more delicate for owners, as the planned actions need their agreement and their sharing in the costs. For owners, therefore, financial aid can be supplied as loans, microcredit, or help with materials, combined with limits on resale (see above). The World Bank also suggests better management of building permits for owners of damaged or ruined property. Experience shows that, in any case in some southern countries, the option of moving is necessarily excluded for the inhabitants of run-down old quarters.

1.5.6. Lack of response capacity

In most developing countries, the legal, institutional, financial, technical and human means are limited, or non-existent in the least-developed countries. In this case, multilateral or bilateral cooperation and, increasingly frequently, decentralized cooperation will make up for this deficiency. Paradoxically, this situation commonly allows for greater efficiency than in countries where all these means are available. However, once the cooperation operations are terminated, monitoring of the interventions is generally rather weak.

1.5.7. Property rights, leases and rentals, acquisition by foreigners and non-residents

One of the main difficulties of intervening in historical urban centres is of a legal nature. Property rights, in particular joint ownership, can block renovation actions where the owners are unknown. The same is true for countries with lease systems governed by legislation that favours maintaining inhabitants in their housing, at very

low rents, such as in Malta. To face such—sometimes dramatic—difficulties, some countries have developed a legal “bypass” arsenal. This is the case for the pre-emption right of municipalities as defined by law in certain cases, allowing them to buy property instead of other buyers, or in the absence of known owners. Finally, the possibility for a foreigner or non-resident to easily acquire a property may be an advantage in that it favours the presence of residents with greater financial means than those of the local population. Obviously, this type of situation can also lead to the excess of accelerated gentrification.

1.6. The types of historical urban centres

Based on the elements described above, a first description can be given of the types of historical urban ensembles, distinguishing different categories of sites in terms of their importance, their complexity and their role in urban development. In the most important sites, it is clear that it may not be easy to distinguish clearly between what concerns heritage and what are simply traditional urban activities.

1.6.1. Type 1: Active patrimonial towns in developed countries

In an active patrimonial town of a developed country, different categories of urban heritage can coexist, including major monuments, secondary religious and civil or even ancient monuments, mansions, individual houses, and apartment buildings. Such historic centres have numerous facilities and services. In Europe, sites of this type house Roman, medieval, Renaissance and more modern monuments. As far as housing is concerned, the oldest houses still inhabited date from the 11th century, and much of the urban heritage destined for housing (residential properties) dates from the 18th and 19th centuries. Most European towns do not know some of the morphological difficulties of other historical centres, such as the Medinas of North Africa. Thanks to the work on urban embellishment of the 18th century and to the great urban operations known as Haussmannization, the historical town is generally accessible to cars, and dwellings were designed to house small families. Almost all buildings have been restored, or at least renovated or rehabilitated. These urban ensembles consist essentially of collective housing, shops, services, and cultural and tourist amenities (hotels, restaurants, etc.). Occasionally, small industrial or artisanal activities exist as well. Several construction periods coexist. Tourism is seen as a feature of local development, even though this assessment does not always translate into suitable development programmes. This type of town is found throughout Western, Central and Eastern Europe, from Rome (Italy) to Budapest (Hungary) and from Cordoba (Spain) to Saint Petersburg (Russia).

1.6.2. Type 2: Deteriorated patrimonial towns in developed countries

Though most historical centres have benefited from preservation and development, some remain in a run-down condition. Here, the whole heritage is affected, with sub-standard housing and networks, rare or inexistent services and economic difficulties facing the population. This is the case, for example, of the mid-sized towns of Grasse or Carpentras in France.

In this situation, the heritage does not necessarily benefit from protection and thus from funding sources. Its restoration represents a very high cost, the more so as any intervention on the patrimony itself should be accompanied by intervention on all urban facilities and services, the resident population not having sufficient means for significant participation in the investments. This situation is often aggravated by problems of joint property ownership. Finally, such old quarters are commonly surrounded by more recent urban districts, requiring the design of programmes to link the various ensembles and turn the work into a “recapturing” process. In this context, an intervention can be part of an integrated programme covering substantial parts of town, by means of exceptional financial and technical provisions (in France from the National Agency for Urban Renovation), or by progressing from building to building, or street by street, renovating the housing and favouring the installation of shops and services as well as social mobility.

1.6.3. Type 3: Patrimonial tourist towns in developed and developing countries

Patrimonial tourist towns are found in developed and developing countries. In the former, they have a full range of legal, institutional, technical and financial means, but in the latter this is often not the case.

Compared to a town without touristic interest, the historical urban centre contains an ensemble of quite different units. Emphasis is put on conservation and valuation of the cultural heritage that can be visited or used for shows or receiving tourists. Tourist housing is developed at the expense of permanent residents, favouring hotels, bed & breakfasts, boarding houses, holiday homes and, increasingly, rental apartments for tourists. Activities in town are largely dominated by tourism, such as souvenir shops, restaurants and specialized crafts shops, selling items often made in Asia.

Such mono-activity has multiple consequences. It affects urban development, in particular when fulfilling the conditions for driving and parking that are designed to receive major tourist flows at certain times. It also acts on urban dynamics by reducing

the neighbourhood shops and services (health, education, etc.) needed for the daily life of permanent residents. Finally, it can disturb the local population that is gradually dispossessed of its environment and habitat (gentrification) and sees its standard of living strongly disturbed by a, sometimes excessive, number of visitors. Although it causes financial distortion by creating pockets of real estate speculation, it does preserve the heritage. Because of this logic, the city of Venice went from 175,000 inhabitants in the 1950s to 60,000 today. This form of touristic predominance also characterizes other European towns, such as Bruges (Belgium), the historical centre of Prague (Czech Republic) or Florence (Italy), but also Marrakesh (Morocco) and Sidi Bou Saïd (Tunisia).

1.6.4. Type 4: Villages of character

Villages of character are a variant of Type 3, but these are small urban units of less than 2,000 inhabitants. In almost all cases, tourist activities play an essential economic role by backing local agricultural and crafts activities. The underlying logic is the same as that behind historical towns, determined by the level of protection and the means of financing. Such villages see a similar evolution to that of historical town centres, such as the disappearance of services and shops needed by permanent residents, increased tourist use of the patrimony and in particular housing, restaurants, specialized shops for souvenirs, crafts and local products, and holiday homes. These phenomena cause housing and ground speculation that incites the locals to sell their property. However, as most of these villages do not have residential shops and services in nearby, larger towns, the negative effects of such tourist development are generally attenuated. For the heritage, this trend is rather favourable as it mobilizes greater financial means for protection and development. In France, this is a very common situation as witnessed by Sarlat, Conques, Gordes, Locronan, and many villages in the Mediterranean hinterland.

1.6.5. Type 5: Patrimonial towns in low-income countries, especially in LDCs

In the least-developed countries (LDCs), heritage towns are commonly characterized by their relative degradation, though this damage is not necessarily accompanied by a disappearance of economic activity, some services and housing. For some of these towns, the difficulties are aggravated because of the morphology of this urban heritage. An Arab Medina is practically inaccessible to cars and many dwellings are inhabited by extended families that include several generations, a type of housing that is inappropriate for “modern” housing conditions and is difficult to modify. In

In addition, the institutional, legal, technical and financial means are generally limited, or inexistent, reducing the options for intervention. There are several strategies in terms of housing, including total renovation of a quarter, limited redevelopment of existing housing, total exile of the population toward other housing units, or modifying activities (gentrification and “touristification”). In any case, it is quite difficult to maintain the local population in place at all cost, by improving its living conditions and boosting economic activity. This is only possible when accompanied by a process of making the town attractive to tourists, allowing the occupation of re-assigned patrimonial buildings, such as mansions, charming town houses and, increasingly, ordinary housing, whether as rentals or fully owned properties.

Today, with very rare exceptions, the economic improvement of historical centres in emerging and least developed countries, only functions in a clear-cut manner through a tourist development process, as the local population can rarely afford renovation without outside help. This situation is caused by the fact that a tourism-based “industry” quite easily overcomes the various deficiencies in national protection and preservation, institutional, legal, technical and financial systems. It can rapidly mobilize investors through an acceptable profitability thanks to a regular management of activities. In most cases, such interventions take place as part of multilateral or bilateral cooperation, and decentralized cooperation plays an increasingly important role. In addition, certain tour operators also provide technical and financial assistance, such as Point Mulhouse in Mauritania and Nouvelles Frontières. However, a tourist development strategy can only work when the local means exist to create facilities without having to over-invest, *i.e.* the creation of inns, hotels, restaurants and shops in existing renovated premises rather than new constructions, as well as local skills that either exist or can be trained, for heritage conservation, reception, guides, hotel management, food supply, or health care. This is the case for a large number of towns in developing regions, such as Tripoli (Lebanon) or Santo Domingo (Dominican Republic).

1.7. Urban heritage in the territorial development process

From an economic viewpoint, the value of urban heritage lies in the fact that it is a resource that can contribute to development of the area where it is located. This implies that, for the economic valuation of any project concerning urban heritage, we must define the area taken into consideration and the keys for its development process.

1.7.1. Identification of the area to be considered

Humans are social beings who gather with their fellow men in one or more areas. The places of domestic life, work and leisure may be different according to the type of activity considered, differences that tend to grow in modern society. Yet, the type of these areas and, over time, that of their development process, play essential roles in human well-being.

Any territory is a social construction that combines economic, social and political elements. From an economic viewpoint, an area is defined by production structures, and by its means of income distribution and of internal and external (with other areas) exchange. Socially, it consists of a set of social categories gathered in various forms, whether formalized into associations and unions, or informal neighbourhoods and family relations. However, an area cannot exist if it does not have a political organization, supported by administrative structures whose role is to coordinate the actions of the different groups that make up the territory and to arbitrate their conflicts.

Such areas may be very different, caused by the size of the disparities between them. The latter are generally of an economic order in terms of individual wealth, of a social order in terms of the culture and type of the various social groups, or of a political order in terms of the types of organization and the degree of legitimacy of the leaders. Moreover, the areas can rank in size from district or village, to a supranational grouping like the European Union. This complexity of the territorial landscape will inevitably cause overlapping membership fields, sources of conflict, between the various stakeholders in the development game. The interests of the residents of a specific area may not be the same as those of a larger territory. Local, national or global interests can thus be in opposition. From there on, a local urban heritage improvement project can clash with a national development policy with other priorities, and vice versa. In all cases, however, it is essential to evaluate the local consequences of development projects on land values, salaries and house prices. In addition, some locally made development expenses may primarily benefit nearby territories because of local characteristics. In this case, only the compensating intervention of a larger territorial authority, or of the State, can ease project implementation. This means that, based on the territorial scale considered, differences in appreciation can only concern the criteria for evaluating the relevance of the patrimonial projects.

Regardless of the adopted analytical scale, territories can also be regrouped into several large ideal types for analysis. One of the most commonly used is that consisting of “industrial districts”. These are areas where the production of a type of product occupies an essential place, and is quantitatively significant on the national scene and for exports. This covers many SMEs, with close and complex links of competition as well as of cooperation. On the other side of the spectrum, we have territories dominated by a single large company.

The great conurbations cumulate various activities, which can be industrial but are increasingly turned toward services for companies and private persons. Traditionally, these are opposed to rural areas, marked by agricultural activity and low population density, but this old opposition tends to disappear with the growth of, mostly residential, rural suburbs.

The fact that the projects studied concern an urban heritage does not necessarily mean that the area to be considered for economic valuation is that (district, historical centre) with a recognized patrimonial value. Generally, the territory considered is that of the town as a whole, comprising suburban and even nearby rural areas. All depends upon the type of heritage identified, its size, and its regional, national or international influence. This means that a reference territory has to be determined on a case-by-case basis.

Once the outline of the relevant area has been determined, its development process must be defined. The great diversity of such processes governs the highly variable role that urban heritage may play in them.

1.7.2. The development of an area covered by a patrimonial project

The term “development” has many definitions. In social sciences, development is generally characterized by the transformation of productive and social structures, allowing the cumulative and sustainable growth of the resources available for the well-being of the entire population. The two ideas of “transformation” and “progress of human society” thus lie at the heart of these definitions. The first idea has an analytical dimension of identifying the conditions and ways of such transformation over time, which therefore covers a long period that supposes systematic reference to the history of a society. The reality of political action, however, affecting such evolution, assumes the objectives selected by the authorities in terms of past information as well as the preferences expressed by society, to be explicit. Such preferences can be diverse and, obviously, sources of conflict of interest, both material

and ideological. One of the essential characteristics of all development processes is the improvement of human capacity, allowing the satisfaction of priority needs as considered by the group in question. At that point, to evaluate the economic relevance of a heritage project, it becomes crucial to identify all the persons involved in the territorial development and their objectives, to analyse their relations, and to define the essential elements for the development of the territory concerned.

The main stakeholders in territorial development must be precisely identified

Within the main groups of stakeholders that can be identified, the main stakeholders are not necessarily the same as those involved in patrimony:

- *The State* is locally represented by different civil service authorities. Those in charge of heritage questions may have different objectives than those of other authorities, (health, employment, finances...);
- *Territorial authorities* are more or less numerous (in France they form a true layer cake!). Their fields of competence, by regulation or *de facto*, commonly overlap and their respective powers are highly different from one country, or even region, to the next. Their sensitivity to heritage questions and their ideas of improving such heritage may be very different;
- *Companies* are variably represented. In particular, the situation will be radically different according to whether these are large international, national or local companies, small enterprises, or a huge ensemble of “informal” activities. Another diversification lies in their size and status, but these criteria are insufficient for differentiating their attitude in terms of heritage. Here, their field of activity may play a role, which can be more or less sensitive to the contributions of tourism, or to that of a territorial image that might differentiate their production from others;
- *Employers' organizations* are potential stakeholders as well, distinct from individual companies, whether inter-professional (Chamber of Commerce and Industry) or not. The same is true for labour organizations;
- *Associations* involved in heritage questions commonly play an important role in its development, but they may be partly opposed to the aims of other, such as religious or sports, associations;

- *Training and research institutions* (universities, colleges, training centres), will variably support patrimonial projects, based on their specialization and interests;
- *The population*, independently of the institutions structuring it, may or may not react favourably to patrimonial projects. This point can be measured by contingent valuation approaches. Such reactions may be spontaneous or not, and in the long term can influence elections.

Stakeholder interaction and conflicts

The interests of the residents of a given area do not necessarily coincide with those of a larger territory. Local, national and global interests can thus be opposed. A local project for urban heritage development may well clash with a national development policy that has other priorities, and vice versa for a project of national or international origin.

Moreover, any money spent locally for such development work may rather benefit neighbouring territories, because of local production structure characteristics. In this case, only the compensating intervention of a larger territorial authority, or of the State, can ease the implementation of the project. Therefore, depending on the territorial scale considered, any differences in assessment can only concern the criteria for evaluating the relevance of a heritage project.

Because of their diversity, the development stakeholders, regardless of their territorial scale of action, have a different behaviour logic that, faced with heritage projects, leads them to complex and commonly conflicting interplay. The different stakeholder groups and networks confront each other to define or escape the rules of the game, and to control institutions that may be effective or just symbols. In fact, the various stakeholders are even more ready to enter into conflict as, in the present-day context of globalization, the development processes that are implemented are commonly brutal and very rapid. Moreover, in an environment of potential administrative and political weakness, not to mention corruption, the drawing up of rules and their enforcement is difficult and may even aggravate the conflicts. Because of this, the acceptance of a project is the result of a compromise between the stakeholders, or at least between the most powerful ones. Therefore, in order for a patrimonial project to be feasible, it is fundamental to coordinate the actions of these groups and to arbitrate between their divergent interests. This, basically, is the main role of the public authorities.

Therefore, the evaluation of any project must attach great importance to the different stakeholders in territorial development, their motivations, and their degree of interest and implication in the considered project. The type and economic and political force of the groups involved in the project is an essential factor for its success and thus for its legitimacy.

Methods and policies of territorial development

Urban heritage development projects, because of their economic and social impact (job creation, higher incomes, and improved training, health conditions and living environment) have a direct influence on the development of the territory involved. However, this evaluation cannot be independent of a full consideration of the territory concerned, because of the diverse nature of such territories. This diversity requires that, for the evaluation, the variables concerning the particular type of territorial development be considered.

The structure of economic activities and of the social fabric must be at the core of each project appraisal, in order to adapt it to the great diversity of economic and social situations in the various areas. In particular, for the same type of patrimonial project, the impact on territorial development will be very different according to the earlier development work carried out in the area, and according to local policy as a whole and its coherence. It is clear that heritage projects, because of their specific objective, cannot be designed in isolation from other local development projects. One should therefore evaluate their compatibility with both national and local development policy.

To this end, it is necessary to identify, case by case, the relative place and evolution—compared to national or regional averages—of the essential variables of territorial economic development and the policies influencing it. This identification should thus focus first on the key factor of all development, which is human resources (population growth rate, and its age distribution, health condition, and education and training levels). Other points to identify are the productive structure (main production of the territory, types of formal or informal enterprises) and the territorial income including the degree of disparity in its distribution. For a study focused on urban heritage development, it is also necessary to define the state of transportation, roads, sanitation, and water and electricity distribution networks. The same is true for the structure and regulation of land ownership in the territory (private, community, public), and of the existence or not of an active real estate market.

The policies implemented by the authorities will have a decisive influence on all these key variables of territorial development. This implies identification of the type of governance of the territory considered, as well as of the nature of fiscal or other resources available to the local authorities.

1.8. Urban heritage, a patrimony by itself

Like all types of heritage (monumental, archaeological, movable), urban heritage is the subject of study, conservation and development policies. However, unlike other heritages, it is faced with major economic and human constraints, implying the existence of specific provisions. This distinctive feature has an obvious impact on its economic valuation.

1.8.1. Urban heritage and town policies

What is the distinction between an intervention on urban heritage and an intervention in a recent town? Essentially, the two ways of intervening have similar objectives: on one side the improvement of housing, transportation, services, shops, infrastructure elements, and health, education and cultural installations, and on the other side the strengthening of economic activity. However, the practical conditions of their implementation differ quite markedly as the legal, technical and financial frameworks are different, as are the technical constraints, the tourist strategies and the management of the resident population.

The legal, technical and financial framework

The type of intervention differs markedly according to whether we are dealing with a recent or a historical town. In the latter case, several provisions have to be considered:

- Legal provisions, such as protective legislation, town planning documents, pre-emption rights, and succession rights;
- Regulatory provisions, such as specifications for the preserved districts;
- Technical provisions, such as the use of specialized architects and companies, and of preventive archaeology;
- Financial provisions, such as funding and tax systems, but also the increased risks of speculation.

For instance, according to unofficial World Bank estimates, if the manpower cost for a standard urban project is set at 1, the same cost for an urban heritage project will be about 1.6.

Physical constraints

In some cases, the inherent configuration of the urban heritage can complicate restoration or renovation actions, requiring the need for specific interventions, such as the conservation of ancient facades and the complete replacement of buildings behind them, a practice known as “façadism”. This type of intervention on a historical building, which may be justified by seeking a harmony between the townscape and the living environment, leads to the complete reconstruction of the interior motivated by modern living conditions. The urban layout and its image are thus privileged to the detriment of the structure and use of the buildings, whereby the town becomes a backdrop of a dramatized space. In this process, which reduces the architectural work to the facade and destroys the historic interiors, the public space is emphasized, *i.e.* a familiar urban setting providing visual continuity. This urban setting, incarnating the spirit of the place, forms an identity landmark within a moving, and locally disturbing, urban reality, preserving just a visual memory of the town.

Difficult accessibility and the unsuitability of some buildings in view of present-day health and comfort standards may impose renovation interventions that, objectively, cannot meet the constraints of conservation and protection as laid down in doctrine documents and legal texts. This situation leads to modifying the ancient fabric being modified to render it inhabitable. This is, for instance, the case for the narrow and deep buildings dating from the 16th and 17th centuries in the old town of Hanoi, which no longer correspond to modern use. Many of these buildings are only 2.5 metres wide and four to five stories high. Here, the work commonly consists of joining several buildings to render the inside space more liveable.

In an Arab Medina, the streets are inaccessible to cars, leading to dense moped traffic. The buildings were designed to receive extended families, a configuration that no longer corresponds to the reality of modern life. However, transforming a Medina remains a very complex exercise if one wishes to respect the rules and regulations of protection.

Tourism strategy

Developing a heritage site for tourist use also has its specific constraints. Emphasis (protection, conservation, circulation, development, promotion) must be put on the most attractive places for tourists, such as sites to be visited, walking routes, hotels

and restaurants. Furthermore, the support for housing and leisure may entail choices that favours tourists over permanent residents. Finally, large numbers of visitors can be extremely annoying for the local population.

Managing local populations

The most delicate, however, is the management of resident populations. Little or not restored historical centres are essentially inhabited by people with few economic means, who very commonly occupy the buildings under joint ownership without property ownership documents. They are thus unable to participate significantly in the renovation of their housing. As an exceptional case, however, the inhabitants of the Hafsia in Tunis, many of them small shop owners, bought back their old apartments once they were renovated. This real financial input allowed the renovation process to be completed.

In most cases, however, the situation is different and the procedure for protecting the old inhabitants is often difficult, lengthy and costly, which to a large extent explains the gentrification phenomenon. From an economic viewpoint, gentrification and/or the return of former inhabitants who left to make their living elsewhere, but who are now attracted by this newly restored identity environment, are a solid financial basis for private actions to improve of the urban heritage. Examples are Damascus, Tunis, Marrakesh and Chinguetti. The type of intervention resources available to the authorities (pre-emption rights, financing, respect of town planning documents, delegation of public services) are important elements for planning the cost and duration of development work and, therefore, for the economic valuation of the heritage.

1.8.2. Specific procedures for intervening on urban heritage

Among these procedures, we should first mention the *specifications*, which define the actions in the urban environment in preserved areas or ZPPAUP (in France), which recently became AVAP. These specifications define the technical characteristics (architecture, materials, design, colours) of the authorized restoration or conservation actions. They are official documents of a technical and legal nature that are binding for the inhabitants of the protected areas. They serve as a reference for the residents, architects and companies as well as in case of dispute or contestation. *Conservation manuals* also are very useful aids, designed to explain simply to non-specialist inhabitants, artisans and architects, the principles and basic acts of protecting the local heritage. One of the best examples is the one produced by the Aga Khan Trust for Culture for the historical centre of Zanzibar (Tanzania).

Secondly, a special place should be accorded to the microcredit procedure, used for assisting development actions, in particular in developing countries but also, increasingly, in developed countries. Here, an operator is given a small credit allowing him to cope with his work obligations or to finance his projects. This is the case of owners who restore their houses or just their facades, as well as of shop owners or artisans who wish to modernize or move into new spaces. However, the microcredit system requires a fairly heavy management system.

Finally, Bigio and Licciardi (2010), in their study of World Bank actions in North Africa and the Middle East, suggest that any intervention in urban heritage requires:

- To plan for and coordinate from the start the necessary means of public and private financing (enterprises, sponsors, individuals);
- To improve the investment conditions in real estate for private operators, such as in Morocco where the purchase of real estate by a foreigner is easier than in Tunisia;
- To allow the transfer of building rights belonging to owners of damaged or destroyed property in the old centres;
- To set up a specific taxation system of the profits resulting from development actions;
- To review the taxation of tourist facilities, such as restaurants, hotels and boarding houses that set up shop in the old centres.

2. Methods for an Economic Evaluation of Heritage

2.1. Standard economic valuation methods applied to cultural and urban heritage

Urban heritage, according to the *inclusive* approach retained here, includes four sets of interdependent elements, *i.e.* economic, social, cultural and environmental, and refers to the entire range of economic valuation methods. Standard economic analysis proposes several tools that are effectively mobilized to evaluate the economic aspects of heritage. The specialists of urban heritage analysis have added several extensions to these standard methods, mainly bearing on analyzing the induced effects on employment and expenditures of urban heritage renovation projects. The principles, advantages and limits of these methods applied to urban heritage will be presented hereafter.

The economic valuation of heritage, however, is not necessarily the same as the economic valuation of an urban heritage renovation project. While the former defines the place and economic stakes of this heritage, a project evaluation should result in a ranking of this project in terms of other alternative, uses of the available financial resources. Nevertheless, these two dimensions are intimately related: a project evaluation considers the advantages it provides compared to an initial situation (or to other projects). Evaluating the values of urban heritage thus is an essential stage when evaluating renovation projects.

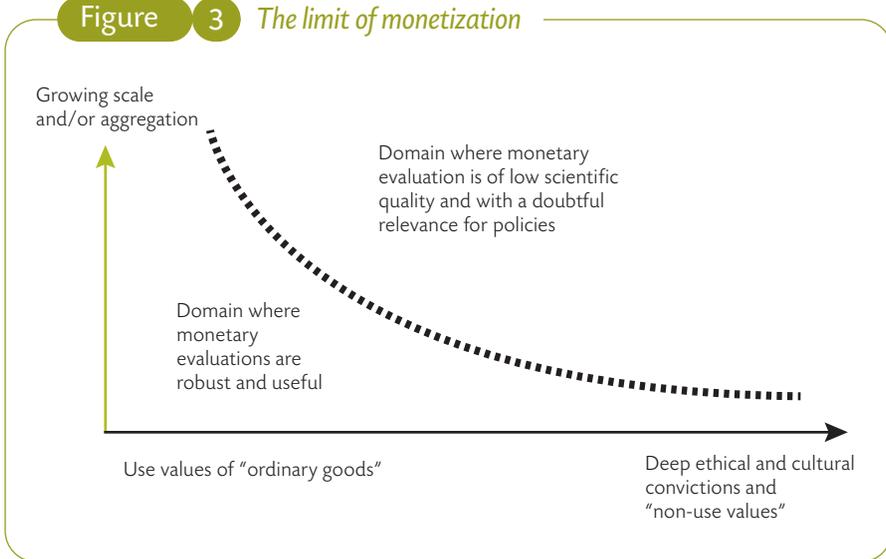
Economic valuation methods related to environmental economics must answer challenges that are partly the same as those posed by the standard economic analysis of urban heritage. Therefore, the second point to be examined is that of the main economic evaluation methods for environmental economics. The third point is then the possibility of transposing these methods to an economic analysis of urban heritage.

Such evaluation plays a pivotal role in the decision-making process. When during such a process one is faced with any development project, a common method is to evaluate it with a cost-benefit analysis to determine the net advantage resulting from this operation. This is possible by balancing all costs against all benefits related to a project.

Three essential problems now arise:

- The first problem addresses the scope of the analysis. As both cost and benefit are consequences of the planned action, it is necessary to be able to limit the order of these consequences. Should one consider a cost or benefit of the umpteenth order, or only the most direct costs and benefits? A crucial consequence of this choice is that it modifies the cost-benefit balance. A clear definition of the system boundaries and of the studied costs and benefits is thus necessary, *i.e.* what is or is not included;
- The second problem is that of the distribution of costs and benefits over time, as they may be generated at different times. For instance, many costs commonly occur during the initial period—though some operating costs will occur throughout the development period—and many benefits only become apparent after a long time. In this case, discounting is used to reduce all these existing or future values to a common time base, the “initial period”. This is called the present or discounted value;
- The third problem concerns the commensurability of costs and benefits: In most cases, this is covered by money, but certain costs or advantages may be difficult to express in monetary terms, such as sociability, education and cultural practice. Generally, we estimate that there is a “limit to monetization” (Figure 3) that does not necessarily intersect the boundary between “mercantile” and “non-mercantile” as it is determined by several other factors, especially scale and ethical or cultural considerations.

This monetary evaluation, when possible and lawful, merges with the market price if the good in question is the subject of a market exchange. When in equilibrium, this price corresponds to that paid to the economic agents. However, the urban heritage, in its inclusive approach, combines different dimensions that range from use value to non-use value, in which it resembles natural heritage. The main challenge thus lies in measuring the non-use values, associated with the cultural dimension of this heritage.

Figure 3 *The limit of monetization*


Source: Authors, after O'Connor and Steurer (2006).

If we apply the standard methods of economic valuation to urban heritage, they miss some of the indirect use values and non-use values. Impact methods were developed to capture all economic effects (use values) associated with heritage, but they, too, suffer from a certain number of limits.

According to the inclusive approach retained here, the different dimensions of urban heritage do not pose the same challenge for economic valuation. In fact, the cultural dimension for which the methods referred to here were developed creates most difficulties in the evaluation.

2.1.1. Economic rate of return and net present value

Based on the ideas exposed above, a first—and most common—type of evaluation consists of calculating the profitability of an operation. Derived from financial practice, this evaluation method for using in the decision-making process is based on calculating the internal rate of return (IRR) of a project. This is the method that normally serves to choose investments. It is fundamentally based on the supposed substitutability between different types of assets, especially between financial and physical assets. The first are identified by their interest rate, whereas their specific investment target and their internal rate of return define the physical assets. The

internal rate of return is defined as the discount rate that renders the sum of net future discounted profits as equal to the initial expense.

Box 2 Interest rate, discount rate, net present value, internal rate of return

The interest rate i allows obtaining the future value (FV) to be obtained of a present value (PV) if the latter is placed on the market. This is given by:

$$FV_n = PV (1 + i)^n,$$

where i is the interest rate and n the number of periods (for instance, years if i is an annual interest rate).

The discount rate r is the rate that allows the present value PV to be obtained of a future value FV , according to:

$$PV = FV \frac{1}{(1+r)^n}$$

When determining the profitability of an investment, one can calculate the net present value (NPV), or the difference between the discounted sum of future incomes generated by this investment and the invested initial expenses.

$$NPV = \sum_{t=1}^n \frac{Y_t}{(1+r)^t} - I_0$$

where Y_t is the sum of future incomes generated by the initial investment I_0 . We look therefore for an $NPV \geq 0$.

Profitability can also be evaluated by means of the *internal rate of return*, IRR , which is the value of the discount rate that renders the sum of present values of future incomes equal to the initial expense I_0 , in other words that cancels the NPV .

$$NPV = 0 = \sum_{t=1}^n \frac{Y_t}{(1+IRR)^t} - I_0$$

If the $IRR \geq i$, it might be profitable to make this investment expense I_0 rather than placing the same amount on the financial market, where its yield would be i .

Source: Authors.

The decision-maker of an investment, if he already disposes has the funds to finance this investment in physical capital, will decide between placing these funds on the financial market and purchasing the physical investment good. He does this by comparing the interest rate of the market (the yield of placing his money on the

market) and the internal rate of return of the investment operation in physical capital (the yield in net future benefits of his investment in physical capital).

If he does not have the funds to be invested and has to borrow them on the financial market, he will borrow them at the market interest rate. The internal rate of return on his investment in physical capital should thus be at least equal to the market interest rate in order for the operation to be “profitable”.

The essential problem posed by evaluating the economic profitability through the IRR is obviously that of determining the future profits, the initial costs generally being fairly well-known. It is clear that any error in the predicted future benefits will affect the IRR.

The problem of choosing a discount rate has no impact on calculating the IRR, as the discount rate is precisely the unknown factor that should be determined; we do this by looking for a discount rate value that cancels the NPV, *i.e.* the value of a project in terms of capital. Contrary to the latter, which depends upon the selected discount rate, the IRR is an intrinsic indicator of the profitability of each project.

Urban heritage projects have been the subject of this type of economic valuation (Table 1). Some of the Project Appraisal Documents of different urban heritage development projects funded by the World Bank use NPV and IRR calculations in the economic valuation of such projects. We see, however, that of the seven projects analysed, only four were based on such evaluations. The other three used cost-effectiveness methods that only partially analyzed the effects of the projects, as they did not evaluate the expected benefits of the project.

The calculated IRR and NPV show a high level of profitability for the four projects for which data are available. IRR values range from just less than 14% (Medina of Fez, Morocco) to over 70% (Sousse, Tunisia), which are much higher rates of return than the minimum threshold of 10% normally retained by the World Bank. Based on this evaluation, all four projects should be implemented. For the same projects, the information supplied by the NPV logically leads to similar conclusions, *i.e.* positive and high NPV values. We thus agree with the World Bank conclusions: Projects concerning the cultural heritage are defensible in terms of overall profitability.^[3]

[3] For instance, a study by the American Bureau of Economic Analysis, cited by the World Bank (2001), concludes that the rehabilitation of buildings for reuse has a stronger impact than that of 17 other manufacturing sectors considered in the study.

However, the calculations suffer from the earlier mentioned limitations for implementing the IRR and NPV methods, with perhaps even more acuity in the

Table 1 Comparison of indicators used in World Bank projects related to cultural heritage

Project	NPV (USD million)	IRR	Cost efficiency
Jordan Amount: USD 56m Period: 2007-2010 Title: Cultural Heritage, Tourism and Urban Development Project (8/01/2007)	no	no	yes
Tunisia Amount: USD 17m Period: 2001-2006 Title: Cultural Heritage Project	Carthage: USD 4.7m Bardo: USD 21m Kairouan: USD 13m Sousse: USD 4m	40% 17% 20% >70%	yes
Ethiopia Amount: USD 35m Period: 2010-2016 Title: Ethiopia Sustainable Tourism Development Project	USD 88.3m	43%	no
Chongqing Amount: USD 200m Period: 2000-2006 Title: Urban Environment Project	no	no	yes
Costa Rica Amount: USD 72.5m Period: 2008-2013 Title: City Port of Limon Project	USD 5.6m	25%	
Mostar Amount: USD 4m Period: 1999-2002 Title: Pilot Cultural Heritage Project	no	no	yes
Fez Amount: n.a. Period: 1999-2003 Title: Renovation Project for the Medina of Fez	DH 155m	13.62%	no

Sources: Several Project Appraisal Documents, World Bank.

evaluation of expected profits from the projects concerning urban heritage. In the case of the Medina of Fez project, it was for instance assumed that 50% of the expected tourist incomes could be attributed to the project itself. In addition, the many hypotheses needed to estimate the indirect benefits of a project are sometimes fragile; in the case of the Medina of Fez, the IRR calculated *ex post* turned out to be strongly negative at -25%.

Nevertheless, an essential part of the theoretical limits related to an evaluation in terms of IRR and NPV refers to the risk of underestimating the expected profits from cultural heritage projects. The impact methods were developed to answer this risk of missing part of the gains associated with the existence of a cultural heritage, by stressing the induced or multiplying effects of such projects.

Impact methods are based on reasoning close to that used by the method of macroeconomic effects, which is based on the framework of national accounting. Macroeconomic effect methods were applied to numerous economic development projects (Chervel, 1987; Bridier and Michailof, 1995) and do not specifically address the question of evaluating the cultural heritage. Impact methods, however, focus on employment and the flow of expenses, and explicitly aim at capturing the overall direct, indirect and induced effects of the cultural heritage and thus aim at defining the macroeconomic stakes.

2.1.2. The macroeconomic approach and impact methods

The interest of a macroeconomic approach to heritage is that it defines the composition of the created demand as well as its economic stakes. This approach, which includes impact methods, has the advantage of considering the insertion of heritage in the economic flow.

The historical heritage can thus be replaced in a similar framework as that of national accounting (Ost, 2009). The macroeconomic values of heritage can be broken down according to the fundamental macroeconomic supply-use equation:

$$Y+M = C + X + I + G$$

The generated income (Y) plus imports (M = heritage-related expenses made outside the considered territory) refer to four types of demand:

- Domestic consumption (C) associated to the heritage (rentals of building by residents, entrance fees, induced expenditures);
- Non-resident consumption (X) assimilated to exports (same as for C, but now for non-residents);
- Public expenditures (G) covering maintenance and promotion expenses for monuments and buildings;
- Private investments (I) covering expenses related to the conservation, maintenance and promotion of patrimonial buildings.

According to this approach, the value of urban heritage is evaluated as the sum of its associated expenses. Breaking down the economic value to be identified of urban heritage into its components allows the sources of this value. Depending upon the case, these may be essentially non-resident (outward-oriented) or resident (self-financed) expenses, and public or private investments. This information is important, as it identifies the main bases of the heritage value, its more or less outward-oriented character (weight of non-resident spending), whether investments are public or private, and the amount of the dedicated investments. Implementation of the method can, however, raise several difficulties, especially those related to charging the expenditures to the existence of the heritage, as such expenses could have been incurred, at least partly, outside the heritage character of the buildings in question. In addition, it is legitimate to consider the knock-on effect of such expenses on the rest of the economy, although multiplier effects can only be evaluated at the cost of strong assumptions. The adopted multipliers are generally expense multipliers, of Keynesian inspiration, as data on inter-industrial exchange are too imprecise and fragmented.

Impact methods^[4] generally fall within the scope of a macroeconomic approach. They aim at covering all direct, indirect and induced impacts of the existence of a cultural heritage on a given territory. Direct impacts cover the effects directly caused by the cost of using the heritage. Indirect impacts cover the upstream and downstream effects of the expenses associated with heritage. Induced impacts group all entailment effects on economic activity that were not accounted for in the other two categories. The impact method approach can thus provide an estimate of the total employment volume associated with a heritage as well as an estimate of all relevant expenses.

[4] See on this subject, Agence régionale du patrimoine PACA (2004); Ministry for Culture and Agence régionale du patrimoine PACA (2009), and Greffe (1999).

The methodological guide drawn up by the French PACA region and the Ministry for Culture defines the conditions for implementing such a method, for French cultural heritage and at a national level. The study uses a database of 3,396 monuments, *i.e.* the approach aims at the monumental heritage.

Box 3 *Direct and indirect spin-offs from heritage*

Direct spin-offs include:

1) Jobs:

- On sites, and in historical monuments and museums
- In administrations in charge of heritage
- As guides and lecturers

2) Income from:

- Entrance fees
- Souvenir shops etc.
- Guided visits
- Audio guides
- Specific events such as exhibitions
- Other (restaurants, renting space, photos, car parks, etc.)

Indirect and induced spin-offs include:

1) Jobs related to:

- Building restoration (specialized companies, architects, artisans, etc)
- Restorers and staff of research institutions specialized in restoration
- The tourism sector generated by the heritage (lodging, shops, restaurants, souvenirs, guidebooks, promotion, administration of cultural tourism, etc.)
- Specialized training courses
- Arts and crafts
- Research in the heritage field
- Experts
- Spin-off from the above jobs

2) Income from:

- Turnover of the restoration companies
- Turnover of the artisans working on restoration sites
- Tourist expenses (lodging, transportation, shops, food and drink, purchases, leisure, services, taxes)
- Turnover of the arts and crafts sector

Source: Agence Régionale du Patrimoine PACA (2009).

Box 3 above identifies the direct, indirect and induced spin-offs considered by the study. The main difficulty related to the application of this method lies in estimating the proportion of expenses (e.g., for tourism) and jobs (especially in the arts and crafts sector) that effectively derives from heritage. To estimate the induced jobs, the whole difficulty lies in the choice of multiplier that, from one study to the next, varies from 1 to 9 (Grefe, 1999).

To the accounting of jobs and expenses should be added the public financing of the territory, which covers State subsidies to monuments for their restoration and to museums for maintenance of their collections. This also includes international or supranational funding as well as regional or provincial financing for smaller areas.

For urban heritage in developing countries, the World Bank has estimated the total job volume generated by the renovation project of the Medina of Fez (World Bank, 2001), following a method close to that shown in Box 3. The initial project value was strongly increased by the expected 10,030 jobs to be created. However, the *ex post* evaluation of the project showed that in fact only about 6,000 jobs were created.

The impact methods, though they have the advantage of highlighting the economic stakes of the heritage, also suffer from two main limitations. It is very difficult to estimate the multiplier effects, and it is difficult to transpose existing estimates to areas with different characteristics. Especially, such methods do not allow the evaluation of a renovation project, nor a comparison with a *status quo* situation or with alternative projects, thus strongly reducing their reach (Grefe, 1999). However, they can be mobilized to analyze the impact of a renovation project compared to the initial expectations.

2.2. Environmental evaluation method: An assessment

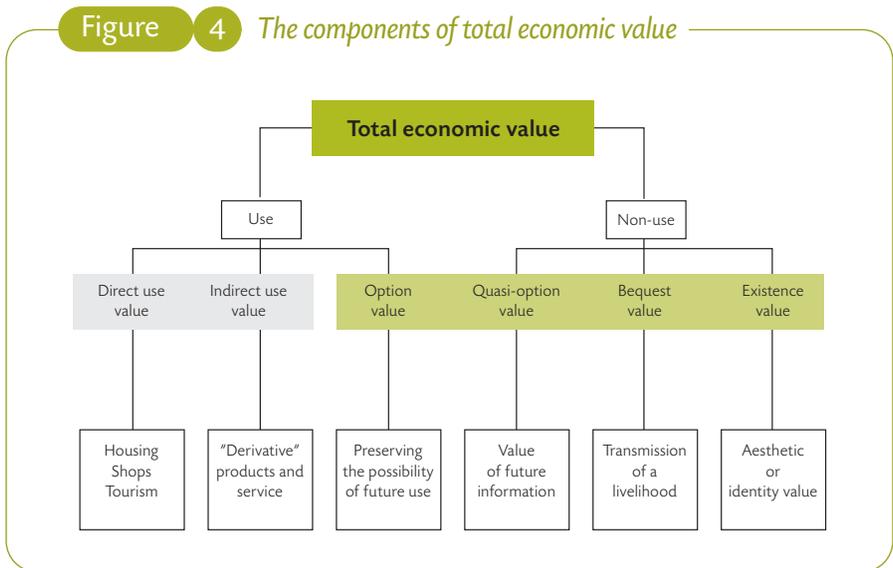
The problem of economic valuation presents itself in a specific manner for environmental goods and services, and this for several reasons. Not only are such goods commonly without a market value, as they are not traded, but they also have a multi-dimensional character. The complex nature of determining their value—which in any case surpasses a simple use value—puts them, at least in part, beyond a monetization limit, as their monetary valuation can be considered as being of doubtful relevance to the decision-making process.

The reference diagram for breaking down such values when analyzing natural heritage is that of the total economic value (TEV), which covers both use values and non-use

(or passive-use) values. The literature proposes several variants of this diagram, when transposing it to the analysis of cultural heritage.

In a standard environmental analysis, the TEV combines both use and non-use values of the environmental heritage, but the cultural dimension of urban heritage cannot be entirely grasped by an economic valuation based on the concept of TEV. The identity and cultural dimension of urban heritage are a challenge for any economic valuation, as it is *“multi-dimensional, unstable, contested, without a common accounting unit, and may contain elements difficult to express according to a quantitative or qualitative scale.”* (Throsby, 2003b, p. 280). This cultural dimension, which is superposed onto the total economic value, is clearly mentioned by Vecco (2007): *“The cultural/historical/monumental capital of a town is an element that contributes, even indirectly, to the stability and resilience of an urban ecosystem and that, as such, has an intrinsic value (I) as it will contribute to the production of social capital, i.e. of the ‘glue’ that binds the subjects of a community, reflecting their common history, and a collective accumulation of knowledge, of creativity, of values”* (Fusco Girard and Nijkamp, 1997). We can assume with Throsby (2003b), that the cultural value evolves like the economic one, but this hypothesis cannot be proved. It is thus clear that the economic value of urban heritage cannot reflect all these different dimensions. Vivien (2009) went as far as interpreting the category of

Figure 4 The components of total economic value



Source: Authors.

heritage itself as “one of these social relations that is based on another economic rationality than that prevailing in the framework of a mercantile relation”.

The TEV evaluation seems necessary for the environment as well as for urban heritage. In fact, the importance of such environmental goods and services does not guarantee their rational use. Many of them are complex and multifunctional and the way in which they affect human well-being is complex as well. Economic valuation thus appears to be a tool for helping to make decisions that are always difficult and/or controversial in this domain.

Evaluation of the natural heritage, as a decision-making tool, generally aims at determining the overall profitability of the various competing uses of natural resources. This supposes that the latter are assigned a use that provides a net overall gain to society, evaluated based on net economic advantages, *i.e.* advantages less costs, of each use. To know which are the winners and losers of this or that use of the same resource in general is not a criterion for choosing between its alternative uses. A use that has a net economic advantage therefore may be desirable from a viewpoint of collective profitability, even if the main beneficiaries would all have to bear the cost of this use. The absence of considering the distributive consequences of a specific use of a resource is directly related to the criterion of social optimum (Kaldor, 1939; Hicks, 1939), stating that an action is socially desirable when the winners of this action potentially can compensate the losers.

It is also necessary to ask whether the evaluation methods used in the environmental and natural resources field can be transposed to the domain of urban heritage. To answer this question, it is necessary to review the methods used for environmental evaluation. Several of these methods were described in the literature on environmental economics, before their application that in some cases was rendered compulsory, especially in a legal sense. Four main categories of method are described hereafter: direct methods (2.2.1), indirect methods (2.2.2), multi-criteria analysis (2.2.3.) and the macroeconomic accounting method (2.2.4).

2.2.1. Direct methods

Evaluation methods that fall under the denominator of *direct methods* are based on surveys among economic agents, for a direct evaluation of their consent to pay (or receive), or of just their stated preferences. The members of a survey sample are polled on their hypothetical choices with the help of payments or of direct expressions of their preferences. Because such methods base the evaluation of the

value of a good or a service on the declarations of agents, they are generally called *stated preference methods*.

Contingent valuation

The contingent valuation method (CVM) is the best known and most commonly used of the stated preference methods, as it is the only one that can estimate the non-use values associated with a good or a service.

CVM is based on well-being economics, a part of normative microeconomics. This assumes: 1) that individuals are the best placed to judge their proper well-being (utility), which they will try to maximize; 2) that this can be directly measured in monetary terms; and 3) that the consent to pay—or, symmetrically, to receive—expressed by the economic agents correctly states their underlying preference. Thus, the variations in well-being (or utility) of the agents can be correctly compensated by, or are equivalent to, amounts of money.

More precisely, the method consists in asking individuals directly, by means of a survey, if they consent to pay (CTP) to obtain (or avoid) a positive (or negative) change in their well-being, or their consent to receive (CTR) in order to support (or offset) a negative (or positive) change in their well-being corresponding to a given scenario. The considered scenarios are hypothetical or “contingent”, hence the name of the method. In fact, Pearce (1989) stated that four cases are possible, two cost measurements of the advantage of an improvement and two cost measurements of the deterioration of a situation:

- The CTP for obtaining an advantage;
- The CTP for not suffering a cost;
- The CTR for giving up an advantage;
- The CTR for accepting a cost.

In theory, the CTP and the CTR should be identical, but their empirical measurements show systematic differences: Bishop and Heberlein (1979) observed an overestimation of the CTR, with a deviation between CTP and CTR that can be up to 10 in favour of the latter.

Different ways exist of collecting the CTP or CTR:

- A system of successive increasing or decreasing bids: An amount is proposed to an individual and, based on his acceptance or refusal, a second (higher or lower)

amount is proposed, then a third, etc. However, as in all bidding processes, the final level is highly dependent upon the initial proposal (Mitchell and Carson 1989);

- An open question: Here, the individual is asked what is the highest price he can pay (his CTP). Obviously, this can put the individual in a situation where it is difficult to formulate a value without assistance, and there is a considerable risk that the rate of non-answers or refusals to answer will be high;
- A payment card mechanism: This consists of proposing pre-defined amounts (or intervals) from which the individual has to select the one corresponding to his CTP (or the one containing his CTP in case of intervals). However, as in the case of bids, this technique can lead to answers depending upon the proposed amounts.

The National Oceanic and Atmospheric Administration (NOAA) Panel (Arrow *et al.*, 1993) has proposed evaluating the CTP based on a close-ended question. In this approach, also called referendum technique, an amount is proposed to an individual, who answers with yes or no to the proposal. Bishop and Heberlein (1979) thought that this type of question would facilitate the task of the individual, who has only to answer “yes” or “no” to the proposed price. The close-ended question is also preferable, as it resembles a market situation in which the consumer accepts or refuses the exchange at a proposed price. The drawback is obviously a loss of information concerning the exact level of the CTP, as the answers provide for each individual a lower or upper limit, which requires large survey samples. However, the information can be significantly improved by reiterating the question on lower (or higher) amounts if the person has refused (or accepted) the first offer. In this case, we have a mechanism with two successive offers (Mitchell and Carson, 1989) that, as in the case of the bid system—which it resembles very much—and that of the payment card, can turn out to be very dependent upon the initial amount that was proposed.

The contingent valuation method (CVM) raises many problems and has major limitations that were studied by the NOAA Panel (Arrow *et al.*, 1993). This Panel made several recommendations to arrive at a better credibility of this type of evaluation. The most important of these are the exclusive choice of CTP to the detriment of CTR, and the use of close-ended questions of the referendum type (“yes” or “no” answer).

The inherent biases of this analysis

The results of a contingent valuation can be biased in several ways, showing systematic differences between the distribution of the hypothetical payments as revealed by the survey, and those that would have been obtained by a real market operation. The three main biases are hypothetical bias, anchoring bias, and inclusion bias:

- *Hypothetical bias* results from the fictional character of the contingent valuation. Economic research has shown that when economic agents must really devote a sum of money put at their disposal to buying a natural asset, the CTP is different from that shown by the survey. For the respondent, this bias results in the difficulty of assigning a price for a good that inherently has no price. An adequate choice and the precision of the scenario can help decrease this bias;
- *Anchoring bias* implies a strong dependence of the result on the initially proposed level, in the case of a bidding or a payment-card process;
- *Inclusion bias* is shown by the fact that the respondents to a survey announce the same CTP for a general or a specific action. For instance, the same CTP would be obtained for saving 2,000, 20,000 or 200,000 birds, which does not facilitate calculating the value of the protected bird and leads to questions on what the answers to a contingent valuation survey really show. Do they reveal the true value of a non-mercantile element of the natural heritage, or only a certain benevolence toward the environment?

The choice of CTP as a measure for the value of environmental assets can be contested as well. Stevens *et al.* (1991) showed, for a contingent valuation aimed at estimating the value of threatened wild species like the eagle or the vulture, that if 80% of the surveys estimated that these species should not disappear, 62% of them were not ready to pay for preserving their existence. Such a conflict leads to questioning how, in this context, the value of such species should be measured: consent to pay or consent to receive?

Following upon the work by Simon (1991) on bounded rationality, the validity of CTP, like that of CTR, can also be questioned on the basis of criticizing the model of consumer selection based on the utility maximization implied in the contingent valuation. However, notwithstanding its many inherent problems, the CVM continues to be used for environmental evaluation, especially in the United States.

Attribute-based methods

Attribute-based methods (ABM) comprise three main methods: *choice experiments*, *conjoint analysis* or *contingent ranking*, and *contingent rating*.^[5] For all three methods, which use both revealed and stated preferences, the respondents must consider various scenarios. The studies can be carried out separately for the revealed and stated preferences, or as a combined study, depending upon the types of values to be included in the study and the available means. The mixed type is especially interesting for non-mercantile values. The three types of ABM studies require collecting data from respondents that will differ according to the type of study retained:

- For a *choice experiments* study, different ensembles of scenarios concerning the attributes are presented to the individuals, who have to indicate their preferred scenario;
- For a *conjoint analysis*, different ensembles of scenarios are presented to the individuals, who have to rank them in order of preference;
- *Contingent rating* resembles conjoint analysis, but, in addition to ordinal ranking, values are attributed to each scenario. The respondents thus draw up a cardinal evaluation.

In environmental economics, the choice experiments method is generally preferred to the other two options (Holmes and Adamowicz, 2003). The main advantage of the choice experiments lies in the experience of the respondents. In fact, the respondents are accustomed to choosing between several alternatives, whether this is on markets or in the decisions of daily life. Their experience of this type of choice facilitates obtaining the information required by the analysis and favours coherent choices.

Conjoint analysis and contingent rating do not present the same advantages, rendering them less interesting for non-mercantile valuation studies, even though conjoint analysis provides more complete information than choice experiments. The additional information should, in theory, lead to improving the statistical significance of the estimated parameters. In practice, however, the contrary is commonly seen in conjoint analysis surveys: the cognitive effort required from the respondents may be

[5] See Bateman *et al.* (2002), and Holmes and Adamowicz (2003).

too much, leading to fatigue, confusion or incoherence. For this reason, conjoint analysis tends to be rejected for non-mercantile valuation purposes.

Contingent rating allows even more data to be obtained than conjoint analysis, but with the same limits related to the cognitive effort required from the respondents. Econometric analysis, however, is greatly simplified as the method provides magnitudes rather than discrete choices. Nevertheless, as the ultimate goal of this work is the measuring of changes in well-being, one should be sure that the weighting of the answers is the same for all respondents.

Bateman *et al.* (2002) added *paired comparison* to the list of attribute-based methods. This type of study is a choice experiments method, limited to two scenarios and completed by a cardinal appreciation of the preference of the selected scenario. This is therefore a mixture of choice experiments and contingent rating. Paired comparison is used in marketing, but it has limited virtues for economics because of the difficulties to pass from weighting to well-being measurements. The choice experiments method is thus preferable to paired comparison.

It can thus be concluded that the choice experiments method is the best option for an ABM study. However, designing this type of experiment and the corresponding survey requires a high level of expert knowledge to ensure that the required information is obtained.

Attribute-based methods, however, allow an indirect estimation of the CTP, based on a ranking (conjoint analysis) or notation (contingent rating) given to the scenarios. This indicates the personal preferences based on the benefits associated with the alternatives generated by the different attributes. In other words, one can estimate the marginal change in individual well-being in terms of the changes generated by each of the attributes making up the good under consideration.

As in the case of contingent valuation, an econometric study helps recognize the different socio-economic factors that play a role in forming consumer preferences.

Conjoint analysis is now recognized by NOAA as a valuable evaluation technique besides contingent valuation, and is used as a method for estimating the CTP of economic agents faced with changes in the quality of environmental goods and services. However, NOAA recognizes that the compensation estimated by conjoint analysis can be lower than that resulting from contingent valuation. Moreover, conjoint analysis does not entirely resolve the difficulties of contingent valuation, as

it shares some of them with the latter. For both evaluation techniques, the collecting of data from surveys causes several major biases. In addition, conjoint analysis presents a certain complexity in the fields of survey definition, choice of attributes, and the estimation procedure.

Finally, it should be noted that, like all direct evaluation methods, conjoint analysis reflects the individual usefulness of a benefit derived from using an environmental good or service.

2.2.2. Indirect methods

In indirect evaluation methods, we use the real behaviour of economic agents on goods or services markets, which are complementary to those to be evaluated and for which no direct market, and thus price, exists. Such indirect methods are called *revealed preference methods*, as they are revealed by market behaviour.

The hedonic prices method

In the hedonic prices method, a substitution market is sought on which goods and services are bought and sold, for which the environmental costs or advantages represent attributes or characteristics (Rosen, 1974).

A representative example is that of real estate prices. It can be assumed that, among the characteristics or advantages determining the price of a real estate good, environmental quality, an agreeable life or clean air play a role. A good environment increases the enjoyment, the pleasure (*hêdonê*, in Greek), that can be derived from a plot or a building, and thus, all things being equal, its price. However, the negative characteristics of a bad environment or poor air quality, will lead to a lower real estate price, again all things being equal.

More precisely, the valuation method based on hedonic prices, 1) establishes the part of the environmental characteristic in real estate price differences, and 2) determines the cost of environmental degradation or the advantage resulting from its improvement, as an effective consent to pay for the environmental characteristics or attributes by the economic agents on the real estate market. This is an indirect valuation of the environmental goods and services established from the preferences of agents—and of the CTP representing it—on an existing market.^[6]

[6] The environmental good or service in itself is not a mercantile commodity and therefore is not the subject of market exchanges.

Identification of the effect of different pollution levels, for instance, on real estate prices is generally done with the help of multiple regression techniques, applied to a cross section of data at a point in time, rather than to chronological series. This allows a better control of the influence of other variables, which might be preponderant in a dynamic analysis. We thus carry out a multiple regression of the prices of a large number of dwellings on their characteristics (attributes). The coefficients of this hedonic price function determine the relative desirability of each of the attributes of the real estate goods in question. Calculating the partial derivative of this function compared to the retained environmental characteristic, such as air pollution, directly gives the amount in money that the economic agents are prepared to pay for reducing this pollution, which represents what might also be called the “implicit price” of the pollution. In order for this implicit price not to be constant, it is necessary to assume that the hedonic price function is non-linear. This price is then used to derive the environmental quality function and, the number of dwellings being fixed, the benefit caused by improving the environment. This then provides a monetary value of the CTP of the agents based on real market data rather than on fictitious markets, as is the case for direct valuation methods. However, this CTP excludes *a priori* all non-use value.

This evaluation method is quite useful in cases of air or noise pollution, the effects of which are easily observed for the concerned individuals and have a clear effect on the real estate market. More precisely, the hedonic price method supposes that economic agents have complete information, that they can buy on the market exactly those characteristics they desire, and that the real estate market is in equilibrium. Finally, the result strongly depends upon the quality of statistical data processing, as the estimates commonly present co-linearity problems, and as the choice of the functional shape of the hedonic price function has a strong influence on the results.

The travel costs method

The travel costs method, TCM, like the hedonic price one, is based on the observation of consumer behaviour in order to estimate the value of an asset for which no market exists. It is thus an indirect evaluation method, whose estimation of demand functions is based on stated preferences. Among the non-mercantile services provided by a natural heritage, open-air recreation occupies an important place and the TCM was initially developed for the specific valuation of this type of service.

The travel costs method for a single site was proposed by Harold Hotelling as early as the 1940s, but was used for the first time by Trice and Wood (1958) and popularized

in 1966 by Clawson and Knetsch. Since then, the TCM has been much used, especially in the USA and the UK, for the evaluation of national parks and other protected outdoor sites.

The theoretical foundations of the method are clear: *“Individuals manifest the intensity of their demand for using a recreational site through the sum of the expenses they make to go to the site and practice the desired activity”* (Bonnieux and Desaignes, 1998). We can thus consider that the expenses by individuals to visit a site:

- Express the consent to pay by agents to enjoy the site, such expenses being implicit prices;
- Not only reflect the distance travelled by the visitors to go to a given site, but also a cost for the time spent, which is specific for each individual.

The visitors ought to react to this travel cost in the same way as they would react to an entrance fee, which implies the following strong hypothesis: The effect of increasing the travel cost would then be comparable to an increase in entrance fees. It is thus the individual perception of this cost that should be considered, but this information is rarely available with sufficient precision, and many natural sites have low or inexistent entrance fees.

In summary, the travel costs, which—as was seen above—can include entrance fees, but also, if necessary, the cost of equipment and the value of time spent in taking advantage of a site, serve as a proxy for measuring the implicit price, or marginal value, of visiting a recreation site. The TCM thus gives a value to an environmental good from the expenses of those who visit the site. The number of visits per year, the distance travelled as well as the value of time (opportunity cost) spent in travelling and enjoying the site, commonly valued by using the hourly wage of the respondent, serve for calculating its value.

It can be predicted by how much the individual visits increase or decrease with variations in the travel cost, expressed as a demand curve for one or more sites, after which the access value of the site(s) considered can be calculated. The results can be presented in different formats, based on the study requirements, calculating for instance the average seasonal value per person, the total seasonal value for the population concerned, the travel value per person, or the actual discounted value of

the site over time. The usual problems encountered in studies using this method are the evaluation of time and travel with multiple objectives.

A method exists for travel costs to multiple sites. In this case, we should know how the change of a specific characteristic of a site affects its value, through including different sites and seeing how the values vary with the variations in characteristics between sites. In this way, a value can be deduced for the water quality of a lake, or of the cleanliness of a beach, for instance. For this type of evaluation, the theoretical model is the RUM, the *random utility model*. In fact, this model for multiple sites is generally better than the single-site model and is thus more often used. With a RUM travel costs model, the expected utility is considered, for each individual, of visiting several sites rather than one. Then, based on the revealed behaviour, a probability function of visiting a given site is estimated, based on its characteristics and those of the individuals. Well-being measures can then be calculated, as well as the value of changing certain characteristics for a given site.

2.2.3. Multi-criteria analysis

The methods discussed above, whether direct or indirect, all led to evaluations of a monetary character, as the only evaluation criterion was money. However, methods exist that simultaneously integrate several evaluation criteria and thus can use aspects that have no monetary value. The different variants of multi-criteria analysis open the way to possibilities of this type.

Principles of the method

Managers, faced with the need to make environmental or development decisions, must effectively use methods that are adapted to such multi-objective and multi-stakeholder contexts, and which also allow outside input and a well-reasoned and documented decision-making process. The use of multi-criteria analysis methods based on the description of different management alternatives allows a simulation of their application in order to evaluate the consequences on the multiple objectives pursued. This evaluation, done with the help of criteria and indicators, is the departure point of multi-criteria comparisons. The decision-makers then have the necessary arguments to help them take their decisions and make their choices, while building and providing input to a negotiation process.

In the case of an economic valuation of the environment and natural resources we are dealing with a multi-dimensional domain, because of the presence of conflicts of interest and the common presence of—explicit or not—value judgements of a

technical, social, economic, environmental or political character. This further indicates the inadequacy of methods based on a single criterion, usually money, as it is virtually impossible under such conditions to arrive at unambiguous solutions. In other words, to arrive at a feasible solution, compromises between contradictory requirements are necessary. Multi-criteria analysis, when used for guiding decisions in such fields, offers a set of methods or procedures that provide a certain formalization of such compromises.

A multi-criteria analysis results from the recognition and simultaneous consideration of three realities:

- Optimization in terms of all criteria at the same time cannot lead to a solution, *i.e.* a mathematical solution to the problem posed in these terms cannot be defined. The search for a solution requires organizing a compromise, by whatever process;
- Preference or indifference relations on which, for instance, standard microeconomics are based, are of no use in this context as they no longer allow unambiguous choices when the criteria become multiple. A better action than another for a single criterion can become worse for all other criteria together;
- Action couples cannot be distinguished by comparison to any dominant relation; the multi-dimensional aspect means a large number of data, relations and objectives, *i.e.* all the characteristics that must be considered by the multi-criteria analysis.

These characteristics of a multi-criteria analysis show how a certain dose of subjectivity can enter the decision-making process, without losing sight of the need for rationality, nor avoiding consideration of the complex relations between economy and natural heritage. Conversely, the absence of such subjective components, in particular in monetary evaluation methods, entails a rigidity that prevents them from perfectly adhering to the complexity of the situations which they are meant to treat and from accounting for them in a suitable manner.

Diversity of the methods

A great diversity of multi-criteria analysis methods exists, which saw strong development from the 1980s onward. Some methods, through multiplying the number of criteria, remain very close to an optimization method, whereas others are quite different. Among the first are the methods based on utility, in particular the

MAUT or *Multi-Attribute Utility Theory* approach (Keeney and Raiffa, 1976), related to “substantial rationality” according to Simon (1991), which can be ranked among the traditional evaluation methods, though being multi-criteria. The core idea of the MAUT is very simple: the decision-maker is supposed to associate a utility level to each of the involved actions, by separately considering each criterion and observing which utility it has for the action in question. Based on the answers of the decision-maker on the utility of each action relative to each criterion, we can extrapolate its complete utility curve for each of the attributes. Using the utility concept avoids having to weight the criteria, as long as they are evaluated on the same scale. The MAUT approach is complex and difficult to use, especially because of the difficulty for the decision-maker to imagine what is the utility associated at a given performance for a particular criterion.

Located at the other end of the spectrum of multi-criteria methods are the *outranking methods*, foremost among which is the family of ELECTRE methods, especially developed by Roy (1985). These methods are based on the idea that a two-by-two comparison of actions (one action outranking another, hence the term) is easier to use than a precise evaluation of their performance. Such methods require a reduced amount of data that is easily available to the decision-maker, and they supply solid, but rather simple, results.

Common notions

The literature (Roy, 2005) on multi-criteria analysis in general distinguishes three basic concepts, common to all existing methods:

- The generic term *action* (option) concerns the object of the decision or to which refers the decision-making aid. This can be a programme, a scenario, a plan, a project, an investment, a solution, a policy, a yearly situation, etc.;
- The general concept of *criterion* allows the preferences on the actions to be studied. This is a tool constructed to evaluate and compare actions according to a viewpoint;
- The *preference scale* of a criterion refers to all values that a criterion associates with actions. It is a set of completely ordered values or echelons, associated with an evaluation criterion. The scale can be qualitative (verbal or ordinal) or quantitative (digital).

- The *preference sense* of a criterion can be increasing, when the said criterion should be maximized, or decreasing when it has to be minimized.
- A *viewpoint* is an angle of comparison of the actions. It is expressed by the idea of an axis of meaning (or preoccupation), around which the stakeholders justify, transform and argument their preferences (Roy and Bouyssou, 1993).
- The situation of an evaluation in terms of its temporal context, distinguishes the *ex ante* or *a priori* evaluation (evaluation is made before the decision), the ongoing evaluation (evaluation of measurements being made), or the *ex post* or *a posteriori* evaluation (evaluation of results from past decisions).

Finally, Roy (1985) stated that there are four reference problems, or ways of envisaging decision-making aid, which are choice, selection, ranking, and description. Each of these refers to a specific procedure of data processing and type of results.

In the case of the different versions of the ELECTRE methods, the test of outranking hypotheses, using specific software, leads to proposing the decision-maker not only a single and optimal action, but a ranking of all actions, or a list of actions representing a good compromise. A participative intervention of interested parties in determining the different threshold or sensitivity parameters (for instance, veto thresholds) will ensure the credibility and acceptability of the results. Use of the model may lead to situations of total incompatibility between actions, showing the impossibility of selecting between them and alerting the manager to the sensitive part of the problem.

2.2.4. The macroeconomic accounting method

The economic valuation of natural capital has been the subject of much work in the macroeconomic framework of “green accounting”.

The total wealth concept as developed by Hamilton (1994) and adopted by the World Bank proposes the integration into national accounting of all capital sharing in income creation. The underlying hypothesis is that countries have an asset portfolio comprising three types of capital: *physical capital* (value of produced goods), *natural capital* (value of natural resources) and *intangible capital* (assimilated to the value of human and social competence). The total wealth concept is a way of understanding, on a theoretical level, the question of sustainability by defining the possible accumulation strategies of the different types of capital. On a more practical level,

measuring the total wealth provides an evaluation of the different assets on which the economic development of countries is based (Pearce and Atkinson, 1993). The World Bank made this evaluation for a large number of economies, leading to a database grouping 117 countries (World Bank, 2006). This approach has been the subject of much criticism, especially questioning the underlying concept of sustainability (Everett and Wilks, 1999; Ferreira and Vincent, 2005; Gnègnè, 2009). In this approach, natural capital is effectively only a component of genuine wealth, and is perfectly comparable to the other components. This comparability indicates the idea that natural capital shares the same properties as the other capital goods, and that it is thus perfectly substitutable according to the hypothesis of weak sustainability.

In the approach developed by the World Bank as part of the green accounting framework, the natural resources are evaluated directly or indirectly on their use value only (Hamilton, 1994, 2002; Hamilton and Hartwick, 2005; World Bank, 2006). Such an approach has the advantage of fitting into a coherent accounting framework. Measuring the natural capital refers to the actual use of the natural environment by Man through the production of mercantile services (taking products from the natural environment: mining, fishing, agriculture, hunting) and non-mercantile services (ecological, such as water quality and soil fertility that, in return, condition the possible withdrawal from the environment). Transverse resources, such as water, are indirectly valued through the improved use of natural capital that is based on the use of such resources.

The valuation of natural capital with the method developed by the World Bank considers the following activities: exploitation of subsurface resources, use of forests for producing wood for buildings and other uses, exploitation of agricultural and pasture land, and the use of protected areas on land. This choice is explained by the fact that this method only considers the use value of natural capital, and is constrained by the availability of data on an international level.

Evaluating the value of natural capital is thus based on the projected income from this natural capital over a 25-year period (one generation). This approach has the advantage of providing a monetary evaluation of the sources of the wealth of nations, broken down into its components of economic capital, natural capital and “intangible” capital.

Using this type of macroeconomic approach, three-quarters of the wealth of nations remain unexplained; this wealth appears as a balance, the intangible capital. The input

from urban heritage—in its social and cultural dimensions—falls within this balance, with the other types of capital that cannot be directly measured.

The *genuine savings indicator* is based on the same type of analysis, and has been calculated by the World Bank since 1990 for 140 countries. This is a measure of sustainable development that corrects the traditional measure of net savings (gross savings less amortization of physical capital) for the monetary value corresponding to degradation of the natural capital as well as for the accumulation of human capital.

The idea is that this amortizes all three types of capital, *i.e.* physical capital, natural capital and human capital, rather than just the physical capital. In other words, if one wishes to maintain sustainable development, the gross savings should be able to compensate a loss in physical capital (represented by amortization), the decrease in stocks of fossil energy, minerals and forests, as well as the damage caused by CO₂ emissions.

The variation in the value of human capital, generally positive and roughly the same as education expenses, should be added to the gross savings.

Genuine savings = Gross savings – Amortization + Cost of education – Reduction of fossil energy, mineral and forest stocks at market prices – Impact of the value of CO₂ emissions (at a price of EUR 20/ton carbon).

2.3. Transposing evaluation methods used in the environmental domain to that of urban heritage

2.3.1. Two similar patrimonies

Before discussing how the methods for evaluating the natural heritage can be transposed or adapted to the case of urban heritage, the similarity between these two categories of heritage should be further explained.

Part of the above on the subject of natural heritage also applies to urban heritage, as the use of the latter is also partly based on values that are non-mercantile or not related to the use of this heritage, such as ethical and cultural values. As for natural heritage, a risk of disappearance exists for urban heritage, either because of lack of maintenance, or because of urban renovation and reconstruction. If there is a change in allocation or new uses during renovation operations on urban heritage, the same distributive consequences as for natural resources may occur. Finally, natural heritage

and urban heritage both harbour cultural values to different degrees, which are imperfectly considered in economic valuations based on the neo-classic or standard theory of value and its related instruments. Throsby (2003) stated: *“The neo-classic model, notwithstanding its considerable empirical and theoretical strength, can fail when evaluating cultural goods.”*

The direct evaluation methods of contingent valuation and conjoint analysis are regularly used to evaluate natural heritage, as mentioned earlier. They are also used, though less frequently, for urban heritage as well as to evaluate cultural—especially archaeological—heritage. This is particularly necessary when estimating the compensation for inhabitants affected by a renovation operation (contingent valuation), or determining the consent to pay that allows a value to be given to an urban heritage element, one of the specifics of contingent valuation being the evaluation of non-use or intangible values. Even though contingent valuation was the most commonly used method for valuating natural heritage (Navrud and Ready, 2002), the number of contingent valuations specifically concerning urban heritage was rather small: of 28 contingent valuations of cultural heritage, only 7 concerned urban heritage. In developing countries, the only such project is that of the renovation of the Medina of Fez. As use and non-use values are quite narrowly intertwined in urban heritage, it can be assumed that, overall, the feasibility of a contingent valuation of urban heritage renovation projects in developing countries remains limited.

Conjoint analysis is the most used for multi-attributes evaluations, even if for only a few studies. Mazzanti (2001, 2003a, 2003b) appears as the precursor in applying attribute-based methods to heritage cultural in general, but Shoji and Yamaki (2004) used the method of stated preferences when studying how visitors perceive the inscription of a site on the UNESCO World Heritage List. Apostolakis and Shabar (2005) tried to measure the attractiveness of the Greek historical heritage and Massiani and Rosato (2008) studied the preferences of Trieste inhabitants in modifying the use of the old harbour of Trieste.

Among the indirect evaluations, hedonic prices, obtained from changes in real estate prices, record the effects caused by a renovation project of urban heritage. However, the problem of this type of evaluation is that—the method being based on real estate price—only landowners and homeowners are directly concerned, whereas they only represent a small proportion of the users of an old town centre. Most of the persons concerned by the site, *i.e.* its visitors, are ignored by the survey, except when they own a second home in the area, but the opinion and preferences of tourists are of great importance when a rehabilitated site is much visited.

However, as stated by Flambard (2007), *“The hedonic price approach may help verify if an urban renovation operation, even involving public housing, has an impact on real estate values of neighbouring private housing [a valid approach if the renovated district includes a non-negligible amount of private dwellings]. If this is the case, the higher house prices will have an effect on other real estate market segments, such as rent prices in both public and private housing, especially in a tight housing market context.”*

The travel cost method (TCM) by definition only measures the benefits from use, ignoring non-use. Measuring the total economic value is thus only possible by combining several evaluation methods, such as TCM (for the *use value*) and contingent valuation (for *non-use values*). However, a simple addition of these two values can overestimate the resulting value, as contingent valuation itself also considers use values.

As far as we know, only one study has used TCM for evaluation, *i.e.* of the historic site of the town of Saint Mary in Maryland, USA (Poor and Smith, 2004). Without discussing the values obtained from this study, it is interesting to understand why TCM could be easily used in this context, but is difficult to transpose to an urban centre. The old town of Saint Mary is an historic and archaeological site in a completely rural setting, about 100 kilometres south of Washington, D.C. The TCM used here is of the “zonal” type as visits to the site are unique and non-multiple, as in the case of a recreation park. More importantly, however, the town has not been a “living” urban area for about four centuries, as it was buried and has thus become an archaeological site.

As for multi-criteria evaluation methods, though the intrinsic characteristics of urban heritage, in particular the intimate mixture of use and non-use values and its multi-objective and multi-functional character, obviously plead for using multi-criteria methods, this approach is rarely used, even in related fields,^[7] and totally absent as far as urban heritage is concerned.

The total wealth approach, based on integrating the natural capital in the evaluation of national wealth, has not been transposed to a direct evaluation of heritage. However, the method itself indirectly carries out such an evaluation, as the combined non-economic and non-natural capital is seen as the balance between total wealth (evaluated as the discounted sum of future consumption), economic capital (net

[7] See Plottu and Plottu (2010) on evaluating the value of a landscape using a multi-criteria approach.

discounted value of economic investments) and natural capital. In other words, this balance covers all non-evaluated capital, *i.e.* social capital, including human capital, and cultural capital. The sum of these capitals, estimated as a residue, represents about 75% of the total wealth of nations. Most of this wealth therefore does not derive from economic and natural capital, but from human, social and cultural capital. Would it thus be possible to evaluate the urban heritage according to the same principle?

2.3.2. Different evaluation principles

Urban real estate is part of a specific consideration and is integrated in the evaluation of economic capital, through real estate investments, but without a direct evaluation of the cultural, social and human dimensions. The application of such a method to urban heritage supposes that the use values deriving from this specific patrimony are identified, making sure to avoid all double accounting. By analogy with the treatment of natural heritage, the profits from tourist, cultural and recreational activities associated with the existence of this urban heritage, allow evaluating the value of this “intangible” urban heritage to be evaluated. As real estate investments are part of estimating the value of economic capital, the functions of using urban heritage for housing are dissociated from urban heritage. Transposing this approach to urban heritage may provide indications on its economic importance, but only very partially (only use values, and on identified and measured activities).

From the analysis of economic valuation methods applied to urban heritage, and of the possibilities of transposing the different approaches and methods applied to economic valuation of the environment to urban heritage, we retain four main orientations:

- As explained in Part 1 above, the patrimonial dimension also refers to non-use values; they are difficult to evaluate and part of them may not be monetized in a credible way, even when allotting major resources to its evaluation;
- Urban heritage has several (economic, cultural, social and environmental) closely imbricated dimensions, associating service stocks and flows that must be accounted for in the evaluation;
- Economic values of urban heritage cover the whole spectrum of total economic value, from use values to non-use values. The patrimonial character is partly

based on non-use values, whose evaluation with non-monetary indicators—like multi-criteria analysis—might be easier than with monetary indicators;

- The question of sustainability is of vital importance in the case of urban heritage, as, like for all heritage, it has to be transmitted to future generations. Economic analyses of sustainability have the advantage of highlighting degradation and investment flows in the various dimensions of urban heritage. Based on an approach in terms of strong sustainability, justified by the exceptional character of urban heritage, the possibilities of monetizing the cultural, social and environmental dimensions, as well as any substitutions between these dimensions, are limited. Changes in the different dimensions of urban heritage can then be approximated by the accumulation rates estimated from inventories and counts, without necessarily passing through a monetary evaluation stage.

2.3.3. Conclusions

The main conclusion from this presentation of the different methods for evaluating natural heritage and of the rare transpositions of such methods to the evaluation of urban heritage, is the highly pragmatic observation that it is necessary to adopt a “toolbox” approach for such evaluation. No single method allows the unquestionable valuing of all dimensions of urban patrimony. The choice of the tools to be used to evaluate urban heritage, and, more specifically, urban heritage renovation projects of urban heritage, clearly depends upon the specific context of the project. The objective of the next chapter is thus to propose a framework and evaluation grid for the main characteristics of urban heritage, based on which a selection of the various possible methods can be made.

3. Economic Analysis Grid for the Sustainability of Urban Heritage

3.1. Introduction

The object of the chapter is to propose a grid for the economic valuation of urban heritage, based on the analyses presented in the preceding chapters. The economic valuation of urban heritage through an inclusive approach^[8] should consider the multi-dimensional aspects and the eminently dynamic character of such patrimony. The analytical grid proposed here defines and groups in a coherent framework the main data needed to evaluate urban heritage centred on its sustainability. This approach in terms of sustainability is, in fact, one of the main contributions of environmental economics to defining the economic value of urban heritage.

The first section of this chapter presents the main results of the work by Ost (2009) and the IDB (2010). Their contributions as well as their limitations have been a fertile source of reflection for the evaluation grid presented here. The second section discusses the proposed analysis grid based on an inclusive approach to sustainability that distinguishes the dimensions of stock and flow, as well as those of sustainability and value.

3.1.1. Contributions and limits of the Ost grid: an approach based on total economic value

Ost (2009) used an approach in terms of TEV (direct and indirect use and non-use values) to urban heritage, with the objective of defining the operational indicators and measures to allow an economic valuation of this heritage (Table 2). He designed an analytical grid that favours the static dimension of urban heritage, around the definition of its economic value. In this approach, heritage is defined as a capital, and

[8] Reminder: This considers all dimensions of patrimony, *i.e.* economic, social, cultural and environmental, as well as direct and indirect use and non-use values.

its conservation becomes an investment for the future. Conservation is an economic process that consists in using today's resources to collect future economic benefits.

Table 2 *Heritage values: indicators and measures (after Ost, 2009)*

Types of values	Indicators	Measures	Expected economic impact	Values
Non-use	Residents' awareness of heritage	Survey among residents	Existence value	Existence
	Will to finance heritage conservation projects	Stated preferences survey among residents	Increased fiscal income	
	Desire of visiting the town in the future	Survey among potential visitors	Increase in the option value	Option
	Commitment of local authorities to heritage conservation	Survey among town representatives concerning their personal involvement	Heritage-oriented policies	
	Status of the urban heritage in the country or worldwide	Survey among residents and non-residents	Increased value of the legacy	Bequest
Direct use values for residents	Rate of long-term occupation of the historical buildings	Number of unoccupied historical buildings	Increase in occupation rate	
	General conservation condition of the heritage	Part of heritage buildings in good condition	Better conservation	
	Endangered heritage buildings	Number of endangered buildings	Less deterioration	
	Real estate value of heritage buildings	Relative real estate price increase compared to average price in town	Increased real estate prices	
	Average income of residents	Increase in average income of residents	Strong housing demand	
	Financial accessibility to housing	Change in real estate value relative to resident income	Sustainable growth	

Table 2 *Heritage values: indicators and measures (after Ost, 2009) (cont.)*

Types of values	Indicators	Measures	Expected economic impact	Values
Direct use values for visitors	Access to monuments and patrimonial buildings	Number of monuments and patrimonial buildings accessible to visitors	Strong demand for visits	
	Rate of utilization of the accommodation capacity	Number of daily visitors at the accommodation capacity	Strong demand for visits	
	Guided and assisted visits	Ratio of sites visited with audio guides and/or guided visits	Strong visitor satisfaction	
	Visitor satisfaction	Satisfaction survey among visitors	Strong visitor satisfaction	
	Entrance fees	Visitor survey (consumer surplus)	High receipts	
Indirect use values	Average time passed in town	Visitor survey on time passed	High expenditures in town	
	Average daily expenditures per visitor	Visitor survey on expenditures	High expenditures in town	
	Local jobs related to visitor spending	Ratio between patrimonial and local jobs	Local job creation	
	Sales related to visits	Survey among shopkeepers	High expenditures in town	
	Events associated with heritage	Number of events associated with heritage	High expenditures in town	
	Non-patrimonial real estate value	Higher value of patrimonial than of non-patrimonial real estate	High real estate prices	

Source: Authors, adapted from Ost (2009).

By defining heritage as a cultural capital and conservation as an investment process, it is possible to apply the rules of traditional economic valuation. This approach has the considerable advantage of identifying several operational indicators of the different dimensions of this value. The difficulties associated with a monetary

evaluation of urban heritage have led to adopting a set of indicators rather than a single synthetic measure in monetary terms.

However, the two approaches—monetary evaluation and non-monetary indicators—are complementary and both are useful, based on the availability of data and the characteristics of the urban heritage and project in question. The implementation of this type of analysis grid requires surveys among the various stakeholders (visitors, shopkeepers, elected officials, residents, etc.), in order to obtain data on the indicators of use and non-use values. Other data have to be collected directly by the experts in charge of the evaluation.

The main limitation of the Ost grid lies in the difficulty of avoiding overlap in the data provided by the different indicators, which, in addition, do not lead to a monetary valuation, or even to a composite valuation. For that reason, the proposed indicators illustrate different dimensions of the urban heritage, but do not directly provide a synthetic judgement concerning the economic interest of a given project.

Finally, several criteria are dynamic (changes in real estate prices and average income) whereas others are purely static (number of heritage buildings accessible to visitors, ratio of heritage jobs to local jobs, etc.), without really understanding why level indicators are retained in some cases and evolution indicators in others.

A way of improving this type of analysis grid, based on the criterion of economic value, consists in distinguishing the economic value in terms of stock (of capital) of the economic value of the flow of goods and services derived from urban heritage. We used this distinction to design our own analysis grid, as it allows tackling the question of the sustainability of urban heritage to be addressed from a wider viewpoint than that of the Inter-American Development Bank (IDB) presented hereafter.

3.1.2. The Inter-American Development Bank grid: an economic approach to sustainability

The analysis grid proposed by the IDB (2010) highlights economic sustainability as the main criterion for evaluating urban heritage. The list of questions and indicators proposed by the IDB for evaluating urban heritage is governed by this viewpoint.

Adopting a very specific definition of sustainability, the IDB assimilates the sustainability of urban heritage to a balanced distribution of urban heritage investment between public and private investments. According to this approach,

private investments ensure the economic development, whereas public ones must maintain urban infrastructure, compensate negative social impact and support private initiative. The sustainability of urban heritage then depends upon the capacity for attracting to and maintaining in the area of new economic activities, residents and users of historical centres.

The main advantage of the IDB analysis grid is its explicit consideration of the dynamic dimension of urban heritage in a framework of sustainability. However, the approach also suffers from several limitations, such as:

- The sustainability thus defined does not consider the risks related to museumization and a touristic mono-activity;
- The risks of marginalizing the poorest inhabitants and of the desertification of town centres, related to a gentrification process and real estate speculation, are but little considered.

Finally, adopting an approach that is exclusively centred on the economic dimension does not allow considering the social and environmental dimensions of sustainability to be considered.

3.2. An analysis grid based on an inclusive approach to sustainability

To construct an analysis grid that is coherent with an inclusive approach to urban heritage, the concept of sustainability as retained by the IDB should be enlarged by incorporating the work on environmental economics. The economic analysis grid of urban heritage projects presented here is thus based on the main contributions by Ost (2009) and the IDB, retaining a holistic approach to urban heritage, and further defining sustainability.

Two criteria were retained for ranking indicators and pertinent data:

- The present condition of the urban heritage, based on supply characteristics in the four cultural, economic, social and natural dimensions;
- The future evolution of the urban heritage, based on investment flows and on the depreciation of such supply (incomes, expenditures, costs, etc.).

The data collected on these two dimensions allow the urban heritage to be evaluated according to two criteria: economic value (using the methods explained earlier), and sustainability (with the questions of transmission and threshold).

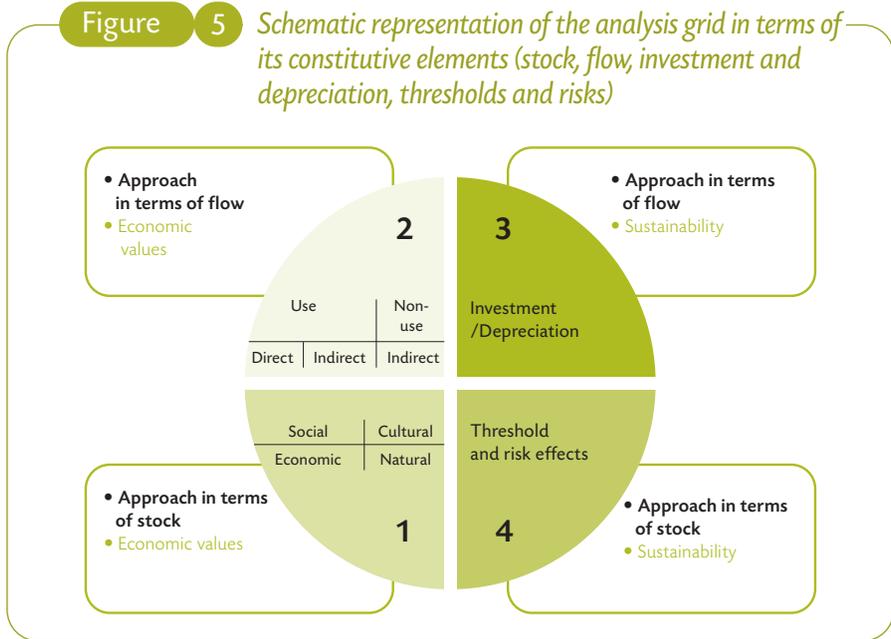
Economic values and sustainability indicators are the two standards by which projects for urban heritage renovation can be evaluated:

- In terms of flow: Do the new investments compensate degradation and depreciation?
- In terms of stock: Is a threshold reached below which irreversible degradation occurs?

Therefore, sustainability implies two points:

- At the level of value fluxes we have investment flow, increasing the heritage stock, and depreciation or degradation flow that decreases this stock;

Figure 5 Schematic representation of the analysis grid in terms of its constitutive elements (stock, flow, investment and depreciation, thresholds and risks)



Source: Authors.

- At the level of stocks, the potential occurrence of thresholds or risks will modulate the dynamics of accumulating different types of heritage.

The proposed analysis grid thus breaks down into four successive steps, *i.e.* an approach:

- 1) In terms of stock, to identify the urban heritage;
- 2) In terms of flow, to define the different types of economic value;
- 3) In terms of investment and depreciation, to evaluate the sustainability of urban heritage evolution;
- 4) In terms of defining the possible existence of threshold or risk effects.

The four dimensions of the analysis grid shown in Figure 5 above, are further explained hereafter.

3.2.1. Economic values: An approach in terms of capital

Starting from the inclusive definition of urban heritage, the latter can be seen as a stock, a capital that covers the four economic, human and social, cultural and architectural, and natural dimensions (see Part 1). The evaluation of urban heritage in its different dimensions can be compared to an inventory, though the data collected in the available studies essentially focus on the economic and cultural dimensions. The social and human dimensions as well as that of natural capital are more summarily treated in most studies. To consider these two, it is necessary to collect specific information concerning the social and human capital as well as the natural capital included in the urban heritage, as these dimensions must be included in the analysis grid.

Their respective importance is a criterion for selecting among the possible economic valuation methods. For instance, for an urban heritage with a large component of cultural capital, but feebly endowed with economic capital, the choice should be of an evaluation method that captures the non-use values. The data to be collected for these different dimensions are presented in Table 3 hereafter.

Like the method used by the World Bank for its evaluation of the wealth of nations (Hamilton, 2002), the values of assets for which no heritage accounting exists should

Table 3 Indicators of the condition of urban heritage in its four dimensions

Economic capital	Cultural/architectural capital
Sectoral structure of the economic activity (sectoral and interior/exterior)	Number and types of protected buildings, unprotected monuments, vernacular heritage
Distribution between owners, tenants or squatters, of housing, services and shops	Buildings in good or average condition, decaying buildings (BTR), buildings disappeared
Real estate value – sale, rental	Empty buildings, old and recent
Real estate transactions by category: housing, shops, services, tourism, etc. Type of building occupation	Actual use of the heritage (housing, services, shops, religious monuments, visited monuments, private or public services, tourism – lodging, restaurants, tourist shops)
Attractiveness of the territory for economic activities and visitors (number of visitors, location of companies and weight of outside investments)	Adaptability of the heritage to present-day urban functioning standards (parking, access, housing, comfort, safety, networks, maintenance)
Average income of the country, of the town’s inhabitants and of its territory	Labelled heritage site (all or in part) of a national or international network of the World Heritage type
Income structure (external/internal and impact of poverty)	Number of decaying buildings (BTR)
Infrastructure condition (transportation, sewage, water supply networks, etc.)	Place of the local heritage in the school curriculum
Accommodation facilities, hotels, etc.	Existence of cultural facilities in town, presence of commemorative sites
Social and human capital	Natural capital
Number of inhabitants of the country and the town, and its age distribution	Condition and existence of parks and green spaces
Health indicators (life expectancy at birth, prevalence of HIV, etc.)	Exposure to natural risks
Indicators of training and education levels (rate of primary and secondary schooling), specialized staff for heritage conservation/restoration (architects, artisans, companies, etc.)	Condition of sewage network and of refuse collection and treatment
Indicators of delinquency (homicide rate, etc.)	Level and types of pollution
Number and types of associations	Presence of harmful animals and degradation
Participation of the local population in heritage maintenance or renovation/conservation work	

Source: Authors.

be estimated from the discounted sum of net income flows deriving from these different assets, considering only use values. This approach supposes that two fundamental questions are resolved: that of the identification (and allocation) of these income flows, and that of the discount rate (and horizon time) to be retained. It appears to be very difficult to carry out this type of calculation for all dimensions of an urban heritage, but the use of non-monetary indicators allows by default its essential characteristics to be defined by drawing up an “inventory” of this heritage.

Additional indicators

Based on the specific characteristics of the urban heritage and territory in question, additional indicators to those presented above may be useful. For instance, in the case of social capital it may be necessary to add regulatory and legal constraints, and more

Table

4

Indicators of the condition of urban heritage: its social dimension and governance

Existence of legislation for heritage protection
Characteristics of the legislation for heritage protection
Existence of local, national or international structures for handling the conservation/valuation of heritage
Capacity of mobilizing international technical aid. Previous experience
Existence of public (local, national, international) financial arrangements for the conservation/valuation of heritage. Direct or indirect aid (French ANAH and ANRU)
Existence of private financial provisions to finance heritage conservation/valuation
Existence of fiscal provisions favouring the conservation/valuation of heritage
Existence of legal and institutional support favouring the conservation/valuation of heritage
Capacity of mobilizing international financial aid. Previous experience
Existence of legislation on old housing
Labelling or membership of the heritage (all or in part) as part of a national or international network of the World Heritage type
Degree of autonomy of the local authorities
Existence and availability of data
Rate of fiscal collection

Source: Authors.

generally the quality of urban heritage governance, as these factors have a direct influence on the possibilities of fully exploiting its potential. Table 4 proposes a set of questions that may shed light on these sub-dimensions of social capital.

In addition, it is useful to mobilize the macroeconomic data collected on the economic values (Table 4) in order to define the degree of extraversion (resident expenses *versus* total expenses associated with heritage, non-resident part of investments, etc.) and the importance of “leaks” and of multiplier effects associated with the urban heritage.

3.2.2. Economic values: Approach in terms of flow

Here we evaluate the economic value of services rendered, or potentially rendered, by the urban heritage, knowing that such services have an economic impact that goes well beyond the area in which the urban heritage, identified above, is located.

Before the analysis: Identification of the reference territory

In this phase, we have to estimate which territory will benefit the most, today or in the future, from the services derived from urban heritage. This can be the town as a whole, which is, for instance, the case when a hotel, located in a quarter without specific patrimonial interest, receives tourists attracted by the old quarter. Conversely, the old centre may be a place for distraction and festivities for the inhabitants living outside the centre. However, surrounding villages or towns can also benefit from the urban heritage if their inhabitants work in the old centre. Obviously, this cannot be determined *a priori* and varies on a case-by-case basis.

It is certainly also necessary to consider the difficulty related to the nesting of territorial scales, from worldwide to micro-local. In particular, one should determine the input of this localized urban heritage into the national economy compared to the local input (contribution of tourism to the balance of payments, positive image for the country, etc.). However, it is generally true that urban heritage primarily has a strong impact on local development, whose characteristics will influence the impact of any patrimonial project. Once this reference territory has been determined, the economic value in terms of flow can be determined for this territory.

Diversity of the approaches to economic value in terms of flow

The World Bank, in some of its project appraisal documents, calculates the internal rate of return (IRR) as well as the net present value (NPV) of certain patrimonial

projects to inform the profitability of urban heritage renovation projects, by targeting use values. The non-use values, as was seen earlier, can be estimated by methods used for environmental economics. However, the possibilities of transposing such methods are limited by the cost of their implementation.

Using a macroeconomic approach, the economic value of heritage over a given period can be approached by referring to a framework of national accounting, if necessary transposed to a regional scale. The economic stakes of the heritage are then indicated by the type of values (direct or indirect use) and of expenditure flow generated by this heritage (Table 5).

According to the supply-use accounting equilibrium^[9] (Ost, 2009), different types of expenditures exist in terms of the following dimensions: domestic consumption by

Table 5 *Macroeconomic values of urban heritage*

Macroeconomic values	Direct use values related to occupation	Direct use values related to visits	Indirect use values
Domestic consumption (C)	Rental by residents of patrimonial buildings	Entrance fees of residents into heritage	Resident expenditures related to heritage
Non-resident consumption (X)	Rental by non-residents of patrimonial buildings	Entrance fees of non-residents into heritage	Non-resident expenditures related to heritage
Public consumption expenditures (C_g)	Maintenance of patrimonial buildings	Maintenance of visitor facilities	Public expenditures associated with heritage
Public investments (I_g)	Public investments in patrimonial buildings	Investments in visitor facilities	Investments in activities associated with heritage
Non-resident investments (I_n)	Non-resident investments in patrimonial buildings	Non-resident investments in visitor facilities	Non-resident investments in activities associated with heritage
Resident investments (I_r)	Resident investments in patrimonial buildings	Resident investments in visitor facilities	Resident investments in activities associated with heritage

Source: Authors after Ost (2009); the distinction between types of investment was added.

[9] See Part 1: $Y+M = C+I+G+X$.

residents (C), consumption by non-residents (X), public consumption expenditures (Cg), public investment expenditures (I_g), investment expenditures by non-residents (I_n), and investment expenditures by residents (I_r).

A monetary valuation resulting from this macroeconomic approach integrates the multiplier effects of urban heritage, here considered in the narrow meaning as only use values are considered. Other indicators centred on use values and used in heritage valuation, more specifically target tourist activities (Table 6), whose importance for economic valuation of a patrimony often justifies a particular attention.

Table 6 *Economic values, tourism*

Tourist activity in the area – entrance fees, overnight stays, average expenditures, duration of stay
Tourist activity in town – entrance fees, overnight stays, average expenditures
Activity of the cultural sites – entrance fees, related activities
Activity of hotels, restaurants, shops, tourist transportation
Part of tourism in the general economic activity of the town
Cost of tourist management for the municipality (reception, safety, information, services, waste management)
Evaluation of fiscal income from tourism for the municipality
Rental of patrimonial real estate by foreigners and non-local nationals (including diaspora)

Source: Authors.

Accounting for non-use values

A more general ranking of indicators, now including non-use values, is presented in Table 7. Speaking of such indicators, it should be stressed that, lacking other indicators, a heritage valuation is often based on non-monetary indicators. These may allow the ranking of the urban heritage in terms of notation scales, based on criteria of the respective importance of direct use values related to occupation and visits, of indirect use values, and of non-use values. Thus, in an application to the case of the towns of Palazzolo Acreide (Italy) and Biertan (Romania), lacking a monetary valuation of the heritage values of both towns, Ost (2009) limited himself to a graphic visualization of the composition and sources of the value of their urban heritage.

3.2.3. Approach in terms of flow and sustainability diagram

The objective of rehabilitating and valuing urban heritage is to contribute to the economic development of a site and its territory. The essential question is thus to

Table 7 Use and non-use values: the total economic value

VALUES	FUNCTIONS OR SERVICES (FLOW)				
DIRECT USE	Recreational use In situ cultural activities for residents	Educational use Archaeological and architectural research creation of museums and information centres	Tourist use Guided visits to monuments and sites	Artistic and religious use Source of inspiration for artists: photography, painting poetry, music, etc. Mystical or religious value	Cultural and historic use Sign of collective and personal history, Cultural identity (local habits, traditional practice, etc.) Ancestral values
INDIRECT USE	Urban landscaping (improving networks for access by public services and refuse collection)	Renovation of housing	Job creation for the local community	Participation of the local community in the project activities	Effects on infrastructure
OPTION VALUE (Potential future uses and services that may derive from heritage renovation)	Potential visitors are not certain that they will visit the site, but they do not want to lose the possibility of a future visit				

Table 7 Use and non-use values: the total economic value (cont.)

VALUES	FUNCTIONS OR SERVICES (FLOW)
<p>QUASI-OPTION VALUE</p> <p>This value considers the irreversible character of the actions taken</p>	<p>Potential visitors are interested in visiting the site, but they prefer to do so at a moment when sufficient information will be available</p>
<p>BEQUEST VALUE (HERITAGE)</p> <p>Moral (or altruistic) responsibility to conserve and maintain the asset for future generations</p>	<p>Local authorities are committed to conservation of the heritage (Regional Tourism Development Plan)</p>
<p>EXISTENCE VALUE</p> <p>Non-users accord a high value to the fact that the rare asset or heritage must be preserved, even if they do not want to visit it</p>	<p>Status of the heritage in the country or worldwide (part of the sites protected by UNESCO)</p>

Note: This table was drawn up from the analysis of documents concerning the renovation of the Medina of Fez.

know if the investments made in the urban heritage will ensure its sustainability, defined here as the capacity of maintaining at least the same overall level of the different assets (or stocks) that make up this heritage. The sustainability thus depends upon the investment and depreciation flows that influence the evolution of these different stocks.

During this phase, it is therefore necessary to identify the will and capacity of the key stakeholders—in the patrimonial project as well as in local development as a whole—of effectively making these investments. Such stakeholders must be identified and their financing capacity and effective power of action evaluated, especially their capacity of setting the rules and ensuring their respect. It will also be necessary to evaluate their effective priorities when faced with the various possible actions, regardless of whether they are patrimonial.

By analogy with the approach in terms of genuine savings (World Bank, 2006; Box 4, below), the public and private investment flows increasing the urban heritage level in these different dimensions should be inventoried. Because of the adopted inclusive definition of heritage, the analysis should also cover investments in cultural, human and natural capital, which should be the subject of a monetary valuation, though this is often delicate. To value the depreciation, the solutions used in economic literature are not completely satisfactory either,^[10] a crucial point in the analysis of sustainability. In accordance with the inclusive definition of urban heritage, it may be more pertinent to directly evaluate the net degradation (or accumulation) in the different dimensions of urban heritage from inventories and listings, when available. Without monetary valuation, no single associated indicator is available, but only a set of four indicators representing each dimension of the urban heritage.

Though a complete transposition of the genuine savings concept to the study of urban heritage may not be possible, it has the advantage of drawing attention to the consideration of investment and degradation flows. Depreciation and degradation flows reduce the value of urban heritage. To the capital depreciation related to obsolescence or wear, we should add the degradation related to pollution and the loss related to any migration of labour. Comparison of the depreciation and investment flows provides an image of the changes in value of the urban heritage, and thus of its economic sustainability. To the flows considered in the genuine savings approach, we should add the investment and degradation flows concerning the economic and natural dimensions of urban heritage, by using in particular the

[10] See Part 2.

Box 4 *Genuine savings and sustainability in the weak sense*

Pearce and Atkinson (1993) introduced the concept of *genuine savings*, also called *adjusted net savings*, with the aim of defining an indicator of weak sustainability. The decision rule as proposed is based on an enlarged understanding of the idea of net savings as traditionally combined with physical capital. An economy will follow a trajectory of sustainable development if it “saves” more than the combined depreciation of the different capital assets. This decision rule is also called “rule of weak sustainability” as it does not impose any constraint concerning the elasticity of substitution between physical and natural capital. Pearce and Atkinson’s approach was enlarged by the World Bank (Hamilton and Clemens, 1999; Hamilton, 2000), incorporating other assets such as human capital.

The World Bank approach considers several elements for measuring genuine savings:

- The creation of human capital from education expenditures;
- The royalties from natural resource extraction;
- The social cost of CO₂ emissions.

Calculating the genuine savings rate follows several steps (Bolt *et al.*, 2002), who provided the following equation):

$$NAS = (GNS - Dh + CSE - \sum Rni - CD) / GNI$$

where:

NAS = adjusted net savings rate, GNS = gross national savings, Dh = depreciation of produced capital, CSE = current expenditure on education, Rni = rent from depletion of natural capital, CD = damage from carbon dioxide emissions, GNI = gross national income

The royalties obtained from the net degradation of natural resources allows the depreciation of the natural capital stock to be calculated. This revenue is estimated from data on quantities and prices: for the first, we use the quantities of extracted non-renewable resources or, for renewable resources, the difference between extracted and naturally renewed quantities. For prices, we use the world price of the natural resources as a proxy of their market value as well as their average extraction cost.

Table 8 *Investment and degradation: proposed indicators*

Investments	Degradations
Volume and type of investments in the area	Depreciation of economic capital
Volume and type of recent investments (public and private) in the heritage	
Interventions on recent buildings	Decay of heritage buildings (BTR)
Interventions on patrimonial buildings by type of heritage (protected or unprotected monuments, or venacular heritage)	
Interventions on public spaces in historical centres	
Education and training expenditures, in the tourism, artistic and cultural sectors	Departures, loss of human capital
Immigration	Emigration
Current expenditures of the authorities in charge of the environment	Degradation of the natural capital (pollution, waste accumulation, animal degradations)

Source: Authors.

investment flows listed on a macroeconomic level (Table 8). Obviously, this indicator cannot confirm by itself the sustainable, or not, character of the urban heritage.

Other, more indirect, investment indicators for the social and cultural dimensions of urban heritage were collected by the various valuation studies that were funded by the international operators. They are summarized in Table 9.

Based on the investment and degradation flows, one can estimate the net accumulation rates in the different dimensions of urban heritage, without having to make a monetary valuation step. These data can be combined and visualized on a sustainability diagram (Figure 6 below) summarizing the situation of urban heritage in its four dimensions (Table 10).

Table 9 *Indirect investment indicators for the social and cultural dimensions*

Expenditures for the reorientation of abandoned industrial sites in the area (decontamination, etc.) and their transformation into public or private housing and shops
Expenditures for the relocation of population outside the historical centre
Expenditures for relocation in the historical centre of population living in areas exposed to natural risks
Number of contracts signed each year with NGOs, including associations of inhabitants, for heritage preservation, or of local communities
Subsidies to such NGOs for their work with the abovementioned local associations
Number of annual meetings for information or decision-making on urban heritage
Number of professional training sessions organized per year
Number of school visits to the site(s) each year
Expenditures for transforming hotel(s) into hotel school(s)
Number of cultural events related to heritage (folk festivals, etc.)
Expenditures for the organization of cultural events related to heritage (folk festivals, etc.)
Expenditures for communication to make the local population aware of their heritage
Expenditures for the participation of local population in the decision-making process concerning urban heritage

Source: Authors.

Table 10 *Sustainability threshold, simulated unsustainability and sustainability*

Accumulation rate	Unsustainability	Threshold of sustainability	Sustainability
Economic dimension	-1.0%	0.0%	1.0%
Human and social dimension	-1.0%	0.0%	1.0%
Environmental dimension	-1.0%	0.0%	1.0%
Heritage buildings dimension	-1.0%	0.0%	1.0%

Note: This table presents simulated situations. The threshold of sustainability is defined by a situation where urban heritage is maintained without change in its four dimensions. Figures 6, 7 and 8 graphically show the situations mentioned here.
Source: Authors.

Sustainability diagrams

The sustainability zone on Figure 6 corresponds to a net positive or nil accumulation in the four dimensions (green on the figure). The unsustainability zone corresponds to a negative accumulation (net degradation) in at least one of the urban heritage dimensions (small white diamond on the figure). Graphically, the threshold of sustainability corresponds to the boundary between the two zones.

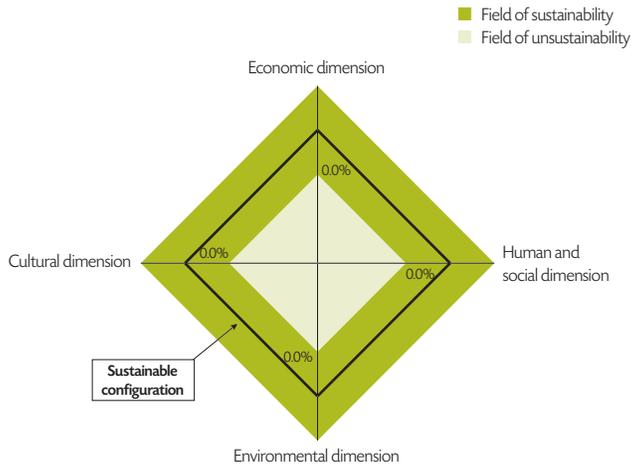


Source: Authors.

In order to explain the interest of this diagram, the next two figures show the symmetrical cases of strong sustainability (Figure 7) and weak sustainability^[11] (Figure 8). The diagrams show the stakes of the sustainability of urban heritage, but they can also serve to visualize the predicted impact of renovation projects for this heritage. Such projects may effectively help in advancing the accumulation boundary beyond the sustainability threshold for the different dimensions, provided compensation can act between the different dimensions of urban heritage.

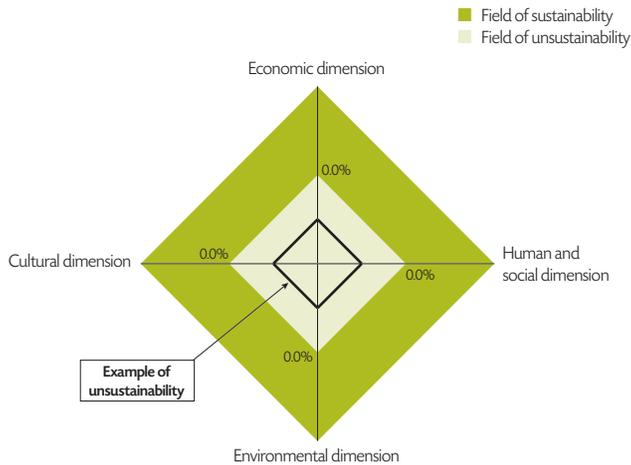
[11] "Weak" sustainability, as the substitutions between the different dimensions of the urban heritage have not been mobilized.

Figure 7 Sustainability diagram of urban heritage: example of a strongly sustainable configuration (accumulation rate)



Source: Authors.

Figure 8 Sustainability diagram of urban heritage: example of a strongly unsustainable configuration (accumulation rate)



Source: Authors.

The last two examples are borderline cases for which the condition of sustainability (or unsustainability) can be established by means of a strong definition. Real situations rather concern mixed configurations in which the accumulation rates are not all simultaneously positive or negative in the four dimensions, but may involve positive accumulation in one dimension, and a negative one in some of the other three dimensions. The question is then whether or not the positive accumulation in one dimension compensates the degradation in the other dimensions. Based on a weak definition of sustainability, this compensation is possible; for instance, an increase in economic capital can compensate a loss in the environmental dimension.

When analyzing urban heritage, where heritage buildings in particular are not considered as substitutable for other dimensions, it is better to consider an approach in terms of strong sustainability.

3.2.4. *Threshold effects and risks*

The elements collected for evaluating the present sustainability of urban heritage, must be completed by an analysis of the dynamics that might influence its trajectory over time. An analysis of the threshold effects and risks affecting this trajectory thus sheds additional light on the sustainability of an urban heritage. A crucial question concerning sustainability in the strong sense, in dynamics, is that of the type of interrelations between the different assets, which are sources of value. Is it possible to substitute one dimension of urban heritage for another? Can improving the economic capital through a renovation project, for instance, compensate for the destruction of natural capital, for the loss of social capital (through a gentrification process or migrations), or for reduced authenticity of the cultural capital?

If this is the case, as is supposed—often implicitly—by most international funding agencies' studies (World Bank, IDB), projects with a strong economic valuation component should logically be successful when the cultural capital has a good economic potential. However, the risk exists that the substitution relations between economic capital and the other dimensions of urban heritage cannot operate beyond certain thresholds. Analyzing the risk of unsustainability in the strong sense then leads to defining the thresholds beyond which the different dimensions of urban heritage can enter into conflict, in particular beyond which developing the economic exploitation of the heritage is opposed by its social, cultural and natural dimensions.

Analyses by international funding agencies (World Bank, 2001) defined the risks that can be reinterpreted in terms of critical sustainability thresholds. These include:

- *Artistic and cultural risks* related to a loss of authenticity, which may be irreversible. Evaluation of the irreversible character of such loss is closely related to the definition of “authenticity”, a much-debated concept. For a strong sustainability approach, it can be considered that the existing urban building heritage is irreplaceable and cannot be substituted;
- *Congestion risks*, reaching the limits in the capacity of infrastructure for receiving additional numbers of tourists, leading to an accelerated degradation of the urban heritage. Mono-tourist activity can further amplify such risk;
- *Inequity risks*, through marginalizing the poorest: a gentrification process is commonly intimately linked to the process of heritage designation and renovation.^[12] It thus shares in such marginalization of the poorest, and poses the question of how to manage the resident population and sustainable real estate speculation;
- *The risk of losing the regulation capacity of the environment* (risk of reaching an ecological threshold).

These risks can be analyzed in terms of thresholds, whether they are irreversibility thresholds (loss of historic buildings, emptying of town centres, etc.), or thresholds in the close relationships between the different dimensions of urban heritage that might gravely disturb the existing complementary relations between them, thus hindering local development. One of the essential stakes for evaluating urban heritage renovation projects is the identification of such critical social, cultural, economic and environmental thresholds, even though their direct valuation may be difficult. It is, however, possible to define them by means of indirect indicators (health, security, delinquency, population density, erosion, flooding, changing production techniques, etc.) and through their associated manifestations.^[13]

Such thresholds and risks are rarely as objective as in the case of building destruction, and are generally related to their stakeholders’ perceptions in the affected territory. Their determination is a fundamental stake of development policy.

[12] Gentrification commonly helps heritage designation, for which reason its negative effect on the poorest population segments must be carefully evaluated.

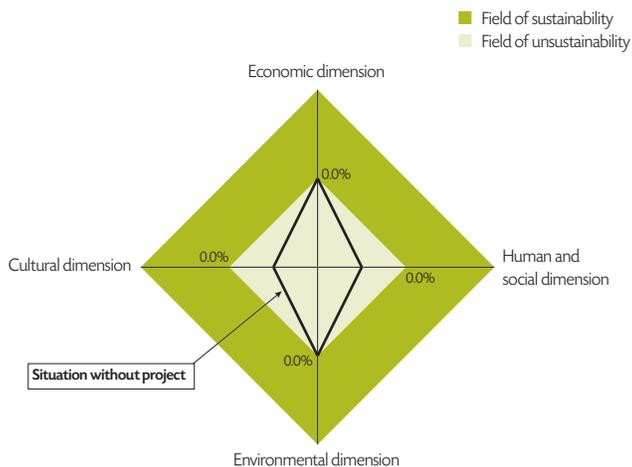
[13] Giraud and Loyer (2006), for instance, identified the reaching of an ecological threshold through increased migratory movements.

An evaluation of urban heritage renovation projects should also be based on the modification of the dynamics of the different dimensions of urban heritage by comparison with the initial situation. Setting up a renovation project is generally—but not necessarily—decided for sites that are deemed unsustainable (strong as well as weak), especially for the central project dimension, *i.e.* patrimonial buildings. Economic valuation of a renovation project can then be done through a sustainability analysis based on comparing accumulation indicators in the different dimensions of the urban heritage.

To analyze the risk and threshold effects, it is thus relevant to mobilize the sustainability diagram. Assuming that the diagram shows a mixed situation where the different dimensions of urban heritage are not all sustainable, the question of strong sustainability is posed. Will improving the economic dimension, for instance through a tourism development project, compensate for the destruction of natural, social or cultural elements?

To illustrate the proposed working method, we can simulate an initial situation of “mixed” unsustainability, corresponding for instance to an urban heritage being

Figure 9 Sustainability diagram of urban heritage: example of unsustainable initial configuration without project (accumulation rate)

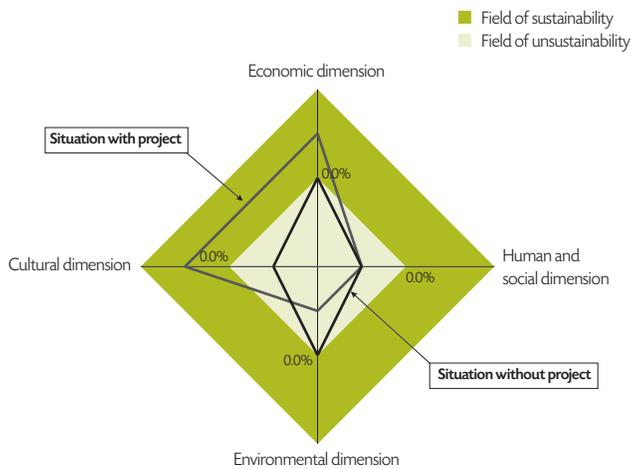


Source: Authors.

gentrified (population loss of 1%), with a stagnating economic activity (accumulation rate of 0%), a degrading urban heritage (-1%), and a preserved environmental dimension (0%). This situation is shown in Figure 9, where the diamond representing the accumulation rates in the different dimensions of the urban heritage clearly lie in the unsustainable zone.

Based on this (hypothetical) situation, a tourism development project for of the urban heritage, carried out to the detriment of the human and social (maintaining population loss) and of the environmental (-1%) dimensions, but to the benefit of the built-up heritage (1%) and economic (1%) dimensions, can leave the urban heritage partly in the zone of unsustainability, in the strong sense (Figure 10).

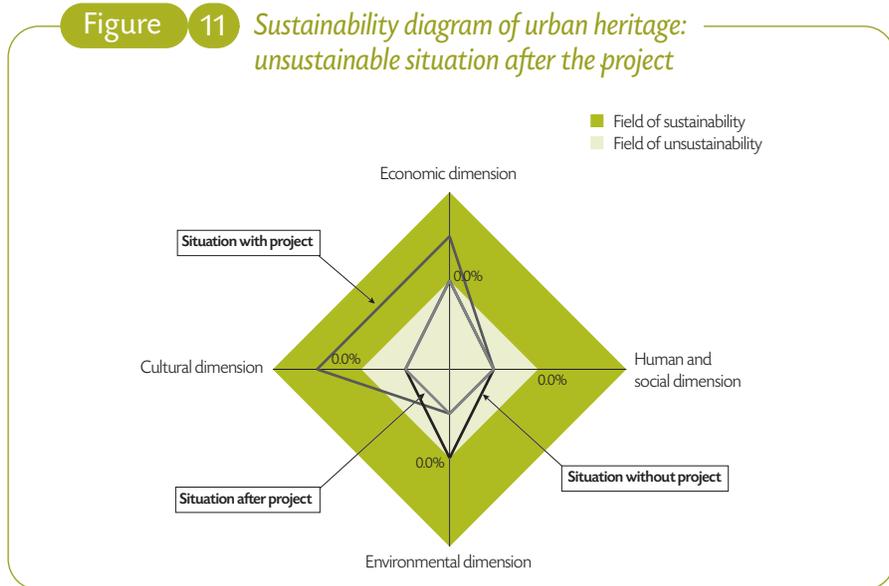
Figure 10 Sustainability diagram of urban heritage: unsustainable situation with partly remedial project



Source: Authors.

The relevance of such a project is thus in question, not only towards the changes made to the configuration of urban heritage, but also compared to the situation that will emerge at the end of the project. Will the dynamics of the heritage designation as supported by the project still be sustainable? Compared to the situation newly created by the project, it is possible that the economic dynamics set in motion will no longer ensure the takeover from investment flow contributed by the project, whereas the dynamics of net degradation in the different dimensions will continue.

In the worst scenario, the post-project situation thus might be less favourable than the initial situation from a viewpoint of strong sustainability (Figure 11).



Source: Authors.

We raise here the issues of heritage designation dynamics and the thresholds beyond which such dynamics become appropriate and self-sustaining.

This last point is illustrated by means of a project that would consider all different dimensions of urban heritage, and would lead this heritage as a whole beyond the sustainability threshold during its implementation period. After the project completion, the same question remains pertinent: Are the dynamics of heritage designation appropriate and self-sustaining? Conversely, is the internal relay of heritage-designation dynamics insufficient?

A partial answer to these questions is provided by analysis of the funding sources that can be mobilized to keep the urban heritage above the threshold of sustainability. Projects to rehabilitate urban heritage in developing countries essentially mobilize external funds that, for some exceptional sites, may be recurrent. However, such extroversion of the financing is generally rather associated with a strong volatility in the funding. Internal resources, commonly limited in developing countries, come from either public or private financing. While public financing is indispensable for creating

the conditions of heritage designation, in particular through the development of infrastructure, the main determinant for the future of heritage designation dynamics remains the evolution of private financing.

In view of the additional costs associated with renovation, the mobilization of private financing rests essentially on the implication of households with the highest income. The interest of such well-to-do households for heritage buildings then becomes an essential determinant of the long-term sustainability of this urban heritage.

One of the conditions for maintaining the positive effects of a renovation project over the long term is thus the fact that a threshold is reached in mobilizing the internal financing potential for the sustainability of a project. In situations where the internal financial capacity that can be mobilized is insufficient, which is the case in many of the least developed countries, maintaining the sustainability objective thus requires recurrent access to external funding.

3.2.5. A unified framework for evaluating urban heritage projects

To conclude this presentation of our analysis grid, there is obviously no point in applying the grid to an in-depth *ex post* examination of past renovation projects. However, a rapid review of the different reports presenting urban heritage renovation projects by the World Bank (Table 11) shows that our analysis grid provides a unified framework when compared to earlier evaluations. These are characterized by the following elements:

- The evaluation of projects favours the use of standard indicators, such as internal rate of return and net present value. Monetary and non-monetary indicators are used in parallel;
- Such project evaluations are fragile and highly dependent upon the adopted hypotheses, especially for the distribution of tourism incomes, and for the multiplier effects;
- Non-use values are not considered in the analyses, except the contingent valuation of the Medina of Fez. Though implementation of this method is delicate and expensive, the results of contingent valuation were not integrated in a cost-benefit analysis;

- The investment and degradation flows considered in the valuations focus on the economic dimension. Investments in human capital (training, education) are only partially considered, as are degradation flows of the natural capital;
- The interdependence between the different dimensions of urban heritage is generally underestimated, even if the risk analyses sometimes cover this dimension.

As far as *ex post* evaluations are concerned, they show the importance of the institutional environment and of project governance. Our analysis of these reports thus confirms that the main challenge posed by an evaluation of urban heritage lies in its multi dimensional character.

Table 11 Heritage projects of the World Bank

Jordan Amount: USD 56m; period: 2007-2010 Title: Cultural Heritage, Tourism and Urban Development Project (8/01/2007)
Tunisia Amount: USD 17m; period: 2001-2012 Title: Cultural Heritage Project
Ethiopia Amount: USD 35m; period: 2010-2016 Title: Ethiopia Sustainable Tourism Development Project
Chongqing Amount: USD 200m; period: 2000-2006 Title: Urban Environment Project
Costa Rica Amount: USD 72.5m; period: 2008-2013 Title: City Port of Limon Project
Mostar Amount: USD 4m; period: 1999-2002 Title: Pilot Cultural Heritage Project
Fez Period: 1999-2003 Fez Medina Rehabilitation Project

Sources: Various Project Appraisal Documents, World Bank.

The small number of economic urban heritage evaluations based on the most innovative methods clearly shows the difficulties of methods that are expensive in both time and money. For instance, the amount of USD 100,000 mentioned by Greffe (2008) for using contingent valuation methods seems to be a minimum estimate. However, the use of harmonized evaluation grids strengthens the capacities of the agents and institutions in charge of collecting and producing the necessary data for an evaluation. As an example, the use of the impact method for evaluating the heritage in the PACA (Provence, Alps and French Riviera) region of France (2004), before its extension to the country as a whole, illustrates the value of this additional evaluation stake.

Our analysis grid is thus partly based on similar grids that are available in existing evaluations and the literature, but its innovative aspect lies in the proposed unified framework, represented by a sustainability diagram. This diagram is based on the holistic concepts of inclusive heritage and sustainability, and supplies a framework for collecting and interpreting relevant data, around this idea of sustainability, by distinguishing the dimensions of flow and stocks in the evaluation of urban heritage.

4. Application of the Analysis Grid to the Cases of Saint-Louis (Senegal) and Sousse (Tunisia)

4.1. Introduction

The aim of this final chapter is to illustrate, by means of two concrete examples, the four phases of using the proposed analysis grid. The two towns of Saint-Louis and Sousse are both on the World Heritage List, though they have quite different urban characteristics and histories. We will pay special attention to concrete problems encountered during the evaluation of projects concerning their urban heritage. In addition, comparing the questions raised by the study of these two very different towns will help in further defining these questions, which have already been discussed in a more general manner in the preceding chapters.

This illustrative work is exclusively methodological, and does not claim to result in a rigorous evaluation of the economic value of the urban heritage in these two towns. In fact, to arrive at a satisfactory evaluation, it is necessary to complete the available data, which should be collected on site and from existing documents and are partly presented in the following pages. The existing data are manifestly insufficient in several of the domains needed for analysis, and it is thus indispensable for operational studies to carry out further inquiries, such as surveys or through input from experts.

Our research team could not carry out this additional work. The following paragraphs, based on part of the available information, thus simply aim at showing that the proposed methodology can be a relevant guide, especially the use of sustainability diagrams. This chapter is divided into four sections, according to the grid suggested before, which requires two preliminary discussions prior to the work in four stages. These concern the territorial and legal frameworks of the analysis.

4.1.1. The territorial framework

As a first step, the territorial perimeter of the urban heritage must be defined. Secondly, as the impact of most urban heritage extends beyond the patrimonial territory, it is necessary to define which territory benefits most,^[14] today or potentially, from the services related to urban heritage.

In Saint-Louis, Senegal, most of the urban heritage is concentrated on the Island of Saint-Louis. The town, though endowed with an exceptional architectural heritage reflecting its long history, is also affected by the weight of its past as the capital of French West Africa (AOF).^[15] Now that the political and economic dynamics have shifted to Dakar, the Island of Saint-Louis seems to have been marginalized. It is, however, this island with its strongly enclosed character, recognized as a World Heritage by UNESCO, which is the area of the economic heritage analysis.

The town of Sousse in Tunisia is much less enclosed than Saint-Louis. An historic seaside town, three millennia old, it lies in the centre of the Tunisian East Coast. As the third-largest town of the country, it is a regional capital that covers about 45 km². Built on a hillside and overlooking the sea, the Medina of Sousse, a mostly pedestrian area, is enclosed by an imposing city wall constructed on Roman and Byzantine remains. Today, the Medina that lies at the heart of the Sousse conurbation, next to the European (colonial) town, is a meeting point for Sahel inhabitants, local residents, and tourists, because of the presence of shops, historical monuments, and long-distance taxi and bus terminals, as well as the railway station and the harbour. It has been on the UNESCO World Heritage List since 1988.

4.1.2. The legal and institutional framework

When referring to the Medina of Sousse, the town planning concerning the renovation and valuation of urban heritage seems to be in constant evolution, around a set of regulations for heritage preservation. The two most important legislative instruments are the “*Code du patrimoine*” (Heritage Code), governing the regulatory procedures, and the “*Code de l’aménagement du territoire et de l’urbanisme*” (Code for Territorial Development and Urban Planning). The latter fixes the rules to be followed for the “*spatial organization and exploitation, planning, creation and*

[14] In fact, because of the nested nature of territorial scales (from worldwide to micro-local), other territories might be slightly concerned as well.

[15] The AOF was a federation that grouped, between 1895 and 1958, eight French colonies in West Africa: Senegal, Guinea, Côte-d’Ivoire, Dahomey, Mauritania, the French Sudan, Upper-Volta and Niger.

development of conurbations”, protecting “areas of special planning control” and “natural and cultural sites”. Though, in theory, both codes were properly worded and allow the administrative and territorial management of heritage, independently of its scientific management, in practice the situation is more difficult.^[16] However, Tunisia does not have the operational tools to supervise or boost private ownership initiatives in the old centres, except under certain, rarely observed, conditions.

Four institutions^[17] are explicitly and exclusively involved in the protection and renovation of heritage buildings. Their action, however, is hindered by a lack of legislation concerning the intervention on buildings threatened by ruin (BTR), by the conditions under which real estate agents operate, and by the recurrent problem of non-inclusion of buildings in the land registry. This causes an unclear real estate situation: vague property limits, confusion over property, joint ownership situations, and even unknown owners.

This uncertainty concerning the property rights, which strongly hinders the implementation of urban heritage conservation and renovation policies, also occurs in Saint-Louis (Senegal).

4.2. First stage of the grid application: Identifying the urban heritage (analysis in terms of stock)

Urban heritage is identified according to its four economic, social, cultural and natural components.

4.2.1. The economic dimension of urban heritage

The economic dimension comprises two components: productive structure and infrastructure.

The productive structure

For this, one has to estimate the facilities, job volume and production of crafts and industrial activities, shops, tourist activity and public services. The availability of

[16] The situation in Saint-Louis du Senegal is similar: the texts are rarely applied in an efficient manner.

[17] The “Institut National du Patrimoine” (INP, National Heritage Institute), the “Agence de Mise en Valeur du Patrimoine et de Promotion Culturelle” (AMVPPC, Agency for Heritage Development and Cultural Promotion), the “Agence de Réhabilitation et de Rénovation Urbaine” (ARRU, Agency for Urban Rehabilitation and Renovation) and the “Association de Sauvegarde des Médinas” (ASM, Safeguarding Association for the Medinas).

qualified workers in the productive patrimonial sectors should be estimated as far as possible, and, in any case, the place of so-called “informal” activities must be specified.

The available data, for both Saint-Louis and Sousse, allow the outlines of the productive structure of urban heritage to be defined.

- **In Saint-Louis**

The economic activities within the municipality of Saint-Louis differ from those in the region,^[18] not only because of the high degree of urban development (only 9.8% of the working population worked in agriculture in 2005), but also because of the importance of the fisheries sector. The Province (“département”) of Saint-Louis concentrates most regional activities (42% of the Gross Local Product) on only 4% of the total surface area.

In 2005, the ADM (Agence de développement municipal, *Municipal Development Agency*) estimated that the informal sector predominated with 46.2% of the activity, the modern sector (private and public employees: 12.6%) representing only a small part of the working population. However, for the island as a whole, an important part of the job market, and thus the direct use value of the urban heritage, is related to public employment.

The crafts sector represented 26% of the jobs, or 2,320 formal artisans and 4,864 informal ones in 2005 (ADM, 2005), of which arts and crafts covered 10% of the jobs or about 700 persons. Commercial activities (8,654 units) and transportation (300 taxis, 56 buses, 18 vans, 50 “clandos” vehicles, and 154 horse-drawn carriages) covered 19% of jobs in 1998. In addition, the town hosts the Governorate, the Regional Council, the Municipality, the Chamber of Commerce, the Chamber of Trades, about 50 regional services, a dozen agencies and branch offices of national companies, and four diplomatic representations and international organizations, many of them on the Island of Saint-Louis.

The revenues of the commune are not well-known, especially for the Island of Saint-Louis. The latter concentrates a major part of infrastructures and tertiary activities, but has a marginal position in the economic activities of the commune, with fisheries that are concentrated on the Barbarie Spit. The island counts 31 retail shops (9% of

[18] Economically, fishing, agriculture and food cropping, producing 12.8% of the cereals of Senegal, 17.8% of fishing, and all sugarcane and industrial tomato production dominate the Saint-Louis region.

the total in the municipality), 3 bakeries (out of 25 in the municipality in 2005), and 2 of the 7 banks in the municipality. The evolution of economic activities on the island is seen in a shift to specialized shops, such as booksellers, art galleries and boutiques, service activities (insurance, banks and financial organizations, restaurants and small businesses).^[19] The size of this shift is difficult to evaluate because of the lack of a census and of monitoring of the economic activities on the island.

No statistical data are available for a precise evaluation of the structure of the economic activities on Saint-Louis Island. According to the experts, the most probable hypothesis seems to be that of a decrease in all economic activities, partly compensated by activities related to tourism.

- ***In Sousse***

Through lack of economic data, it is difficult to make a precise evaluation of the productive structure of the Medina of Sousse. Though the tourist destination image of Sousse is still that of a seaside resort, the Medina site, which has a considerable symbolic identity since it was put on the World Heritage list, does not manage to play the role that befalls it as a cultural pole. Two million visitors are expected to visit Sousse before 2020, but today the Medina is no more than a simple transit point for guided visits of a few hours. The place has, however, a strong economic and social life, with a majority of residential quarters with shops and public services in about one sixth of its districts. The development of tourism-related activities has mainly focused on souvenir shops in three streets, with a string of shops and great monuments. This has caused a notable dysfunction, not only in the residential sector, but also in commercial and service activities. In addition, this sector increasingly calls upon imports and has not managed to develop a body of handicrafts trade, which is faced with competition from imported counterfeit products and is thus threatened with disappearance.

Finally, according to the municipal authorities the Medina has a large low-income population, even though we have no specific data on this subject.

Infrastructure

The infrastructure can be evaluated from data on the dimensions and condition of the roads, electricity and water networks, and collective facilities for transportation and commerce (markets).

[19] Source: BICFL Ingénierie (2008).

- ***In Saint-Louis***

All reports mention the insufficiency and disparity in the distribution of facilities and infrastructure on the municipal territory. In 2005, the Island of Saint-Louis had 52% of the town's facilities (35% in Sor and 12% on the Barbarie Spit), though home to less than 17% of the population (ADM, 2005). The diagnostic elements concerning road conditions confirm the general survey data of 1998. Of the 40 km of asphalted road, 13 km are on the island for a surface area of 114.7 ha, or 0.11 km/ha, 14 km in Sor for an area of 794.8 ha, or 0.02 km/ha, and 13 km on the Barbarie Spit for an area of 223.4 ha, or 0.06 km/ha. While the network is particularly dense and in good condition on the island (Commune of Saint-Louis, African Institute of Urban Management, UN-Habitat, 2005), roads in poor condition represent 35.5% of the municipal network.

- ***In Sousse***

No precise data are available for the electricity, gas and water (supply and sewage) networks in the Medina. Nevertheless, information is available for the area as a whole, including the European town (for the town centre as a whole), concerning the rate of connections to public networks: electricity 98.8% of dwellings, gas 22.1%, drinking water supply 97.2%, sewer system connections 98.2%. However, no storm sewers exist. In addition, though the streets of Sousse provide 1,300 parking spots, including a car park (100 places) on the site of the eastern walls, the Medina remains mostly pedestrian. All of the centre (3 km) can be crossed on foot, but the roads require (re)paving.

4.2.2. The cultural dimension of urban heritage

The cultural dimension of urban heritage is identified through the architectural heritage and the cultural life.

The urban architectural heritage

Real estate values consider the condition of buildings, based on existing or newly made inventories that define the distribution between private and public properties, and on estimates of sales prices or of renovation expenditures for housing people or economic activities (offices, shops and workshops).

When a building is no longer used for its initial function, whether official (law court), religious (church, mosque), health (hospital), commercial, or housing, part of its value depends upon its capacity for reuse and adaptation to new functions (housing complying with modern standards, tourist lodgings, shops, and facilities for reception and entertainment).

A quantitative evaluation may be based on the number of buildings that were restored, distinguishing if possible if this was with private or public funding, and on endangered buildings. A qualitative evaluation is based on the use of ancient or modern materials and expertise, thus limiting the risk of subjectivity (cost of restoration/conservation and existence of specialized artisans and companies).

- ***In Saint-Louis***

The urban architectural heritage of Saint-Louis is concentrated on the island of the same name. Three types of houses characterize it: houses with balconies, houses with galleries and so-called Portuguese houses. An analysis of the different dimensions of this heritage shows that it is only slightly developed for its potential economic uses (tourism, shops and other economic activities, and housing), and that it is only weakly endowed with human capital (a limited population that the different observers consider at best as stagnant). It benefits, however, from a natural environment with great potential, located elsewhere in the department and not on the island.

The architectural and real estate components of the urban heritage were the subject of an exhaustive inventory between 2002 and 2004 by LCMU, which established its interest as well as its limits. Effectively, 31% of the Architectural Units (AU) were in poor condition or endangered. The State, the municipality and the military hold a large part of the property rights at 47.62%, only 52.38% being in private hands. Of the AUs in poor or ruined condition, 49.22% (212 out of 449) belong to the State, a higher proportion than its ownership share of 39.88%. The privately owned urban heritage is better maintained than that in public hands.

- ***In Sousse***

In 1992, the World Heritage Committee noted that the site of the Medina of Sousse comprised both public and private properties^[20] and that it was governed by town planning regulations based on those of the City of Tunis. The ICOMOS has insisted for several years now upon the potential impact on the authenticity and integrity of Sousse of uncontrolled urban development, in particular of any new constructions. It has also asked to create a “buffer zone” of 200 metres outside the Medina walls, to lessen the impact of new developments on the visual integrity of the site, thus contributing to the conservation of this cultural heritage.

[20] A map of the Medina shows, however, that public property covers a small area, mostly consisting of the Ribat, a large and a small mosque, and the museum whose renovation was finished in early 2012.

According to a study by ARRU in 1985,^[21] the Medina of Sousse comprises three types of houses:

- “Traditional” houses make up 59.8% of the dwellings. They are characterized by an introverted design of the house, organized around a patio, and with a zigzag entrance with several transition spaces between street and patio. Three categories of dwelling illustrate the social stratification of the population. Ranked in order of increased relative importance among “traditional” houses according to the 1985 data, these are “bourgeois” houses (12.9%), “popular” houses (41.5%) and “modest” houses (47.6%);
- “European houses” make up 8%, generally R+1 or R+2^[22] dwellings organized around the European model of a central stairway leading to apartments and primarily located in the lower part of the Medina;
- The “oukala” (or “fonduk”) type of house covers only 0.5% of all dwellings, consisting of traditional type “hotels” or former caravanserais, or large houses with a patio, where individual rooms are rented as lodgings, the services being used in common.

A feasibility study of the renovation of BTRs in the Medina of Sousse (ARRU, 2003-2004) covered the entire Medina. This work identified 336 BTRs (against 217 during the same survey of 1985), of which 119 buildings were irrecoverably damaged (against only 19 in 1985) and thus have to be demolished. Apparently, 49% of the BTRs are under joint ownership. Among the 217 recoverable buildings listed in 2005, 43.4% is strongly damaged and 56.6% is moderately damaged. The building fronts are rather heterogeneous, with a fairly large number of renovated or recent façades.

Cultural life

The evaluation of the cultural dimension is based on the presence and dynamism of private associations or foundations devoted to heritage valuation, as well as to the presence of public authorities in charge of heritage valuation and of the existence of research and study centres on urban heritage, not forgetting the organization of cultural events and traditional celebrations.

[21] The most recent studies by the ARRU, dating from the 1990s and 2000s, are based on the housing-type data from the 1985 study.

[22] French conventional denomination of: ground floor plus one floor, or plus two floors.

- **In Saint-Louis**

In Saint-Louis, several associations are actively involved in heritage valuation: ARCAS (*Association pour la Restauration et la Conservation de l'Architecture Saint-louisienne*) plays the role of “whistle blower”, noting all improper interventions; PMS (*Patrimoine Métiers Solidarité*) has carried out some restorations; IDD (*Initiatives pour le Développement Durable*) supports ARCAS and the tourist information office; the *Fondation du Patrimoine*; and the NGO “*Le Partenariat*”.

Cultural life can also be stimulated by the dynamic presence of public authorities dedicated to heritage valuation. In Saint-Louis, such stakeholders are numerous (UNESCO, the *Direction régionale de l'Urbanisme et de l'Habitat* that is in charge of protecting historical monuments, and the *Agence de développement communal* [ADC]), but their means and action range are notoriously insufficient. However, we should note the existence of research and study centres on urban heritage (geography section of the Gaston Berger University, the Polytechnical Institute of Thiès, and ENSEA at Dakar). In addition, the role of CRDS, the Research and Documentation Centre of Senegal, should be mentioned.

- **In Sousse**

The cultural function of the Medina of Sousse remains rather modest in comparison with the cultural activity of Saint-Louis, notwithstanding some recent projects of re-assignment and revamping projects, in particular the creation of new small squares for the future development of cultural events. In addition, the Lâamarine^[23] quarter today harbours two buildings that had not been maintained for years, but now are restored with a new function: the old “Dar El Kaïed” prison today is used as a municipal district office and the Sharia Tribunal (“Dar Echarâa”) has a new function as an important cultural centre. In addition, the re-assignment of the former “Dar Essaïes” hospital as a youth hostel will even further reduce the presence of public services within the Medina. Finally, two other traditional facilities are in the process of being re-assigned: the “Torbet Sidi Mahfoudh” into the town planning office of the Medina (local office of the Tunisian Association for Safeguarding Medinas) and the “Mesjed Essaka” into the offices for an NGO, thus cleverly allowing the transfer of activities related to State services to services with a strongly social component.

Even though an effort of renovation and re-assignment has been started, we should not forget that the cultural heritage is not limited to buildings and that further

[23] Quarter formerly inhabited by notables with activities in the law courts, and which its original families had abandoned, the existence of an old prison further aiding its degradation.

progress has to be made in the field of popularizing the cultural savoir-faire (arts and crafts, Sahel cuisine, etc.)

Beside its impact on the local population, strengthening the cultural function of the Medina—a commonly neglected point—remains one of the key factors for revitalizing the Medina and its economic development (local production, typical restoration, etc.).

4.2.3. Examining the social and human dimension of urban heritage

The human and social dimensions of urban heritage are essentially identified by the following indicators:

- The population volume of the area, its age structure and its level of training;
- The number of members and resources (subsidies, private, international) of known local associations or religious communities and their field of action, thus evaluating their influence;
- The existence of public or private places for exchanges and meetings;
- The presence and condition of sports facilities and organizers;
- The presence and condition of health facilities and staff;
- The estimated degree of safety.

• In Saint-Louis

For the Island of Saint-Louis, the data needed to evaluate the human dimension of urban heritage are scattered and not very reliable. On the regional and municipal level, a retrospective analysis of population changes shows a pronounced lack of reliability. The UDP (Urban Development Plan) of 2001 estimated a population of 9,897 and the PSMV (Safeguarding and Valuation Plan) estimated 15,000 inhabitants in 2007; this difference of about 50% supposes an annual *growth* rate of over 7% between 2002 and 2007. However, three population and housing censuses were carried out in 1976, 1988 and 2002, showing that the population of the Island of Saint-Louis (North, Centre-North and South districts) passed from 10,673 inhabitants in 1988 to 9,876 in 2002, or a *decrease* of -1.24%.

In addition, the structure of the population and its evolution remain unknown factors for the Island of Saint-Louis, and unreliable for the municipality as a whole. We can assume, however, that the population of the island grows more slowly than that of the rest of the commune.

The health infrastructures of the municipality are concentrated on the Island of Saint-Louis, with the regional hospital, 40% of medical offices, and three of the eleven health centres.

- ***In Sousse***

The census of 2004 showed the population of Sousse municipality to be 200,000 inhabitants, characterized by strong growth (4%, against 1.2% for Tunisia as a whole). However, this is not true for the Medina: from 9,500 in 1975, the population decreased to 5,678 inhabitants in 2004. Moreover, the municipality refers to an aging population, where the average household size is 3.44 persons against 4.7 in 1975. The evolution of the part of the Medina population in that of the municipality shows a decreasing weight of Medina inhabitants, that went from 8.7% in 1984 to 4.8% in 1994, a weakening that is not restricted to Sousse, but to all Medinas of Tunisian towns of over 100,000 inhabitants (Tunis, Sfax, Bizerte, etc.).

A survey in 1992 of a cross-section of households in the Medina showed that the latter was the first place of settlement of migrants into Sousse, to the exclusion of all other districts. In addition, the study showed that the residential mobility of the surveyed households was remarkably stable as, at the time, 49% of these households had not moved since arriving.

The 2004 survey showed that, notwithstanding the continuous development of souvenir shops, work was the main cause for the population moving in and out (52% against 22.8%, respectively). Furthermore, the lack of schools in the heart of the Medina seems to be another cause of population loss, as moving in order to pursue an education is a better reason for leaving than for moving in (29.3% against 16%, respectively).

The school enrolment percentage of the population of Sousse aged 6 to 14 (boys and girls) is 96.2% (against 95.1% on average for Tunisia) and there is no reason why this should be different in the Medina, even though all schools are located just outside the Medina walls.

Finally, among the reasons given for why they like the Medina, especially during the 1992 survey, affective motivations such as family or neighbourhood relations are given, but architectural qualities or richness of the monuments are never mentioned.

4.2.4. *The natural dimension of urban heritage*

The natural dimension of urban heritage concerns fields that at first sight seem quite different, such as:

- The existence and condition of parks and green spaces;
- Sewage facilities and networks;
- Refuse collection and treatment;
- Presence of pollution, damaging insects (termites, etc.), or pests (rats, etc.);
- The existence of facilities and staff for combating natural risks.

- ***In Saint-Louis***

Existence and condition of parks and green spaces

On the Island of Saint-Louis, the space of housing blocks on over-dense plots is saturated, leaving in general little place for green spaces. We can only mention a certain number of squares and gardens, especially in the centre of the island, as well as interior gardens within houses or surrounding the sites of important buildings. To this should be added the plantations along the wide Jean-Mermoz Avenue.

The municipality of Saint-Louis as such is particularly well endowed with protected urban or suburban areas, such as:

- The National Park of the Barbarie Spit, almost 2,000 ha large, stretches from the southern city gates to the mouth of the Senegal River, on a sandy barrier beach;
- The special faunal reserve of Geumbeul, 12 km south of town, covers an area of 720 ha and consists of lagoons, swamps and a dry forest;

- The National Bird Park of the Djoudj, 160,000 ha large, the third ornithological park inscribed by UNESCO on the World Heritage List, lies 60 km north of Saint-Louis and contains at least 400 bird species, including pelicans, pink flamingos, spoonbills, egrets, storks, cranes, etc.

Existence of facilities and staff to combat natural risks

At Saint-Louis, the main natural risk is flooding. The reasons for such flooding are a complex combination of floods in the Senegal River and marine flooding, due to the vulnerability of the barrier beach—the Barbarie Spit—, to storms, and to future sea-level rise. The old town of Saint-Louis, built on an island in the mouth of the Senegal, was traditionally affected by river floods, especially at the end of the rainy season. The opening of an artificial breach after the flood of October 2003, seven kilometres south of the town, has completely changed the flooding regime of the town, without having eliminated flooding risk itself. In fact, since then the town has no longer been flooded by the river because of the spectacular widening of the breach that, from four metres at the start and passing to over one kilometre today, has become the new river mouth, thus allowing a more rapid evacuation of floodwaters. The town now lies at the head of an estuary; marling has strongly increased and the Senegal River water level is increasingly dependent upon the tidal rhythm. As the town hardly emerges above the highest tides, it has today become more vulnerable to an even moderate increase in average sea level, without considering the effects of strong storms. The question is thus to know whether this predominant marine influence in the river regime at Saint-Louis will continue in the medium term, in view of the natural trend of the Barbarie Spit to migrate southward. Modelling has shown that the highest annual waters might flood the town during the 21st century.

Drinking water and sewage facilities and networks

Such networks exist on the Island of Saint-Louis, but are generally aging. Because of the population overestimate of 1981, the sewage network is oversized at the design level of, for instance, the pumping station and lagooning. Individual sewage often flows into the river. The drinking water network coverage of the town is incomplete.

• In Sousse

Existence and condition of parks and green spaces

In the Medina, the only green space noted during the 2004 survey was that of the gardens of the Archaeological Museum, but the vast restoration programme of this museum located in the upper Medina, the old Kasbah that allows direct access to the Medina, may have resulted in reducing the size of these gardens. Outside the

historical city walls of the Medina, a green space was created at the northeast entrance of the Medina. The creation of a “buffer zone” 200 m beyond the walls should allow these green spaces to be included in the urban heritage of the Medina. The map shows, however, that this represents only about half a hectare compared to the almost thirty hectares of the Medina, including the “buffer zone”.

Drinking water and sewage facilities and networks

Though such networks exist in the Medina (connection rate of 98%), they again are generally aging. The problem, however, lies in the almost inexistent storm sewer network. Rains can occasionally be quite violent and their water flows directly, or indirectly, into the wastewater sewers that quickly show their limits, causing an overload for the sewage treatment plant located outside the Medina.

Presence of pollution

Though car traffic is relatively limited within the Medina, the same is not true outside the city walls. The general traffic plan clearly shows that Medina residents suffer from the pollution created by traffic outside the walls, all the more so as 53% of the north-south traffic traverses the central Farhat Hached square, very close to the walls. There are thus two types of pollution: atmospheric and noise.

Existence of facilities and staff to combat natural risks

Because of its high position and the fact that it is sheltered by a small dock, the Medina does not seem to be exposed to the risk of seawater flooding.

4.3. Second stage of the grid application: Identification of services rendered (flow values)

During this stage, we evaluate the economic value of all services (potentially) provided by the urban heritage, including those outside its strict geographic territory. This value can be broken down into direct and indirect use values and non-use value. Among the use values, the most important is that provided by buildings, which is the reason why this part of urban heritage is emphasized here. Because of the importance of tourism for the economic valuation of urban heritage, we propose to make separate analyses of the valuation generated by its presence and that related to the resident or active population in the area turned into patrimony.

4.3.1. Use values of heritage buildings used by residents

The direct use value of real estate heritage is based on three dimensions: housing of residents, tourism, and local economic activities. For this reason, we focus on the value of urban heritage in terms of 1) production activities related to urban heritage, 2) public services, and 3) commercial and housing services. In this respect, the morphology of ancient shops, such as the souks, and old housing can generate technical, health and financial difficulties.

- **In Saint-Louis**

Production activities related to urban heritage and public service

In view of the large proportion of State properties on the island, a major part of the direct use value of architectural heritage is related to its use by Government services. In fact, they probably form an essential part of the activities on the Island of Saint-Louis.

In the absence of a market, accounting policy normally estimates the production of State services from the expenditures by the relevant administrations.^[24] By default, reasoning in terms of opportunity cost provides an imperfect estimate. In order to estimate the use value of public heritage, we use the use values of private heritage (estimated later) in proportion to the part of the architectural units in public ownership (47.62%, 2005 inventory).

Commercial and housing services

Economic activity on the Island of Saint-Louis is limited. Lacking recent data on the effectively present economic activities, the use value of the building heritage related to economic activities can be evaluated from some (old) data on the number of shops, banks and other economic activities on the island. The resulting estimate should be supported by future survey data, and this evaluation should thus be considered with care.^[25] Table 12 presents the evaluation of heritage building use value related to the housing of economic activities, showing a very low value of less than EUR 50,000 per year.

[24] Data that could not be collected and thus could not be used here.

[25] It should be remembered that we test a methodological analysis grid here rather than providing a complete evaluation of the urban heritage. The monetary valuations proposed here are thus simulations rather than estimates, lacking several crucial data.

Table 12 *Estimated rents on the Island of Saint-Louis*

	Average	High
Rent/rooms (CFA francs)	15,000	30,000
Rent/workshops and shops (CFA francs)	20,000	30,000
Rooms (units)	Not available	Not available
Workshops/Shops (units)	Not available	Not available
Rent income	Not available	Not available

Source: AFD, 2010a.

For resident housing, the use value of heritage can be determined by the average rent per square metre multiplied by the number of available square metres for housing use (partially available for Saint-Louis, Table 12), or from estimating housing expenditures per household.

Table 13 *Evaluation of the use value for housing*

	Average	High
Part of housing expenditures in the budget of agents ^a	2130%	2570%
Average income per person ^b (CFA francs)	265,992	265,992
Use value housing (per inhabitant) (CFA francs)	56,656	68,36
Population of the Island of Saint-Louis ^c	12,153	15,79
Use value housing (million CFA francs)	688.54	1079.41
Use value housing (million euros)	1.05	1.65

a) Expenditures of urban households except Dakar, water, electricity, gas included;

b) Expenditures of urban households;

c) According to two hypotheses: annual growth of 2.6% based on the population estimated by UDP in 2001, and on the highest evaluation retained by the PSMV in 2007.

Source: Senegal Poverty Monitoring Survey (ESPS) 2005, national averages.

In the absence of local data on the demography-jobs-income dimensions, the use value for the housing function can be approximated by data collected on a national level, from the household expenditures dedicated to housing (Table 13).

According to the last approach, we estimated the housing use value of the private architectural heritage of the Island of Saint-Louis at FCFA 688.54m to FCFA 1,079.41m (between EUR 1.05m and EUR 1.65m). Considering the use value related to housing, economic activities add at most EUR 31,282 to this total. The estimated use value related to the housing function of private architectural heritage of the Island of Saint-Louis is thus between EUR 1.07m and EUR 1.68m.

To this evaluation of housing-related use values, must be added an evaluation of the use value of the building heritage owned by public administrations, according to the principle of opportunity cost. As explained before, a better solution would be to start with an evaluation of Government expenditures. According to this type of simulation, the housing-related use value of building heritage owned by public administrations, evaluated by its opportunity cost, would be EUR 1.52m.

Finally, the total annual use value of public and private heritage buildings, related to services of housing economic activities and residents, would be at most EUR 3.2m.

- **In Sousse**

Commercial and housing services

Concerning resident housing in the Medina of Sousse, the use value of heritage can be determined from the average annual rent per dwelling (including charges and maintenance expenses, Table 14), multiplied by the number of housing units.

Table 14 Evolution of current expenditures for rents and charges in Tunisia and their weight in household budgets (1995-2005)

	Expenditures per person and per year (in current TND – Tunisian dinars)			Budgetary coefficients (in %)		
	1995	2000	2005	1995	2000	2005
Rents and charges	68.5	98.3	153.9	71	74	8.5

Source: National Statistics Institute (INS), national survey on household budgets and consumption, 2005.

Using the family consumption price index of 2010, and more specifically its October 2010 level of 120.7 (base 100 = 2005), we obtain annual rent expenditures of TND 185.73 (Tunisian dinars) per dwelling for Tunisia as a whole. If we consider the rent prices in the Medina, which are similar to those in the rest of Tunisia, we obtain for the 2,100 housing units in the Medina in 2004 a total annual rent in 2010 of TND 394,357, or about EUR 205,000.^[26]

Production activities related to urban heritage and public service

The State-owned part of real estate in the Medina of Sousse is relatively low (mostly municipal offices and the archaeological museum), which means that only a small part of the direct use value of the architectural heritage is related to its use by Government services. In the absence of a market, the production of these services is normally estimated from the expenditures by the relevant authorities, but these data are unavailable. We can add that the surface occupied by official services mostly concerns mosques. In all, about 2 of the 31 hectares, or about 7%, in the Medina are occupied by public or similar installations.

Economic activities are important in the Medina of Sousse and almost exclusively based on tourism through a proliferation of souvenir shops. Apparently, there are no facilities to receive tourists in the Medina, except apartments or villas for rent, a subject on which we have no data. However, there are two ongoing re-assignment projects, that of the Dar Essaïes hospital that will become a youth hostel as part of the projects to promote the cultural heritage in Tunisia financed by the World Bank, and that of several BTRs in the Dar Essaïes quarter that are to be transformed into a luxury hotel.^[27]

Lacking information on the economic activities effectively present in the Medina, the heritage building use value related to economic activities is evaluated from the few available data on the number of shops and other economic activities within its walls. Evaluation of the heritage building use value related to housing, based on the real estate market in the Medina, shows a rental price of TND 1,000 per shop of 150 m² (average size), knowing that there are about 200 shops in the Medina. Thus, the use value related to commercial activities in the Medina of Sousse can be estimated at about TND 200,000, or about EUR 104,000.

[26] At the TND/EUR exchange rate of January 2011.

[27] It was proposed that this project should be financed by AFD.

4.3.2. Use values of urban heritage used for tourism

Tourism generates a flow of expenditures and can encourage investments. Direct use values focused on tourism can thus derive from several sources, such as the activity of cultural sites (entrance fees, related activities), hotels and restaurants, shops and tourist transportation, apartment rentals by non-residents, the contribution by tourists to spreading the image of the territory outside, and fiscal income from tourism (tourist tax, etc.).

However, tourism can also entail management costs for the community, such as for reception, safety, information, services, maintenance, and waste disposal.

In addition, several factors (isolation, distance, lack of tourist infrastructure), associated with indivisibility effects (airport, minimum volume of tourism, see hereafter) may limit the use value of urban heritage associated with tourism.

- **In Saint-Louis**

The use value associated with tourism on the Island of Saint-Louis can be calculated from the number of visits, and the expenditures associated with these visits (by estimating the part of these expenditures that can be assigned to urban heritage, Table 15).

From 2005 to 2009, the region attracted between 31,808 and 44,431 visitors, for an average visit duration the Island of Saint-Louis of 2 to 3 hours (BICFL Ingénierie, 2008), and an average stay of around 1.6 days, or 2 overnight stays per visitor. The part of these expenditures that can be assigned to the urban heritage of Saint-Louis is not estimated in the various available studies. To evaluate this, a survey among the tourists will be necessary, thus allowing an estimate of the part of tourism and its associated expenditures that is effectively related to the urban heritage. Another possible solution could be based on the estimated tourism incomes of Senegal, applying a proportional part of the (overnight) stays in the Saint-Louis region (if possible on the Island of Saint-Louis) to the number of (overnight) stays on a national level.

Based on these insufficient data, we can try to approximate the tourism-related use values of urban heritage, which seem to be the main source of heritage building use value, or EUR 7.69m, (for a total of EUR 10.89m) (Figure 12).

Table 15 *Estimated tourism incomes, Saint-Louis region*

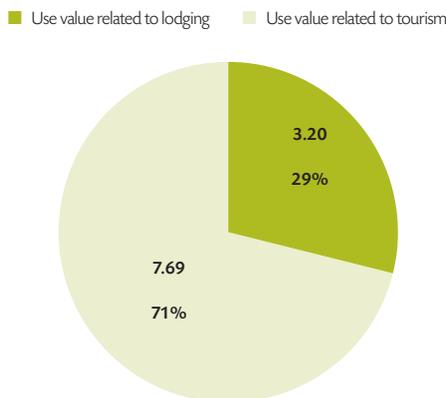
Years	Arrivals	Overnight stays	Average duration of stay	Daily expenditures CFA francs ^b	Direct incomes billion CFA francs	Direct incomes million euros
2005	44,431	72,635	1.6	75,000	5.33	8.13
2006	42,215	70,756	1.7	75,000	5.38	8.21
2007	42,261	73,801	1.75	75,000	5.55	8.46
2008	41,313	67,867	1.64	75,000	5.08	7.75
2009 ^a	31,808	52,059	1.63	75,000	3.89	5.93
Average					5.05	7.69

a) Several people met during the mission questioned the estimated number of arrivals in 2009. However, as this number was obtained with the same methods as those of the preceding years, we can consider that it is not less reliable than those of the other years.

b) The estimate of the daily expenditures is that of the professionals consulted during the mission, and is not based on survey data as such.

Source: Regional Tourism Service of Saint-Louis, cited by ANSD, 2009, completed by our own data.

Figure 12 *Use values of private and public heritage buildings in Saint-Louis*



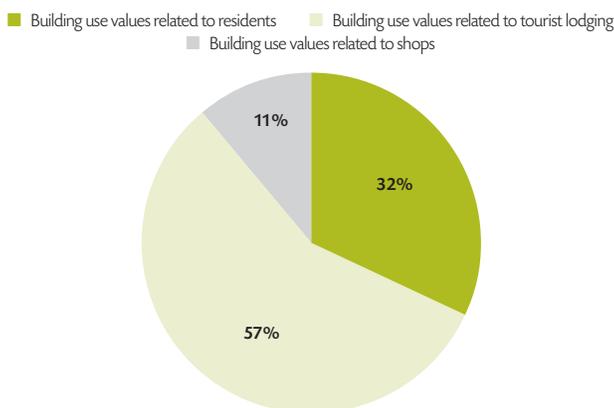
Source: Authors.

- **In Sousse**

For Sousse, evaluating the use value associated with tourism within the Medina might also be based on the number of visits and the associated expenditures. Unfortunately, no data are available on the average expenditures by visitors to the Medina. However, the lodging of non-residents generates a flow of values that can be estimated from observing the real estate market of tourist rentals (rather up-market), which provides an estimate of about TND 1,700 per month for a house or a floor in a house. Estimating that the empty villas or floors—a third of all accommodation, or 10% of all housing—are destined for rental, and that the tourist season is six months per year, we obtain a total value of rent paid by non-residents of about TND 700,000 per year, or about EUR 364,000.

Based on these incomplete data, it appears that the main part of heritage building use values comes almost exclusively from incomes generated by tourist lodging^[28] rather than from the presence of residents, which today represents an only marginal part. Therefore, the breakdown of building use value regardless of activity (Figure 13) shows that tourism-related activities (seasonal house or flat rentals) represent the greatest part (57%) in the Medina of Sousse.

Figure 13 *Distribution of building use values in the Medina of Sousse according to uses*



Source: Authors.

[28] We could, however, not value the annual expenditures by non-resident visitors to the Medina.

4.3.3. Use value of the environmental dimension of urban heritage

The use value related to the environmental dimension cannot be estimated from indicators concerning buildings, as was the case above. It is thus necessary to analyze several other elements, such as the production of goods and amenities by green spaces, the exposure to natural risks, the services provided by sewage networks and by collecting and processing waste, and the level and type of pollution.

Parks and green spaces

- **In Saint-Louis**

When considering the aspect of the service flow of the parks and green spaces on the Island of Saint-Louis, we first see their role for residents that own private gardens and use the parks for distraction and sports. The private gardens can provide a production flow of flowers, vegetables or fruit, especially as many patios of the island houses have fruit trees.

In towns of Southern countries, especially in Saint-Louis and in other Senegalese towns, urban or suburban agriculture succeeds—on a larger scale than that of individual gardens—in maintaining itself in interstitial spaces of the urban fabric. Most of it is for producing vegetables and for raising small animals. However, such areas tend to become smaller because of the construction of housing subdivisions.

Parks and gardens generally provide amenities for the local population and their creation precisely answers such objectives, *i.e.* pleasant surroundings, enhancing the aspect of official monuments, and a place for a stroll. In a tropical climate such as that of Saint-Louis, trees obviously provide shade for the population. They also provide the environmental services of absorbing rainwater and runoff, a particularly important point as urban development is generally accompanied by increased waterproofing of the soil.

Parks and green spaces also provide services for the non-resident population, especially tourists. Such services, again, are essentially amenities (landscaping, place of rest or activities, scientific interest) and thus may increase the touristic potential of an urban site. To do so, a green space must be neat, clean and in good condition, as otherwise the tourists will not be interested. In this respect, the insufficient maintenance of green spaces in Saint-Louis means they lack the qualities, especially in terms of cleanliness, that can be expected from urban green spaces.

For the suburban parks, most of the related service flow concerns tourism: organizing trips and excursions with their concomitant amenities.

Measuring the use value of parks and green spaces in the case of Saint-Louis is even more difficult than for the preceding subjects, as this essentially concerns qualitative indicators.

- ***In Sousse***

As parks and green spaces are virtually non-existent in the Medina of Sousse, the use value related to this element is almost nil.

Exposure to natural risks

- ***In Saint-Louis***

Flooding risk obviously has a consequence for the utility flows provided by the town of Saint-Louis and for its urban heritage. Past and predictable floods cause damage to the masonry of old buildings, commonly constructed with beach sand that favours rising damp in the walls, and thus can damage the value of heritage buildings.

- ***In Sousse***

The Medina of Sousse is exposed to occasional flooding risk from heavy rains and the presence of an insufficiently developed sewer system. This has obvious consequences for the utility flows provided by the Medina of Sousse and its urban heritage. Past flooding has caused damage through rising damp in the masonry walls of old buildings, which are already hard hit by the humidity induced by the nearby presence of the Mediterranean Sea. They, too, can thus diminish the value of the old constructions.

Services provided by sewage systems and waste collecting and processing

- ***In Saint-Louis***

The negative use values conveyed by a lack of both well-designed sewage networks and insufficient waste collecting and processing are of the same order of magnitude in Saint-Louis. They not only have a negative impact on public hygiene and the health of the resident population, but they also convey a negative image to tourists.

- ***In Sousse***

As far as we know, no serious study has been made of waste collection and processing within the Medina of Sousse, and it is thus not possible to estimate the environmental quality from this viewpoint.

Level and types of pollution

- ***In Saint-Louis***

Pollution is a major nuisance in Saint-Louis, which decreases utility flows for the town. The main and most visible one is related to fishing, the principal activity of the town. Fish processing at Guet Ndar, facing the Island of Saint-Louis, commonly uses inadequate fuels for fish smoking, such as old tyres or other waste, causing a stinking smoke that is bad for health. Moreover, the area of the fishing harbour, and in particular that of the squalid fishing pier of Guet Ndar, produces other types of pollution. In the absence of any system for evacuating waste water, it is directly discharged into the river, causing the uncontrolled deposition and accumulation of waste near processing sites and on nearby beaches. More generally, the absence of toilets and the over-population in Guet Ndar create substantial domestic pollution.

Finally, even though cars are relatively few—in particular on the island—and do not contribute to air pollution, except for the very old long-distance buses, the transportation domain causes soil pollution. The bus terminal does not have a special waste handling system and discharges hydrocarbons and waste oil without any processing, creating more health risks as well as groundwater contamination. The same is true for the petrol stations, which also cause lead pollution due to old batteries, for which no recycling system exists.

In addition to the danger for the resident population, these elements do not improve the image tourists have of Saint-Louis, a town with a rich urban heritage all the same.

- ***In Sousse***

Air and noise pollution related to car traffic around the Medina walls reaches higher values than those normally tolerated.^[29] This was measured at two points close to the Medina. As far as air pollution is concerned, the steady growth of the vehicle fleet can but lead to its increase.

[29] Or 65 dB(A), the limit value over a diurnal period. [db (A) = decibel weighted by a factor A, reflecting the manner in which the human ear hears and interprets the measured sound, used for environmental sounds.]

4.3.4. Other elements of use and non-use values

Depending on the situation, analysis of the *direct use value* can be extended to include other non-mercantile uses of urban heritage in terms of social services, cultural and religious practices, factors of collective identity and ideological construction, and elements of the living environment. The difficulties associated with evaluating these types of exercise are so great that they are rarely considered in the analyses. However, the use of expert advice or qualitative surveys can render them suitable for integration in the analysis.

Urban heritage, by its mere existence, is a source of *indirect use values*. These can be evaluated through estimated expenditures for housing renovation, landscaping, improving networks and roads, investments in commercial and crafts facilities, and the creation of cultural events. All these elements can lead to job creation and higher incomes in the area of influence of the urban heritage. Using a multiplier coefficient, such higher incomes in turn lead to further job creations and a new distribution of incomes, but these data require a large amount of collecting and processing work before they can be used. Therefore, for the evaluation of indirect use values, some research uses an approach in terms of the impact on employment.

As no data are available for the Island of Saint-Louis, the BICFL Ingénierie report (2008) states that *"In the long term, the development of just the interpretation sector of the heritage (interpretation spaces and patrimonial memories of services, shops and their associated heritage activities) might generate about one hundred direct jobs and twice that number in indirect jobs. Therefore, if every job supports about ten persons, around 3,000 persons would be directly or indirectly nourished by such tourist development"*. The lack of data, however, renders this evaluation very uncertain.

For economic valuation of the urban heritage, we can also consider the value represented by its mere existence, independent of any use. Such *non-use values* cover in particular those deriving from future uses and services that might be provided (*option value*) by the collective local wish of conserving this urban heritage for future generations (*bequest value*), and the interest of people from outside the territory in this urban heritage (*existence value*). The latter is quite clear in the case of national or international heritage labelling.

Such non-use values cannot be estimated without relatively long and expensive surveys. However, *a priori*, for the Island of Saint-Louis as for the Medina of Sousse, the mere inscription on the World Heritage list indicates a high non-use value, at least for foreigners and for the nationals that made this request.

4.4. Third stage of the grid application: Accumulation rate, investments and depreciation. The sustainability diagram

Here, we discuss sustainability through the dynamics of accumulation or decumulation in the four main dimensions of urban heritage. This approach is based on the identification of degradation and investment flows of urban heritage, aimed at maintaining at least the same overall level of the different elements (or stocks) making up this heritage. The sustainability here thus depends on the private or public investment flow, and on the depreciation affecting the changes in these various elements.

When implementing this type of analysis, the net degradation and investments in the different dimensions of the urban heritage are not necessarily expressed in monetary terms, because of the very nature of the considered degradation or investment, as well as because of the absence of necessary data, as was clear from studied cases.

In the following, we based ourselves on the available data on urban heritage on the Island of Saint-Louis and in the Medina of Sousse, in order to simulate—for methodological reasons—their sustainable character, or not, by means of the sustainability diagram presented before.

4.4.1. Investments

The investments in the urban heritage under consideration concern interventions on recent and old buildings (protected and unprotected monuments, and vernacular heritage), on public spaces and on tourist facilities. To this, we must add the expenditures for re-housing population from the heritage area, training and education related to urban heritage, cultural events, for assistance to local associations, the arrival of new people, and the expenditures of the authorities in charge of the environment.

We should point out that renovation of the heritage is generally more expensive than new constructions. There are some exceptions, however, such as in the case of certain

types of industrial buildings (e.g. harbour storage sheds or textile factories), for which renovation costs are 15% to 20% lower than for a new construction.

4.4.2. Degradation

Degradation concerns all elements of urban heritage. It can be estimated from: 1) The depreciation of economic capital related to the wear or aging of productive facilities and their potential delocalization; 2) Infrastructure wear; 3) The degradation of heritage buildings through lack of maintenance; 4) The departure of population that reduces the dynamics of an area; 5) A decrease in training and educational activities related to heritage; 6) The disappearance of associations; 7) A reduction in cultural manifestations; 8) Lower resources for cultural and patrimonial institutions; 9) The deterioration of green spaces through insufficient maintenance or over-use; 10) An increase in pollution; 11) The accumulation of waste; and 12) Degradation by animals and pests.

Comparison of depreciation and investment flows provides an image of how the value of urban heritage evolves, but this comparison is not always possible. Depending upon the size of the urban heritage considered, it may then be useful to consider indicators of another type. Their selection is based on the double criterion of their relevance and their availability. Therefore, the indicators of the accumulation rate, used in the four dimensions of urban heritage, vary on a case-by-case basis when using the proposed analysis grid.

4.4.3. Estimating degradation and reconstruction of the cultural dimension of urban heritage

For its cultural dimension, the available data favour the use of accumulation indicators in the architectural dimension.^[30] This is an imperfect indicator of the cultural value, which, to be evaluated, would require the use of relatively expensive evaluation methods based on questionable hypotheses. Degradation of the architectural heritage would thus be estimated from the changes observed in the architectural units on the Island of Saint-Louis and in the Medina of Sousse.

- **In Saint-Louis**

For the urban heritage the Island of Saint-Louis, we have an exhaustive inventory (Ecole d'Architecture de Lille, 2005) and two fixed points in time (2002 and 2005),

[30] It should be remembered that the cultural capital can act like a "glue" for all dimensions of human activities (Throsby, 2003), that the urban heritage is first of all characterized by its architectural dimension, and, finally, that the cultural capital can be assumed to evolve in parallel to the evolution of the architectural heritage.

providing an estimate of the decay rhythm of the urban building heritage from changes in the number of empty plots and ruins. Between 2002 and 2005, the gross annual decay rate was estimated at 0.86%, and the net annual decay rate—counting reconstructions—at 0.57%. Supposing that the decay rate stays at this level, we can estimate that over 10% of the architectural heritage the Island of Saint-Louis will have disappeared in 20 years time (Table 16).^[31]

Table 16 *Evaluating the deterioration of heritage buildings (empty plots) on the Island of Saint-Louis*

	Ruined AUs		New ruins	Reconstructions	Gross deterioration rate	Net deterioration rate
	15/12/2002	17/12/2005				
South	23	30	15	3		
North	44	44	9	4		
Total	67	74	24	7	1.79	1.26
Total AUs					1344	
Total ruins and empty			35		2.6	1.71
Annual rate					0.86	0.57
Destruction half-time (years)					80.19	121.86
Destruction in 20 years (%)					15.88	10.75
	Empty lots		New empty lots	Reconstructions	Gross deterioration rate	Net deterioration rate
	15/12/2002	17/12/2005				
South	21	27	7	1	0.52	
North	36	36	4	4	0.30	
Total	57	63	11	5	0.82	0.45

Source: Calculations based on the 2005 inventory.

[31] The “Heritage sector feasibility” study for the account of AFD in 2010 supplied a complementary image to that presented here: the rate of irreversible degradation (loss of a great architectural quality) of the 67 AUs ranked in 2003 was 8.96% between 2003 and 2010, or an average annual degradation rate of 1.34%, still higher than that calculated for all AUs.

From the gross and net decay rates, we can estimate the monetary value of the net investment (negative in Saint-Louis) by mobilizing the estimated average renovation costs of EUR 350/m² according to BICFL Ingénierie (2008)^[32] (Table 17).

Table 17 *Monetary valuation of the decay of heritage buildings on the Island of Saint-Louis*

Renovation cost (EUR 350/m ²)	Surface area (m ²)	Total cost (euros)	Cost per AU (euros)	Evaluation of the gross annual decay (euros)	Net annual decay (euros)
Low bracket COS³³ 0.8	364,208.80	127,473,080	94,846.04	1,097,068.39	723,044.03
High bracket COS 1.2	546,313.20	191,209,620	142,269.06	1,645,602.59	1,084,566.05
<i>Cost of rehabilitating a ruin</i>					
Low bracket				754,296.13	535,210.61
High bracket				1,131,444.20	802,815.92
<i>Cost of disappearance</i>					
Low bracket				346,824.34	189,410.50
High bracket				520,236.50	284,115.75

Note: Valuation of the degradation of the architectural heritage was based on the cost of replacement or restoration.

Source: Calculated by the authors from the BICFL data and the architectural inventory (2005).

The net annual value of the degradation (net negative investment) of the architectural heritage on the Island of Saint-Louis falls within the range of EUR 723,044 to EUR 1,084,566.

The estimates of degradation to the heritage buildings of the island can be refined by considering the change in quality of this heritage. Some of the reconstructions, here valued as investment, in reality do not respect the constraints of the preservation plan and may constitute irreversible degradation. The only available indicator is based on the analysis of 59 worksites in 2008 (Heritage House, cited by AFD): 9 were in

[32] The heritage sector feasibility study for AFD in 2010 gave a lower rehabilitation cost, as it did not integrate inside finishing work except for common spaces (at the most EUR 281/m² for a low house).

[33] COS: "coefficient d'occupation des sols" = building-to-plot ratio.

order, 12 were being regularized, 17 were unauthorized ongoing or halted worksites, 10 were completed without authorization, 2 were authorized but non-compliant, and 9 were ordered to stop the work or to adhere to the regulations.

Finally, the net decay rate we adopted for the heritage buildings on the Island of Saint-Louis is 0.57% per year. This is a rather conservative estimate, as it does not consider the effects of degrading the architectural quality due to certain substandard reconstructions.

• **In Sousse**

For the urban heritage of the Medina of Sousse we have two inventories, one from 1985 and the other from 2004. This allows a precise estimate of the decay rhythm of urban heritage buildings (Table 18). As the Medina of Sousse was inscribed on the World Heritage list in 1988 and as the closest data to this year were from 1985, we can estimate that the number of BTRs remained about the same over these three years.

This degradation is caused by several phenomena: the fact that many people left the Medina between 1975 and 1984, the lack of State aid to owners for restoration work, and the multiple-ownership regime, very common in Tunisia and especially in the Medina.^[34]

Table 18 *Physical evaluation of the decay of heritage buildings (Medina of Sousse)*

Number of identified BTRs		Number of identified reconstructions between 1985 and 2004	BTRs not recoverable in 2004		Recoverable buildings in 2004				
			Number	Percentage of irrecoverable dwellings in BTRs	Number	Strongly damaged		Averagely damaged	
1985	2004						Number	%	Number
217	336	70	119	35.42	277	120	43.4	157	56.6

Source: Authors calculations from Tunisian ARRU data, 2009; ACT consultants 2007, 2010.

[34] The obligation of registering the buildings in the land registry (notwithstanding its cost) offers a way out from this multiple-ownership situation by identifying the owners, which eliminates one of the causes of building neglect.

Comparison with the number of reconstructions allows a gross decay rate^[35] of 6.61% to be estimated (Table 19), or an annual rate of 0.34% over the 19 years between the surveys of 1985 and 2004. Once corrected for reconstructions, this gives a net decay rate^[36] of 2.72% over the period, or an annual rate of 0.14% between 1985 and 2004. Supposing that the decay rate stays at this level, we can estimate that—not counting the reconstructions already undertaken and assuming that these maintain the same rhythm—only 2.79% of the architectural heritage of the Medina of Sousse will have disappeared during the next 20 years (Table 19). This corresponds all the same to about 50 buildings destined for housing and shops (against 118 without any planned reconstruction).

Table 19 *Relative evaluation of the gross and net decay of heritage buildings in the Medina of Sousse*

Gross decay rate (%)	Net decay rate (less reconstructions) (%)
6.61	2.72
Gross annual decay rate (%)	Net annual decay rate (%)
0.34	0.14
Estimated half-time of destruction (in years)	
205.03	489.65
Estimated percentage of ruined buildings after 20 years (%)	
6.54	2.79
Estimated number of ruined buildings after 20 years	
118	50

Source: Authors calculations from the Tunisian ARRU data, 2009; ACT consultants 2007, 2010.

[35] The change in number of BTRs between 1985 and 2004 compared to the total number of buildings in the Medina of Sousse.

[36] The change in number of BTRs between 1985 and 2004, less the number of reconstructions/renovations over the same period compared to the total number of buildings in the Medina of Sousse.

Table 20 *Estimated renovation cost of slightly and badly damaged buildings in 2004 (Medina of Sousse)*

	Average cost per building in TND (euros)	Number of buildings	Total cost in TND (euros)
Low bracket (renovation of slightly damaged buildings)	23,000 (11,960)	123	2,824,906 (1,468,951)
(Renovation of badly damaged buildings)	50,000 (26,000)	94	4,708,900 (2,448,628)
(Reconstruction of ruined buildings)	75,000 (39,000)	119	8,925,000 (4,461,000)
High bracket (renovation of slightly and badly damaged buildings + reconstruction of BTRs)	48,985 (25,471)	336	16,458,806 (8,558,579)

Source: Authors calculations from Tunisian ARRU data, 2009; ACT consultants 2007, 2010.

Table 21 *Valuation of the gross degradation (not counting reconstructions) of heritage buildings in the Medina of Sousse between 1985 and 2004*

	Valuation of the gross degradation in TND (euros)	
	Between 1985 and 2004	Annual cost
Low bracket (renovation of slightly damaged buildings)	186,758 (97,114)	9,534 (4,957)
(Renovation of badly damaged buildings)	311,311 (161,881)	15,893 (8,264)
(Reconstruction of ruined buildings)	590,042 (306,821)	30,122 (15,663)
High bracket (renovation of slightly and badly damaged buildings + reconstruction of BTRs)	1,088,111 (565,816)	55,549 (28,885)

Source: Authors calculations from the Tunisian ARRU data, 2009; ACT consultants 2007, 2010.

Considering that the renovation cost of a slightly damaged building (Table 20) in 2004 was about TND 23,000 (EUR 11,960), that of a badly damaged building TND 50,000 (EUR 26,000) and that of a building to be reconstructed TND 75,000 (EUR 39,000), the total renovation and reconstruction cost of 336 BTRs in 2004 was about TND 16.46 million (about EUR 8.55 million).

This gives a gross annual degradation cost (Table 21) of TND 9,534 (slight renovation) to TND 55,549 (total renovation and reconstruction), or about EUR 4,957 and 28,885, respectively.

(The net annual cost of the degradation can thus be estimated (Table 22) between TND 3,996 and 23,283, or about EUR 2,078 and 12,107, respectively.

Table 22 Valuation of the net degradation (including reconstructions) of heritage buildings in the Medina of Sousse between 1985 and 2004

	Valuation of the net degradation in TND (euros)	
	Between 1985-2004	Yearly
Low bracket (renovation of slightly damaged buildings)	76,900 (39,988)	3,996 (2,078)
(Renovation of badly damaged buildings)	128,187 (66,657)	6,661 (3,463)
(Reconstruction of ruined buildings)	242,958 (126,338)	12,625 (6,565)
High bracket (renovation of slightly and badly damaged buildings + reconstruction of BTRs)	448,045 (232,983)	23,283 (12,107)

Source: Author calculations from the Tunisian ARRU data, 2009; ACT consultants 2007, 2010.

In the end, the net decay rate retained for heritage buildings of the Medina of Sousse is 0.14% per year (see Table 19). This is a rather conservative estimate, as it excludes the effects of degradation of the architectural quality related to certain reconstructions, as no data are available on this subject.

4.4.3. *Accumulation and depreciation of the economic dimension of urban heritage*

For the economic dimension, a precise estimate of an accumulation rate requires a heritage balance sheet and an evaluation of investment flow. Both items are unavailable in most of the cases described in the literature. Macroeconomic data generally provide indicators at the national scale, whose transposition may shed light on the local situation, if there are no local data on economic investments, depreciation and the amount of economic capital. Such data can, however, be approximated from data on the evolution in the number of formal and informal companies, and in turnover, which are relatively easy to collect through a light survey.

- ***In Saint-Louis***

In the absence of precise data on this dimension for the Island of Saint-Louis, we retained the hypothesis of limited growth of the economic capital in the simulation carried out here. This hypothesis is based on analyses by local experts and on the different available reports,^[37] and a capital accumulation rate of 1% was retained for constructing our sustainability indicator.

- ***In Sousse***

For the same reasons, we adopted by default the average annual Tunisian economic capital growth rate of 14.2% as the indicator for the growth rate of the economic capital of the Medina of Sousse.^[38] This gave an annual accumulation rate of economic capital for the Medina of Sousse of 4.6%, which was used for constructing our sustainability indicator.

4.4.4. *Accumulation and degradation of the human and social dimensions of urban heritage*

For the social dimension, the estimate of an accumulation rate suffers from the same limits as those affecting analysis of the cultural dimension. For operational ease, we thus adopted an approach focusing on the demographic and human dimensions. Based on changes in the number and structure of the population, an accumulation

[37] Some reports mention a phenomenon of reorientation of economic activities (especially banks and crafts shops), but without providing a complete image of the inflows and outflows of the economic sector of the island.

[38] Contrary to Saint-Louis, where the work by the experts allowed a hypothesis with locally collected data to be constructed, the evaluation in Sousse was based on national data that had to be substituted for local data. By default, we adopted an average investment rate (gross fixed capital formation GFCF/gross national product GNP) from national accounting data (average 2006-2008), corrected for the K/Y ratio estimated at 3.08 from World Bank data based on Hamilton (2002). This gave an estimated economic accumulation rate of 4.6% for Tunisia.

indicator of human capital can be constructed from data that are relatively easy to collect with a light survey, which may already be available. Lacking such data, changes in the population compared to the initial one give a gross estimate of the accumulation (or decumulation) of human capital, which in itself may give an indication of the size of the gentrification process.

- ***In Saint-Louis***

The data needed to evaluate the human dimension of urban heritage are scattered and unreliable for the Island of Saint-Louis. It is, however, assumed that the island population grows less rapidly than that of the rest of the municipality. In the end, we adopted the hypothesis of zero growth for the island population. In addition, its social capital does not seem to progress particularly.

- ***In Sousse***

Evaluating the human dimension data of the urban heritage of the Medina of Sousse, a heavy population loss of the Medina took place between the 1930s and 1984 (from 20,000 to 5,000 inhabitants). This loss still occurs, but is now much less pronounced: between 1985 and 2004 the Medina population decreased by 2.21%, or an annual rate of about -0.12% over the same period. Concerning the evolution of the social dimension, we mentioned above that the renovation of buildings hosting public services favoured cultural or association facilities. However, without precise data it is very difficult to put a figure on this slight improvement in the social dimension. Finally, we adopted for the Medina of Sousse an annual degradation rate of the human and social dimension of 0.12% for the period 1985-2004.

4.4.5. Accumulation and degradation of the natural dimension of urban heritage

For the environmental dimension, calculating an accumulation rate is still a theoretical exercise without many operational applications.^[39] Effectively, the measured flow is essentially that of degradation (pollution, waste, etc.), whereas investment flow in the environmental dimension is commonly ignored.^[40] In this case, it might be relevant to estimate such investment flow in the environmental dimension by the flow of current expenditures of the authorities in charge of the environment. Such data are commonly scattered, and it is necessary to define a key for assigning them to urban heritage. Though lacking precise data, it might be possible to estimate the changes

[39] Except for estimates made for an AFD study on New Caledonia (Brelaud *et al.*, 2009).

[40] Partly for reasons of double economic-investment/environmental-investment accounting.

in the degradation rate of natural resources from an expert analysis of the initial situation. The most relevant degradation flows of the environmental dimension focus on pollution and waste production, both of which generally can be estimated from a limited number of data, based on available sectoral studies.

- ***In Saint-Louis***

The environmental and natural dimensions of the urban heritage of Saint-Louis are generally very fragile, except in protected urban and suburban areas. This is generally caused by the absence of maintenance or of enforcement of existing regulations. The accumulation of natural capital, which requires more precise evaluation, is thus either zero or negative. Adopting the most favourable hypothesis, we retain zero degradation for the simulations carried out here.

- ***In Sousse***

The environmental and natural dimensions of urban heritage in the Medina of Sousse are very weak because of the high density of buildings per hectare (74 constructions estimated per hectare!). Therefore, the accumulation of natural capital, which remains to be evaluated more precisely, is either null or negative. It is null when retaining the hypothesis of including in its capital the park located at the northeast entrance of the Medina (favouring the creation of a “buffer zone”), or it is negative when based only on redevelopment of the archaeological museum in the former Kasbah and on the uncertainty concerning the final state of its gardens after reconstruction. Finally, the most favourable hypothesis of zero degradation was adopted.

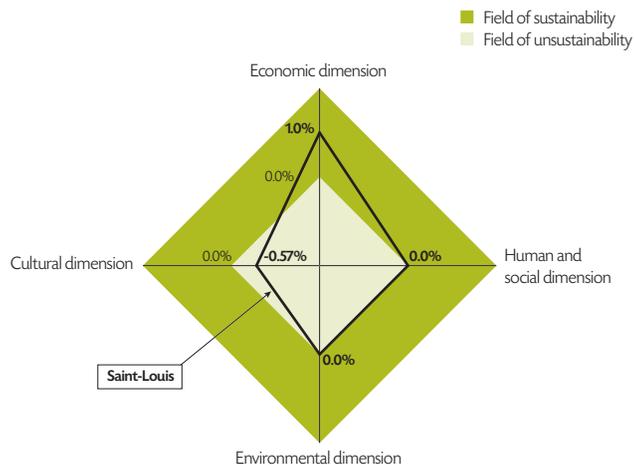
4.4.6. Implementation of the sustainability diagram

The sustainability diagram illustrates the situation of urban heritage in its four dimensions. The sustainability field corresponds to net positive or null accumulation in these dimensions.

- ***In Saint-Louis***

Figure 14 shows that the situation on the Island of Saint-Louis is characterized, under the hypothesis we consider as most favourable, by a net degradation of heritage buildings, whereas the accumulation in the human, economic and natural dimensions remains close to the sustainability threshold. Therefore, the sustainability of the urban heritage as a whole is in question. The figure shows the sustainability stakes of the urban heritage, and it can also help visualize the predicted impact of renovation projects of this patrimony. Such renovation projects may effectively shift the accumulation boundary beyond the sustainability threshold in the other dimensions.

Figure 14 Sustainability diagram of urban heritage applied to Saint-Louis (Senegal)



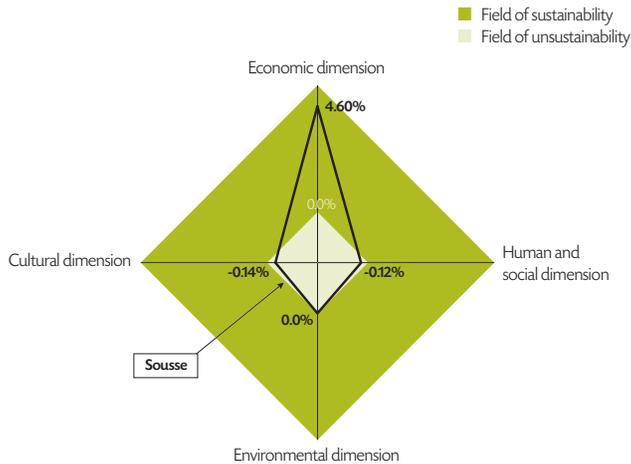
Source: Authors.

• In Sousse

The sustainability diagram for Sousse (Figure 15) illustrates the situation of urban heritage in the Medina. The sustainability threshold, shown by the borders of the small central diamond of the figure, corresponds to a net zero accumulation rate in all four dimensions. Figure 15 synthesizes the situation based on the estimates retained in the preceding paragraphs, characterized by an almost zero net degradation rate of the heritage buildings and of the human and social dimensions of urban heritage. The net depreciation rate of its natural dimension, however, is supposed to be null, as the economic dimension has a positive net accumulation rate, beyond the sustainability threshold (in the dark green diamond). It thus seems that the sustainability of urban heritage in the Medina of Sousse is more or less assured.

The diagrams proposed for Saint-Louis and the Medina of Sousse (Figures 14 and 15) thus show the sustainability stakes of the urban heritage. They can also serve to visualize the predictable impact of potential renovation projects for this heritage. Such renovation projects may effectively shift the accumulation boundary beyond the sustainability threshold in the other dimensions.

Figure 15 Sustainability diagram applied to the Medina of Sousse



Source: Authors.

4.5. Fourth stage of the grid application: Threshold and risk effects

The diagrams for evaluating the present-day sustainability of urban heritage must be completed by an analysis of the dynamics that may influence its path over time.

The urban heritage situation of Saint-Louis can be characterized as one where ripple effects between the economic and social dimensions and that of heritage buildings negatively affect sustainability. The economic and social dynamics are too limited to ensure the maintenance of heritage buildings in an endogenous manner. The situation on the Island of Saint-Louis can thus be compared to a *frustrated heritage designation* scenario. The implication of national and international private and public actors remains insufficient to avoid a continuous degradation of the urban heritage (in both quantity and quality) in its different dimensions. The population of the island does not grow and tourism stagnates, with even a regression in 2009. In addition, the environment is affected by heavy pressure from pollution and waste.

The stakes of an urban heritage renovation project thus lie in its capacity to overcome the constraints that weigh on urban development. To this end, two alternative scenarios exist that might ensure the urban heritage is maintained over time:

- 1) *A scenario of self-reliant heritage designation with strong ownership.* Here, we have a successful mobilization of private financing, a maximization of the effects of economic distribution of the renovation, with a stabilization of the island population in a relative diversity (with the implication of the upper middle class, though not necessarily of Saint-Louis origin). The main risks in this scenario are qualitative losses associated with changes in the architecture of the constructions. The environmental impact is reduced.
- 2) *A scenario of outward-oriented heritage designation with weak ownership.* Here, the mainspring of heritage designation is the mobilization of funds from donors, with only weak mobilization of private financing. Ripple effects are limited, and accelerated gentrification around a local elite is restricted. Departure of the middle classes results in a bipolarization of the island between very rich and very poor. Economic development remains limited around tourism, with the risk that traditional activities will leave. Environmental impact (pollution, waste) is poorly controlled in this scenario.

The evolution of the urban heritage is thus framed by several constraints and thresholds.

4.5.1. Threshold effects

- ***In Saint-Louis***

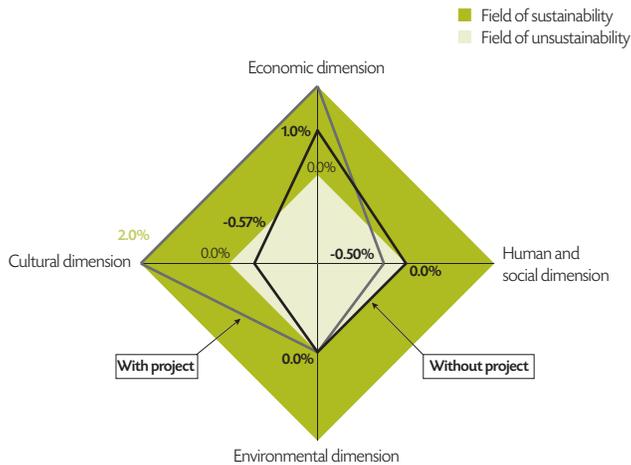
The main threshold that weighs on maintaining the heritage of the Island of Saint-Louis is that of poverty: average income is too low to ensure endogenous financing of such maintenance. For this reason, the future of this urban heritage closely depends upon outside funding. The challenge for urban heritage renovation projects thus lies in their capacity to mobilize both inside and outside funding.

The mobilization of inside funding is closely related to the generation of additional incomes through the economic development the Island of Saint-Louis, which for a major part—though not exclusively—is based on tourist activities. This shows the existence of a second threshold: significant economic development requires at least 250,000 visits per year, with stays of one week. This would suppose massive investment in a seaside resort about 20 kilometres from Saint-Louis, with organized visits to Saint-Louis (c.f. AFD report, 2010a). Below this threshold, the tourist potential is reduced to “niche tourism” and the related investments will only have little ripple effect on the local economic activity.

A second lever for mobilizing inside funds lies in the investment by the economic elite in the urban heritage of the island. Even though this mobilization partially exists—rich Dakarois or expatriates do much of the renovation work—it remains today essentially external to the Island of Saint-Louis, and insufficient to ensure the preservation of the island’s heritage buildings. In the absence of precise data on the involvement of the economic elites on the Island of Saint-Louis, we have to content ourselves with an approximate judgement on this point.^[41]

By way of illustration, we simulate here the use of the sustainability diagram in the case of a project favouring the dimensions of renovating urban heritage. This is assumed to require major investments, with a limited part of economic activities. Though a given renovation project may cause an exodus of part of the resident population, we assume that this will have a limited effect on economic activities, and a neutral effect on the accumulation of natural capital. The diagram of the project effects on the accumulation rate in the different dimensions of the urban heritage will be modified accordingly (Figure 16).

Figure 16 Sustainability diagram of the urban heritage with a renovation project applied to Saint-Louis



Source: Authors.

[41] We remind the reader that the main subject of this work is of a methodological order. It defines in particular the data necessary for implementing an economic analysis of urban heritage.

The sustainability gain in the economic and heritage building (cultural) dimensions is offset by degradation in the accumulation rate of human capital, if compensation can occur between the different dimensions of urban heritage. It is not certain that the gain in economic and cultural terms will compensate for the loss in terms of human capital. According to a reading in terms of strong sustainability, the heritage building dimension constitutes a stock that should be maintained over time, without a possibility of substitution by potential gains in the other—economic, environmental and human—dimensions of urban heritage. Any losses of heritage buildings on the island will thus be irreversible.

- ***In Sousse***

The same type of illustration of a possible use of the sustainability diagram is presented for the Medina of Sousse. Two extreme scenarios can be considered: one showing the risks of a heritage designation of the “outward-oriented with weak ownership” type, and the second showing what would be the positive effects of a “self-reliant with strong ownership” heritage designation.

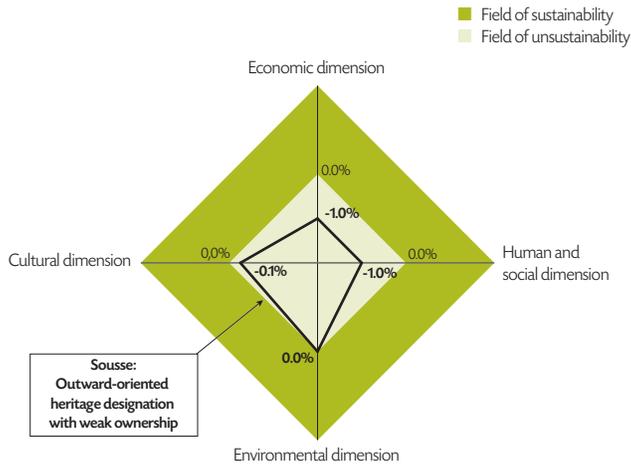
Possible risks of an “outward oriented heritage designation with weak ownership”

We base this on a project to renovate two adjoining BTRs and turn them into a luxury hotel. Assuming that it is successful and that many of the subsequent renovations follow the same track, a scenario can be imagined where the effect on the population would be negative, as many would move elsewhere rather than bear the increased renovation costs, all the more so when such costs are rendered compulsory by the authorities. In addition, house and land prices will rise, further dissuading the population and shopkeepers to stay. If the closure of souvenir shops^[42] is not compensated by new jobs in the hotels or in luxury villa rentals, the result might be negative accumulation rates in the economic and human dimensions. Therefore, their depreciation and degradation within the Medina of Sousse might be about 1% per year for each of these two dimensions (Figure 17). In this diagram, the irregular black diamond falls entirely within the white diamond (unsustainability field), indicating that such a project would cause the accumulation boundary to fall beyond the sustainability threshold for all four dimensions.

Here, the mainspring of heritage designation rests on the mobilization of funds from donors, not only national but especially international ones, with a weak mobilization of private—especially local—funds. Ripple effects would remain very limited, even

[42] These are often stigmatized as they spoil the look of otherwise authentic quarters.

Figure 17 Sustainability of the Medina of Sousse (outward-oriented heritage designation with weak ownership)



Source: Authors.

risking causing an economic depreciation of the urban heritage, its accumulation rate being close to the sustainability threshold. Gentrification would be accelerated around a small local elite linked to these high-class tourist activities, with a risk of the departure of the middle class, thus restarting the already ancient population loss of the Medina. Economic development would remain limited around this single type of tourism and there would be a risk of losing existing shops. The environmental impact (pollution, waste) would, however, be controlled in this scenario, as “high-class” tourism does not go well with this type of inconvenience.

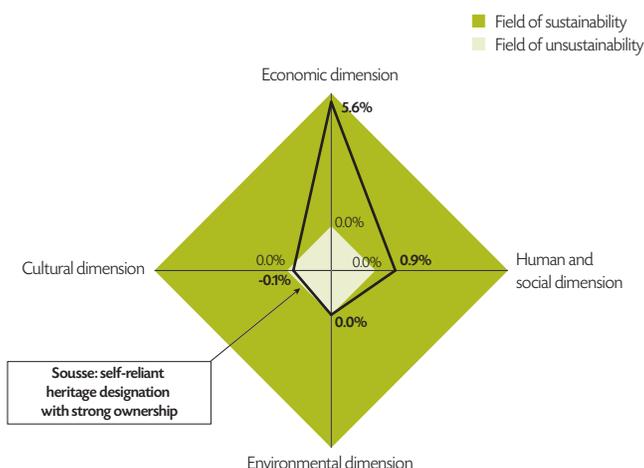
Positive effects of a “self-reliant heritage designation with strong ownership”

In this more optimistic scenario, the renovation of several BTRs—through both outside and local private funding—would be concomitant with surrounding modifications, such as the paving of streets, burying of power and telephone lines, hook-ups to the gas and new sewage networks, and creating small leafy squares as meeting places for the local population. Such renovation actions might well result in generating additional tourist arrivals, the development of cultural activities, and a renewal of the traditional local crafts, leading to an increase in the population living and working on

site. This would have a positive influence on the other three economic, social and environmental dimensions of urban heritage, with net respective accumulation rates, assumed in this simulation, of about 1% per year (Figure 18). This optimistic scenario is close to a “self-reliant heritage designation with strong ownership”, where the main risks would be a loss of architectural quality through, for instance, overambitious restorations. The environmental impact, however, might be reduced if the local population seeks to preserve this higher quality of life for itself as well as for tourists.

In Figure 18, the irregular diamond in black falls almost entirely in the dark green field, indicating that such a project would push the accumulation boundary beyond the sustainability threshold in three of the four dimensions of urban heritage. An even more vigorous renovation, where each year more buildings are renovated than are degraded, and this thanks to combined outside and local financing, would now push the accumulation boundary entirely beyond the threshold.

Figure 18 Sustainability of the Medina of Sousse
(self-reliant heritage designation with strong ownership)



Source: Authors.

For the Medina of Sousse, the main threshold weighing on maintaining the heritage is related to economic activity, which, for the moment, is exclusively turned toward the commerce of products that are destined for tourists and were not made locally. The incomes of the population do not provide sufficient local financing for this

heritage, all the more so as the population benefiting from it has no incitement for its preservation. Therefore, the future of the urban heritage is narrowly related to outside funding. The main stakes for renovation projects for the urban heritage of the Medina of Sousse thus lie in their capacity to mobilize local and outside financing.

At the end of this presentation of the cases of Saint-Louis in Senegal and Sousse in Tunisia, it should be remembered that our main aim was to illustrate the operational interest of the proposed analysis grid. The analyses presented here should certainly not be seen as an in-depth diagnostic of the urban heritage of these two towns.

Conclusion

People working in territorial development increasingly see urban patrimony as an important resource to be valued to support this development. However, decision-makers are commonly faced with a large number of methodological obstacles when trying to make an economic evaluation of this potential input.

The first of these impediments, before any analysis is possible, is the need of precisely identifying the urban heritage of interest. This, contrary to an exclusively monumental heritage for instance, comprises four relatively complex dimensions, which are *economic* (productive structure and infrastructure), *social* (demography and associative life), *cultural* (historical architecture, cultural activities) and *environmental*. Identification of the main lines of an urban heritage is thus hindered by classic evaluation problems that are specific to each of these four dimensions, such as insufficient local data that may be partly compensated by expert evaluations or specific light surveys. These are quite common difficulties for the specialists in the four domains concerned by urban heritage—the economics of local development, of the environment, of culture and of social economics—but which now have a cumulative effect.

The second stage of the proposed analytical method concerns the identification of the services rendered by urban heritage. Some services, such as those provided by buildings, are particularly important and relatively easily understood by using the available data on rental and housing prices. However, such *use values* must be evaluated separately when the buildings are used by residents or for tourist activities. This distinction is essential because of the importance generally given to tourism in projects that value urban heritage. The other types of *use value* (*direct* or *indirect*) and *non-use value* of this heritage are, as can be expected, much more delicate to evaluate. They effectively require heavy surveys or, failing this, the input of expert evaluations and lighter qualitative surveys.

The third stage of our method has a central place in the evaluation methodology as presented. Here, the concept of sustainability was borrowed from environmental economics. Identified urban heritage has to be transmitted to future generations, as implied by the definition itself; therefore, it is essential to ensure that the investments made during the project period will at least allow its conservation. This sustainability

can be understood by estimating the accumulation rates, which is done by comparing the investment flow and degradation flow of the urban heritage. According to the various dimensions of the latter and of the site under consideration, the precision of the monetary valuations will be quite variable, as the data will be more or less reliable and the need to monetarize based on more or less relevant hypotheses. For this reason, the use of qualitative indicators seems necessary as well in order to integrate all the dimensions of urban heritage into the evaluation of its sustainability.

Based on these combined analyses, the sustainability diagram uses a single image to visualize the degree of sustainability of the studied site before starting a valuation project. In addition, it provides a simple illustration of the implications of a given project on the sustainability of the various dimensions of the urban heritage.

In the final stage of our method, the effects of thresholds and risks are introduced into the economic evaluation of urban heritage. Here, the aim is to identify the factors most likely to lead to the non-sustainability of the urban heritage. In fact, beyond a certain population threshold, the absence of local cultural life can lead to turning the site into a museum, thus causing its disappearance as a living urban heritage. In the same way, as seems to be shown in the case of Saint-Louis, the poverty of its residents (the economic dimension) may not allow the creation of local dynamics for the preservation of its architectural heritage (the cultural dimension).

To summarize this methodological work, it appears that the four phases of the proposed analysis allow the stakes of valuating an urban heritage to be identified, thus providing the decision-makers with the possibility of basing their choice of territorial development on a coherent framework.

List of Acronyms and Abbreviations

AAGR	Average annual growth rate
ABM	Attribute-Based Methods
ADC	<i>Agence de développement communal</i> / Agency for Communal Development (France)
ADM	<i>Agence de développement municipal</i> / Agency for Municipal Development (France)
ANAH	<i>Agence nationale pour l'amélioration de l'habitat</i> / National Agency for Habitat Improvement (France)
ANRU	<i>Agence nationale pour la rénovation urbaine</i> / National Agency for Urban Renovation (France)
ANSD	<i>Agence nationale de la statistique and de la démographie sénégalaise</i> / National Agency for Senegalese Statistics and Demography (Senegal)
ARCAS	Association for the Restoration and Conservation of Saint-Louis Architecture (Senegal)
ARRU	<i>Agence de rénovation et de réhabilitation urbaine</i> / Agency for Urban Renovation and Rehabilitation (Tunisia)
ASM	Association for Safeguarding the Medinas (Tunisia)
AU	Architectural Unit
AUOF	<i>Audit urbain organisationnel et financier de la commune de Saint-Louis</i> / (Organizational and financial audit of the town of Saint-Louis (Senegal)
AVAP	<i>Aire de valorisation de l'architecture et du patrimoine</i> / Area for developing architecture and heritage
BAMH	<i>Bureau chargé de la protection des monuments historiques</i> / Bureau in charge of the protection of historical monuments (Senegal)

BTR	Building Threatened with Ruin
CEMOTEV	<i>Centre d'études sur la mondialisation, les conflits, les territoires et les vulnérabilités</i> / Centre for studies on Globalization, Conflicts, Territories and Vulnerability (University of Versailles, France)
CNRS	<i>Centre national de la recherche scientifique (France)</i> / National Center for Scientific Research
COS	<i>Coefficient d'occupation des sols</i> / Building-to-plot ratio; Land coefficient
CRDS	Centre for Research and Documentation of Senegal
CSS	<i>Compagnie sucrière sénégalaise</i> / Senegalese Sugar Company
CTP	Consent to Pay
CTR	Consent to Receive
CVM	Contingent Valuation Method
EIREST	<i>Equipe interdisciplinaire de recherches sur le tourism</i> / Interdisciplinary Research Team on Tourism (University of Paris 1 Panthéon-Sorbonne, France)
ESAM	<i>Enquête sénégalaise auprès des ménages</i> / Senegalese households survey
ESPS	<i>Enquête de suivi de la pauvreté au Sénégal</i> / Senegalese poverty monitoring survey
FNAH	<i>Fonds national d'amélioration de l'habitat</i> / National Fund for Habitat Improvement (Tunisia)
HUL	Historic Urban Landscape
ICOMOS	International Council on Monuments and Sites
IDB	Inter-American Development Bank
INAA	Institut national d'art and d'archéologie (Tunisia)
INS	National Statistics Institute (Tunisia)
IRR	Internal Rate of Return
IUDP	Integrated Urban Development Plan

HLM	<i>Habitation à loyer modéré</i> / Moderate rent (council) housing (France)
MAUT	Multi-attribute Utility Theory
NOAA	National Oceanic and Atmospheric Administration
NPV	Net Present Value
OCMACS	<i>Operations collectives de modernisation de l'artisanat, du commerce et des services</i> / Collective operations for modernizing crafts, commerce and services (France)
OECD	Organization for Economic Cooperation and Development
OPAH	<i>Operations programmées d'amélioration de l'habitat</i> / Housing Improvement Programs (France)
PACA	<i>Provence-Alpes-Côte d'Azur</i>
PSMV	<i>Plans de sauvegarde et de mise en valeur</i> / Plan for preservation and development (France)
RGPH	<i>Recensement général de la population et de l'habitat</i> / General survey of population and habitat (France)
RSR	Real Savings Rate
RUM	Random Utility Model
SES	Social and Economic Situation (Senegal)
TCM	Travel Cost Method
TEV	Total Economic Value
UDP	Urban Development Plan
UNESCO	United Nations Educational, Scientific and Cultural Organization
ZPPAUP	<i>Zone de protection du patrimoine architectural, urbain et paysager</i> / Zone for the Protection of the Architectural, Urban and Landscape Heritage (France)

List of Main Keywords

Conservation

All means allowing the preservation of a cultural good from the ravages due to time, Man and natural phenomena.

Conservation, preventive

All technical, legal, human and financial means to avoid or preventively reduce the alteration of cultural goods.

Developing country / Less-developed country

In current usage, the term developing country or Southern country denotes a comparatively less-developed country than the “developed”, or “Northern” countries. These expressions have replaced earlier denominations, judges as inadequate, obsolete or incorrect, such as “Third World country” or “underdeveloped country”. Both terms are synonymous, but the term “developing country” is the more common one.

All these expressions refer to rather vague economic and social criteria of “development” that go beyond a simple quantitative production growth by referring to all accompanying structural transformation processes.

Gentrification

All processes by which the social, cultural and economic characteristics of an urban heritage are transformed to the profit of a higher socio-economic group.

Heritage designation

Action of transforming material and immaterial goods with a collective value into goods with a heritage value, or “Patrimonialization”.

Heritage, inclusive

Urban heritage is qualified as “inclusive” in the sense that it consists in four series of interdependent elements—economic, social, cultural and environmental—that make it into a complex system, whose contours vary from one case to the next. This definition is close to the, more classic, one of “integrated” heritage, which considers all variables affecting heritage management) though conferring a determinant place to the economic approach, which is not the case for the integrated heritage.

Heritage, integrated

Cultural heritage approach that integrates all constituent phenomena, such as human, cultural, historic, artistic and architectural phenomena, as well as economics, and town planning and development aspects.

Least-developed countries

The designation least-developed country or LDC situates such countries on a scale in terms of three criteria set by the United Nations in 2003:

- 1) *Income per capita* based on an average estimation of the gross domestic product (GDP) per capita over three years; if it is below USD 900, the country is qualified as LDC;
- 2) *Delay in human development* based on a composite index (HDI) that includes indicators for health, nutrition and schooling;
- 3) *Economic vulnerability* is evaluated by means of a composite index including indicators on instability, agricultural production and exports, the lack of production diversification, and the handicap of being a small country.

LDCs obviously are developing countries, but whose development is below that of other developing countries. They numbered 48 on January 1st, 2011. As soon as they no longer fulfil the three criteria above, they are taken off the list, which was the case of Botswana in 1984, Cape Verde in 2007, and the Maldives in 2011.

Museumization

Phenomenon of transforming the living urban heritage into a museographic object through privileging protection, conservation and cultural development actions at the expense of economic and social development actions.

Non-use value

A non-use value is unrelated to the use of a good or a service, for example an existence value.

Patrimonialization

Synonym for “Heritage designation”.

Renovation

Restoration of a building by preserving as much as possible the old elements in a modern reconstruction.

Restoration

The action of the partial or total recovery of a building, or set of buildings, respecting their original condition or an historical condition deemed preferable.

Sustainability

Sustainable development represents a new idea of development that aims at considering the global—*i.e.* planetary—character of the development process, the necessary inclusion in this process of natural and social as well as economic spheres, and finally the need to leave to the next generations a world allowing them the continued satisfaction of their needs.

According to the definition proposed in 1987 by the World Commission on Environment and Development in the Brundtland Report, sustainable development is “*a development that answers the needs of today’s generations without compromising the capacity of future generations to answer theirs*”. This definition, which has become very popular, insists on the inter-generational dimension of

sustainability as well as on the satisfaction of needs as essential criteria of development.

From a viewpoint of economic analysis, sustainability can be interpreted in two main ways:

- Weak sustainability: Under this hypothesis, defended by neo-classic economists such as Hartwick (1977), reaching a sustainable trajectory requires a possible substitution between artificial capital (wealth created by Man, such as machines) and natural capital (natural resources, environmental functions);
- Strong sustainability: Under this hypothesis, defended by most ecological economists such as Daly (1990), the natural capital stock should not decrease, in other words, natural and artificial capital are complementary and not substitutable.

Total economic value

The total economic value (TEV) covers all certain and uncertain use and non-use values concerning present and future economic stakeholders. More precisely, the TEV comprises among others the option value, the sum a present stakeholder is ready to pay for ensuring the future availability of a good. It also includes the bequest value, the sum a present stakeholder is ready to pay so that future generations can dispose over the good, and the existence value, the sum a present stakeholder is ready to pay to ensure the simple present or future existence of the good.

Use value

The use value is the value of a good or a service for a person in terms of its usefulness. This can be through consumption or directly in the case of amenities (direct benefit from the view of a landscape, for instance).

Use value, direct

A direct use value is related to the habitual use, including market and non-market activities, the latter being commonly essential for satisfying the needs of the population in developing countries, whereas in developed countries these cover sports and leisure activities.

Use value, indirect

An indirect use value consists in environmental services that indirectly allow the production and consumption of goods, it includes regulatory ecological functions.

Vernacular architecture

Construction or reconstruction without an architect or specialized builder, comprising domestic, agricultural or pre-industrial buildings, which are homogeneous with regard to a period or a region.

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Methods for the Economic Valuation of Urban Heritage: A Sustainability-based Approach

Today, development actors see urban heritage as a resource for their territory, which is why they need to define its economic value. This evaluation is a delicate exercise as such patrimony is generally a complex reality, consisting of four interdependent economic, cultural, social and environmental dimensions.

The methodology for evaluating the economic potential of such heritage as proposed here involves four analytical steps. The first step, identification of the patrimony, cannot be based on an economic approach alone, but combines this with historical and sociological inquiries. Evaluating the services rendered by an urban heritage is the second step. The third step is the pivotal one of the proposed methodology: based on the idea of sustainability – borrowed from environmental economics – investment flows are compared with degradation of the urban heritage. As a fourth step, we introduce threshold effects and the risk of non-sustainability into the analysis. A sustainability grid provides the reader with a visual summary of these four steps in a single diagram.

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