

The cultural landscape of Campina de Faro: solutions based on water heritage and cultural tourism

Desidério Batista, Manuela Guerreiro, Bernardete Sequeira, Marisa Cesário, Dora Agapito | Universidad del Algarve

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ABSTRACT

The European INCULTUM project has at its core ten pilot cases with the aim of exploring the potential of peripheral and neglected territories when managed by local communities and stakeholders, within the framework of community-based cultural tourism. This article focuses on the Portuguese pilot, located in the Algarve region in southern Portugal, and describes the process of research and cooperation carried out in the first two years of the project to fulfil that goal.

The cultural landscape of the Campina de Faro is characterized by the presence of vegetable gardens and orchards associated with a historical, evolving, and adaptable irrigation system, revealing a technological unit (hydraulic infrastructures) and a social unit (local community). For this irrigation system (in abandonment and disuse) to survive, its study and rehabilitation is essential, as well as the dissemination of its importance and added value for society and the environment. In both cases, the role of residents is crucial as they hold ancient knowledge and know-how and it is on them that the improved management of natural (water, soil) and cultural (food goods, heritage) resources depends.

It is in the perspective of the importance of the farmers and local producers as the main actor and decision-maker in the planning, development, and management of resources to serve the objectives of both horticultural production and the enjoyment of the agrarian landscape, that the key role of the hydraulic heritage and the active participation of local communities as a basis for the development of sustainable tourism is recognised.

Keywords

Agrarian landscape | Agricultural heritage | Algarve (Portugal) | Campina de Faro | Citizen participation | Cultural itineraries | Hydraulic heritage | INCULTUM project | Irrigation system | Local community | Sustainable tourism |



El paisaje cultural de la Campiña de Faro: Soluciones basadas en el patrimonio del agua y turismo cultural

RESUMEN

El proyecto europeo INCULTUM tiene en su centro diez casos piloto con el objetivo de explorar el potencial de los territorios periféricos y desatendidos cuando son gestionados por las comunidades locales y las partes interesadas, en el marco del turismo cultural comunitario. Este artículo se centra en el piloto portugués, en la región del Algarve, en el sur de Portugal, y describe el proceso de investigación y cooperación llevado a cabo en los dos primeros años. El paisaje cultural de la Campina de Faro se caracteriza por la presencia de huertos asociados a un sistema histórico de riego, evolutivo y adaptable, revelando una unidad tecnológica (infraestructuras hidráulicas) y una unidad social (comunidad local). Para la supervivencia de este regadío tradicional (en abandono y desuso) es fundamental su estudio y rehabilitación, y difundir su importancia y valor añadido a la sociedad y al medio ambiente. El papel de los habitantes locales es crucial ya que son depositarios de conocimientos y saberes antiguos y de ellos depende la mejora de la gestión de los recursos naturales y culturales. Es desde la perspectiva de la importancia de la comunidad de agricultores y productores locales como actor principal y tomador de decisiones en la planificación, desarrollo y manejo de los recursos al servicio de los objetivos tanto de la producción hortofrutícola, como del disfrute del paisaje agrario, que se reconoce el papel fundamental del patrimonio hidráulico de la Campiña y la participación de las comunidades locales como base para el desarrollo del turismo sostenible.

Palabras clave

Paisaje agrario | Patrimonio agrario | Algarve (Portugal) | Campiña de Faro | Participación ciudadana | Itinerarios culturales | Patrimonio hidráulico | Proyecto INCULTUM | Sistema de regadío | Comunidad local | Turismo sostenible |

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INTRODUCTION

This article focuses on the Portuguese pilot case of INCULTUM, and its main objective is to contribute to the reflection and debate around the role and importance of the agrarian landscape and water heritage as a basis for community-based cultural tourism, in a territory subject to a process of disqualification.

The Campina de Faro, on the Algarve coast, corresponds to a fertile plain where historical societies and local communities have forged a cultural landscape, strongly identifiable by the mastery of water for the irrigation of vegetable gardens and orchards, from the elevation of underground water. Its historical irrigation system reflects the Arab-Muslim influence in the management and intelligent use of water. The water heritage (chain bucket well/*norias*, aqueducts, tanks, and canals), which is in the process of being abandoned and degraded, and the traditional practices and techniques of cultivation and irrigation, which are in disuse, are of great interest and historical and cultural value. The study, recovery, and enhancement of this heritage by integrating it into tourist routes that give it prominence and visibility, based on innovative solutions and participatory models, is the main objective of the Portuguese pilot.

Therefore, an interdisciplinary, integrative, and relational research methodology is used that brings together themes from History, Geography, Agriculture, Socioeconomics and Landscape, and is based on the crossing of bibliographic and documentary sources with the analysis of ancient cartography and fieldwork to map and survey hydraulic structures and collect oral information on traditional cultivation and irrigation practices and techniques.

In this sense, the article comprises three interrelated and interdependent parts. The first part corresponds to the reading of the historical process of construction and transformation of the cultural landscape of Campina. To this end, the identification and characterization of the water heritage (collection, conduction, storage, and distribution structures) and the associated horticultural production is considered, contextualizing it historically as a legacy of Mediterranean culture. Its cultural and environmental values and the challenges currently faced in safeguarding and enhancing this heritage are considered as an asset for the future of Campina de Faro.

The future of this territory is related to the development of specific innovative pilot solutions based on participative-collaborative approaches, which are identified and briefly described in the second part of the article. In it, innovative approaches related to the participation and collaboration of the local community and stakeholders, with a direct and important role in the different phases of the Portuguese pilot, are presented. The propositional

character of the pilot is explained in the last part of the article, where a proposal of cultural itineraries revealing the hydro-agricultural heritage is presented, which in the context of cultural tourism intends to promote communities of practice and have a positive impact on local communities from a social, cultural, environmental, and economic point of view.

A network of cultural tourist routes is proposed which, combining food production with recreation, enables the (re)discovery of the agrarian landscape and water heritage. In this sense, the Campina as a historical space of horticultural and fruit production, and future tourist product (which includes local communities and producers), will provide new and different experiences to visitors whose immersion in the local rural culture, associated with traditional irrigation and the Mediterranean diet, will certainly be remarkable.

BRIEF PRESENTATION OF THE PROJECT AND THE PORTUGUESE PILOT

INCULTUM—Visiting the margins. INnovative CULTural ToUrisM in European peripheries¹— submitted to the call *Transformation 4 Innovative approaches to urban and regional development through cultural tourism* is a three years (2021-2024) innovation action funded by the European Union under the Horizon 2020 Programme, with the goal to explore the potential of underrated destinations and neglected territories, of its cultural heritage and natural resources when managed by local communities and stakeholders.

In this sense, at the ten pilots of nine countries, innovative participatory and collaborative approaches are being implemented transforming local communities and stakeholders in protagonists and dynamic agents for avoiding tourism's negative impacts and learning from good experiences to be replicated and translated into new strategies and policies.

Pilots are at the core of the project. They networking to share communication and dissemination activities, data collection, analysis, and training resources. Join networking, transversal methodologies and activities promote strategies, tools and good practice exchange and learning. The Sicilian pilot (Monti di Trapani) in Italy, Spanish pilot (Altiplano de Granada) and Portuguese pilot (Campina de Faro) act as a cross-border action linked by the agrarian heritage, mainly based on historical irrigation systems and local production. Their Islamic origin in the Middle Ages (the three cases are directly related to the Route of El Legado Andalusi) have survived until creating unique cultural landscapes with diverse tangible and intangible cultural and environmental values.

The study, recovery and enhancement of Campina's agrarian landscape and water heritage, and its subsequent integration into touristic itineraries or cultural

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INCULTUM, the Project acronym, is the accusative singular of *incultus*, a Latin Word that means uncultivated, untilled, neglected, and so makes a reference to two concepts at the bases of the proposal: to experiment with new, unexplored, unworked innovative pilot solutions and to focus on secondary, underrated and overlooked territories to develop new strategies for a sustainable sociocultural, environmental, and economic development. The consortium responsible for the development of the project (ref. 101004552), which started in May 2021, is composed of fifteen partners (universities, municipalities, non-governmental organisations, and small and medium-sized enterprises) from ten countries, predominantly from the Atlantic-Mediterranean arc, including Portugal (www.incultum.eu). In this country, the University of Algarve (UAlg) is the institution responsible, with the collaboration of the IN LOCO Association as partner-associate, for the development of innovative ideas and solutions related to cultural tourism applied to the coastal agricultural plain between the cities of Faro, Olhão and Loulé, whose municipalities have joined the project.

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routes that give it prominence and visibility, associated with community-based cultural tourism, is the main objective of the Portuguese pilot.

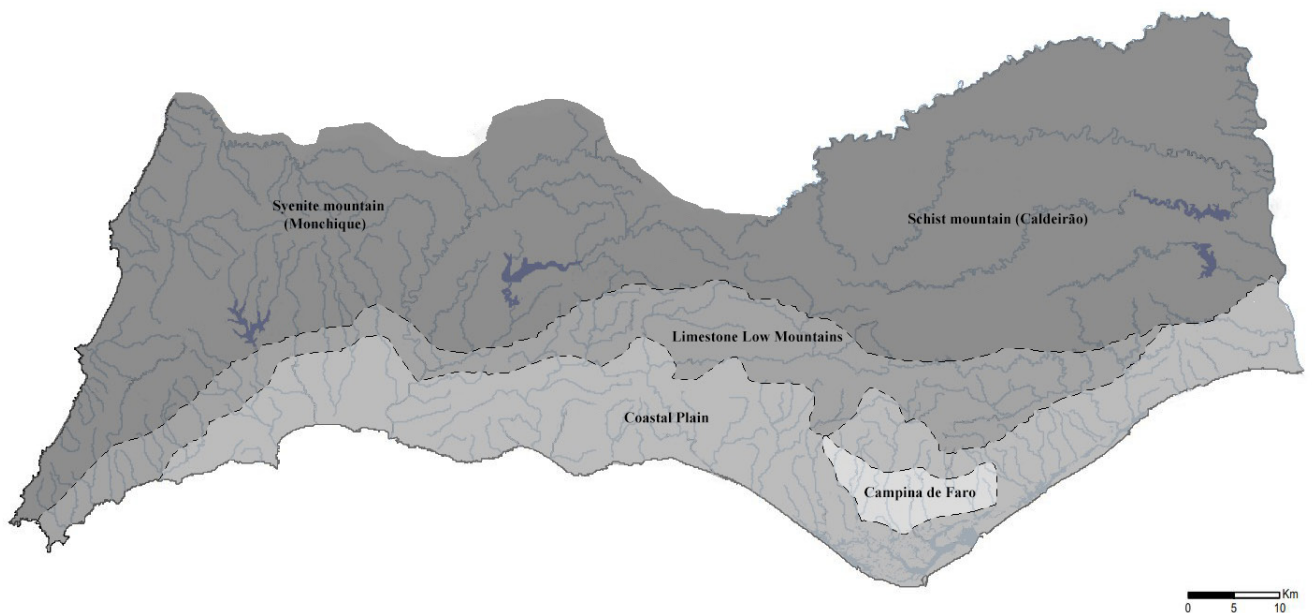
THE HISTORICAL PROCESS OF CONSTRUCTION AND TRANSFORMATION OF THE CAMPINA'S LANDSCAPE

Integrated in the Algarve Centre Littoral landscape unit (Cancela d`Abreu, Pinto-Correia and Oliveira 2004, 205), the alluvial plain between the historic cities of Faro, Olhão and Loulé, commonly known as Campina de Faro, reveals an old and continuous humanization process. Historically, it is associated with the Roman occupation which has in the *villa rustica* de Milreu, near the city of Ossónoba (Faro), its most important legacy (Fabião 1999, 41) and the Islamic occupation from which it inherited the mastery of water in the irrigation of vegetable gardens and orchards (Ribeiro 1991, 58). This heritage was consolidated and evolved based on the constant adaptation of communities to natural conditions and socio-cultural circumstances, the basis for the (trans)formation of the cultural landscape of Campina.

Mediterranean legacy: polyculture and irrigation

Romanisation manifested itself throughout Portuguese territory through a profound transformation of landscapes and ways of life (Ribeiro 1987, 28). In the south, Roman agrarian restructuring was based on the implementation of the city-countryside model in which, in the intermediate space of the urban

Campina de Faro in the Algarve context | map
Desidério Batista and Filipe Neto



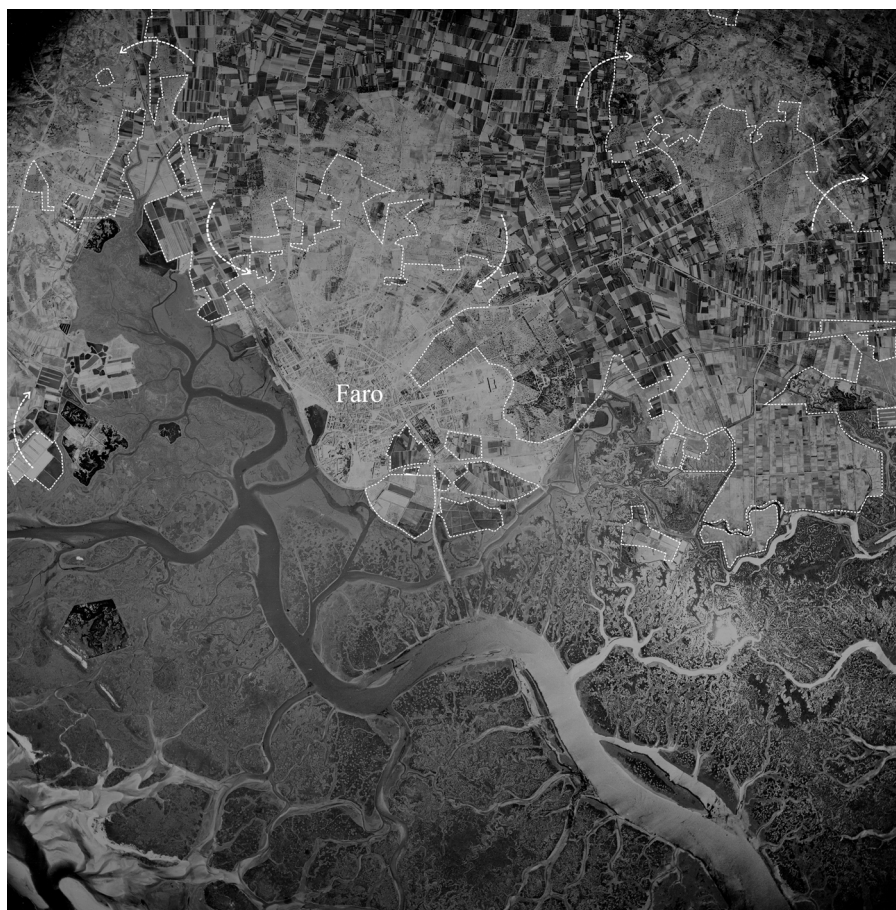
network, *villae* thrived, animated by great agricultural activity (Castro Caldas 1998, 39).

The fertile coastal plains of the Algarve, connected to the maritime trade routes, were the first to be Islamised, becoming a prestigious matrix of the Muslim civilisation of the West (Torres 1997, 432). This was affirmed through the consolidation of the coastal urban structure with the reaffirmation of pre-existing cities, as in the case of the ancient Ossónoba, the Arab Shanta Marya al-Gharb, and the foundation of new cities such as Cacela and Albufeira, on the coast, and Silves, on the banks of the Arade River, but also in the reinforcement of the Mediterranean tone that the Romans had begun to imprint on agriculture (Ribeiro 1991, 57).

The socio-spatial formation and economic development of the city of Faro and its surroundings were historically based on maritime commerce and on the agricultural production associated with the rich coastal plain and respective rural structures, with which it was deeply related. This is what the chronicles of Arab historians and geographers from the 10th to 12th centuries tell us about. For Al Râzî (10th century) the territory of Shanta Marya al-Gharb is flat and fertile, with many trees and good sowing, and in it there are very good vegetable gardens watered and very good fruit, and its qualities make it one of the best places in the world (Garcia Domingues 1945, 43; Borges Coelho 1989, 49-50). From Ibn Ghâlib's description of that city (12th century) we know that it has an extensive plain, variety of fruit, excellent agriculture, and profuse prosperity (King 2004, 17). Al Himyarî (XI-XII) and Al-Idrisî (XII) describe it as a beautiful port city frequented by ships, whose surroundings with good quality soil produce many figs and sultanas (Borges Coelho 1989, 59 and 66).

In their accounts, the Arab geographers associate the territory surrounding Faro simultaneously with the secano due to the presence of fig orchards and vineyards, and with irrigation linked to vegetable gardens. The agricultural crops of the dry land and the crops of the irrigated land are at the base of the diversity and quality which characterises the excellent agriculture practised in this coastal plain, according to those descriptions.

In effect, rainfed agriculture and irrigated agriculture constitute, as a heritage of Mediterranean culture (Ribeiro 2011, 60), the two privileged expressions of the unity and landscape diversity of the Algarve coastal plain and of the Campina (Cavaco 1976, 98). Here, depending on the agricultural aptitude of the soils and the availability of water, two characteristic types of landscape are expressed, although with different productive potentialities and on different scales. One, with less expression, associated with less fertile soils, corresponds to the rainfed orchard, predominantly mixed, irregular, and little dense of almond, fig, carob, and olive trees, formerly accompanied by cereals



The characteristic agricultural mosaic, geometric and tight, on the Faro's outskirts (1948) | map Desidério Batista and Filipe Neto

and legumes such as broad beans, peas, and chickpeas (Feio 1949, 113). The other type of landscape, associated with soil fertility and the availability of water for irrigation, includes irrigated vegetable gardens and orchards (citrus fruits, avocados recently introduced), almost always sharing the same land, at the ends of which are pomegranate, quince, and olive trees.

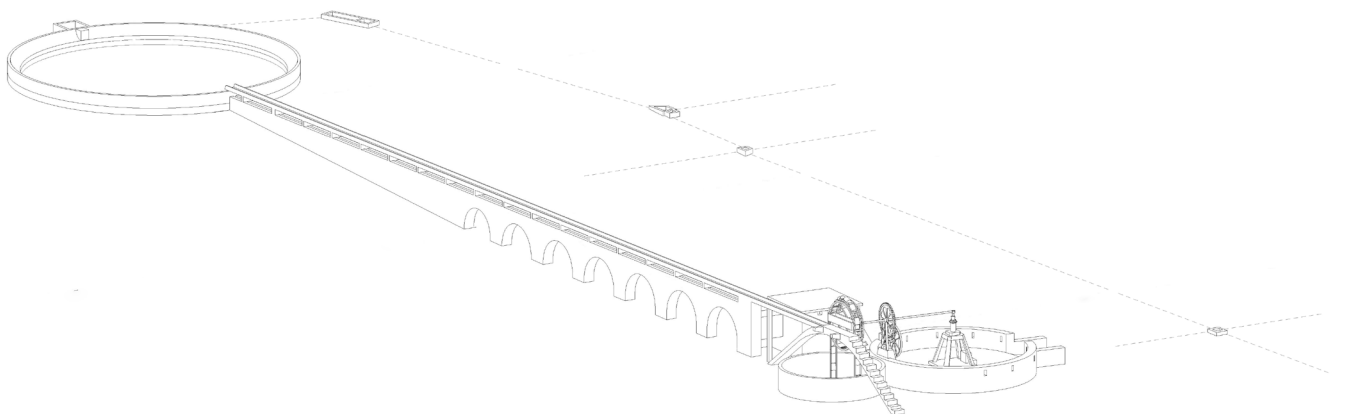
The production landscape of Campina reflects, in space and time, the Mediterranean polyculture that, depending on market fluctuations and the integration of new plants, articulates cultures without or with artificial water supply, maintaining the often-unstable balance between dryland and irrigation. This landscape has a remarkable unity and permanence of character, despite the evolution associated with the practices and techniques of cultivation and irrigation. And it is marked by the presence of trees in the field (with or without crops under cover), which corresponds to one of the most characteristic features of the Mediterranean landscape (Ribeiro 2011, 61), alongside horticultural crops, in the configuration of an agricultural mosaic of *coltura promiscua* (mixed crops), strongly identity.

Historically, the Campina is linked to the production of dried fruits, namely figs and sultanas (Romero Magalhães 1988, 161), and fig brandy (Link 1808, 145; Rodrigues 1999, 405), but above all to the production of horticultural and fruit precocious that were highly valued in regional and national urban markets. In this respect it is important to note that the rural economy of the Algarve in the 17th and 18th centuries is associated with the significant presence of vineyards and olive groves in the surroundings of the coastal urban centres, although it was mainly the domain of vegetable gardens (Romero Magalhães 1988, 151 and 157). These were responsible for the fresh produce whose early maturation contributed to its growing value in national markets throughout the 20th century (Cavaco 1976, 20).

The diversity of productions provided by the vegetable gardens and orchards complements the Mediterranean agrarian trilogy of bread, wine, and olive oil. The agricultural systems associated with green lands and dry lands represent the legacy of a traditional economy that is simultaneously self-sufficient and supplying external markets and are the Mediterranean synthesis of a landscape of mixed crops that has irrigation as its most complete representation (Ribeiro 2011, 65). In fact, in the landscape of Campina there are excellent conditions for rainfed orchards and orange orchards and vegetable gardens, and aquifer resources have been used since ancient times. Their use for irrigating crops that would otherwise produce little, or nothing (Ribeiro 2011, 77) is at the origin of the development, by historical societies and local communities, of a traditional, evolving, and adaptable irrigation system, consisting of a complex and diverse set of hydraulic structures.



Hydraulic structures: tank, aqueduct and *noria* |
photo Desidério Batista



Above, traditional irrigation system map of the *Quinta da Arábia*, near Faro | map Desidério Batista and Filipe Neto

Below, survey of hydraulic system | map Filipe Neto, Desidério Batista, Miguel Reimão and Giulia Maietti

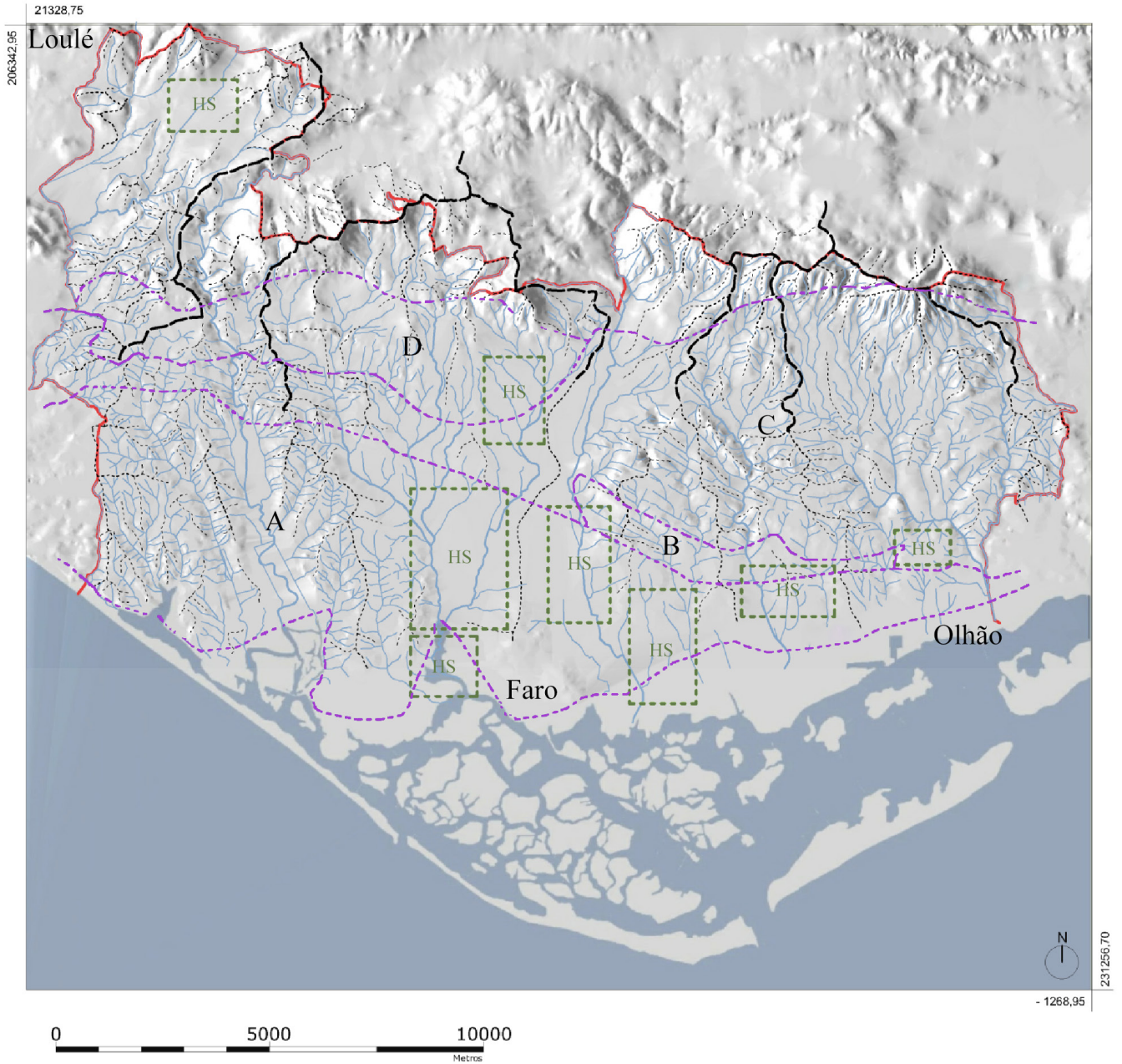
Water heritage: values and challenges

The scientific literature, both national and international, is unanimous in considering that the Algarve's historical irrigation system is an Arab-Muslim heritage (Dias & Galhano 1945, Feio 1949, Stanislawski 1963, Thorkild 1973, Ribeiro 1991, Mabberley & Placito 1993, Castro Caldas 1998, Lagardère 2006, Rodrigues 2020). The al-Gharb, as an integral part of al-Andalus, organised its territory, populated by stable rural communities, based on agrarian structures closely related to the cities which, in the case of Campina, corresponded to proximity vegetable gardens and orchards, according to Vincent Lagardère's classification (1993, 64). Here, what Orlando Ribeiro (2011, 79) states is clearly expressed: "every vegetable garden has its town, and the dispersed rural settlement always accompanies the irrigation".

The vegetable gardens on the outskirts of Faro and Loulé repeat the practices of Moorish times with their irrigation channels, crops plots and orchards (Ribeiro 1991, 58; Castro Caldas 1998, 59). According to these authors, this influence, which included the spread of irrigated crops and intensive horticulture, survived the Reconquista, reasserting itself and evolving over the following centuries. A specialised agriculture developed here whose agricultural products were exported through the port of Faro which established itself in the 15th and 16th centuries as the port of this important agricultural region (Cavaco 1976, 38). In 1600, Henrique Sarrão, in his *História do Reino do Algarve*, tells us that between Tavira and Faro "there are many settlements



The vegetable garden and Campina's landscape |
photo Desidério Batista



Hydrography, aquifers, and areas of concentration of hydraulic structures | source Batista 2009

of continuous inhabitants in good and high yielding farms, many orchards and vegetable gardens” (Romero Magalhães 1988, 157).

In the agrarian structure of Campina of the 17th and subsequent centuries, the farms (*Quintas*) gained relevance (Horta Correia 1989, 145; Link 1808,

143; Dionísio 1927, 240) as units of agricultural exploration where fig, almond, olive, and carob orchards abounded, along with cereals, interspersed with vineyards and vegetable gardens. Despite their proximity to the cities, the intensive polyculture vegetable gardens demanded constant habitation in the countryside, the house close to the land, which was facilitated by the mildness of the climate, the fertility of the soils and the availability of water (Cavaco 1976, 110). The vegetable gardens, says the same author (1976, 108), remained until the end of the 19th century essentially as small gardens which met the main needs of their populations for fresh vegetables and fruit and contributed to the supply of cereals (wheat and corn), sweet and round potatoes and dry vegetables (beans). At the turn of the 20th century and the transition from family farming to industrial agriculture, the growing demand for these products by the national markets, particularly Lisbon, led to an increase in the irrigated areas of the Campina with the increased use of underground water resources through the significant increase in the opening of wells and the multiplication of the number of norias, sometimes with more than one chain bucket device on the same well (Cavaco 1976, 108-109).

The current predominance of irrigated land, furrowed by a fruitful hydrographic network, although temporary, relates with the presence of alluvial soils and the (once) abundant aquifer. Water emerges, in fact, as a primordial element in the historical process of construction and transformation of the landscape of Campina, from an inherited and ingeniously perfected strategy contemplating its capture, conduction, storage and distribution by the irrigated fields. Based on the traditional irrigation system, consisting of *norias*, aqueducts, tanks, and canals, until the 1970s a great diversity of vegetables were produced (potatoes, green beans, tomatoes, lettuces, onions, carrots, etc.), together with cereals, forage crops and fruit, especially citrus fruit (sweet oranges were introduced to the Campina, albeit sporadically, in the 17th century) and some pomegranates, quinces, apricots and loquats.

The historical model of organization and management of the Campina's landscape persists, in a certain way, despite recent changes, significant, in the pattern of the landscape and in irrigation systems and agricultural production. The changes that have occurred since the 1980s in production processes (greenhouses), cultivation (over-intensive with the use of agrochemicals) and irrigation (sprinkling and drip irrigation from boreholes), and in the varieties of species cultivated (avocado trees, strawberries, etc.) have contributed to an important set of functional and ecological imbalances, and environmental and landscape dysfunctions. These imbalances and dysfunctions are related to the contamination of water and soils, and the increasing artificialisation and degradation of the landscape, also motivated by the strong urban-tourist pressure. The riverside condition of Campina, bordering the lagoon system (Ria Formosa), has given it a high degree of vulnerability regarding marine intrusion phenomena due to the over-exploitation of groundwater resources

through the large concentration of deeper and deeper boreholes and the consequent exposure to salinization phenomena of the soil and aquifer (Almeida et ál. 2000, 434).

However, the historic farms and rural houses with traditional vegetable gardens scattered in Campina, are still a repository of an architectural and hydraulic heritage of inestimable cultural and environmental value, despite its growing disuse and abandonment. Associated to it is the natural and cultural history of the Campina's landscape whose identity, at risk of being lost, continues, however, strongly rooted in ancient structures, practices and techniques related to the management and use of water and horticultural production. Traditional irrigation is a delicate and courageous way of accepting a challenge, associated with the scarcity of rainfall, overcome with the use of the most complex resources in obtaining and distributing water in irrigation of crops that without it would produce nothing (Ribeiro 2011, 75).

In the Campina, this system is (was) based on the abstraction of underground water through waterwheels driven, first by animals (cows and mules) and later by pumps and motors (diesel, in a first phase, and electric), which poured it into aqueducts (more or less extensive) that, in turn, led, always by gravity, to tanks (single or double, predominantly square) from which it was distributed by canals to the fields to be irrigated. This ancient irrigation system is an agrosystem with a long tradition and an essential part of the cultural landscape and the material and immaterial heritage of Campina.

Like other historical irrigation systems responsible for providing different ecosystem services to society (Civantos, Bonet & Abellán 2021, 6), the



The *noria* as a privileged expression of heritage and water mastery | photo Desidério Batista

irrigation system of Campina has a relevant set of heritage and environmental values, and a cultural importance that comes exactly from those services: the service associated with recreation and leisure. It is, in this perspective, that one of the challenges faced today by the hydroagricultural heritage of Campina as the basis of the memory of the landscape, is to rescue its role and importance in the (re)construction of collective identity, giving it visibility integrated into cultural routes associated with community-based cultural tourism.

THE CONTRIBUTION OF INNOVATIVE SOLUTIONS AND PARTICIPATIVE APPROACHES IN THE PORTUGUESE PILOT

Pilot cases are the core of INCULTUM and, consequently, local communities and stakeholders are the main protagonists and ultimate beneficiaries, playing a direct and important role in the implementation of the pilot actions through a participatory approach. This is a bottom-up approach that is based on a more democratic and inclusive governance model associated with the emerging smart territory paradigm in which the use of technology and the influence of citizens in the decision-making process, as co-creators, is decisive to achieve quality of life and quality of the environment (Simonofski, Van der Storme & Meers 2019).

The participatory model is considered a key success factor in tourism development as it contributes to the balance of power between stakeholders, responsible for a win-win situation (Ozceviz, Beygo & Waite 2010, 170). In this sense, the participation of residents in tourism development and heritage management contributes to improving their quality of life and, at the same time, to the sustainability of the territory itself (Nicholas, Thapa & Jae Ko 2009, 390), avoiding negative effects on social relationships, cultural heritage, and landscape.

Community-based cultural tourism and cultural participation

The adoption of the participative-collaborative approach in the Portuguese pilot comprises, fundamentally, community-based cultural tourism and cultural participation. Community-based tourism presupposes the active participation of communities enabling tourists to get to know them integrated in their own local environment, culture, habits, and natural and cultural heritage (material and immaterial), generating benefits for themselves (Lucchetti & Font 2013, 7). In this sense, community-based tourism in addition to ensuring direct benefits for host communities, contributes to the strengthening of their capacities to manage tourism resources, diversify the local economy, preserve local culture and habits, conserve heritage, and offer tourists and visitors education and learning opportunities (WTO & UNEP 2005, 13).

It is in the perspective of the importance of the local community as the main actor and decision-maker in the planning, development, and management of resources to serve the purposes of the tourism industry (Simpson 2008, 7) that the key role of the rural heritage of Campina and the participation and cooperation of local farmers and producers as part of the tourism product and destination itself is recognized.

The definition of hydro-agricultural heritage routes whose visits will be guided by the farmers themselves, and the holding of open-air markets (vegetables and fruit) in the villages, constitutes an attraction for visitors, bringing tourism closer to Mediterranean polyculture and diet, contributing to the local economy. In this way, market farmers become the protagonists in the commercialisation of the goods they cultivate (production, transformation, and commercialisation of citrus fruit: from orchards to shops selling jams, liqueurs, cakes, and ice cream), as well as in the promotion and management of the water heritage routes. Local producers will have control and autonomy in managing the entire process, from production to sale and consumption, ensuring the benefits generated for the entire local community.

In this way, the traditional socio-economies will become part of the tourist economy, exploring tourism niches focused on the rural environment and on the hydraulic heritage (agrotourism, rural tourism, slow tourism) as an alternative or complement to sun, beach, and golf tourism, which is predominant in the Algarve. The local economy will benefit from the involvement and active participation of the local community not only as producers-traders, but also as managers and guides for visits to their small farms on routes associated with agrotourism and cultural tourism. This new tourism segment, alternative to the established one, will have an important contribution in the fight against seasonality and will provide new and different experiences to the visitors whose immersion in the local rural culture will certainly be remarkable.

The tourism sector and the culture sector feed off each other and have reciprocal benefits, having the cultural participation, together with culture and cultural heritage, a fundamental contribution to the attractiveness of tourist destinations (Guccio et ál. 2018, 141).

The participation-collaboration of the local community and stakeholders, with a direct and important role in the different phases of the Portuguese pilot case, comprised the following innovative approaches. Using the knowledge that older farmers, custodians of memory, have about the landscape and water heritage, material and immaterial. Their knowledge and know-how help to narrate the agrarian history of Campina and contribute to the elaboration of collaborative maps through the Storytelling technique (Christensen 2012; Mager & Matthey 2015) and Story Map (Minguez 2021), as a support for the cultural routes as a tourism product, didactic resource, and vector of territorial and social cohesion.



Fieldwork for collecting oral information on traditional irrigation techniques | photo Filipe Neto

In this sense, the fieldwork played a crucial role, comprising two main purposes. The survey of hydraulic structures with exceptional historical interest and cultural and environmental value, and the collection of oral information about the ancient practices and techniques of cultivation and irrigation. The first goal is related to the study and diagnosis of the hydraulic heritage as a basis for the development of rehabilitation projects. The projects serve to enable the owners of this heritage to carry out restoration works for the subsequent organisation of visits (guided by the owners themselves) as part of the cultural itineraries. The case of Bela Salema illustrates this process of on-site survey, rigorous drawing in AutoCAD and preparation of the rehabilitation project that allows the family to start the recovery works very soon. The second goal is related to the exploratory interviews conducted to old farmers as the faithful custodians of ancient knowledge and wisdom, which are in the process of disappearing.

In a first approach to the empirical work, exploratory interviews were carried out with some knowledgeable field actors at the Campina de Faro. Exploratory interviews are usually carried out at the beginning of an investigation. They aim to draw the researcher's attention to certain aspects of the phenomenon under analysis, identify clues for reflection, and generate ideas and working hypotheses. It is, therefore, about listening, not having a script with precise questions. The exploratory interview is open, flexible, and very similar to a conversation (Burgess 1984). The exploratory interviews aimed to listen to the interviewees about the management of hydric resources of Campina de Faro and identify privileged informants for the subsequent semi-structured interviews (Bryman 2016). In this case, people with experience to Campina's

traditional irrigation system were sought to discuss the experiences and meanings around the water heritage and crops in the past and present.

The wealth of information on the process of agricultural exploitation of the old farms through the leasing of land to tenants, with an indication of their names, areas of the plots, crops produced and agricultural calendar, and the management and use of water in the irrigation of vegetable gardens and orchards, became essential to characterize the Campina's landscape in the mid-twentieth century, prior to the transformations.

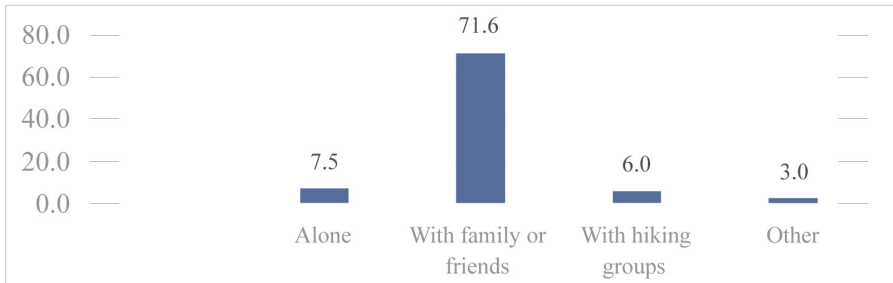
These interviews are joined by ongoing semi-structured interviews, which are recorded and later transcribed, serving to support the Story Map that will tell the natural and cultural history of the Campina's landscape. Cultural itineraries will reveal this history, reactivating and valuing the memory of the landscape and cultural identity, constituting a privileged means of socio-spatial and cultural cohesion, in the sense that it revives the technological unit (hydraulic infrastructure) and the social unit (local community) of the Campina.

In this sense, in the Portuguese pilot, the hydro-agricultural heritage routes are understood as an inclusive and relational means of traditional agriculture and cultural tourism. To test its relevance and importance, online questionnaires were carried out through social networks on the perception of resident and visiting populations regarding the role of water heritage as a basis and foundation for the proposal of cultural routes.

In this single case study (Yin 1993) a non-probabilistic convenience sample was used to administer an online questionnaire to residents and visitors to the Algarve region (Bryman 2016) that ran in December 2022 and January 2023. The questionnaire was organised in two sections. The first section was composed of a set of questions related to respondents' habits on trails/routes use, as well as attitudes and perceptions of cultural and water heritage routes focus on the Campina de Faro. A second section was designed to collect sociodemographic information. A pre-test was conducted with 5 respondents to ensure the clarity of the questionnaire.

We obtained a final sample of 134 valid questionnaires, mainly woman (around 70 %) under 45 years old (56 %) and residents in Portugal (88 %). Related to the methods, the chi-square statistic was used to test the hypothesis that the respondent's answers are independent from demographics (gender, age, and country of residency). A low significance value ($p < 0.05$) indicates that their answers are significantly different across the different profiles.

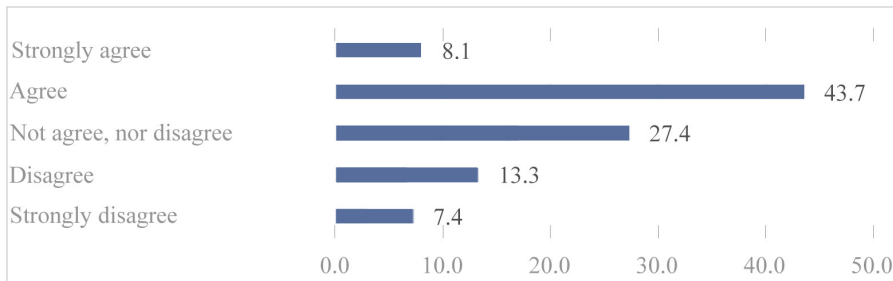
Our survey results show that almost 70 % of respondents visit or walk using trails/routes frequently. In this regard, the results do not show statistically significant differences between men and women ($\chi^2 = 0.851$, $p = 0.653$)



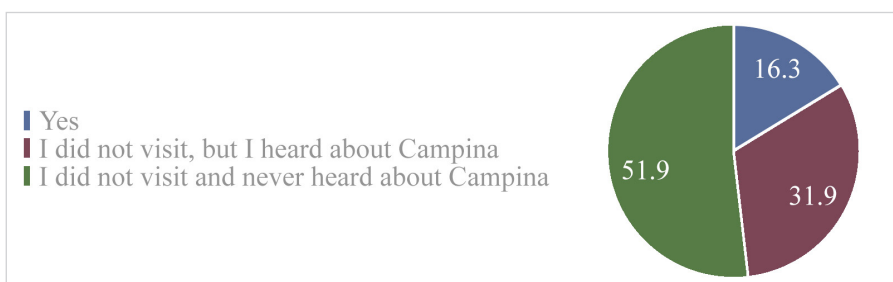
With whom the hiking activities were performed



To what extent the respondents agree that they would like to visit cultural routes/water heritage routes accompanied by a guide from the community



To what extent the respondents agree that they would be willing to pay a guide from the community to visit cultural routes/water heritage routes



Have you visited Campina de Faro? | graphics Dora Agapito

by country of residence ($\chi^2=2.593$, $p=0.273$) or age group ($\chi^2=3.155$, $p=0.532$). For the ones responding “sometimes” or “often” in this question, the hiking activities were predominantly performed with family or friends.

Most respondents (more than 85 %) agree or strongly agree that they would like to go hiking/visit water heritage routes (e.g., norias, aqueducts, tanks,

canals) in the Portuguese pilot area. These results do not present statistically significant differences by gender ($\chi^2=0.159$, $p=0.923$), but they differ by country ($\chi^2=11.739$, $p=0.003$) and age ($\chi^2=12.290$, $p=0.015$).

Residents under 65 years old are the segment that shows more interest in going hiking/visiting these cultural routes. The percentage of respondents who would like to visit cultural routes/water heritage routes, accompanied by a guide from the community is the majority (around 70 % agree or strongly agree) and more than half of the respondents are willing to pay for this service (52 % agree or strongly agree) (see page 105).

Only 16 % of the respondents had already visited the Campina de Faro, 20 % know cultural routes/water heritage routes in this coastal plain, and more than 30% didn't visit but had already heard about it.

The respondents who visited the Campina were asked about the unique attributes and benefits that this place can offer to potential visitors, considering tourism development in this area. In general, the respondents perceive that of Campina allow creating routes connecting rural villages and cities surroundings. This territory includes vegetable gardens, orchards, and hydraulic infrastructures, where water-based heritage is very rich (e.g., chain bucket well/*noras*, aqueducts, tanks, canals) and can be used as a theme. Farmers and expert guides could interpret and value this heritage.

The history around water-based cultural heritage (including traditional practices and techniques traditions) is specific to local community, which is a unique feature of this area. These aspects are unknown to general population. The proximity of the littoral touristic areas and mountains (*serra algarvia*), together with the richness of rural landscape of the Campina, with a focus on the traditional crops (vegetables and fruits), is also highlighted by the participants. Its Mediterranean landscape and the proximity to salt mines (Loulé) are mentioned as well. The atmosphere of the Campina is classified as peaceful and safe.

The results of the questionnaires allow us to conclude that Campina de Faro, despite being in the heart of the Algarve coast and in the most touristic region of the country, remains practically unknown and on the margins of tourist activities. However, it is recognized by those who knows it that it holds a great cultural interest associated with historical irrigation.

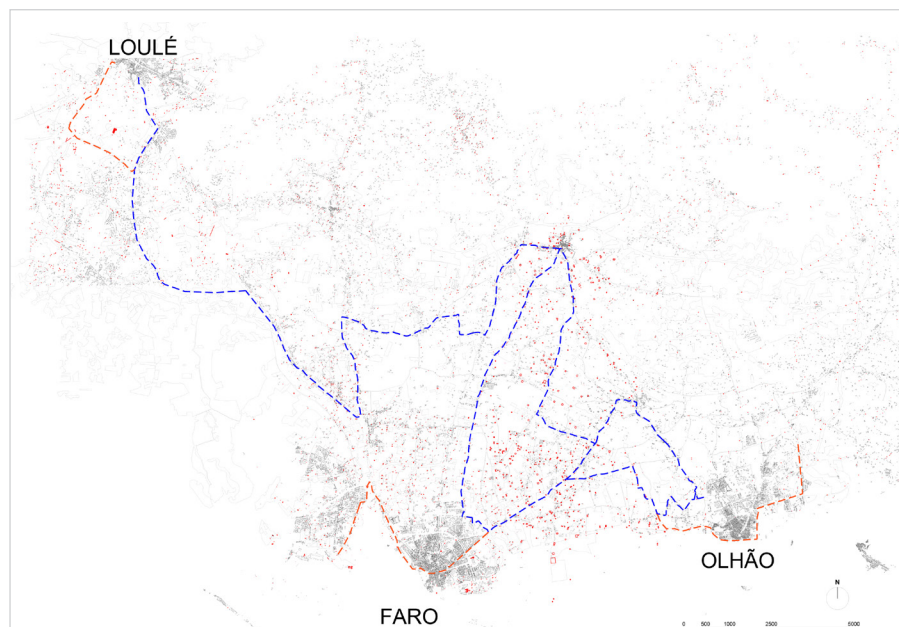
And that this legacy, being unique, has an exceptional heritage and environmental value. Its (re)discovery through cultural routes associated with community-based tourism will certainly make an important contribution to the local economy, reconciling the objectives of agricultural production and enjoyment of the water heritage.

A PROPOSAL FOR CULTURAL ITINERARIES AS A BASIS FOR SUSTAINABLE TOURISM IN THE CAMPINA

Defined as the intangible benefits that people derive from ecosystems through spiritual enrichment, cognitive development, recreation and aesthetic experience, cultural ecosystem services involve activities, such as tourism, and spaces that are at the centre of everyday life (Church et ál. 2015, 71). In the Campina de Faro, the landscape and water heritage reflect a historical model of occupation and spatial organization anchored in the deeply intricate relationships between living and producing, between home and vegetable garden, revealing a territorial culture based on daily agricultural work and experiences of strong connection to the land and the place. As an everyday landscape, the cultural landscape of the Campina materializes ancient knowledge associated with the use and shared management of water and cultivation practices and techniques that are gradually falling into disuse and whose loss will be irreversible, very soon.

It is with a view to safeguarding, valuing, and reactivating this heritage of inestimable socio-cultural, but also environmental value that, within the framework of the Portuguese INCULTUM pilot, is being developed a proposal for cultural itineraries related to the hydro-agricultural heritage of Campina. This proposal has three main goals related to the SDGs 8, 11, 12, 14 and 15. The first goal is to recover, rehabilitate and enhance the natural and heritage resources of Campina associated with traditional agriculture and historic irrigation, (re)activating and inspiring a community of sustainable practices around landscape and water heritage routes. The second goal is to create an alternative tourism offer to the established tourist offer (sun, beach, and golf) in the sense of creating a new sustainable tourism product around the water heritage and the Mediterranean diet, targeting new segments of tourists and visitors - lovers of heritage and local culture. The third goal is to develop the pilot case within the scope of an integrated territorial project that, combining agriculture (agroecology) and community-based tourism, will promote the sustainable development of Campina from an environmental, cultural, and socioeconomic point of view.

To fulfil these goals, the proposal is based on four key strategies. The first is to rescue the history and memory of the place associated with the (shared) use and management of water in the irrigation of agricultural crops that without it would produce little or nothing and, therefore, with a decisive contribution to the agrobiodiversity and biodiversity of Campina. The second strategy is based on the economic promotion of local products (essentially from the land, but also from the lagoon and the sea), which traditionally produced and processed according to local methods and recipes, are living examples of the Mediterranean diet, with a clear contribution for its valorisation as intangible cultural heritage of Humanity.



Proposed water heritage routes network for Campina de Faro | map Desidério Batista and Filipe Neto

The third strategy seeks to reinforce the idea that the collective memory and cultural identity overlaps to the sectoral economic profitability. And as anchors have lasting advantages for the development of sustainable tourism, based on the deep interrelationships between the cultural sector (cultural participation, cultural heritage) and the tourism sector (the community is part of the tourism product). And, finally, a strategy that relies on participatory approaches and models that are widely accepted as criteria for sustainable tourism, as they help decision-makers to maintain traditional lifestyles and respect community values (Wild 1994, 13). But also, because they are useful in developing the image and brand of the tourist destination and increasing its competition, providing better customer services, and producing innovative tools (Wang & Fesenmaier 2007, 865) in promoting a culturally based tourist activity and environmental.

In view of the above, the definition of the route of the hydro-agricultural heritage of Campina, in addition to being based on the valuable set of water structures (more than 400 norias), in order to contribute to the preservation of the memory of the landscape and (re)activation of its identity, also includes the idea of holding open-air markets for the sale of vegetables and fruits in villages (Estoi, Conceição, Pechão), constituting an attraction for visitors contributing to the local economy. For this reason, the main points of interest in the network of cultural routes are associated with the presence of local communities of horticulturists and small associations of organic producers, restaurants of traditional food and local accommodation in old farms and rural houses.

Two types of cultural routes are proposed. A longer one, a few kilometres long, to be done by public transport or by car, and a shorter one, close to the cities, to take by walking, bicycle or on horseback. This type of route is environmentally friendly as it is carbon neutral and is associated with slow tourism. In both cases, visits to the water heritage and to the vegetable gardens and orchards will be guided by the farmers themselves, with visitors having the possibility of experiencing new and different involvements and immersions integrated into communities of practices and heritage communities, living and authentic.

FINAL REMARKS

The European INCULTUM project is based on a participatory approach where local communities and stakeholders play a direct and important role in the implementation of pilot actions. In the Portuguese pilot on the coastal plain between the historic cities of Faro, Olhão and Loulé, in the heart of the Algarve, the reason behind the involvement of local actors is to promote a positive impact of participatory models in reactivating the memory of the agrarian landscape of Campina, with an important contribution to the local economy. And at the same time avoiding the negative effects of tourism on social relations, on the hydraulic heritage and on the cultural landscape. The adoption of this approach is supported by training and sharing of good practices considered an important factor for the successful implementation of initiatives and as a means of inspiration and reuse by other stakeholders.

The adoption of the participatory-collaborative model in the Portuguese pilot has, so far, fundamentally included community-based cultural tourism and cultural participation. The innovative approaches on which they are based mainly included fieldwork with two main objectives. The study and cataloguing of the water heritage with a view to its recovery and enhancement, as part of cultural visits managed by the local community. And the collection of oral information from older farmers, guardians of memory, whose knowledge help to narrate the agrarian history of Campina and contribute to the elaboration of collaborative maps. These are the support for cultural routes as a tourist product, didactic resource, and vector of territorial and social cohesion.

The participatory approach and its models help to implement the 2030 Agenda and the Sustainable Development Goals, namely Goals 8, 11, 12, 14 and 15 on inclusive and sustainable economic growth, sustainable cities and communities, sustainable consumption, and production, and use sustainable use of oceans and marine resources, and sustainable use of terrestrial ecosystems and biodiversity.

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