

# Sugar cane industrial heritage in oriental coast of Malaga. A tourist route opportunity

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## 1. Introduction

Nowadays, industrial heritage has been accepted internationally as a heritage typology. Furthermore, a society interest in the industrial past has grown [1]. Along the 19<sup>th</sup> century, different sugar cane factories were developed in the oriental coast of Málaga. The mountain orography near the coast and the weather conditions favoured the sugar cane cultivation in this area. In addition, the possibility to distribute the sugar cane production by ship gave national and international recognition to this manufacturing activity [2]. This activity was gradually closing along the 20<sup>th</sup> century due to the tourist development of this area. This fact has caused the loss of relevant witnesses of this industrial activity. In spite of this, current different sugar cane manufacturing assets remain in this area with various states of conservation [3]. Taking in to account the national and international tourist relevance of this area and the proximity of the assets, creating a tourist route around the different sugar cane factories can contribute to promote the knowledge of this industrial heritage in the society and the local economy. Therefore, in this work, different sugar cane factories in the oriental coast of Malaga have been analysed to value the tourist interest of these industrial heritage assets.

## 2. Methodology

Geographical information has been evaluated, being the geographical location and the distance between the sugar cane factories the main factor to select it. A visit to the different sugar cane factories designated has been carried out. Furthermore, several photographs of the assets have been taken, using an Unmanned Aerial Vehicle (UAV) and a conventional camera. Finally, the actual state of the assets has been evaluated and a numerical touristic interest rating to each one has been applied.

## 3. Results and Discussion

Six sugar cane factories assets have been selected, showing different conservation states. All of them were visited and the most relevant characteristic of the factories were photographed (Figure 1). An initial

tourist route, taking into account tourist interests, has been proposal.



Figure 1. Ingenio San Joaquín (Nerja, Malaga)

## 4. Conclusions

In this work, an important sugar cane industrial activity, along a fairly defined time course, in the oriental coast of Malaga has been considered. Six factories have been identified in this area with a distance that covers about 25 km. Furthermore, the heritage interest and the conservation state have been analysed. Conventional and aerial photography with an Unmanned Aerial Vehicle have been used to collect the main characteristics of the heritage assets. Finally, a joint presentation of these sugar factories has been proposed, in order to carry out intervention projects and a possible tourist route.

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## 6. References

- [1] L. Sevilla, M. A. Sebastián, J. Claver, *Design, analysis and evaluation of the activity "10 images about ..." for the identification and study of assets of the Spanish industrial heritage*. *Procedia Manufacturing*, 13 (2017): 1413–1420.
- [2] C. Ladrón de Guevara, *Evolución y análisis histórico-gráfico de la industria de la caña de azúcar en el litoral malagueño*. Universidad de Córdoba. (2018).
- [3] S. Martín-Béjar, J. Claver, C. Bermudo, F.J. Trujillo, L. Sevilla *Análisis de recursos de la fotografía cenital mediante dron para la apuesta en valor de conjuntos patrimoniales industriales y mineros*. XVIII Congreso Internacional sobre patrimonio geológico y minero, Ponferrada. (2019).