

“Conservation, Management and Tourist Use of Pre-Industrial Heritage. Identification of Spanish Experiences from a Territorial Analysis”

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Abstract

Spain's pre-industrial heritage is of high cultural value as a manifestation of the traditional forms of production in buildings with unique features and as an expression of the identity of many territories. This heritage, increasingly valued as a result of the growing interest in heritage in general and production-related heritage in particular, offers great opportunities as a tourism resource. This legacy has been taken as the basis for opening new museums and interpretation centres, becoming one of today's points of reference for places of old artisan or manufacturing traditions and a local management model that promotes conservation and promotion in line with the indispensable principles of environmental sustainability.

Keywords: pre-industrial heritage, territory, conservation, tourist management

1. Introduction

The heritage inherited from the pre-industrialization period is a very important cultural resource and one of the most interesting facets of the new trends in tourism. Its basically local dimension is managing to boost the economy in the areas marked by the presence of pre-industrial production, most of which are in the countryside. That momentum has been backed, with different levels of intensity, by the sustainability of the projects undertaken and respect for the natural, social and architectural environment.

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Thus, pre-industrial heritage attracts a very specific kind of tourism, keenly interested in recovering and maintaining a built legacy of great testimonial value, manufacturing methods of production, and of great environmental coherence.

This tourism has served to foster the reappraisal of certain elements that are strong symbols of identity for certain regions, diversifying the cultural resources and appeals of the destination areas. This research focuses its analysis on tourist use and management of pre-industrial heritage, in certain significant sites that display the diversity and complexity of this legacy in Spain. Understanding these two circumstances, it has become essential to select some of the most representative places of the pre-industrial period, both on account of the preserved buildings and the projects underway that promote new tourist uses. The spectacular nature of these projects reinforces the image of pre-industrial heritage as a whole as a highly attractive cultural resource for tourism, which has managed to create new, competitive products in the context of an increasingly complex diversification of supply and demand.

2. Research Goals and Prior Hypotheses

Interest in pre-industrial heritage has increased just as much as our fascination with any material remains from other times and the expansion of the heritage concept. Aesthetic contemplation and technical interpretation are part of the basis of a type of tourism of clear nostalgic feelings due to an obsolete productive past, a necessary precondition for industrialisation later. Insufficiently researched in Spain, pre-industrial heritage is still a cultural and tourist novelty that does not prevent addressing its true scope as a resource. The article discusses the tourist function of certain enclaves and buildings. Selecting technically significant elements, analysing restorations and interpreting their tourist and territorial significance are the main objectives of the study. The use of different statistical and documentary sources, as well as prospective quantitative techniques (interviews and surveys), have helped achieve those objectives and contrast previous ideas or initial assumptions as a basis for the final results. The most important initial assumptions are as follows:

- There is an adequate legal protection framework.
- Pre-industrial heritage is mainly rural and is closely related to the natural environment.
- Its geographical dispersion limits the organization of tourist routes.

- Pre-industrial heritage tourism has a bearing on all of Spain's regions, to a larger or smaller extent.
- The degree of tourist attraction of pre-industrial buildings is directly proportional to the magnitude of the projects undertaken and inversely proportional to the travelling distance.
- The cultural management of pre-industrial heritage is basically local.

Interpretations given to pre-industrial and industrial legacy have been as varied as the disciplines and authors interested in the subject: technical complexity of restorations (Alfrey 1992; Stratton 2000); sustainable use of installations (Bramwell and Lane 1999; Butler 1999; Jansen-Verbeke 1999); economic and social revitalisation (Pérez and Parra 2004; Tapia 2010), etc. In this article this heritage is interpreted as an integral part of a territory and landscape, an aspect also present in other authors for the more general subject matter of industrial heritage (Bergeron 2003; Jansen-Verbeke 2009; Pardo 2010a; Benito and Alonso 2012). In this respect, neither should pre-industrial legacy be considered as "de-territorialised", because it would lose all its meaning, nor should it be applied to any restoration project unrelated to the spatial context in which it is inserted. Here it is at least assumed, based on the consolidation of "cultural landscapes", as a heritage category in itself, and therefore the focus of management policies that ensure its conservation and enhancement (UNESCO Convention Concerning the Protection of the World Cultural and Natural Heritage, revised in Santa Fe in 1992; European Landscape Convention, Florence, 2000). This is a very interesting contribution to the subject and virtually a novelty from the moment pre-industrial heritage started to be addressed almost always unrelated to the territory and the tourist attraction that it represents. In short, it means comparing this heritage to research carried out into industrialisation heritage, whose examples have been analysed from a dual perspective for some time now. In Spain, the National Industrial Heritage Plan, approved in 2001, showed the willingness of public authorities to embark on comprehensive conservation and management policies, where industrial heritage had to also be understood as "a complete whole made up of the landscape in which they are inserted [...]" (Spanish Cultural Heritage Institute 2011).

The scope of the analysis shares the more general aspect, looking at the general characteristics of Spanish pre-industrial heritage, with the more specific, analysing certain very important enclaves selected in order to evaluate new proposals for tourist use. These enclaves are very specific representative places of what this type of tourism currently means and create a local model that serves as a template for future cultural developments in other regions. The elements selected are spread throughout the regions of Castilla and León, Andalusia, Catalonia and the Basque Country, although pre-industrial heritage is present throughout the whole of Spain.



Figure 1: Location of selected pre-industrial elements:
 1. Royal Glass Factory of La Granja de San Ildefonso;
 2. Segovia Mint; 3. Palma de Motril sugar mill; 4. Molí de la Vila paper mill in Capellades; 5. Mirandaola Ironworks in Legazpi; 6. Añana Salt Mines

3. Most important Evidence of Extensive Productive Legacy

Pre-industrial property heritage was created during times before the Industrial Revolution, so it includes productive establishments and traditional techniques tested over the centuries. Pre-industrial production was very closely associated with private homes, because during this period the idea of having a specific building exclusively used for production was not widespread. Except in isolated cases, linked to direct promotion by the State, pre-industrial buildings are normally of modest size and very simple in terms of typology.

The traditional models of the place or region where they are located predominate, with materials based on stone, tile or wood. The location was predominantly rural with exploitation of the resources offered by the environment (wood, coal, water), obtaining limited production that mainly targeted local consumption in a reduced number of markets. Conservation of production structures has proved difficult, due to their age, technical obsolescence and the onset of the Industrial Revolution, which resulted in the closure, abandonment, deterioration and disappearance of a significant number of valuable examples.

Manual techniques provided low productivity and reflected a very static and compartmentalised society, more closely associated with experience and tradition than innovation. Change began in the second half of the 18th century, particularly in Catalonia and other isolated enclaves, but at such a slow pace that it allowed the survival of pre-industrial structures for a long period of time. Changes arose in some isolated sectors, more favourable to the growth and adaptation of new techniques from Northern Europe, helping to evolve towards typically industrial structures. Other sectors became stagnated in old traditional models, while others entered into a deep crisis until their total disappearance. Pre-industrial activities cover a fairly extensive list, the full knowledge of which presents serious difficulties. The most interesting examples cover six different groups: Royal Factories, mints, sugar mills and refineries, paper mills, foundries and salt mines. There are important well-preserved examples in all these cases.

3.1. Royal Glass Factory of La Granja de San Ildefonso

The Royal Factories are the first example of large-scale production in Spain. Taking advantage of a period of favourable economic development progress and stimulus, the State intervened directly and created a new architectural order to meet the needs for uninterrupted production. These Royal Factories reflect Bourbon reformism and new economic and social approaches governed more by reason than tradition (Martínez and De Pazzis 2008). Production and trade became the cornerstones of reforms aimed at promoting national wealth. These centres were a completely new type of manufacturing building in Spain. Larger scale production based on the use of advanced technology and collective work frequently led by foreign experts was concentrated in the same architectural space.

This represented a more effective, profitable and continuous system than traditional manufacturing, and heralded what would later be industrialisation in the strict sense of the term. What's more, an obvious sign of modernity was added by opting preferably for urban locations or sites close to the cities, although rural areas were sometimes chosen too. An example of urban locations were the Royal Tapestry, Porcelain or Silversmith factories in Madrid and, on the outskirts of the capital, the Glassworks at La Granja de San Ildefonso, the Weapons factory in Toledo and the Fabric factory in San Fernando de Henares. In the latter case, the factory was used to create a rationally designed urban complex with the most essential services for the population. It is in some ways the forerunner of 19th century industrial towns.

Other Royal Factories were established in rural areas, where private initiative was lacking, as a regional rebalancing strategy: the Munitions factories in Orbaiceta (Navarra) and La Cavada (Cantabria), Fabric factories in Ezcaray (La Rioja) and Brihuega (Guadalajara), and Bronze and Brass factories in Riópar (Albacete). The Royal Glassworks of La Granja de San Ildefonso (Segovia) is one of the most important and emblematic buildings from the 18th century. Glassmaking began in 1728, the year in which, within the town itself, a furnace was installed to manufacture glass for windows and balconies. La Granja was chosen as the location due to the abundance of firewood from the surrounding pine and oak forests, and the sands and clays in the area. After the factory burned down in 1770, Carlos III ordered the construction of a new building but outside the city to avoid any new risks. The new building was designed by José Díaz Gamones and subsequently extended by Juan de Villanueva and Bartolomé Reale. The complex occupies a whole block and at one time included furnaces, workshops, warehouses, treatment rooms, offices, courtyards, homes and even a school. In other words, an extensive architectural site enabled for production and the functional distribution of spaces.



Figure 2. Royal Glass Factory (La Granja de San Ildefonso, Segovia)

The building was regarded as one of the best in the whole of Europe for manufacturing glass and follows a three nave basilica plan construction model, finished at either end with a transept with dome and apse. The central or furnaces nave is covered with a barrel vault and was used for making moulds. The two side naves, very narrow in comparison to the central nave, were used to stoke the annealing furnaces, with 15 on each side situated between the naves. As can be observed, the design was taken from religious buildings because there was still no typical industrial standard. The façades received a special treatment in their finishes to blend with the rest of the buildings in the urban environment. The site continued production until 1963, which is when the manufacture of glass wool came to an end. It then remained unused and abandoned until 1982, which is when the National Glass Centre Foundation was established. At that time, work began on restoring and renovating the building, which has housed ever since the Glass Museum, Glass School and the Glass Research and Historical Documentation Centre. The restoration process resulted in the site being declared a Place of Cultural Interest (BIC), in the Monument category, in June 1997.

3.2. Segovia Mint

Until 1868, the year in which a large fully industrial and steam powered mint was opened in Madrid, in Spain there were several traditional installations for producing coins, such as those in Seville, Segovia, Barcelona, Granada, Valladolid... Over time, all of them closed, except those in Segovia and Seville, which remained open until 1868, when production was centralised and industrialised in the national mint in Madrid. Coin manufacturing in Segovia dates back to Roman times. After a long period of interruption, minting resumed in the Middle Ages after the Christian reconquest of the city, helping to create jobs and promote trade. In 1455, the first mint (the "Casa Vieja") was established close to the aqueduct, but it was not until 1583, when, by express order of Philip II, the Real Ingenio de la Moneda (Segovia Mint) was created. Considered to be the oldest manufacturing plant in the world, the building was designed by Juan de Herrera. Built with the help of German technical experts, it was equipped with technology brought over from Innsbruck in what is considered to be the most important industrial expedition to date. The technology consisted of a mechanised process using lamination machines powered by large hydraulic wheels (Murray, Izaga and Soler 2006).

It appears that initially the mint was to be located in Lisbon, Toledo, Madrid or Seville, with Seville being the city to which the metal was directly sent from Spanish territories in America. But in the end, the site of an old paper and flour mill located on the River Eresma in Segovia was chosen. In 1586, the mill started production on a regular basis. The mill was the private property of the Royal household and had its own rules and ordinances, in contrast to the rest of Spain's mints, which were governed directly by the Treasury Department. In 1730 the mints in Toledo, Granada, Valladolid, Burgos, Cuenca, Corunna and the "Casa Vieja" in Segovia were finally closed, although the latter had stopped operating in 1681. Gold and silver coin minting were centralised in Madrid and Seville and copper at the Segovia Mint. After manufacturing activity ceased at the Segovia Mint the building started to steadily deteriorate. The restoration of the property is the culmination of a long process, which began between 1989 and 2001, when the Segovia City Council initiated processes for acquiring the building. At the same time, proceedings were started for its declaration as a Place of Cultural Interest, with a decision taken in June 2000, adding it to the catalogue in the Monument category. In parallel, restoration and renovation was undertaken in a project which involved various administrations, and completed at the beginning of 2011.

A project which saw the city council receive the "World Heritage Cities" second prize in 2010. In June 2012 the Royal Mint Museum opened its doors to the public, soon becoming the most visited establishment in the locality.

3.3. Motril Sugar Mill

Sugar mills and refineries date back in Spain to Moorish times, when the cultivation of sugar cane was introduced in Levante and Andalusia. Sugar cane was considered a highly commercial crop and a source of major revenue, enabling its expansion and intensification until the establishment of the practice of monoculture and the obtaining of the raw material necessary for the production of sugar from manufacturing processes. This became the most important crop on the Andalusian coast during the 17th century, leading to numerous pre-industrial centres in Motril, Salobreña, Adra, Almuñécar, Malaga, etc. At first, power was generated by animal traction (sugar mills), but in the 16th century water power started to be used to drive the wheels of the mill (refineries), increasing the speed of sugar production. However, this did not result in a significant change in manufacturing and the sugar refinery technique remained essentially traditional and rudimentary compared to advances that would occur in the 19th century (Martín and Giménez 1992).

The town of Motril in the province of Granada maintains the only sugar producing installation from pre-industrial times in Spain, the Palma refinery giving it exceptional value. It is a simple brick-built construction which has undergone a lot of changes over time. At the rear there is a series of archaeological remains with carved stones that formed the basis for the sugar presses and mills, and the pipelines that collected the juice previously extracted from the cane. What was discovered is a period prior to the construction of the preserved building and which may even be an Islamic mill. In any case, these are the oldest remains of sugar cane manufacturing for obtaining sugar anywhere in the country. After 1989, archaeological excavations revealed various structures and elements of the old factory, leading the city council to move ahead with its renovation and conversion into a museum. Renovation work took place between 1996 and 1998 and its conversion into a museum, aided by the Mancomunidad de Municipios (association of local authorities) of the Costa Tropical of Granada, between 2000 and 2002.

3.4. Capellades Paper mill

Paper-making for writing purposes was introduced in Spain by the Arabs, creating numerous paper mills in the principal cities of Al-Ándalus. Paper-making extended from the Iberian Peninsula, also due to the migratory movements of the Crusades in the East, to other European countries, particularly France and Italy. In Central Europe production was not introduced until the 14th century. Most of the Spanish paper mills were located in Catalonia, with greatest prosperity being achieved during the 18th century. General political support given by the Bourbons to paper-making saw the sector achieve great status. Small mills which had hitherto existed scattered along river banks gradually disappeared, giving way to new buildings integrating the whole production process, despite maintaining the traditional manufacturing system (Boquer 2002).



Figure 3: Capellades Paper mill (Capellades, Barcelona)

One of the mills which arose in the 18th century is in the Barcelona town of Capellades and known as Molí de la Vila. Thanks to the abundance of water in the area and its geographical situation close to major population centres, Capellades became one of the most important paper centres in Spain during the 18th and 19th centuries. Paper here, particularly cigarette paper, was sold throughout the country and in Latin American territories. The mill in this locality is an important example of rich pre-industrial heritage.

Musealisation has helped preserve a fairly extensive collection which ranges from the 14th to 20th century, consisting of machinery, tools, covers, wooden ink pads and papers. The museum was opened in 1961 and was a pioneering work in industrial archaeology throughout Europe and the world. One of the main hallmarks of the site is its dual role as a museum and production centre, combining the dissemination of this cultural legacy and continuation of traditional paper-making, giving it important benefits and allowing a high degree of self-financing and sustainability. This is possible thanks to its management through a foundation, a model which gives it plenty of autonomy and operability.

3.5. Mirandaola Ironworks

Pre-industrial iron production was closely related to agricultural activity due to the demand for ploughs, sickles and horseshoes.

Foundries were one of the cornerstones of the rural economy, but also played an important role for the army and navy. The increase in global demand boosted iron production continuously, particularly between the 16th and 18th centuries. Foundries were located in areas with major natural resources (water, charcoal...), particularly in forested areas. This, coupled with low labour costs, favoured its continuation well into the 19th century, but now in competition with the first modern installations. The decline began around 1850, coinciding with the depletion of some woodlands and the rail connection between the main consumer markets and new steel areas. Traditional foundries disappeared hand-in-hand with the increasingly evident limitations of an uncompetitive marginal system, with steadily rising production costs and a backdrop of constant legal battles with the local population over the use of resources (Corbera 1998). There were numerous foundries throughout Cantabria, from Asturias to the Basque Country, with their activity dating back to the Middle Ages. The oldest in the Basque Country were wind powered (*haizeolak*). They were located from the 11th century on the highest point of the mountains to harness wind power, but in the 16th century were relocated to the bottom of the valleys to use water power (*zeharrolak*), and were to be found mainly in towns such as Oñati, Hernani, Éibar, Legazpi, Zalla, Muskiz, Abadiño.... In the middle of the 19th century the last remaining pre-industrial installations were closed to mark the end of a long history (Uriarte 1988).

Restoring the value of these installations has always taken into consideration their surrounding natural environment, as there were energy and geographical strategic reasons for choosing a location close to woods, mines, rivers and communication routes. The change in those initial favourable conditions ended up transforming or permanently paralysing their activity.

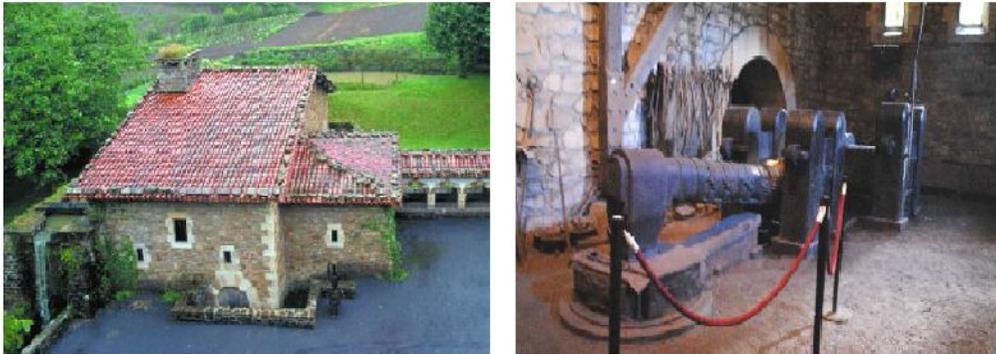


Figure 4: Exterior and interior of the Mirandaola Ironworks (Legazpi, Guipúzcoa). Source: Lenbur Foundation

Documented information has existed on the Mirandaola foundry since 1400. It was in operation for almost five centuries until its closure in the 19th century. It was rebuilt in 1952, being the first recovery of this type of heritage (Zabala 2007). Since then, various fundamental aspects that make the foundry a site of special interest can be appreciated. Outside, firstly, is the dam to raise the river level and obtain greater power on the wheel axle. Water was channelled to the foundry by means of a canal. Inside are the bellows, necessary to achieve a sufficient amount of air so that the charcoal would burn quickly enough and at a high enough temperature to reduce the iron ore. The alternating movement of the bellows would provide a constant inflow of wind. The hearth was the furnace where the ore was reduced and iron obtained. Coal was burned here and iron ore loaded, so that at the end of the process you would end up on the one hand with slag and, on the other, with a kind of iron slurry. This mass was hewn with a hammer to achieve the desired profile and eliminate any remaining iron slag.

3.6. Añana Salt Mines

Salt mines represent an important cultural part of pre-industrial heritage. Some examples preserve remains worthy of conservation and tourist use, as is the case with the salt mines in Imón (Guadalajara), Gerri de la Sal (Lleida), Poza de la Sal (Burgos), Añana (Álava), etc. These are all mines based on modest constructions designed solely according to production and not aesthetic criteria, therefore delaying their preservation and protection until recent times. Another influencing factor, as pointed out by several authors, is the fact that many of the salt mines are located in demographically and economically depressed isolated areas (Hueso and Carrasco 2006).



**Figure 5: Salt Mining Platforms in the “Salt Valley”
(Añana, Álava)**

The Añana salt mines are located in a particular valley, known as the Salt Valley, with a human origin derived from the historical use of the salt water springs of the River Muera. They make up a unique and visually stunning cultural landscape, with a large number of wooden buildings and water pipes for the systematic exploitation of salt, and are also one of the most interesting examples of enhancement of salt mines in Spain's interior.

The commercial exploitation of salt mines has been carried out in different phases, with its origins probably dating back to the 1st millennium BC. The Salt Valley was occupied by different communities scattered throughout the area, with salt serving as a catalyst for the permanent occupation of the territory. During the Middle Ages, the population was concentrated in a single village (Salinas de Añana), in order to ensure greater resource control and better organisation of its commercial exploitation. Production systems experienced little change until the 16th century, heralding subsequently a certain transformation in traditional ways and strict state control in the form of a monopoly until 1869. In the heyday of the first half of the 20th century production reached hitherto unseen levels, maximising the return on investments made.

But this evolution could not prevent the eventual decline from 1960 onwards. Several factors led to the decline: increased production with resulting lower costs on the coastal salt marshes, the introduction of fully industrial methods and the expansion of the railway for transporting salt from the coast to the rest of the country. In 1984 Salinas de Añana was declared a National Historical and Artistic Monument, in accordance with existing legislation (Historical and Artistic Heritage Act of 1933). However, a recent ruling in March 2003 saw fit to extend and modify the protection of the area, declaring the Añana Salt Valley (Álava) a Place of Cultural Interest, in the Monument category. This declaration is also part of a greater protection and enhancement strategy for the territory, whose ultimate goal is to be declared a World Heritage Site. In fact, since January 2012 it is one of the selected proposals that choose to be declared as such by the UNESCO.

4. Tourist Reach and Territorial Significance of the Pre-Industrial Legacy: Hypothesis Testing

Sending a postal survey to and conducting various interviews with those responsible for each of the pre-industrial heritage elements selected, between March and May 2013, have helped obtain some important indicators on the tourist reach and their territorial significance in the geographical context in which they are located. There was a fully satisfactory level of response, perhaps because of the small number of questions, specific nature of the elements studied and the interest in finding out more about a still minority tourism category.

Figure 6: Selected Items of pre-industrial heritage

Item	Town/City	Province	Type of establishment	Period of construction
1. Royal Glass Factory	La Granja de San Ildefonso	Segovia	Royal factory	18 th century
2. Mint	Segovia	Segovia	Royal mint	16 th century
3. La Palma	Motril	Granada	Sugar mill	16 th century
4. Molí de la Vila	Capellades	Barcelona	Paper mill	18 th century
5. Mirandaola Ironworks	Legazpi	Guipúzcoa	Zearrolak (hydraulic ironworks)	15 th century
6. Salt Valley	Salinas de Añana	Álava	Salt mines	Several phases since 1 st millennium A.C.

Source: Authors' survey and own elaboration.

Most of the museums opened in these pre-industrial elements were created after 1990, especially since 2000. They are therefore recently created cultural resources consistent with the extension throughout Spain of heritage protection and new tourist use of monuments associated with production. Only one museum was opened at a much earlier time, the Capellades Paper Mill-Museum, created in 1958 and finally opened to the public in 1961. This makes it one of the oldest pre-industrial heritage museums in Europe, providing extraordinary value and promoting tourism strongly rooted in Catalonia. In Spain, heritage protection and conservation is governed by Law 16/1985 of 25th June. However, the distribution of powers between the State and autonomous communities recognises the legitimacy of the communities to adopt their own regulations on the matter, provided they do not clash with state law. This has made it possible in many cases to include or consolidate certain types of properties, some of which of short tradition and generally speaking of special cultural relevance in the territory, as part of heritage protection policies.

A good example of this process is the inclusion of Cultural Landscapes as a heritage category, and also, but to a lesser extent, Industrial Heritage. In this respect, the laws of Asturias and Andalusia focus more closely on this type of heritage, defining elements that comprise it and even, in the latter case, establishing specific protection, namely the Place of Industrial Interest. However, pre-industrial heritage is not a specific category presently, and its properties normally fall under ethnographic, scientific or technical heritage.

Apart from that, for protection purposes, they are normally declared Monuments, which is the most widespread category within the so-called Properties of Cultural Interest (BIC). However, this issue is quite complicated because official protection does not ensure the ultimate conservation of pre-industrial heritage. There are some buildings with protection which are in a worse state than others without this protection. It should therefore be taken as an indicator of the interest shown by public administrations in this heritage and less as a reflection of its actual level of conservation. Tourist use and cultural management of this heritage ensure, to a greater extent, the conservation of properties and go far beyond any simple administrative protection declaration.

Figure 7: Pre-Industrial Heritage Museums Included in the Survey (2013)

Museum / Building	Year first used for tourism	Visitors (2012)	Heritage protection (year)
1. Centro Nacional del Vidrio / Royal Glass Factory	1989	70,000	Monument (1997)
2. Mint	2012	18,000	Monument (2000)
3. Pre-industrial Sugar Museum / La Palma	2002	13,000	--
4. Paper Mill-Museum / Molí de la Vila	1961	27,000	--
5. Iron Museum / Mirandaola Ironworks	1996	20,000	--
6. Salt Valley	2005	55,000	Monument (1984) Monumental Ensemble (2013)

Source: Authors' survey and own elaboration.

Museum visits reveal low figures that still indicate a limited tourist attraction, far removed from major museums, collections and visitors' centres. The average number of tourists per museum is a modest 34,000 visitors a year; the National Glass Centre and Salt Valley salt mines alone register more visitors, in line with new tourist and cultural projects of greater importance and magnitude than any of those selected. In any case, the trend in recent years has been one of slightly rising visitor numbers. The main period of visits is during spring and autumn, coinciding with the academic year for all educational levels. In fact, 85% of visits are groups of students and only 15% individuals.

Most visitors come from the same province as the location of the museum or neighbouring provinces, with percentages generally over 65%. Only in some cases (Salt Valley, National Glass Centre) do visitors come from other parts of the country or even abroad. It is therefore predominantly local tourism very closely related to the population of nearby localities.

Based on the initial hypothesis that these museums are not isolated places, but rather form part of a cultural resource with close ties to the territory in which they are located, and other local pre-industrial or industrial elements, the existence has been confirmed of various museums included in some theme trails which connect different interrelated places, despite the previous initial idea in the research that geographical dispersion limited the organisation of tourist itineraries.

This ensures their promotion and greater tourist impact, as confirmed by the heads of the museums surveyed. Cultural itineraries and routes are one of the main attractions today for cultural tourism. Some of them are the main attraction for a significant number of medium-sized cities and rural communities. They are also a tourism planning tool that favours sustainable development. However, the design of these itineraries must keep in mind that cultural tourism, in terms of sustainability, represents the balance between the quality of the visitor experience, quality of cultural resources and their presentation, and the quality of life of the town to which they belong (Romero 1993). A good example of these types of itineraries, also centred on industrial and pre-industrial heritage, is the Ancient Crafts Route of Alt Urgell, in Lleida. It is a route that connects various towns and museums in which the visitor can discover some of the traditional work of this Pyrenean region (rafters, trementinaires, peasant farmers, flour dealers, weavers). All of which are closely related to the peculiarities and facets of the territory.

Existing routes around the museum selected include the sugar route (La Palma sugar refinery) and the iron route (Mirandaola foundry). They are the result of an attempt to integrate architectural heritage and cultural legacy in a tourist product that explains the old manufacturing tradition. They are cultural and historical itineraries which include various different spaces and promote a tourist image that is more solid and attractive but also alternative and necessary for more highly demanded resources. Pre-industrial is offered as a different type of route that goes beyond strictly local limits to integrate other associated resources in the project.

The Pre-industrial Sugar Museum is in itself the restoration for tourist purposes of the archaeological remains of a mediaeval sugar mill. This museum is unique in Europe in that it shows pre-industrial heritage related to the sugar activity and the importance of the crop in the area from Islamic times. The industrialisation of the sector in the 19th century led to the emergence of numerous factories with steam powered machinery, prompting the closure of the traditional production of the old mills. The Sugar Route shows the technical, architectural and productive progress of a crop which ended up historically rooted in this part of Andalusia. The museum has recently been included in the Network of Scientific and Technical Dissemination Spaces, of which the Granada Science Park, Botanical Gardens and Cordoba Ethnobotany Museum also form a part.

A cultural itinerary which traverses the region of the River Urola to show pre-industrial iron use areas and associated infrastructures, such as dams and pipelines, has been created around the Mirandaola foundry and Iron Museum of the Basque town of Legazpi. Iron becomes, like sugar in the previous case, the hallmark of a large territory and the main production theme in technical, historical, scientific, social and landscape terms. Projects undertaken have been based on initiatives promoted by local councils as part of the local development policy to recover built heritage as an alternative for its inclusion in tourist routes. Management is basically municipal, although in some cases the financial contributions of regional or central governments or even European funds have been vital. There is also the odd mixed model in which different public and private bodies are involved in the management process. Two clear management models based on the places selected have been detected during the research: the first is one of the main Spanish references in the comprehensive restoration of pre-industrial heritage (Salinas de Añana Salt Valley); the second is related to tourist management applied after heritage restoration (Capellades Paper Mill-Museum).

The Salinas de Añana Salt Valley is currently undergoing a comprehensive restoration and conservation process which, being centrally managed by a Foundation, has resulted in the temporary transfer of ownership of the locality's salt mines. Various public administrations as well as all the salt mine owners are present in the Foundation, ensuring the conservation of the site, survival of production in one of Spain's most emblematic pre-industrial places and sustainable development in the future.

The preparation of a Master Plan (finally approved in 2004, with various phases of action) was promoted at an operational level as a necessary tool to regulate the restoration of the salt mines and boost their tourist, cultural and economic potential, always with maximum respect for a specially protected heritage site. The Master Plan contains a methodological procedure based on the following: 1. Knowledge of the valley through compressive multidisciplinary documentation; 2. Analysis of the different natural and cultural resources of the area; and 3. Proposed action and development strategies, both in terms of restoration and new tourist uses, promotion activities and management system. The plan promotes endogenous development based on traditional use of salt as a natural and cultural resource, as well as a sustainable development alternative. Use of resources is closely related to tourism and this activity not only rests on one of the new pillars of the local economy, but also the promotion of the heritage and environmental restoration of the site, in line with what has happened in other offshore salt areas (Carrasco and Hueso 2006).

Beyond the architectural and landscape restoration of pre-industrial production places, tourism museum management can be strengthened through integration in a regional network model. This is the case with the Capellades Paper Mill-Museum, which is a site associated with the Catalonia Science and Technology Museum in the town of Terrassa, the operational centre of an extensive list of museums spread throughout the region and specialising in specific subjects in different production sectors. This network provides an overall picture which strengthens each associated centre and is one of the most interesting experiences in Europe in terms of industrial and pre-industrial heritage management (Pardo 2010b).

This group of museums is organised in a decentralised way because in practice each of them is independent, but this does not prevent establishing either partnerships or joint strategies: tourism communication, publication of newsletters, interrelated websites, joint institutional image, etc. Each museum has its own policy and specific objectives, as befits a flexible system of which large and small, urban and rural and public and private museums can form a part.

The results achieved have been a great success both at an operational and organisational level, while the model, which manages to go beyond the original geographical dispersion of places recovered for tourism, has become an unquestionable reference for the cultural enhancement of a broad legacy linked to production, combining the quality of temporary and permanent exhibitions with the symbolic value of buildings and aesthetic value of territories in which they are located.

4. Conclusions

Pre-industrial heritage tourism is of great interest due to the local development it promotes in rural areas far from the main tourist itineraries, and the application of restoration and new use projects governed by environmental sustainability and harmony. It is a heritage with strong identity symbolism closely linked to certain territories and natural environments in which it diversifies cultural resources and tourist attractions. This heritage is the basis for creating a new increasingly competitive tourist product within the general framework of growing diversification in supply and demand. Pre-industrial heritage is generally sufficiently protected in Spain, although there are differences according to the buildings and their architectural representation. The most common type of protection is Historical Monument due to the precise nature of the enclaves.

This ties in with the proven hypothesis of a heritage rooted in the territory over time, strengthening the identity symbolism already mentioned. This legacy is mainly comprised of scattered elements in the rural environment, whose tourist use is driving the local economy and the inclusion of large areas in theme tours. Consequently, initial geographical dispersion and isolation has not prevented the organisation of routes and the success of new projects. The greater the project undertaken the greater the tourist attraction, strengthening its image as a highly specialised cultural resource complementing other more conventional resources. Pre-industrial heritage is a fundamental part of the territory and landscape and an indelible example of pre-industrialisation production methods. Territoriality is present in this heritage as industrialism, breaking with the research tradition of considering it unconnected to the space in which it is located. In fact, it is very difficult to understand pre-industrial heritage without its natural environment. Tourist use is more recent, as most of the museums were opened after 2000. This is a type of tourism that has exploited the most recent heritage protection and cultural promotion trends of various legacies.

Visits have been relatively few, particularly compared to other museums (art collections, scientific or technical visitors' centres), which basically have an urban location in the country's main cities.

Both tourist and school visits come from localities closest to the pre-industrial museum, so it is a cultural offering very closely connected to the nearest town. Greater tourist promotion is important to increase the area of influence and attraction as a resource. In this respect some of the museums looked at are included in certain theme trails of major interest, ensuring protection that goes beyond the confined limits of the surrounding territory. Museum projects have started out as local initiatives as part of a policy of economic development and heritage restoration. Tourism management is also local, although at times certain financial aid has been required from other public bodies not to mention private sector support too. Finally, some models are true tourism references in the cultural use of heritage in general and pre-industrial heritage in particular.

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