How do SMEs valorise solar salt works in Spain

Katia Hueso

Institute of Saltscapes and Salt Heritage, IPAISAL (former Association of Friends of Inland Salinas)
Apartado de Correos 50 - 28450 Collado Mediano – Spain
Tel. +34 678 896 490, salinasdeinterior@gmail.com

ABSTRACT Salt making is an ancient activity that has shaped history, cultures and landscapes all over the world. There are many methods of producing salt, the best known being rock salt mining and solar evaporation. But within the latter category, many differences exist, depending on location, climate, topography, local know-how…. Often, a distinction is made between artisanal versus industrial salt making, although this

oversimplified dichotomy may be a fallacy, as will be argued in this contribution. Rather than drawing a line between these two methods, reality shows that there is a continuum between the two and that they may even be found combined or mixed in the same salina. In this context, at IPAISAL we prefer to use the term *strategy* rather than *method* since we believe that the key question here is not a matter of salt making method but of authenticity and sustainability. Authenticity as a means of being honest to our customers, providers and society in general and sustainability as a means of being self-sufficient on the long run without depleting resources. Hence, another point of debate that will be tackled is which salt making strategies may be more sustainable, from the points of view of economic profitability, environmental protection and social awareness. To this end, the model of sustainable management of salinas proposed by the Association of Friends of Inland Salinas will be discussed and three examples of (partial) success with respect to sustainable salt making strategies will be presented.

Key words: salinas, sustainability, authenticity, artisanal, good practices

1. INTRODUCTION: SALT MAKING METHODS

Salt has always been an essential commodity for humans. Not only for our survival, from a physiological point of view (Denton 1982, Schulkin 1991), but also for allowing the settlement in larger communities and even improving our ability to conquer new territories, thanks to its food preservative properties (Kaufmann 1956, Multhauf 1978). Several factors have influenced accessibility to salt, some of which were more efficient than others in terms of effort and energy input. In coastal regions with seasonal droughts and good ventilation, solar evaporation salinas were the obvious choice to obtain this mineral. In inland regions, salt could either be mined or produced via the evaporation of brine. This brine could be obtained by solution mining, as is being done today in vacuum facilities. It could also be formed naturally and pumped or collected at the surface, where it could be concentrated in solar evaporation facilities, graduation towers or by forced evaporation techniques with the addition of fuel (Carrasco & Hueso 2006, Weller 2002). A less efficient salt making technique was sleeching, by which sand rich in salt is washed and the resulting brine is evaporated. Even less efficient was *selnering* or other similar techniques, by which peat, algae or other salt containing plants were first burned and the ashes subsequently washed to extract the brine from them (Williams 1999, Leenders 2004, van Geel & Borger 2005, Fielding & Fielding 2006).

From the point of view of saltscapes, Spain is probably the most rich and diverse country in Europe, hosting almost 1,000 salinas and saline wetlands (Carrasco & Hueso 2008, Hueso & Carrasco 2009, see also Table 1). Thanks to its climate and geological features, most of these saltscapes are (former) solar evaporation salt making sites (71%), many found on saline grounds away from the sea (53% of all saltscapes are thus inland sites). The vast majority (97%) of the solar evaporation salinas are now abandoned and many even have disappeared

altogether. Of the sites that remain active, there are over twenty inland salinas and more or less the same amount of coastal ones. Inland salinas are usually smaller in size, as they feed on brine with a relatively high concentration of salt that does not need much further evaporation. Besides, the amount of brine is usually limited to the flow capacity of the spring, which also constitutes a limitation of size. Climate in inland sites can be also a limiting factor, as the salt making season is usually shorter than at the coast due to frequent late-summer thunderstorms that may spoil the harvest. Due to their small size, short productive season and subsequent low profitability, few of these sites had been upgraded to an industrial scale and were gradually abandoned in the past. Coastal salinas are usually much larger, as they need huge surfaces to evaporate the seawater. On the other hand, their limiting factor is the availability of flat ground rather than the brine, which made an upscaling to industrial size feasible, at least before the advent of mass tourism and its associated competition for land. Smaller coastal salinas have rarely survived due to this strong competition of land use. On the other hand, the loss of salt mines has been less dramatic, although only one fourth remain active today. Besides the salt making facilities, Spain offers a great diversity of other saline wetlands, such as salt marshes and meadows, plus saline streams, springs, lakes and lagoons. Of the latter, some have been used in the past to obtain salt, albeit in a rather primitive manner and are not considered to be salt making sites within the context of this contribution.

Table 1: Estimated number of saltscapes and salinas in Spain, according to their scale of operation

Type of Saltscape	Nr sites			
	Industrial scale	Artisanal scale	Aban-doned	Total
Salt mines	7	NA	25	**32**
Inland salinas	3	18+	ca. 500	**516**
Coastal salinas	12	8+	ca. 150	**173**
Saline wetlands	NA	NA	NA	**244**

Total saltscapes	**23**	**25-30**	**ca. 680**	**965**

Sources: Carrasco & Hueso 2008, Hueso & Carrasco 2009, IGME 2011, ISAL 2014, IPAISAL unpublished data

When focusing on solar evaporation salt making, the diversity of specific techniques is also appalling. From a geographical point of view, two main groups can be distinguished, namely Atlantic salt making and Mediterranean salt making, each with distinct features. Atlantic-style salt making relies on the natural force of the tides to let the seawater into the salina, which is usually built on clay ground that needs annual repair or even reconstruction. Due to more unstable climatic conditions in this region, with higher air humidity, the crystallizers are fed by sprinkling brine to ensure rapid evaporation, and the salt is collected and stored as soon as possible. Harvest takes thus place at a continuous pace. The act of salt harvesting has a more artisanal character and therefore is more labour intensive (Petanidou 1997, Hocquet *et al.* 2001). Mediterranean-style salt making shows significant differences, due to the more stable climatic conditions and the smaller tidal amplitude. Therefore, the seawater needs to be pumped into the salina, as it usually cannot enter it by itself. On the other hand, the crystallizers are fed by flooding them, and the brine is allowed to almost completely evaporate before harvesting the salt. Since the amount of brine to be evaporated is relatively large, harvesting takes place at a discontinuous pace. Often a layer of salt is left on the ground, to act as insulation, to create a solid stone-like basis and to prevent contamination from soil particles. The ground is therefore more solid and allows the use of heavier machinery to harvest the salt, and the salina does not need yearly reconstruction. This allows to increase the production of salt with relatively less labour intensive methods (Petanidou 1997, Petanidou & Dalaka 2009, Rodrigues et al 2011).

Form the point of view of management (see Table 2), two main categories may be distinguished: Industrial saltworks and artisanal salinas. Industrial saltworks are usually run by large companies, often linked to the mining sector, which can be translated in a more or less homogeneous, corporate-style commercial strategy. On the other hand, the management of artisanal salinas is very heterogeneous due to the different nature of the institutions that run them (from SMEs to NGOs, local authorities, individual salt makers and cooperatives or often a combination of these via land stewardship or similar agreements) (ISAL 2014, pers. obs.). Typically, the production of salt in industrial sites is five times higher than in artisanal sites, although variability in production figures is very high in both types of salinas (IGME 2011, ISAL 2014, IPAISAL unpublished data). Of the total production, less than 4% of industrial salt is targeted towards the culinary salts market (ISAL 2014), but it is probably a very relevant segment due to the much higher profitability. No figures exist for the end market of artisanal salt but most producers seem to target the culinary segment (pers. obs.). On the other hand, salt making sites, whatever their location or scale of production, have always been attractive locations for ecocultural tourism (Hueso & Petanidou 2011a), a reason why many of these sites are happy to welcome visitors and increase their income with this activity. However, the implementation of tourism is much more widespread in artisanal sites than in industrial ones. Several reasons may explain this:

the broader formal diversity of artisanal salinas, the higher visibility of their associated natural, cultural and human values and the management priorities of the site's owners.

Table 2**:** Some features of artisanal and industrial salinas in Spain

Scale	Industrial	Artisanal
Nr sites	23	25-30
Type of managing body	Corporate: Producers Transformers Distributors	SMEs NGOs Cooperatives Authorities Private owners
Open for tourism	ca. 15%	ca. 90%
Mean annual production	ca. 4,5 MT	ca. 0,5 MT
% for human consumption	4%	unknown - variable

Sources: Carrasco & Hueso 2008, Hueso & Carrasco 2009, IGME 2011, ISAL 2014, IPAISAL unpublished data

Having said this, the dichotomies of salt making (inland vs, coastal; Atlantic vs Mediterranean, industrial vs artisanal) described above are a rough generalisation of the reality found in Europe. Many salt making sites present in fact mixed situations. Microclimate is for instance an important factor determining the choice of salt making method. Hence, sites in the Algarve region, despite facing the Atlantic, have a Mediterranean climate and can show mixed features between the two regional styles. Soil can also be determinant: Canarian salinas lie on volcanic rock and although they are located in the Atlantic coast, the construction of their pans is very different than the prototype of Atlantic salinas described above. Another important factor is the micro-topography of the coast. In absence of large, flat areas, some Mediterranean sites cannot develop further than small primitive, almost spontaneous, salt harvesting sites located in rocky hollows, such as those found the Peloponnese, Malta or Croatia, and despite their favourable climate cannot be developed into large sites. Another important factor is the structure of the property of the salina, which can be represented by one large management body –the usual case in industrial and semi-industrial sites– or rather have a horizontal management among salt makers, such as many of the Atlantic sites now organised in the form of cooperatives (Luengo & Marín 1994, Petanidou 1997). Inland salinas, especially those found in continental Spain and Portugal, are a case apart, too. Their relatively small size and limited production have curtailed their development and can now be considered a window to the past with respect to production methods and management structures (Carrasco & Hueso 2008).

2. KEYS TO SUCCESS AT SMALL SCALE SALT MAKING: SUSTAINABILITY AND AUTHENTICITY

Having concluded that the variability of salt making methods cannot be classified into discrete categories, but should rather be considered a blend of features unique to each site, it seems more appropriate to speak of salt making strategies rather than methods. From a managerial point of view, a strategy implies having a vision, a mission and certain lines of action within specific time frames. It is logical that salt making companies will have salt making as their main mission. However, a vision can be narrow or broad; short-term or long-term. Do we concentrate on salt making or do we include other products and services? Do we specialise in one kind of product or customer or do we offer a broad range of products and target an equally broad audience? Do we envision our future on the long run and work towards it or do we adapt ourselves to the day-to-day situation of the market? Whatever strategy one wishes to choose, it is obvious that the sound use of any natural resource implies that it should not be depleted or destroyed, but rather be either renewable or at least durable. Hence, a key feature of a sound salt making strategy should be to follow criteria of sustainability.

The modern concept of sustainable development was introduced by Gro Harlem Brundtland in the United Nations World Commission on Environment and Development (WCED) report "Our Common Future" (Brundtland Commission 1987) and is defined as the "development that meets the needs of the present without compromising the ability of future generations to meet their own needs". The concept has been further developed into numerous models, one of the most accepted ones is the so-called "triple bottom line", coined by John Elkington in 1994 (Slaper & Hall 2011). In its model, three spheres of action overlap as Venn circles, which express the need of taking into account economic, social and environmental aspects to achieve sustainability (see Figure 1). Often, the most obvious sphere of sustainability and with which the term is usually confused, is environmental sustainability. This sphere refers to the sound use of natural resources, the choice of renewable resources (*renewable* being understood either as replenishable or well below the depletion level), the prevention of pollution, the preservation of natural habitats and biodiversity, an adequate environmental management, the compliance with environmental laws and regulations, etc. Supporting this one are the social and economic spheres of sustainability. The social sphere refers to an appropriate education, an adequate standard of living, equal opportunities, human rights, community outreach, etc. Economic sustainability, on the other hand, refers to a balanced profit building, cost savings, resource efficiency, research and development, risk management, etc. When the different spheres of sustainability overlap, we achieve partial sustainability. The overlap between environmental and social sustainability is considered *bearable* and results in promoting fair trade, holding business ethics, attending to worker's rights, halting climate change… If environmental and economic sustainability overlap, it is considered *viable* or *feasible* and it results in attaining energy efficiency, creating incentives for conservation… Finally, if economic and social sustainability overlap, it would be considered *fair* and results in environmental justice, land stewardship and similar situations. In the next section, examples of these spheres of sustainability within the context of salt making and the management of salinas will be offered.

However, there is an additional aspect in business management which, in our view, should be essential to reach full sustainability (see Figure 1). Any institution offering products or services to third parties should pay special attention to authenticity. A term often used in business management and especially in tourism, the latter was already questioned by Mark Twain in his book “Innocents abroad” written in 1869 and is still under permanent debate (see for instance Jamal & Hill 2004, Lacy & Douglass 2002, Sims 2009, Taylor 2001…). Authenticity can be defined as the “quality of being real or genuine” and, from a philosophical point of view, shares semantic fields with other terms such as veracity, meaning, purpose or truth. In the end, it’s all about being honest to oneself and to one’s business environment (customers, providers, partners, other stakeholders). On the long run, authenticity builds trust and gives a solid ground for business. Within the context of this contribution, examples of authenticity in salt making and associated products and services will be offered, too.

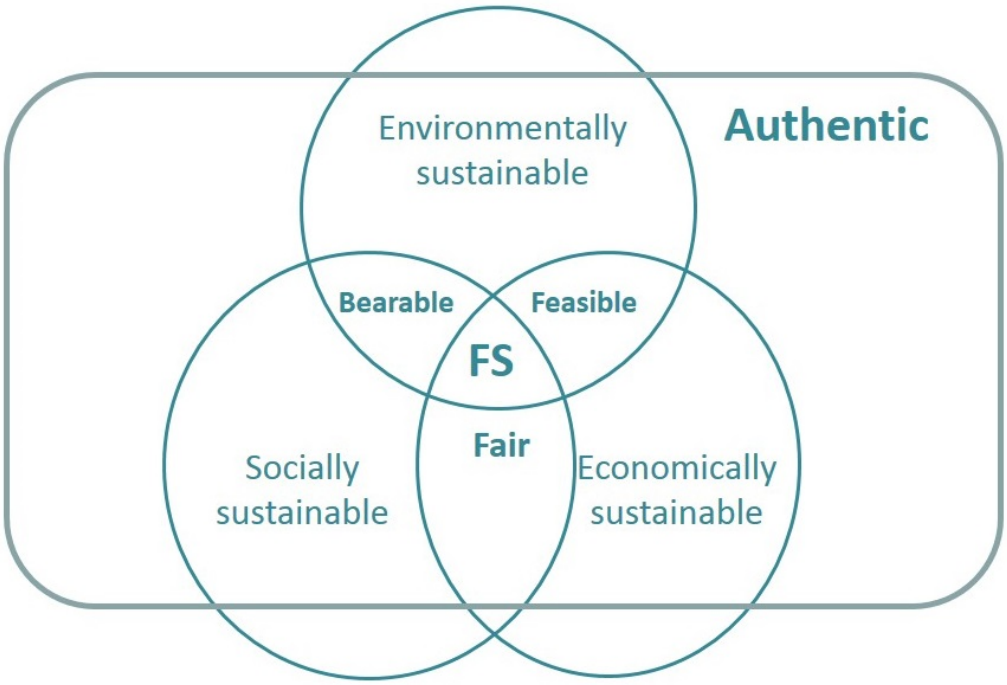

Figure 1: The road to full sustainability

Hence, at IPAISAL we propose a model of sound management of salinas and saltscapes that is based on a well-balanced overlap of the three spheres of sustainability, and cross-checked with authenticity. Only where the four aspects coincide, it can be spoken of full sustainability. Although this model offers a solid theoretical framework for sound business management, few if any of the salt making sites known by IPAISAL actually comply with the requirements of full sustainability. The sites usually stress one or another sphere of sustainability or offer some partial overlaps, but the overlap is not always balanced or authenticity cannot not always be proven. Nevertheless, in the examples offered below, the sites have made significant efforts to attain or at least get as close as possible to full

sustainability. The value of these examples does not lie so much in the extent of their efforts towards full sustainability but rather on the feasibility of specific actions that may contribute to attain it, with the necessary adaptations, regardless of the site.

3. EXAMPLES OF GOOD PRACTICES

Very few references exist to the good business practices of artisanal-like salt making sites in general (Thomson 1999, Sovinc 2009, Gallicé & Buron 2010, Hueso & Carrasco 2010, Rodrigues et al. 2011), but these are virtually inexistent in the case of Spain (Hueso & Petanidou 2011a). On the other hand, the artisanal salt market is changing at great speed, gaining visibility among the public, and older references (Petanidou 2000, Petanidou *et al.* 2002a, 2002b) are becoming increasingly obsolete. The fact that many of these sites have relied on or still receive important support from public funds, makes them more volatile than stable self-sustained businesses. Paradoxically, some of the better known sites and apparently more solid ones, which usually depend to a large extent on external funding, may be more fragile on the long run than less popular sites that are doing a more modest job and do not experience steep growth curves. Only time will show how each of them will behave. There is not enough time perspective and/or data to discuss these aspects in depth and therefore this discussion would belong to the realm of speculation. Hence, the examples that follow will be detached from the overall situation of the site of reference. They intend to serve as ideas to strengthen the visibility of salt making sites and the services and products they offer.

3.1 Economic sustainability

Salt, being a cheap commodity, does not offer much margin for profit and salt making companies often need to search for additional activities that may contribute to raise their profits (Hueso & Carrasco 2007). This is especially true in the case of artisanal salinas, which are labour intensive and therefore have high costs. Artisanal salinas are usually open for visitors and many of them offer specific services and products for them, whether they are actively producing salt or not. The most typical infrastructure is a visitor or interpretation centre or a museum, such as those in Salinas de Léniz (Basque Country), Poza de la Sal and Villafáfila (Castile and León), Salinas del Manzano or Saelices de la Sal (Castile – La Mancha), Rambla Salada (Murcia), Gallocanta lagoon (Aragón), Salinas de Fuencaliente (Canaries), etc.. In the Cardona salt mine (Catalonia), however, the visitors will be able to visit a large facility in which several indoor and outdoor exhibits, restored machinery and activity rooms are prepared for them in the so-called Cultural Park “Muntanya de sal”. The visit includes a visit to an area of the mine that is not under exploitation any longer and hosts spectacular salt formations. The well-known health properties of brine have also contributed to the creation of spa and wellness facilities in salinas, such as the brine pools of Naval (Aragón) or the foot and hand baths in Salinas de Añana (Basque country). Some productive sites are making efforts to get visibility in the culinary market by setting up alliances with opinion

leaders in gastronomy and, more specifically, with prestigious chefs. This is notably the case of Salinas de Añana and Salinas de Oro (Navarra), located in regions with strong culinary traditions. Other sites have chosen to specialise in a certain product, becoming thus a reference in this speciality. Such is the case of *Flor de sal Biomaris* (flower of salt Biomaris), produced in Isla Cristina or *Sal de Hielo (Ice salt)*, produced in the Bay of Cádiz (both in Andalusia).

Many of these actions are not foreign to industrial-like salt making sites, as they also create or host visitor infrastructures, such as those found in San Pedro del Pinatar (Murcia), Santa Pola or Torrevieja (Alicante), Cabo de Gata (Andalusia)… to name a few. One company owning several salinas within natural protected areas has used this fact as a sales argument and packages its salt as "salt from natural protected areas". Others use daring packaging, such as the bright coloured egg-shaped salt shakers labelled as "Soso" (unsalted, in Spanish).

3.2 Social sustainability

Artisanal-like salinas are labour intensive production sites with a high degree of specialisation and need to rely on well trained and strongly motivated human resources (Hueso & Petanidou 2011b). Some sites have been very keen on these issues and now offer training courses to future professionals who wish to pursue a career producing or processing salt, whether on site or elsewhere, such as Salinas Biomaris. Salinas de Añana, a salt making site with a strong drive for tourism development, has also focused on training human resources specialised in tourism, such as guides. From the point of view of equal opportunities, Salinas Biomaris has paid special attention to gender, offering job openings and training sessions specifically for women. Salinas de Añana, on the other hand, has agreements with local technical schools to offer their premises as a training site for students interested in restoration techniques, masonry, carpentry, etc. Another issue of interest is accessibility of the public with special needs, which has only been partially tackled in sites such as Salinas de Añana. With respect to community outreach, the salt lake of Villafáfila has a visitor centre that functions also as a cultural/social centre, offering the local community their building as a venue for events, meetings, etc. whether related or not to the values of the protected area of reference. More specifically, sites such as Cardona or Salinas de Añana are willing to collaborate with local artists and offer them visibility by letting them exhibit their work on site.

Again, part of these actions are also well known by industrial sites. To name a couple of examples, accessibility has been addressed in some of the protected sites next to large coastal salinas. On the other hand, the saltworks of Torrevieja have often been represented by local artists and there is a local tradition of building pieces of art with salt by soaking a wooden frame in brine and letting it dry. Samples of this can be seen at the local museum and shops.

3.3 Environmental sustainability

Salinas are extraordinary examples of cultural landscapes with a valuable natural heritage. The presence of water gives them the consideration of semi-natural or artificial wetlands, which provide important ecosystem services (Sadoul *et al*. 1998, Hueso & Carrasco 2009). This has resulted in some biodiversity conservation measures that may affect the salt production activity but which will enhance the site's value or even improve salt production on the long run. Examples of these are the limitations of passage to certain areas during the bird reproduction season or the construction of artificial nests such as the Bay of Cádiz or San Pedro del Pinatar; the preservation of streams for halophillic invertebrates, such as Rambla Salada or Salinas de Añana or the preservation of on site or nearby halophyte communities such as in Saelices de la Sal or Salinas de Imón y de La Olmeda (Castile – La Mancha). Since most of these measures are compulsory and there is no choice whether to apply them or not, they will not be labelled as good practices.

Nevertheless, some sites do stress the importance of their natural values by providing information and visitor centres, or more modest signs and panels, to allow visitors enjoy the sites. Some others also include specific infrastructures such as bird observatories or bird watching events, such as those in the Villafáfila or Gallocanta lagoons. The Salinas of Chiclana (Andalusia) are in fact overall devoted to environmental education, with a broad range of infrastructures and activities in and around the site focused on awareness raising and dissemination of the natural values of salinas. The salt production there is solely for demonstration purposes. Inland sites are not so much known for their bird fauna and specialise in showing other values to the public. Cardona may focus on the geological features of salt, whereas Rambla Salada stresses the biodiversity values of their invertebrates and Salinas de Añana mainly showcases its cultural heritage. Some sites allow local associations to perform volunteer work to restore the natural or cultural heritage in and around the salina, such as El Rasall (Murcia) or host youth work camps, such as in Salinas de Añana.

3.4 Authenticity

Salt making sites in Spain face an additional challenge that may be foreign to salt making sites in other countries. How to stand out amidst the almost 1,000 saltscapes that the country hosts? Of course, many of these sites are virtually invisible and a working site, whether actively producing salt or not, will only need to "compete" with a few dozens of sites. A large enough number, anyway, to be a legitimate issue of concern. It is clear that, in order to stand out, one has to build up an identity, to create a sense of belonging to the community, the area, it is attached to. This is where the concept of strategy becomes truly relevant. The key to a solid identity and a firm sense of belonging lies in authenticity and has to be taken into account at strategic level. This is no trivial issue. The recent experience of Salinas de Añana with the preliminary negative report of UNESCO in response to its request to become a World Heritage Site was based on this concept (ICOMOS 2014). Identity that is

rooted on authenticity may be achieved by simply acknowledging the specific features of the salt produced on the site. If the salt is not refined, the presence of specific micronutrients or certain physico-chemical properties may contribute to highlight the uniqueness of the salt. Salinas de Léniz, the only forced evaporation site in Spain, produces its salt with a distinct wood aroma, a result of the use of wood as a fuel in the evaporation process. Other salts claim to be especially appropriate for blending with specific food items (meat, fish, vegetables…) due to their composition or structure. Other, world known examples are the *sel gris* made in the Atlantic coast of France or the pink Himalayan salt, best identified by their colour. Labelling the salt in a trustworthy manner will contribute to strengthen the sense of authenticity. The use of quality seals, especially when approved by independent panels or relevant institutions also contributes to build trust among customers and the general public (Hueso 2013).

Measures that can be taken on site are linking the salt to the local natural and cultural heritage, such as the above mentioned "salt from natural protected areas", although it would have been better if it this label would have specified the names of the areas. Another example is the salt produced in Iptuci (Andalusia), whose managers claim it is obtained in a site built by the Romans. But perhaps the most powerful tool to create a sense of belonging is letting visitors and customers to produce their own salt. Being able to experience the rough task of salt making and the satisfaction of bringing your own harvested salt home creates a bond with the site that cannot be matched by any other form of passive communication. Salinas de Oro offers this activity to the general public during their yearly Gastronomic Day event and both Salinas de Añana and Salinas Biomaris regularly offer this activity to specific groups. Other events, such as cultural shows on site of the reenactment of historical forms of salt making such as the Salt Fair in Salinas de Añana are other options to create identity.

4. CONCLUSIONS

Salt production is a very diverse and complex activity in which many different aspects intervene. From a business point of view, salt making is, by itself, rarely profitable, especially if it is done in smaller, more traditional sites. The few salt making facilities that still work need to find other ways and means to earn their profits and survive. A balanced combination of sensitivity towards economic, social and environmental issues contributes to maintain the activity. If the site wants to stand out, then it will need to add authenticity to its list of priorities. Authenticity will give a sense of truth and of belonging to its hinterland, which will in turn strengthen the efforts to attain sustainability in the three spheres mentioned. Easier said than done, full sustainability remains a challenge ahead of most salinas. The examples presented above are just the glazing of a cake that is yet to be baked. Or salted.

ACKNOWLEDGEMENTS

IPAISAL is grateful to the managers of all the sites cited above, for their generosity and hospitality during all our visits and the fruitful discussions that have arisen from them.

REFERENCES

1. Brundtland Commission (1987) *Our common future*. Report of the World Commission on Environment and Development. United Nations, New York.
2. Carrasco, J.-F. & Hueso, K. (2006) Métodos tradicionales de obtención de sal: una revisión de conceptos. *Proceedings of the I Congreso Internacional de Minería y Metalurgia en el contexto de la Historia de la Humanidad: Pasado, presente y futuro: IV Simposio sobre Minería y Metalurgía Históricas del Suroeste Europeo*, Mequinenza, Spain 6-9 July 2006, pp: 559-562
3. Carrasco, J.-F. & Hueso, K. (Coords.) (2008) *Los paisajes ibéricos de la sal. 1. Las salinas de interior,* Asociación de Amigos de las Salinas de Interior, Guadalajara, Spain. 156 pp.
4. Denton, D. A. (1982) *The Hunger for Salt*. Springer-Verlag, Berlin
5. Fielding, A., & Fielding, A. (2006). *The salt industry* (Vol. 454). Osprey Publishing.
6. Gallicé, A., & Buron, G. (2010) Histoire et patrimonialisation du marais salant du Pays de Guérande depuis les années 1970. *Les Cahiers du Pays de Guérande*, *50*, 1-45.
7. van Geel, B. & Borger, G. J. (2005) Evidence for medieval salt-making by burning Eel-grass (Zostera marina L.) in the Netherlands. *Netherlands Journal of Geosciences—Geologie en Mijnbouw*, *84*(1), 43-49
8. Hocquet, J. C., Cuello, A. M. & Weller, O. (2001) Hommes et paysages du sel. Actes Sud, 224 pp.
9. Hueso, K. (2013) Salt, much more than an edible stone. *El Alfolí* 13: 17-23
10. Hueso, K. & Carrasco, J.-F. (2007) *El paisaje de la sal de interior. Valores para un desarrollo socioeconómico responsable*. In: Morère, N. (Ed.) Inland salt and salinas in History: Economy, environment and society. Madrid, Spain, pp: 1043-1060
11. Hueso, K. & Carrasco, J.-F. (Coords.) (2009) *Los paisajes ibéricos de la sal. 2. Humedales salinos de interior,* Asociación de Amigos de las Salinas de Interior, Guadalajara, Spain, 167 pp.
12. Hueso, K. & Carrasco, J.-F. (2010) Las salinas de Læsø (Dinamarca) como ejemplo de desarrollo local responsable. In: P. Florido e I. Rábano (Eds.) *Una visión multidisciplinar del patrimonio geológico y minero*. Cuadernos del Museo Geominero, nº 12., Madrid, Spain, pp: 397-406

13. Hueso, K. & Petanidou, T. (2011a) Characterisation and evaluation of European salt museums: How to show the importance of salt to others. *Proceedings of the 12th International Conference on Environmental Science and Technology (CEST2011),* Rhodes island, Greece, 8 - 10 September 2011.
14. Hueso, K. & Petanidou, T. (2011b) Cultural aspects of Mediterranean salinas. In: Thymio Papayannis & Dave Pritchard (Eds.) *Culture and wetlands in the Mediterranean: An evolving story*. Med-INA, Athens, Greece, pp: 213-226
15. ICOMOS (2014) *Evaluations of nominations of cultural and mixed properties to the World Heritage List*. ICOMOS Report to the World Heritage Committee. 38th Ordinary Session, Doha, June 2014, pp. 260-269
16. Instituto Geológico y Minero Español (2011) *Panorama minero: La sal común.* http://www.igme.es/internet/PanoramaMinero/actual/SAL2011.pdf (Accessed 10 May 2014)
17. Instituto de la Sal (2014) *La industria salinera en España.* http://www.institutodelasal.com/ (Accessed 10 May 2014)
18. Jamal, T., & Hill, S. (2004) Developing a framework for indicators of authenticity: the place and space of cultural and heritage tourism. *Asia Pacific Journal of Tourism Research*, *9*(4), 353-372.
19. Kaufmann, D.W. (1956) *Sodium Chloride, The Production and Properties of salt and brine.* London
20. Lacy, J. A., & Douglass, W. A. (2002) Beyond authenticity The meanings and uses of cultural tourism. *Tourist Studies*, *2*(1), 5-21
21. Leenders, K. (2004) The start of peat digging for salt production in the Zeeland region (NL). *Bruc ealles well: archaeological essays concerning the peoples of North-West Europe in the first millennium AD*, 15: 107
22. Luengo, A. & Marín, C. (1994) *El Jardín de la sal*. Ecotopía Ediciones Tenydea, S. L., Santa Cruz de Tenerife, Spain
23. Multhauf, R. P. (1978) *Neptune's gift, a history of common salt*. Johns Hopkins University Press.
24. Petanidou, T. (1997) *Salt in European History and Civilization*. Hellenic Saltworks, Athens.
25. Petanidou T. (2000) The postmodern saline landscape in Greece and the European Mediterranean: salinas for salt or what? In: Korovessis N. and Lekkas T.D. (Eds.), *Saltworks: Preserving saline coastal ecosystems*, Global NEST – Hellenic Saltworks S.A., Athens, Greece, pp: 67-80.
26. Petanidou, T., Dahm, H. & Vayanni, L. (Eds.) (2002a) *Salt and Salinas as natural resources and alternative poles for local development.* Proceedings of ALAS Final Conference, December 2002, Mytilene, Greece
27. Petanidou, T., Neves, R. & Pinto, S. (Eds.) (2002b) *Salt and salinas in the Mediterranean*, ALAS Final Book. Municipality of Figueira da Foz, Portugal
28. Petanidou, T. and Dalaka, A. (2009) Mediterranean's changing saltscapes: a study of the abandonment of saltmaking business in Greece, *Global NEST Journal* 11 (4): 415-433.
29. Rodrigues, C. M., Bio, A., Amat, F., & Vieira, N. (2011) Artisanal salt production in Aveiro/Portugal-an ecofriendly process. *Saline Syst*, *7*(3).

30. Sadoul, N., Walmsley, J. and Charpentier, B. (1998) *Salinas and nature conservation,* MedWet, Tour du Valat, France
31. Schulkin, J. (1991) *Sodium hunger: the search for a salty taste*. Cambridge University Press.
32. Sims, R. (2009) Food, place and authenticity: local food and the sustainable tourism experience. *Journal of Sustainable Tourism*, *17*(3), 321-336.
33. Slaper, T. F. & Hall, T. J. (2011) The Triple Bottom Line: What Is It and How Does It Work? *Indiana Business Review* 86: 1
34. Sovinc, A. (2009) Secovlje Salina nature park, Slovenia- New business model for preservation of wetlands at risk. *Global nest. The international journal*, 11(1): 19-23.
35. Taylor, J. P. (2001) Authenticity and sincerity in tourism. *Annals of tourism research*, *28*(1), 7-26
36. Thompson, I. B. (1999). The role of artisan technology and indigenous knowledge transfer in the survival of a classic cultural landscape: the *marais salants* of Guérande, Loire-Atlantique, France. *Journal of Historical Geography*, *25*(2), 216-234.
37. Weller, O. (2002) Aux origines de la production du sel en Europe. Vestiges, fonctions et enjeux archéologiques. *Archéologie du sel: Techniques et Societés*, 163-175
38. Williams, E. (1999) The ethnoarchaeology of salt production at lake Cuitzeo, Michoacán, México. *Latin American Antiquity*, 400-414.