



Sustainable management of Mediterranean artisanal salinas (MedArtSal)

Operational plan and policy recommendations



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The project 'Sustainable management model for Mediterranean artisanal salinas' (MedArtSal) is funded by the European Union under the ENI CBC Med Programme. The project total budget is € 3.2 million, and the EU contribution is € 2.9 million (90%). MedArtSal is a four-year project which aims to promote the sustainable development of artisanal salinas, providing concrete support on economic, environmental and governance issues. Addressing common challenges in four Mediterranean regions (Italy, Spain, Lebanon and Tunisia), the project will promote the development of a sustainable and adaptable management model fostering the territorial valorisation of artisanal salinas. The project is led by the University Consortium for Industrial and Managerial Economics (CUEIM; Italy) and the partners are Association for the Development of Rural Capacities (Lebanon), Fair Trade Lebanon (Lebanon), IUCN Centre for Mediterranean Cooperation (Spain), Mediterranean Sea and Coast Foundation (Italy), Saida Society (Tunisia), University of Cádiz (Spain) and Tuniso-Italian Chamber of Commerce and Industry (Tunisia).

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IUCN is pleased to acknowledge the support of its Framework Partners who provide core funding: Ministry of Foreign Affairs, Denmark; Ministry for Foreign Affairs, Finland; Government of France and the French Development Agency (AFD); Ministry of Environment, Republic of Korea; Ministry of the Environment, Climate and Sustainable Development, Grand Duchy of Luxembourg; the Norwegian Agency for Development Cooperation (Norad); the Swedish International Development Cooperation Agency (Sida); the Swiss Agency for Development and Cooperation (SDC) and the United States Department of State.

This publication has been made possible thanks to the funding from the European Union under the ENI CBC Med Programme as part of the project 'Sustainable management model for Mediterranean Artisanal Salinas (MedArtSal)' 2019–2023. The contents of this document are the sole responsibility of the authors and can under no circumstances be regarded as reflecting the position of the European Union or the Programme management structures.

Published by: IUCN, Gland, Switzerland and University of Cadiz, Cadiz, Spain

Produced by: IUCN Centre for Mediterranean Cooperation, Malaga, Spain

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Recommended citation: UCA & IUCN (2023). *Sustainable management of Mediterranean artisanal salinas (MedArtSal): Operational plan and policy recommendations*. Gland, Switzerland: IUCN and Cadiz, Spain: University of Cadiz.

Cover photos: Front: Salinas del Alemán, Huelva (Spain) © Salinas del Alemán;
back: Salina Conti Vecchi, Cagliari (Italy) © Andrea Mariniello

Layout by: miniestudio.es

Available at: <https://medartsal.com>

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Executive summary

This document describes an operational plan for the development of policies for the sustainable management of Mediterranean artisanal salinas, from an ecosystem-based management perspective. The purpose of the document is to develop different strategic lines that improve the sustainability of salinas. The main objectives of the plan include the practical application of a sustainability model developed by the project, while identifying its constraints and further opportunities.

As an initial step, a SWOT (strengths, weaknesses, opportunities, and threats) analysis was conducted to identify critical issues and main challenges. The proposed methodology consisted in analysing the SWOT matrix at national and regional scales, identifying goals for each SWOT ele-

ment and defining tangible actions. Each country has developed its own SWOT to indicate how each group of relevant stakeholders, including different hierarchical levels, will tackle the sustainability challenges of artisanal salinas.

A specific sub-operational plan has been discussed for the four MedArtSal partner countries (Lebanon, Tunisia, Italy and Spain) highlighting the primary challenges faced by artisanal salt producers in maintaining salt pans in operation while ensuring profitability and sustainability, as well as the potential solutions and opportunities. The main focus of the plan is to determine 'who should do what' to ensure the maintenance and improvement of the traditional salt activity and the saltworks besides establishing different levels of assessment, planning, and management at regional, national and international levels.

Contributors and acknowledgements

This publication was prepared by Yana Korneeva Abdulaeva and Esperanza Macarena Castro Casas from the University of Cadiz (UCA), and Helena Clavero Sousa, Catherine Numa, Lourdes Lázaro and Andrés Alcántara from the IUCN Centre for Mediterranean Cooperation (IUCN-Med), with the contributions of the MedArtSal project partners and under the coordination of IUCN-Med. It has been reviewed and edited by Santiago Suárez O'Solan and Helena Clavero Sousa (IUCN-Med).

The MedArtSal partners would like to thank all the individuals and organisations who provided valuable input to the development of this document, whether by reviewing and sharing their comments on its content, providing feedback, or simply being part of the process that led to this publication. Individuals who participated in the national analyses for this document are listed in each of the country sections.



MedArtSal partners visiting a salina in Spain. © MedArtSal

PROJECT PARTNERS



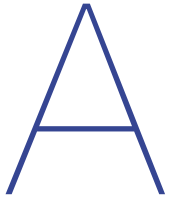
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Background and introduction





An operational plan is a strategic document that outlines the daily operations and processes required for running a successful business. It encompasses activities that different teams or departments such as recruitment, marketing and finance, need to perform to achieve company goals and objectives. The purpose of this document is to develop different strategic lines that improve the sustainability of salinas from an Ecosystem-Based Management perspective. This document is part of the toolkit developed by the MedArtSal project to support the traditional salt sector and to inform all the actors involved in its maintenance with proposals of actions to improve and promote this traditional activity besides achieving better understanding of the importance of the ecosystems of the salt pans.

Objectives

The Operational Plan (OP) aims to achieve multiple objectives by utilising the sustainability model developed by the MedArtSal project¹. This model provides inputs at various territorial and hierarchical levels, enabling different stakeholders to contribute towards salinas' environmental responsibility and social sustainability (for instance, to foster human rights, social welfare, etc.). The OP is based on a diagnosis of constraints and opportunities at regional and national scale, together with solutions and recommendations. It further establishes the conditions in which the model can be better implemented. Therefore the collaboration of all MedArtSal partners is crucial in order to build a more accurate OP that benefits all stakeholders in the territory. By creating a network and implementing the model, all stakeholders will benefit from improved sustainability levels. The level of change needed for each territory must be assessed to implement the model and determine which aspects of the OP are needed for each specific context.

The main idea behind this plan can be summarised as “Who should do what to enable a specific improvement”, in the context of seeking the sustainability of the artisanal salinas. To answer this question we established different levels, with the general approach of *Assessment → Planning → Management and focus at the general /regional national and international scales.*



Field actions with young volunteers in a salina.
© SODIMER, Kerkennah Islands

¹ For more information on the MedArtSal sustainability model for artisanal salinas see: UCA (2021). *MedArtSal Sustainable Management Model for Mediterranean Artisanal Salinas*. MedArtSal project deliverables A.3.3.1., A.3.3.2 and A.3.3.3. Final report. (Available at: <https://medartsal.com/download/management-model/>) And <https://www.enicbmed.eu/medartsal-model-vision-sustainability-artisanal-salinas-mediterranean>

2

Identification and assessment of critical issues



The SWOT analysis serves as the basis for developing actions that lead to a level of improvement, besides identifying critical issues and main challenges. A first SWOT matrix (Table 8 in Annex) was developed as a basis and was sent to MedArtSal partners with instructions to work on it. The proposed methodology consisted of two main parts:

- Each country analysed the elements of the matrix at a local level with the help of experts in the field. Each participant of this assessment was asked to choose five strengths, weaknesses, opportunities and threats, which would then be ranked from 1 to 5 in order of relevance. The one chosen by a higher number of experts was considered to have more relevance for the diagnosis of the situation of each country.
- Once the five main weaknesses and threats had been identified, it was time to propose tangible actions to be implemented by different key stakeholders at local, national and international level. To make it easier to propose specific actions, the experts had to define a goal for each SWOT element.

2.1 Countries sub-operational plan

Based on the methodology described above, each country formulated its own SWOT to later indicate how each hierarchical level of relevant stakeholders would face the challenges of the sustainability of artisanal salinas.

2.1.1 LEBANON

Seven experts participated in the SWOT analysis for Lebanon. Among them were salt producers as well as Fair Trade Lebanon and Association for the Development of Rural Capacities (ADR) colleagues (Table 1).

TABLE 1. Participants in the analysis process of the Lebanese SWOT matrix.

#	Name	Institution
1	Benoit Berger	Fair Trade Lebanon
2	Nabil Chebib	Fair Trade Lebanon
3	Hiba Fawaz	ADR
4	Jessica Najjar	Salt producer
5	Georges Sleiman	Salt producer
6	Imad Malek	Salt producer
7	Maya Masri	Fair Trade Lebanon

In Lebanon, artisanal salt producers face various challenges that affect their productivity and profitability. The primary challenges relate to the legal status of the salinas, which are rented from the church through the monastery on whose land the salt pans are situated. In addition, there is a deficit in regulations due to their age, lack of adaptation to the current salt context and lack of coordination among administrative bodies.

Furthermore, promoting local and artisanal products is difficult due to limited knowledge and a lack of associations

between companies such as cooperatives. Likewise, many salt producers have trouble in maintaining their facilities, many of which have been abandoned for years.

Despite these challenges, Lebanon has abundant natural resources, including high-quality products and services that are currently highly demanded in various economic sec-

tors. This presents enormous potential for diversification of products and activities in the artisanal salinas. However, developing complementary activities to the extraction of salt, such as ecotourism and gastronomic tourism, would require more public administrative and financial support. The creation of own brands and denominations of origin is crucial for promoting the products effectively.

TABLE 2. Lebanese SWOT main elements after the experts' analysis.

 Weaknesses	 Threats
<ul style="list-style-type: none"> ● Lack of infrastructure: better infrastructure could enable tourism to develop in salinas: signage, tourist information points, accesses, basic services, etc. 	<ul style="list-style-type: none"> ● Uncertain legal status of salinas, for example, when land is rented from religious entities or when the timeframe remains unspecified
<ul style="list-style-type: none"> ● Need for direct financial public aid and credit, as well as advice to support corporate actions and brand development 	<ul style="list-style-type: none"> ● Inconsistent regulations for this sector (laws may be very old, not adapted to current context, offering insufficient coverage, etc)
<ul style="list-style-type: none"> ● Limited marketing efforts: lack of promotion (both physical and online). Poor knowledge of market segmentation 	<ul style="list-style-type: none"> ● Costly maintenance of the structures of the salinas for small businesses and entrepreneurs
<ul style="list-style-type: none"> ● Quality certification: lack of synergies between salinas and associations to develop common quality standards, for example, appellations of origin, labels, etc. 	<ul style="list-style-type: none"> ● Low competitiveness of local and organic products compared to the prices of industrial salt
<ul style="list-style-type: none"> ● Support to entrepreneurship: business projects require initial support to assess project viability, as well as for the implementation, helping to tackle both economic and administrative challenges 	<ul style="list-style-type: none"> ● Lack of an adequate legal framework to protect and promote the artisanal management of salt pans
<ul style="list-style-type: none"> ● Low levels of profitability: artisanal salt products are usually undervalued 	<ul style="list-style-type: none"> ● Lack of coordination inside public administration, high amount of bureaucracy slowing down the processes
<ul style="list-style-type: none"> ● Land and property management: salinas often lay within neglected land, where ownership is fragmented. 	





Strengths

- **Abundance of natural resources in salinas** that can be harnessed to provide economic benefits, but also for nature, tourism activity, heritage and cultural preservation, as well as food and gastronomy-related
- **Promoting Fleur de sel** - a highly valued salt variety in haute cuisine
- **Diversifying products and services** (macro & microalgae, tourism, outdoor activities to maximise benefits)
- Very specific and high-quality products and services that can **only be obtained or developed** in certain places, such as in the Mediterranean
- Potential to create **gourmet products** that are becoming increasingly popular.



Opportunities

- **Improving the protection of important natural sites** through salt-production activities
- **Developing "salt tourism"** as a business model that harnesses the beauty of the landscape and ecological value of artisanal salinas
- **Developing local ecotourism clusters** to promote tourism in the zone concerned
- **Boom of gastronomic tourism** is creating a high demand for natural, healthy, functional and organic products
- **Developing a single designation of origin** or label, which unifies several different brands, especially to target international markets
- Carrying out some **institutional promotion** and local direct sales actions in the municipalities could help to increase revenue

KEY POLICY RECOMMENDATIONS FOR LEBANON

ESTABLISH A COOPERATIVE OF OWNERS of salinas who actively participate in law and decision-making related to salinas and request infrastructure maintenance

FACILITATE THE WORK of salt workers during the maintenance season by simplifying the process to obtain permissions

PROMOTE GREATER DIVERSIFICATION OF ACTIVITIES by authorizing or removing bureaucratic hurdles to certain commercial activities such as ecotourism

PROTECT AND ENHANCE THE VALUE of artisanal salinas through new regulations, promoting their recognition as UNESCO World Heritage and developing a certification model for artisanal salt

LEGALISE THE STATUS OF SALINAS by both updating and creating regulations and policies, aiming to reduce or limit the import of salt and to facilitate the export of artisanal salt

PROMOTE USE OF NEW TECHNOLOGIES to optimize the production while respecting traditional knowledge and helping develop new salt products



Flamingos in the Salina di Cervia. © Artem Bolshakov

2.1.2 ITALY

Five experts (Table 3) from the Mediterranean Sea and Coast Foundation (MedSea) and the University Consortium for Industrial and Managerial Economics (CUEIM) met in Italy to analyse the SWOT matrix according to the methodology agreed for the operational plan.

TABLE 3. Participants in the analysis process of the Italian SWOT matrix.

#	Name	Institution
1	Manuela Puddu	MedSea Foundation
2	Elisa Ulazzi	MedSea Foundation
3	Francesca Etzi	MedSea Foundation
4	Tiziana Campisi	CUEIM
5	Luca Foschi	MedSea Foundation

The main challenges faced by artisanal salt producers in Italy are related to the product vision and the economic sphere. The production of sea salt is in some ways still anchored to certain ancient traditions, even if a certain degree of mechanization has been introduced over time, and even if it cannot be defined as zero-emission production, in general terms it has a lower environmental impact than to the production of rock salt. It should be noted that the produc-

tion of sea salt is not an extractive activity as well (despite the fact that salinas are administratively and economically included in the extractive industry) but it is more a natural product transformation (sea water into salt through sun evaporation) more similar to an agro-food activity.

An additional asset is natural value of the coastal “artisanal” salt pans which represent natural and ecosystem oases. Also adding the fact that some products (like fleur de sel) have a high degree of natural iodine, sea salt incorporates a vision of history, flavours, quality, nature and the environment, which differentiates it from rock salt. Unfortunately, the higher production costs mean that it is not always a competitive product.

In this sense, Italian experts consider that there is a lack of recognition of artisanal salt as a high-value product, which means that it currently has little profitability in the market. A local, not internationalised and not very competitive market, in addition to the high cost of maintaining the facilities, puts salt producers in a difficult economic situation. Additionally, there is some concern about the consequences that climate change may have on the natural system of salinas. Like Lebanon, Italy has abundant resources and values in the salinas that can be taken as an economical advantage. The opportunities to develop new economies associated with the diversification of products and services are vast. Advocating for local and international cooperation, the market could be opened to other countries, promoting activities that allow the maintenance of the natural values of the salinas as well as economic profitability.

TABLE 4. Italian SWOT main elements after the experts' analysis.

 Weaknesses	 Threats
<ul style="list-style-type: none"> ● Maintaining the technical infrastructure of salinas entails a high economic cost 	<ul style="list-style-type: none"> ● In the absence of a clear regulation or standard to certify the quality, there is a lack of differentiation between artisanal salt and industrial salt
<ul style="list-style-type: none"> ● Lack of compliance with legal obligations 	<ul style="list-style-type: none"> ● Salt flats are declining, losing their natural quality or even disappearing as a result of climate change effects
<ul style="list-style-type: none"> ● Missing a regulatory authority which certifies the quality of <i>fleur de sel</i> and virgin salt 	<ul style="list-style-type: none"> ● Low market prices threaten the competitiveness of local and organic salt products
<ul style="list-style-type: none"> ● Artisanal salt remains an undervalued product with low levels of profitability 	<ul style="list-style-type: none"> ● Business activities in salinas struggle to become economically sustainable
<ul style="list-style-type: none"> ● Marketing efforts are still limited to smaller local markets and don't target international ones 	<ul style="list-style-type: none"> ● Business projects are lacking financial, administrative and policy support from the public administration, which is key for implementing, sustaining the projects and making them more profitable
 Strengths	 Opportunities
<ul style="list-style-type: none"> ● Abundance of resources in commercial salinas offers a wide array of possibilities to develop economic activities, based on natural, touristic, historical, cultural, gastronomic or heritage-related values 	<ul style="list-style-type: none"> ● Expanding commercial activity to enter international markets
<ul style="list-style-type: none"> ● Artisanal treatment allows to create personalised salt varieties to fit the standards of gourmet cuisine 	<ul style="list-style-type: none"> ● Developing comprehensive projects that apply the Nature-based Solutions standard to protect, sustainably manage, and ecosystems while addressing societal challenges effectively
<ul style="list-style-type: none"> ● Artisanal salinas which are active play an important role in preserving nature (not only in terms of species, but also of ecosystem services) 	<ul style="list-style-type: none"> ● Exploring synergies with other small business to carry out joint marketing actions
<ul style="list-style-type: none"> ● There is a high potential to simultaneously develop diverse products and services, e.g. macro and microalgae cultivation, tourism 	<ul style="list-style-type: none"> ● The unique landscape and natural value of artisanal salinas is well-suited to develop ecotourism, especially at a moment of increasing demand for nature and outdoor experiences, as well as for tailor-made tourism, as in <i>saliturismo</i>
<ul style="list-style-type: none"> ● Artisanal salinas can produce gourmet products which are becoming increasingly popular, such as <i>fleur de sel</i>, algae, etc. 	<ul style="list-style-type: none"> ● Promoting the universal value of salinas by fostering the exchange and international cooperation between researchers, businesses and others

KEY POLICY RECOMMENDATIONS FOR ITALY

DEFINE A LEGAL FRAMEWORK of certification for artisanal salt to boost recognition as a high-value product

IMPLEMENT ADAPTATION MEASURES according to the National and Regional strategy for climate change adaptation

DEVELOP NETWORKS to transfer knowledge related to technology and management as well as to provide access to funding opportunities

CREATE A SUSTAINABLE VALUE CHAIN for saltpans through public subsidies

SIMPLIFY ADMINISTRATIVE PROCESSES and develop a specific regulatory framework for the artisanal sector

SUPPORT INTERNATIONALISATION of sector and international cooperation

DEVELOP A SECTORAL PLAN for artisanal salinas including salt production jobs in the National Catalogue of Professional Qualifications from the Ministry of Education



Salt harvesting, Ettore e Infersa Salina, Italy. © Saline Ettore e Infersa



Aerial view of salt pans in the Bay of Cadiz, Spain. © MEET Network

2.1.3 SPAIN

The team of Spanish experts (Table 5), who belong to the International Union for Conservation of Nature (IUCN) and the University of Cádiz, held various meetings to analyse the SWOT matrix in depth following the proposed methodology.

TABLE 5. Participants in the analysis process of the Spanish SWOT matrix.

#	Name	Institution
1	Helena Clavero	IUCN
2	Lourdes Lázaro	IUCN
3	Catherine Numa	IUCN
4	Macarena Castro Casas	University of Cadiz
5	Yana Korneeva	University of Cadiz
6	Andrés Alcántara	IUCN
7	Alejandro Pérez Hurtado	University of Cadiz (SCISE)

In Spain, the many gaps and inconsistencies in coastal planning and local regulations pose serious challenges to artisanal salinas. Urban pressure in favour of intensive economic activities threatens the small artisanal salinas. This means that artisanal product is not properly valued compared to that obtained industrially. Due to this and the lack of political support, salt producers experience great difficulties in establishing their companies and projects, which ultimately limits the number of active salt producers to a restricted group of elderly workers.

In light of these difficulties, it is very important that salt producers create synergies among themselves in search of greater recognition of the product and to promote the change of regulations at the national level. As in the other countries participating in the project, the natural and cultural potential of the Spanish salinas is crucial for the creation of opportunities based on sustainability. Again, the diversification of products and services is a key step on the way to economic profitability and environmental protection.

Some elements of the matrix were modified to better adjust them to the characteristics of the Spanish saltworks and thus be able to rank them appropriately. The top five strengths, weaknesses, opportunities and threats are pre-

TABLE 6. Spanish SWOT main elements after the experts' analysis.

 Weaknesses	 Threats
<ul style="list-style-type: none"> ● Need for synergies between salinas and associations to foster legitimacy, e.g. through the development of labels or designations of origin 	<ul style="list-style-type: none"> ● Lack of differentiation between artisanal salt and industrial salt. There is no clear regulation or standard to certify artisanal salt as a product
<ul style="list-style-type: none"> ● Advanced age of salinas owners/workers and difficulties for generational renewal 	<ul style="list-style-type: none"> ● Insufficient or deficient administration and/or spatial planning regulations
<ul style="list-style-type: none"> ● Lack of coordination in the corresponding administrations, slowness and bureaucracy. Complicated governance, lack of legal framework to protect artisanal management and old regulations 	<ul style="list-style-type: none"> ● Pressures due to urban developments or land use changes in favour of tourism, intensive agricultural or aquaculture developments
<ul style="list-style-type: none"> ● Artisanal salt products haven't been sufficiently linked to other products and services provided by salinas, such as aquaculture, gastronomy, tourism or environmental education 	<ul style="list-style-type: none"> ● Lack of public financial and policy support for the implementation, maintenance and viability of business projects, need for economic and administrative incentives
<ul style="list-style-type: none"> ● Significant deficit of infrastructure that would allow the development of tourism in the salinas: signage, tourist information points, accesses, basic services, etc. 	<ul style="list-style-type: none"> ● Scarcity of local commercial links
 Strengths	 Opportunities
<ul style="list-style-type: none"> ● High environmental value in active artisanal salinas (biodiversity and ecosystems services) 	<ul style="list-style-type: none"> ● Potential of Nature-based Solutions to protect, sustainably manage, and restore natural and modified ecosystems addressing societal challenges effectively
<ul style="list-style-type: none"> ● High potential for diversification of products/services (macro & microalgae, halophytes plants, healthy activities, tourism) 	<ul style="list-style-type: none"> ● Increased demand for tailor-made tourism which benefits from the landscape and ecological value of the artisanal salinas, including nature & outdoor experiences, and "salt tourism" (ecotourism)
<ul style="list-style-type: none"> ● Potential to create gourmet products in which there is growing interest: fleur de sel, algae, etc 	<ul style="list-style-type: none"> ● Resurgence of the market for gourmet and more natural products. Gourmet salt market growth both in volume (3.6% per year) and in value (4.8% per year)
<ul style="list-style-type: none"> ● Existence of abundant resources and values in the salinas that can be exploited economically: natural, tourist, heritage, historical, cultural and gastronomic 	<ul style="list-style-type: none"> ● High demand for natural, healthy, functional, artisanal, organic and local products.
<ul style="list-style-type: none"> ● Very specific and high-quality products and services that can only be obtained or developed under certain conditions 	<ul style="list-style-type: none"> ● Blue Carbon market as a possible source of future business

KEY POLICY RECOMMENDATIONS FOR SPAIN

RECLASSIFY artisanal salt production as agriculture, instead of mining, acknowledging its low environmental impact and enabling appropriate regulation

SIMPLIFY ADMINISTRATIVE PROCESSES and review the status of use concessions to promote active salinas

PROFESSIONALISE THE SECTOR by developing a specific training programme and a professional category for salt workers

DEVELOP A SPECIFIC REGULATORY FRAMEWORK for the artisanal sector and provide technical support, promoting public subsidies for salt workers & entrepreneurs

GAIN INSTITUTIONAL SUPPORT for nature conservation, natural resource management, governance and decision-making

ESTABLISH A LOCAL NETWORK among salt owners to develop a common label which supports their products and services to make them more competitive on a larger scale

DISSEMINATE THE INHERENT NATURAL AND CULTURAL VALUES of salinas through outreach, awareness-raising and educational campaigns (fair, public and private advertising, reaching target markets, etc)



Outdoor saltwater pool, Salinas de Chiclana, Cádiz (Spain). © Salinas de Chiclana



Salina in Tozuer, Tunisia. © Roberto Nencini

2.1.4 TUNISIA

An online anonymous survey was carried out to gather information about the SWOT elements. After this, a group of Tunisian experts analysed these elements and proposed actions to face the threats and weaknesses found.

The main findings of this analysis point to the fact that in Tunisia the salt market is economically unprofitable since the product is undervalued and there is some confusion about what is organic and artisanal. Likewise, the lack of technical information makes it difficult for producers to access the online and international market and the lack of infrastructure limits the development of potentially profitable activities for salt producers.

All these difficulties can be compensated by a greater promotion of national and international cooperation between companies and research institutions. It is a fact that there is currently a high demand for organic and local products, so this could be taken as an advantage to create projects that pursue the diversification of products and services in the Tunisian salinas in order to achieve economic profitability without compromising the natural values of the area.



Flamingo © SODIMER, Kerkennah Islands

TABLE 7. Tunisian SWOT main elements after the experts' analysis.

 Weaknesses	 Threats
<ul style="list-style-type: none"> ● Undervalued product and low profitability 	<ul style="list-style-type: none"> ● The online market is mainly being supplied by large distribution companies
<ul style="list-style-type: none"> ● Need for better coordination between corresponding administrations, to speed up administrative procedures 	<ul style="list-style-type: none"> ● Lack of differentiation between artisanal salt and industrial salt
<ul style="list-style-type: none"> ● Weak digital, technical and marketing skills 	<ul style="list-style-type: none"> ● Market price pressure threatens competitiveness of local and organic products
<ul style="list-style-type: none"> ● Important deficit of infrastructure that would allow the development of tourism in salinas: signage, tourist information points, accesses, basic services, etc. 	<ul style="list-style-type: none"> ● Large distribution requires a high volume of production
<ul style="list-style-type: none"> ● Insufficient investment in productive information and communication technologies 	<ul style="list-style-type: none"> ● Misguided belief among consumers that ecological, bio and natural products are synonyms
<ul style="list-style-type: none"> ● High economic and technical cost of maintaining the structure of salt works 	
 Strengths	 Opportunities
<ul style="list-style-type: none"> ● Salinas hold significant potential as recreational sites and to carry out outdoor activities 	<ul style="list-style-type: none"> ● Increasing profit by placing artisanal salt as a product on international markets
<ul style="list-style-type: none"> ● Salinas offer many opportunities for product and service diversification (from macro & microalgae cultivation to tourism, etc.) 	<ul style="list-style-type: none"> ● Bringing attention to the value of salinas by promoting national and international cooperation among businesses, research groups and other key actors
<ul style="list-style-type: none"> ● Quality of salt and food are highly suitable to create gourmet products which are becoming increasingly popular, e.g. <i>fleur de sel</i>, algae, etc. 	<ul style="list-style-type: none"> ● Promoting the ecological value of artisanal salt based on the positive perception of agro-environmental products
<ul style="list-style-type: none"> ● The abundant resources and values offered by artisanal salinas can be utilised to create economic activities based on natural, gastronomic, historical, cultural, heritage and tourism-related assets 	<ul style="list-style-type: none"> ● Strengthening e-commerce presence by extending marketing efforts to new commercial channels
<ul style="list-style-type: none"> ● High environmental value of active artisanal salt mines provides precious ecosystem services and contributes to preserve endemic biodiversity 	<ul style="list-style-type: none"> ● Suitable sites to develop projects related to Nature-based Solutions that protect, sustainably manage, and restore ecosystems while effectively addressing societal challenges
	<ul style="list-style-type: none"> ● Improving the environmental protection of salinas

KEY POLICY RECOMMENDATIONS FOR TUNISIA

By strengthening their online presence, artisanal salt producers can **INCREASE THEIR VISIBILITY** and position artisanal salt products in a wider international market

IMPROVE TRANSPORT SERVICES (storage, roads, ports, etc.) and export logistics

UPDATING THE LEGISLATION in force is essential to protect small and medium-sized enterprises (SMEs) - not only to secure adequate funding, but also to promote fair market competition

EXPLORE SYNERGIES and clustering opportunities between Tunisian and international salinas for better exchange of technical knowledge, aiming to improve products and services

INTEGRATE NEW SUSTAINABLE ACTIVITIES, such as ecotourism or harvesting of fish that naturally enter the basins, to increase interest in the development of artisanal salinas

UPDATE THE LEGISLATION ("Code Minier" for Tunisian salinas) so as to allow the production of other products beside salt

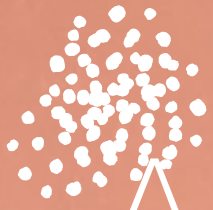
PROMOTE GREATER PUBLIC INVESTMENT to develop artisanal salinas. This includes public aid for salt producers and scientific research on the quality of salt and to increase the selling price accordingly



Outdoor activities with students in Tunisian salina. © SODIMER, Kerkennah Islands

Conclusions and general recommendations

- 1 Promote and encourage the organisation of salt producers in networks, cooperatives or associations to foster collaboration, exchange of information and standardisation of processes and prices, by provinces, regions, at national or transnational levels. The creation of a network or coalition of salina owners can also help to facilitate participation in legislative procedures and the defense of the sector's interests.
- 2 Change regulations at national and international level to give artisanal coastal salinas their own legal framework, highlighting their importance and value of the products and services they can provide.
- 3 Protect the natural habitat of the salinas by including them in the catalogues of protected natural areas or other types of protection, preventing their abandonment and promoting biodiversity conservation plans.
- 4 Provide adequate technical and financial support to salt producers to help diversify their products and revive and ensure the sustainability of traditional salt farms, in order to maintain the ecosystem services and benefits to local economies provided by salina ecosystems, as well as their associated culture.
- 5 Internationalise and modernise the sector by providing salt producers with access to and training in technology, marketing and sales techniques.
- 6 Create a professional category for salt workers and apprentices.
- 7 Create thematic clusters or networks that include both salt producers and key business sectors, such as HoReCa (Hotels, Restaurants and Cafés) in the territory where the saltworks are located, in order to promote the role of salinas as drivers of local economies.



Appendices



Appendix A

SWOT matrix for salinas in the four partner countries of the MedArtSal project

TABLE A-1. Joint SWOT matrix for the salinas of the four MedArtSal project partner countries (Spain, Italy, Lebanon and Tunisia).

Threats	Weakness	Strengths	Opportunities
Difficult maintenance of the infrastructure of salinas.	Fragmented and abandoned property for many years.	Product known by the general public and increasingly valued.	Resurgence of the gourmet and natural products market.
Insufficient differentiation between artisanal salt and industrial salt.	Lack of coordination between the corresponding administrations, slowness and bureaucracy.	Fleur de sel as a product used in haute cuisine.	Expanding to international markets.
Lack of ecological certification.	Undervalued product and low profitability.	Recreational site for the population.	Launch new commercial channels, e-commerce.
Lack of accessible and standardised information for the consumer.	Lack of professionalisation, still seen as a traditional technique.	Potential for organising outdoor activities.	Promoting local tourism.
Insufficient or deficient sector regulations.	Complex and fragmented governance structure.	High potential for diversifying of products/services (macro & microalgae, tourism).	Improve the environmental protection of the salinas.
Non-existence of local commercial linkages.	Old regulations.	Historical and cultural values	Blue Carbon market.
Advanced age of salina owners and workers, as well as lack of interest of the younger generations.	Poor technical knowledge.	Increased demand for tailor-made tourism as well as nature & outdoor experiences.	Deploying Nature-based Solutions to protect, sustainably manage, and restore natural and modified ecosystems addressing societal challenges effectively.
Landscape denaturalisation (and disappearance) as a consequence of climate change effects.	Lack of a legal framework to protect and promote the artisanal management of salt pans.	Increased interest from the gastronomic sector in operating in salt pans and cooking their high added-value products.	Supporting "From farm to fork" EU policy strategies.
Market price pressure threatens the competitiveness of local and organic products.	Lack of compliance with legal requirements to carry out economic activity.	Very specific and high-quality products and services that can only be obtained or developed in certain areas, such as in the Mediterranean.	High demand for natural, healthy, functional and organic products. Gastronomic tourism booming.
Insufficient production volume to satisfy large distribution.	Poor and underdeveloped online marketing channels.	Industrial salinas do not usually offer tourist services.	Relevance of the ethical positioning of companies.
Rise of Himalayan Salt and false belief in its properties.	Little ability to generate marketing strategies adapted to the market.	Potential to create gourmet products with increasing popularity.	Promoting the development of networks with small businesses to carry out joint marketing actions.
Widespread use of industrial salt in homes.	Lack of promotion both onsite and online. Limited knowledge of market segmentation.	Existence of abundant resources in salinas that can be exploited economically, linked to nature, tourism, heritage, culture and gastronomy.	Development of a "salt tourism" which benefits from the landscape and ecological value of artisanal salinas.

Threats	Weakness	Strengths	Opportunities
Strong market position of industrial salt producers.	Important deficit of infrastructure that would allow for tourism development in salinas: signage, tourist information points, accesses, basic services, etc.	Potential to produce personalised salt varieties for gourmet cuisine.	Benefiting from the positive perception of agro-environmental products linked to the ecological value of artisanal salinas.
Lack of clarity among consumers on the terms "organic" and "natural".	Investment in productive information and communication technologies is low.	Institutional support for the development of natural products.	Concentration of brands for the creation of a single designation of origin or label, especially for the international market.
Effects of high salt consumption on human health (salt causes high blood pressure).	Lack of synergies between salinas and associations to create, for example, designations of origin, labels, etc.		Increased use of gourmet salt in exotic foods.
Large distribution companies are cornering the online market.	Little innovation in formats, packaging, etc.		Growth of salt market, both in terms of volume (3.6% per year) and value (4.8% per year).
Unbalanced competition between extensive and artisanal salinas to produce and market fleur de sel.	Marketing efforts limited to small local markets, lack of internationalisation.		
There is no clear regulation for certifying organic salt.	Difficulty making marketing efforts profitable.		
Challenges to make projects in artisanal salinas economically sustainable.	Regarding fleur de sel, the law does not apply. That would allow the artisanal survival of salinas.		
	Difficulty in distinguishing between salt varieties due to lack of certification use.		
	Artisanal salt products are not complemented with other typical products and services of salinas, such as aquaculture, gastronomy, environmental education, etc.		
	There is no authority to regulate and certify the quality of fleur de sel and virgin salt.		
	In countries where the responsibility for the protection of traditional salt pans is under the Ministry of Mining or Industry, it should be transferred to the Ministry of Agriculture.		
	Need for public aid to salinas, whether as direct subsidies or lines of credit, advice for corporate actions and brand creation, institutional promotion and local direct sales actions in the municipalities.		
	Initial support would be necessary for the implementation and viability of business projects, including economic and administrative incentives.		

Appendix B

Lebanon — Proposed actions to increase the sustainability of salinas

Table B-1. Proposed actions to address the main **threats** affecting Lebanese salinas, identified from the SWOT analysis, for the different components of the MedArtSal Model.



THREATS	KEY STAKEHOLDERS/ USER COMMUNITY FOR IMPLEMENTATION	MEDARTSAL MODEL SUSTAINABILITY COMPONENTS			
		GOVERNANCE	ENVIRONMENT	SOCIOECONOMIC	DIVERSIFICATION
Difficult maintenance of the structures of the salinas	REGIONAL / EU POLICY-MAKERS				
	POLICY-MAKERS (AT LOCAL LEVEL)	Facilitate saltworkers' activity during maintenance season			
	NATIONAL AUTHORITIES	Update regulation to legalise the status of salinas			Granting permits to salina owners to carry out other activities, such as ecotourism
	ENGINEERING & TECHNOLOGY EXPERTS				
	SALINA OWNERS	Create a coalition of salina owners to enable participation in law-making consultation procedures for legalising the status of salinas and request support for maintenance			
Old regulations (Insufficient or deficient sector regulations)	REGIONAL / EU POLICY-MAKERS				
	POLICY-MAKERS (AT LOCAL LEVEL)				
	NATIONAL AUTHORITIES	Develop new regulations for salt production and create a model of certification for artisanal salt	Include the salinas in the management of the protected area to be created in the region where they are located		
	ENGINEERING & TECHNOLOGY EXPERTS				
	SALINA OWNERS	Advocate for the development of a new regulation for salt production	Campaigning for the recognition of salinas as part of the National natural heritage		

THREATS	KEY STAKEHOLDERS/ USER COMMUNITY FOR IMPLEMENTATION	MEDARTSAL MODEL SUSTAINABILITY COMPONENTS			
		GOVERNANCE	ENVIRONMENT	SOCIOECONOMIC	DIVERSIFICATION
Market price pressure threatens the competitiveness of local and organic products	REGIONAL / EU POLICY-MAKERS				
	POLICY-MAKERS (AT LOCAL LEVEL)				
	NATIONAL AUTHORITIES	Implement new policies to limit the amount of imported salt			
	ENGINEERING & TECHNOLOGY EXPERTS			Optimise the production while respecting the traditional know-how	
	SALINA OWNERS	Implement advocacy actions targeting the ministries to reduce amount of imported salt			Development of new products (salt with spices...)
Lack of a legal framework to protect and promote the artisanal management of salt pans	REGIONAL / EU POLICY-MAKERS				
	POLICY-MAKERS (AT LOCAL LEVEL)	Develop a legal framework for protecting artisanal salinas (Special regulation)	Include the salinas in the management of the protected area to be created in the region where they are located		
	NATIONAL AUTHORITIES	Develop a law that legally binds municipalities to protect salt pans			
	ENGINEERING & TECHNOLOGY EXPERTS				
	SALINA OWNERS				
Legal status of salinas	REGIONAL / EU POLICY-MAKERS	Draw the attention of national ministries to the importance of supporting artisanal salinas			
	POLICY-MAKERS (AT LOCAL LEVEL)	Legalise the status of the salinas through updated regulation			
	NATIONAL AUTHORITIES	Create a model of certification for artisanal salt			
	ENGINEERING & TECHNOLOGY EXPERTS				
	SALINA OWNERS				Develop local tourism and activities related to salt production

THREATS	KEY STAKEHOLDERS/ USER COMMUNITY FOR IMPLEMENTATION	MEDARTSAL MODEL SUSTAINABILITY COMPONENTS			
		GOVERNANCE	ENVIRONMENT	SOCIOECONOMIC	DIVERSIFICATION
Lack of coordination in the corresponding administrations, slowness and bureaucracy	REGIONAL / EU POLICY-MAKERS	<p>Encourage policy reforms at regional or EU level that emphasise coordination and efficient decision-making processes to counteract bureaucracy</p> <p>Encourage the development and use of centralised platforms to facilitate the rapid and efficient exchange of information between different stakeholders, promote collaboration and synchronisation</p>			
	POLICY-MAKERS (AT LOCAL LEVEL)	<p>Adapt regional or national policies to local contexts, ensuring that they address specific bureaucratic challenges that may exist at the local level</p> <p>Invest in training programmes to improve the administrative capacities of local stakeholders, ensuring that they can effectively navigate bureaucratic processes</p>			
	NATIONAL AUTHORITIES	<p>Review and streamline bureaucratic processes in the national framework, making them more accessible and efficient for stakeholders involved in salinas management</p>			
	ENGINEERING & TECHNOLOGY EXPERTS				
	SALINA OWNERS	<p>Foster partnerships with regional and national authorities, promoting a collective effort to overcome bureaucratic obstacles</p>			

Table B-2. Proposed actions to address the main **weaknesses** of Lebanese salinas, identified from the SWOT analysis, for the different components of the MedArtSal Model.



WEAKNESSES	KEY STAKEHOLDERS/ USER COMMUNITY FOR IMPLEMENTATION	MEDARTSAL MODEL SUSTAINABILITY COMPONENTS			
		GOVERNANCE	ENVIRONMENT	SOCIOECONOMIC	DIVERSIFICATION
Fragmented and abandoned property for many years	POLICY-MAKERS (AT LOCAL LEVEL)				
	NATIONAL AUTHORITIES	Simplify the processes for obtaining authorisations to maintain and reactivate salinas			
	ENGINEERING & TECHNOLOGY EXPERTS				
	SALINA OWNERS	Create a structure or platform that brings together salt producers (e.g. in the form of a cooperative)	Gradually revive the abandoned salinas		
Undervalued product and low profitability	POLICY-MAKERS (AT LOCAL LEVEL)				
	NATIONAL AUTHORITIES	As Anfeh is the only city that produces artisanal salt in the whole of Lebanon, the Municipality can highlight the value of artisanal salt in different events and local plans.			
	ENGINEERING & TECHNOLOGY EXPERTS		Producing studies that provide evidence on the environmental value of saltponds		
	SALINA OWNERS				Diversify activities to raise awareness on the importance of salinas, their preservation and the quality of their products
Lack of synergies between salinas and associations to create, for example, designations of origin, labels, etc.	POLICY-MAKERS (AT LOCAL LEVEL)				
	NATIONAL AUTHORITIES				
	ENGINEERING & TECHNOLOGY EXPERTS				
	SALINA OWNERS	Establish a legal body such as a cooperative or association to advocate for the interests of the sector and enhance communications with other associations and ministries			

WEAKNESSES	KEY STAKEHOLDERS/ USER COMMUNITY FOR IMPLEMENTATION	MEDARTSAL MODEL SUSTAINABILITY COMPONENTS			
		GOVERNANCE	ENVIRONMENT	SOCIOECONOMIC	DIVERSIFICATION
Lack of promotion both onsite and online. Little knowledge of market segmentation	POLICY-MAKERS (AT LOCAL LEVEL)	Facilitate the process of exporting artisanal salt			
	NATIONAL AUTHORITIES			Organise an international event to promote local salinas	
	ENGINEERING & TECHNOLOGY EXPERTS				
	SALINA OWNERS	Make salt exports possible by registering the salinas with the Ministry of Economy		Create market linkages with international partners	Promote artisanal salt as part of the diversified activities of salinas such as eco-tourism, educational-tourism etc.
Significant deficit of infrastructure that allow the development of tourism in the salinas: signage, tourist information points, accesses, basic services, etc.	POLICY-MAKERS (AT LOCAL LEVEL)				
	NATIONAL AUTHORITIES	Create a national brand or "appellation d'origine", improve access to the salinas, promote the tours in salinas through tourism information points.			
	ENGINEERING & TECHNOLOGY EXPERTS				
	SALINA OWNERS	Create a national brand or "appellation d'origine", install a signage system			Promote networking with travel agencies and tour operators to disseminate information about the salinas. Commercialise visits to salinas
Direct financial public aid and via credit are required, advice for corporate actions and brand creation, institutional promotion and local direct sales actions in the municipalities	POLICY-MAKERS (AT LOCAL LEVEL)	Facilitate credit obtention and ensure financial aid for salt pond owners in order to revive new salinas and develop the existing ones			
	NATIONAL AUTHORITIES	Promote initiatives by the Municipality to present the artisanal salt pans and the salt produced			
	ENGINEERING & TECHNOLOGY EXPERTS				
	SALINA OWNERS			Develop commercial brands for salinas	
Initial support, including economic and administrative facilities, is key to the viability and start-up of business projects	POLICY-MAKERS (AT LOCAL LEVEL)	Create a programme to support salina owners			
	NATIONAL AUTHORITIES				
	ENGINEERING & TECHNOLOGY EXPERTS				
	SALINA OWNERS				

Appendix C

Italy — Proposed actions to increase the sustainability of salinas

Table C-1. Proposed actions to address the main **threats** affecting Italian salinas, identified from the SWOT analysis, for the different components of the MedArtSal Model.


THREATS	GOAL	KEY STAKEHOLDERS/ USER COMMUNITY FOR IMPLEMENTATION	MEDARTSAL MODEL SUSTAINABILITY COMPONENTS			
			GOVERNANCE	ENVIRONMENT	SOCIOECONOMIC	DIVERSIFICATION
Lack of differentiation between artisanal salt and industrial salt. /There is no clear regulation to certify organic salt (product)	DEFINING A LEGAL FRAMEWORK OF CERTIFICATION FOR ARTISANAL SALT	REGIONAL / EU POLICY-MAKERS	Boost recognition of artisanal salt as an organic and artisanal product by strengthening alliances with other countries.	Advocate for salinas to be recognised as natural and cultural habitats.		
		NATIONAL AUTHORITIES	Develop clear guidelines that include a definition and criteria to identify artisanal salt, as opposed to intensive or industrial salt production.	Recognise and disseminate the environmental benefits of artisanal salt production and how it differs from industrial salt production.	Integrate salinas and artisanal salt products in campaigns to promote national products	
		POLICY-MAKERS (AT LOCAL LEVEL)	Create an advisory group of stakeholders to work on this differentiation on a regional scale.	Recognise and disseminate the environmental benefits of artisanal salt production and how it differs from industrial salt production.	Integrate salinas and artisanal salt products in campaigns to promote national products (on a local, national and regional scale).	
		ENGINEERING & TECHNOLOGY EXPERTS (SCIENCE TRANSFER TO THE PRIVATE SECTOR)				
		SALINA OWNERS	Create and participate in local groups and advocacy actions.		Add their products to the national and regional promotional campaigns	
Denaturalisation (and disappearance) as a consequence of climate change effects	IMPLEMENTING ADAPTATION MEASURES ACCORDING TO THE NATIONAL AND REGIONAL ADAPTATION STRATEGY TO CLIMATE CHANGE	REGIONAL / EU POLICY-MAKERS	Define action plans and funding schemes to implement actions for climate change mitigation and adaptation.	Promote designation of salinas as natural and cultural habitats to be protected		
		REGIONAL AUTHORITIES	Define action plans & funding schemes to implement actions for climate change mitigation and adaptation.	Promote designation of salinas as natural and cultural habitats to be protected		
		NATIONAL AUTHORITIES	Define action plans and funding schemes to implement actions for climate change mitigation and adaptation.			
		ENGINEERING & TECHNOLOGY EXPERTS (PUBLIC/ PRIVATE RESEARCH CENTRES AND UNIVERSITIES)		Build networks for the exchange of engineering solutions to increase the resilience of salinas to the effects of climate change.	Build networks for the exchange of engineering solutions to increase the resilience of salinas to the effects of climate change.	



THREATS	GOAL	KEY STAKEHOLDERS/ USER COMMUNITY FOR IMPLEMENTATION	MEDARTSAL MODEL SUSTAINABILITY COMPONENTS			
			GOVERNANCE	ENVIRONMENT	SOCIOECONOMIC	DIVERSIFICATION
Denaturalisation (and disappearance) as a consequence of climate change effects	IMPLEMENTING ADAPTATION MEASURES ACCORDING TO THE NATIONAL AND REGIONAL ADAPTATION STRATEGY TO CLIMATE CHANGE	SALINA OWNERS	Create and participate in groups and networks to foster knowledge transfer and promote access to funding for salinas in the face of climate change.	Create and participate in groups and networks to foster knowledge transfer and promote access to funding for salinas in the face of climate change.		
Market price pressure threatens the competitiveness of local and organic products	CREATING A NATIONAL MARKET OF ARTISANAL SALTS	REGIONAL / EU POLICY-MAKERS	Boost recognition of artisanal salt as an organic and artisanal product through international cooperation			
		POLICY-MAKERS (AT LOCAL AND REGIONAL LEVEL)	Develop clear guidelines that include a definition and criteria to identify artisanal salt, as opposed to intensive or industrial salt production.		Integrate salinas and artisanal salt products in campaigns to promote national products	
		NATIONAL AUTHORITIES	Bring stakeholders of the same province or region together in an advisory group to work on this differentiation. Advocate for salt to be recognised as an artisanal product.	Recognise and disseminate the environmental benefits of artisanal salt production and how it differs from industrial salt production.	Integrate salinas and artisanal salt products in campaigns to promote national products (on a local, national and regional scale)	
		ENGINEERING & TECHNOLOGY EXPERTS (PUBLIC/ PRIVATE RESEARCH CENTRES AND UNIVERSITIES)				
		SALINA OWNERS	Create and participate in local groups and advocacy actions.		Add their products to the national and regional promotional campaigns	Explore and invest in new products and services.
Difficulty for artisanal salinas projects to be economically sustainable	DEVELOP A BUSINESS VISIBILITY OF ARTISANAL SALINAS	REGIONAL / EU POLICY-MAKERS	Create dedicated funding schemes to actions to support economic sustainability of salinas.			
		POLICY-MAKERS (AT LOCAL AND REGIONAL LEVEL)	Create dedicated funding schemes to actions to support economic sustainability of salinas.		To support creation of associations or local clusters	
		NATIONAL AUTHORITIES	Create dedicated funding schemes to actions to support economic sustainability of salinas.			
		ENGINEERING & TECHNOLOGY EXPERTS (PUBLIC/ PRIVATE RESEARCH CENTRES AND UNIVERSITIES)	Build networks allowing to share knowledge on sustainable solutions, technology application, generation of additional sources of income and further management solutions.			Build networks allowing to share knowledge on sustainable solutions, technology application, generation of additional sources of income and further management solutions.

THREATS	GOAL	KEY STAKEHOLDERS/ USER COMMUNITY FOR IMPLEMENTATION	MEDARTSAL MODEL SUSTAINABILITY COMPONENTS			
			GOVERNANCE	ENVIRONMENT	SOCIOECONOMIC	DIVERSIFICATION
Difficulty for artisanal salinas projects to be economically sustainable	DEVELOP A BUSINESS VISIBILITY OF ARTISANAL SALINAS	SALINA OWNERS	Create and participate in groups and networks to foster knowledge transfer and promote access to funding opportunities for salinas.	Promote salinas environmental value, implement programme for sustainable eco-friendly tourism.	Develop crowdfunding and visibility actions	Explore and invest in new products and services.
Lack of public financial and policy support for the implementation, maintenance and viability of business projects, need for economic and administrative support	DEVELOP A SECTORAL PLAN FOR ARTISANAL SALINAS	REGIONAL / EU POLICY-MAKERS	Promote: <ul style="list-style-type: none"> - The recognition of salinas as a habitat in the EU Habitats Directive; - The designation as Intangible World Heritage by UNESCO or/and Cultural Heritage by ICOMOS. 			
		POLICY-MAKERS (AT LOCAL LEVEL)	Offer a professional training for salt workers to strengthen their skills, while anticipating relevant skills for the future (whether related to new technologies, energy efficiency, etc). Simplify obtention of authorisations and administrative permits for small artisanal salt pans.		Promotional campaign to improve knowledge of the products delivered by salinas	Provide financial support for innovative products and activities (microalgae, macroalgae cosmetics, eco-tourism...)
		NATIONAL AUTHORITIES	Professionalise salt production sector. Develop a new professional/vocational qualification to be included in the National Catalogue of Professional Qualifications from the Ministry of Education. Launch a public programme to provide financial support to salt workers (e.g. through subsidies).			
		ENGINEERING & TECHNOLOGY EXPERTS (PUBLIC/PRIVATE RESEARCH CENTRES AND UNIVERSITIES)			Promote knowledge transfer between the research and tech sectors on innovative solutions to enhance salt production and promotion Create a scientific cluster to promote sectoral innovation	
		SALINA OWNERS	Establish a coalition of salina owners to jointly request financial support for maintenance, development of new products and capacity building Explore business cooperatives to reduce costs and develop joint sales and marketing strategies		Facilitate access to general public (opening hours, visits, etc..)	

Table C-2. Proposed actions to address the main **weaknesses** of Italian salinas, identified from the SWOT analysis, for the different components of the MedArtSal Model.




WEAKNESSES	GOAL	KEY STAKEHOLDERS/ USER COMMUNITY FOR IMPLEMENTATION	MEDARTSAL MODEL SUSTAINABILITY COMPONENTS			
			GOVERNANCE	ENVIRONMENT	SOCIOECONOMIC	DIVERSIFICATION
High economic and technical cost of maintaining the infrastructure of salinas	CREATING A SUSTAINABLE VALUE CHAIN FOR THE SALT PANS	POLICY-MAKERS (AT LOCAL LEVEL)	Grant public subsidies to salt workers and entrepreneurs	Include the areas of salinas in local urban planning (PUG).		Support the use of the facilities in the salt pans as cultural heritage, as well as retraining schemes for workers.
		NATIONAL AUTHORITIES	Grant public subsidies to salt workers and entrepreneurs			
		ENGINEERING & TECHNOLOGY EXPERTS (PUBLIC/PRIVATE RESEARCH CENTRES AND UNIVERSITIES)	Build networks allowing to share knowledge on sustainable solutions, technology application, generation of additional sources of income and further management solutions			Co-design of new projects and solutions
		SALINA OWNERS	Adopting a 3-year business strategy			Including diversification in the business strategy
Lack of compliance with the legal obligations	REDUCE ADMINISTRATIVE HURDLES AND CHANGE THE REGULATION OF THE ARTISANAL SECTOR	POLICY-MAKERS (AT LOCAL LEVEL)	Define action plans and funding schemes to implement actions for climate change mitigation and adaptation.	Advocate for the recognition of artisanal salinas as natural and cultural habitats to be protected.		
		NATIONAL AUTHORITIES	Define action plans & funding schemes to implement actions for climate change mitigation and adaptation.	Advocate for the recognition of artisanal salinas as natural and cultural habitats to be protected.		
		ENGINEERING & TECHNOLOGY EXPERTS (PUBLIC/PRIVATE RESEARCH CENTRES AND UNIVERSITIES)				
		SALINA OWNERS	Creating a plan for reduce the legal existing gaps			
No existing authority to regulate and certify the quality of fleur de sel and virgin salt	DEFINE A SPECIFIC REGULATORY FRAMEWORK FOR SALINAS	POLICY-MAKERS (AT LOCAL LEVEL)				
		NATIONAL AUTHORITIES	Define an adequate regulatory framework			
		ENGINEERING & TECHNOLOGY EXPERTS (PUBLIC/PRIVATE RESEARCH CENTRES AND UNIVERSITIES)			Provide guidance on technical requirements for the new framework	

WEAKNESSES	GOAL	KEY STAKEHOLDERS/ USER COMMUNITY FOR IMPLEMENTATION	MEDARTSAL MODEL SUSTAINABILITY COMPONENTS			
			GOVERNANCE	ENVIRONMENT	SOCIOECONOMIC	DIVERSIFICATION
No existing authority to regulate and certify the quality of fleur de sel and virgin salt	DEFINE A SPECIFIC REGULATORY FRAMEWORK FOR SALINAS	BUSINESS ACTORS				Supporting a specific market for the products of artisanal salt works, with differentiated value.
		SALINA OWNERS	Develop sustainable management plans commensurate with the salt production unit		Creating a national association to promote the value and quality of artisanal salt productions	
Undervalued product and low profitability	PROMOTE SALINAS AS ECOSYSTEMS FOR INNOVATION	POLICY-MAKERS (AT LOCAL LEVEL)	Provide technical and financial support for diversification and development of innovative actions from local clusters		Incorporate salinas and their products in the promotional campaigns of artisanal products (local, regional, national ...levels)	
		NATIONAL AUTHORITIES			Incorporate salinas and their products in the promotional campaigns of national products	
		ENGINEERING & TECHNOLOGY EXPERTS (PUBLIC/PRIVATE RESEARCH CENTRES AND UNIVERSITIES)	Build networks allowing to share knowledge on sustainable solutions, technology application, generation of additional sources of income and further management solutions		Build networks allowing to share knowledge on sustainable solutions, technology application, generation of additional sources of income and further management solutions	Build networks allowing to share knowledge on sustainable solutions, technology application, generation of additional sources of income and further management solutions
		SALINA OWNERS	Create and participate in groups and networks to foster knowledge transfer and promote access to funding opportunities for salinas. Explore business cooperatives to reduce costs and develop joint sales and marketing strategies	Promote environmental value of salinas and implement programmes for sustainable eco-friendly tourism.	Add their products to the national and regional promotional campaigns	Explore and invest in new products and services.
Marketing efforts restricted to local markets, lack of internationalisation	SUPPORT INTERNATIONAL COOPERATION OR INTERNATIONALISATION OF THE SECTOR	POLICY-MAKERS (AT LOCAL LEVEL)	Support local initiatives holding potential for market internationalisation Support establishment of clusters for market internationalisation			
		NATIONAL AUTHORITIES			Incorporate salinas and their products in the promotional campaigns of national products	
		ENGINEERING & TECHNOLOGY EXPERTS (PUBLIC/PRIVATE RESEARCH CENTRES AND UNIVERSITIES)				
		BUSINESS ACTORS	Participating in cluster actions		Participate in international initiatives	Supporting new ideas and projects as well as market internationalisation
		SALINA OWNERS	Explore business cooperatives to develop joint sales and marketing strategies, potentially market internationalisation		Participate in international initiatives	Creating new value chains with other sectors (tourism, gastronomic, wellness)

Appendix D

Spain — Proposed actions to increase the sustainability of salinas

Table D-1. Proposed actions to address the main **threats** affecting Spanish salinas, identified from the SWOT analysis, for the different components of the MedArtSal Model.




THREATS	GOAL	KEY STAKEHOLDERS/ USER COMMUNITY FOR IMPLEMENTATION	MEDARTSAL MODEL SUSTAINABILITY COMPONENTS			
			GOVERNANCE	ENVIRONMENT	SOCIOECONOMIC	DIVERSIFICATION
<p>Lack of differentiation between artisanal salt and industrial salt</p> <p>There is no clear regulation for organic salt standard (product)</p>	<p>DEFINE A LEGAL FRAMEWORK OF CERTIFICATION FOR ARTISANAL SALT</p>	<p>REGIONAL / EU POLICY-MAKERS</p>	<p>Enhance recognition of artisanal salt as an organic and artisanal product</p> <p>Advocate for the recognition of salinas as natural and cultural habitats, while strengthening alliances with other countries.</p>			
		<p>NATIONAL AUTHORITIES</p>	<p>Develop clear guidelines that include a definition and criteria to identify artisanal salt, as opposed to intensive or industrial salt production.</p> <p>Explore whether the “Consejo Regulador de Productos Ecológicos” (Regulatory Board for Organic Products) can certify artisanal salt as organic.</p>		<p>Incorporate salinas and their products in the promotional campaigns of national products</p>	
		<p>POLICY-MAKERS (AT LOCAL LEVEL)</p>	<p>Involve stakeholders of the same province in an advisory group to work on this differentiation (at the level of ‘diputaciones’ - provincial councils-).</p> <p>Advocate for artisanal salt to be recognised as an artisanal product.</p>		<p>Incorporate salinas and their products in the promotional campaigns of artisanal products (local, regional, national ...levels)</p>	
		<p>ENGINEERING & TECHNOLOGY EXPERTS (SCIENCE TRANSFER TO THE PRIVATE SECTOR)</p>				
		<p>SALINA OWNERS</p>	<p>Create and participate in local groups and advocacy</p>		<p>Add their products to the national and regional promotional campaigns</p>	

THREATS	GOAL	KEY STAKEHOLDERS/ USER COMMUNITY FOR IMPLEMENTATION	MEDARTSAL MODEL SUSTAINABILITY COMPONENTS			
			GOVERNANCE	ENVIRONMENT	SOCIOECONOMIC	DIVERSIFICATION
Insufficient or deficient administration and/or spatial planning regulations	REDUCE AND SIMPLIFY ADMINISTRATIVE HURDLES AND PROCEDURES	REGIONAL / EU POLICY-MAKERS				
		REGIONAL AUTHORITIES	<p>Assess the actual activity situation of the salinas and increase controls on the concessions given, making them dependent on the maintenance of activity in the salt works</p> <p>Update the salt activity database with the actual active salt pans</p> <p>Ensure the preservation of salinas in spatial planning regulations and plans (e.g. the Andalusian Spatial Development Plan (POTA))</p> <p>Unify and simplify administrative procedures</p>			
		NATIONAL AUTHORITIES				
		ENGINEERING & TECHNOLOGY EXPERTS (PUBLIC/PRIVATE RESEARCH CENTRES AND UNIVERSITIES)				
		SALINA OWNERS				
Increasing pressure due to urban developments or land use changes in favour of intensive agri/aquacultural developments	SPATIAL PLANNING FAVOURABLE TO TRADITIONAL SALT ACTIVITY AND THE PRESERVATION OF ARTISANAL SALT PANS	REGIONAL / EU POLICY-MAKERS				
		POLICY-MAKERS (AT LOCAL AND REGIONAL LEVEL)	<p>Mainstreaming biodiversity and climate change in spatial planning.</p> <p>Prioritise environmentally sustainable activities</p>	<p>Identify key areas for environmental protection and restoration.</p> <p>Include salinas as a key element of green/blue infrastructure.</p> <p>Develop natural capital accountability for salinas.</p> <p>Promote ecological coastal corridors</p>	<p>Support dialogues for disseminating lessons and best practices on integrated planning.</p>	<p>Promote activity diversification in salinas to increase sustainability</p>
		NATIONAL AUTHORITIES				<p>Promote activity diversification in salinas to increase sustainability</p>
		ENGINEERING & TECHNOLOGY EXPERTS (PUBLIC/PRIVATE RESEARCH CENTRES AND UNIVERSITIES)				
		SALINA OWNERS		<p>Develop natural capital accountability for salinas</p>		<p>Diversify products and activities to increase profitability</p>

THREATS	GOAL	KEY STAKEHOLDERS/ USER COMMUNITY FOR IMPLEMENTATION	MEDARTSAL MODEL SUSTAINABILITY COMPONENTS			
			GOVERNANCE	ENVIRONMENT	SOCIOECONOMIC	DIVERSIFICATION
Lack of public financial and policy support for the implementation, maintenance and viability of business projects, need for economic and administrative support	DEVELOP A SECTORAL PLAN FOR ARTISANAL SALINAS	REGIONAL / EU POLICY-MAKERS	Promote recognition of salinas as a habitat in the EU Habitat directive. Promote salinas as a World Intangible Cultural Heritage by UNESCO.			
		POLICY-MAKERS (AT LOCAL AND REGIONAL LEVEL)	Offer professional training to salt workers to strengthen their skills, while anticipating relevant skills for the future (whether related to new technologies, energy efficiency, etc).		Promotional campaign for general public to increase awareness of salinas products value.	Provide financial support for innovative products and activities (microalgae, macroalgae cosmetics, eco-tourism...)
		NATIONAL AUTHORITIES	Professionalise of salt production sector. Develop a new professional/ vocational qualification to be included in the National Catalogue of Professional Qualifications from the Ministry of Education. Launch a public programme or plan to provide financial support to salt workers (e.g. through subsidies)			
		ENGINEERING & TECHNOLOGY EXPERTS (PUBLIC/PRIVATE RESEARCH CENTRES AND UNIVERSITIES)			Promote knowledge transfer between the research and tech sectors on innovative solutions to enhance salt production and promotion Create a scientific cluster for sector innovation	
		SALINA OWNERS	Establish a coalition of salina owners to jointly request financial support for maintenance, development of new products and capacity building Explore business cooperatives to reduce costs and develop joint sales and marketing strategies		Facilitate access to the general public (opening hours, visits, etc.)	

THREATS	GOAL	KEY STAKEHOLDERS/ USER COMMUNITY FOR IMPLEMENTATION	MEDARTSAL MODEL SUSTAINABILITY COMPONENTS			
			GOVERNANCE	ENVIRONMENT	SOCIOECONOMIC	DIVERSIFICATION
Scarcity of local commercial links	CREATE AND STRENGTHEN CLUSTERS	REGIONAL / EU POLICY-MAKERS	Develop guidelines to strengthen links between primary artisanal salt producers and other food industry sectors (increase understanding of different parts of the supply chain)		Deploy an information campaign to increase demand for artisanal salt among general public	
		POLICY-MAKERS (AT LOCAL LEVEL)			Deploy an information campaign to increase demand for artisanal salt among general public	
		NATIONAL AUTHORITIES				
		ENGINEERING & TECHNOLOGY EXPERTS(PUBLIC/ PRIVATE RESEARCH CENTRES AND UNIVERSITIES)				
		SALINA OWNERS	Promote local clusters to enhance the visibility of salinas products, develop eco-tourism activities, organise fair trade market			Support development e-commerce platform for artisanal products

Table D-2. Proposed actions to address the main **weaknesses** of Spanish salinas, identified from the SWOT analysis, for the different components of the MedArtSal Model.



WEAKNESSES	GOAL	KEY STAKEHOLDERS/ USER COMMUNITY FOR IMPLEMENTATION	MEDARTSAL MODEL SUSTAINABILITY COMPONENTS			
			GOVERNANCE	ENVIRONMENT	SOCIOECONOMIC	
Advanced age of salina owners/ workers and difficulties for generational renewal	REVIVE, VALORISE AND MODERNISE THE SALT PRODUCTION SECTOR TO ATTRACT NEW YOUNG WORKERS	POLICY-MAKERS (AT LOCAL LEVEL)			Incentives for young/ women job position for salineros	
		NATIONAL AUTHORITIES	Acknowledge the metier of salineros: new niche of young employment		Campaign for the valorisation of a traditional profession (in schools, universities) and modernise the sector	
		ENGINEERING & TECHNOLOGY EXPERTS (PUBLIC/PRIVATE RESEARCH CENTRES AND UNIVERSITIES)	Participate in a working group to develop innovative approaches/ technologies			
		SALINA OWNERS	Creation a working group (with salina owners, <i>Grupos de Desarrollo Rural</i> - Rural Development Groups-, universities, education authorities) to define a roadmap for the development of a curricular educational plan for training salt-makers			
Lack of coordination between the corresponding administrations, slowness and bureaucracy. Complex governance, old regulations	REDUCE THE BURDEN OF ADMINISTRATIVE PROCESSES AND ADAPT THE APPLICABLE REGULATIONS FOR THE SECTOR, MAKING THEM MORE FAVOURABLE TO THE ACTIVITY	POLICY-MAKERS (AT LOCAL LEVEL)	Unify and simplify administrative process (one-stop administrative window) Recognise local concession holders as potential beneficiaries of grants			
		NATIONAL AUTHORITIES	Transfer administrative powers from mining to agricultural jurisdiction Recognise local concession holders as potential beneficiaries for grants			
		ENGINEERING & TECHNOLOGY EXPERTS (PUBLIC/PRIVATE RESEARCH CENTRES AND UNIVERSITIES)				
		SALINA OWNERS	Advocate for salt production to be subject to agricultural regulations			

WEAKNESSES	GOAL	KEY STAKEHOLDERS/ USER COMMUNITY FOR IMPLEMENTATION	MEDARTSAL MODEL SUSTAINABILITY COMPONENTS			
			GOVERNANCE	ENVIRONMENT	SOCIOECONOMIC	
Lack of synergies between salinas and associations to develop designations of origin, labels, among others	INCREASE COMPETITIVENESS BY ESTABLISHING A LOCAL NETWORK OF SALINA OWNERS AND DEVELOPING A COMMON LABEL FOR PRODUCTS & SERVICES	POLICY-MAKERS (AT LOCAL LEVEL)	Provide technical and financial support for the creation of local saltworks associations and specific salt brands			
		NATIONAL AUTHORITIES				
		ENGINEERING & TECHNOLOGY EXPERTS (PUBLIC/PRIVATE RESEARCH CENTRES AND UNIVERSITIES)				
		SALINA OWNERS	Stimulate the creation of local associations among salina owners			
The artisanal salt product is not complemented with other typical products of salinas, such as aquaculture, gastronomy, environmental education, etc. or face difficult conditions for tourism	TO PROMOTE LOCAL CLUSTERS WITH COMPLEMENTARY LOCAL ENTREPRENEURS	POLICY-MAKERS (AT LOCAL LEVEL)	Provide technical and financial support for diversification and innovative actions from local clusters			
		NATIONAL AUTHORITIES	Promote financial support specifically for salinas innovation			
		ENGINEERING & TECHNOLOGY EXPERTS (PUBLIC/PRIVATE RESEARCH CENTRES AND UNIVERSITIES)			Promote knowledge transfer from academy to salt owners including know-how on innovative products such as micro & macro algae	
		SALINA OWNERS	Create a cluster to unify product labels (e.g. ecotourism package)	Create partnerships with environmental organisations to develop joint projects to increase sustainability (biodiversity/ blue carbon/ circular economy)		Create partnerships with Universities, NGOs and regional administrations to prepare joint proposals for funding
Little ability to generate marketing strategies that are optimised for the market	DEVELOP CAPACITY BUILDING ON MARKETING STRATEGIES	POLICY-MAKERS (AT LOCAL LEVEL)	Promote financial support specifically for salinas innovation including marketing Digital and marketing training			
		NATIONAL AUTHORITIES	Promote financial support specifically for salinas innovation including marketing			
		ENGINEERING & TECHNOLOGY EXPERTS (PUBLIC/PRIVATE RESEARCH CENTRES AND UNIVERSITIES)				
		SALINA OWNERS	Participate in training courses (e.g.: natural capital/ ecommerce, marketing, etc.) Develop joint strategies marketing (ecommerce, etc.)			

Appendix E

Tunisia — Proposed actions to increase the sustainability of salinas

Table E-1. Proposed actions to address the main **threats** affecting Tunisian salinas, identified from the SWOT analysis, for the different components of the MedArtSal Model.



THREATS	KEY STAKEHOLDERS/ USER COMMUNITY FOR IMPLEMENTATION	MEDARTSAL MODEL SUSTAINABILITY COMPONENTS			
		GOVERNANCE	ENVIRONMENT	SOCIOECONOMIC	DIVERSIFICATION
Large distribution companies are cornering the online market	REGIONAL / EU POLICY-MAKERS				
	POLICY-MAKERS (AT LOCAL LEVEL)				
	NATIONAL AUTHORITIES				
	ENGINEERING & TECHNOLOGY EXPERTS				
	SALINA OWNERS			Boost visibility to allow for a better positioning of artisanal salt works and their products Make greater use of online marketing channels	Product diversification to better access the international market and to better exploit the local and sectoral market
Need for differentiation between artisanal salt and industrial salt	REGIONAL / EU POLICY-MAKERS	Updating legislation in force to protect small and medium-sized enterprises (SMEs)			
	POLICY-MAKERS (AT LOCAL LEVEL)	Updating legislation in force to protect SMEs			
	NATIONAL AUTHORITIES				
	ENGINEERING & TECHNOLOGY EXPERTS				
	SALINA OWNERS			Improve promotion of artisanal salt products to increase customer basis	

THREATS	KEY STAKEHOLDERS/ USER COMMUNITY FOR IMPLEMENTATION	MEDARTSAL MODEL SUSTAINABILITY COMPONENTS			
		GOVERNANCE	ENVIRONMENT	SOCIOECONOMIC	DIVERSIFICATION
Market price pressure threatens the competitiveness of local and organic products	REGIONAL / EU POLICY-MAKERS				
	POLICY-MAKERS (AT LOCAL LEVEL)				
	NATIONAL AUTHORITIES	Invest in the sustainable development of artisanal salinas			
	TECHNOLOGY ENGINEERING				
	SALINA OWNERS				
Large distribution requires a high volume of production	REGIONAL / EU POLICY-MAKERS				
	POLICY-MAKERS (AT LOCAL LEVEL)				
	NATIONAL AUTHORITIES				
	ENGINEERING & TECHNOLOGY EXPERTS				
	SALINA OWNERS			Explore potential for synergies through local clusters with other artisanal salinas, but also between Tunisian salinas and with others from abroad	
Consumer belief that the terms 'ecological', 'bio', 'natural' and others are synonyms	REGIONAL / EU POLICY-MAKERS				
	POLICY-MAKERS (AT LOCAL LEVEL)				
	NATIONAL AUTHORITIES	Improve regulation on types and quality of salt and on labelling information to be provided. Improve consumer awareness of the issue through information campaigns			
	ENGINEERING & TECHNOLOGY EXPERTS				
	SALINA OWNERS				

Table E-2. Proposed actions to address the main **weaknesses** of Tunisian salinas, identified from the SWOT analysis, for the different components of the MedArtSal Model.



WEAKNESSES	KEY STAKEHOLDERS/ USER COMMUNITY FOR IMPLEMENTATION	MEDARTSAL MODEL SUSTAINABILITY COMPONENTS			
		GOVERNANCE	ENVIRONMENT	SOCIOECONOMIC	DIVERSIFICATION
Undervalued product and low profitability	REGIONAL / EU POLICY-MAKERS				
	POLICY-MAKERS (AT LOCAL LEVEL)				
	NATIONAL AUTHORITIES				
	ENGINEERING & TECHNOLOGY EXPERTS				
	SALINA OWNERS	Invest in scientific research to improve the quality of salt and increase the selling price accordingly.			
Lack of coordination in the corresponding administrations, slowness and much bureaucracy	REGIONAL / EU POLICY-MAKERS				
	POLICY-MAKERS (AT LOCAL LEVEL)				
	NATIONAL AUTHORITIES	Unify the sector in a single and consistent structure			
	ENGINEERING & TECHNOLOGY EXPERTS				
	SALINA OWNERS				
Poor technical knowledge	REGIONAL / EU POLICY-MAKERS				
	POLICY-MAKERS (AT LOCAL LEVEL)				
	NATIONAL AUTHORITIES				
	ENGINEERING & TECHNOLOGY EXPERTS				
	SALINA OWNERS			Encourage the creation of strategic clusters and sharing of information and know-how among artisanal salinas Promoting transmission of technical knowledge from the old to the new generations	Establishment of partnerships with experienced foreign producers to improve the existing products and services and start producing new ones.

WEAKNESSES	KEY STAKEHOLDERS/ USER COMMUNITY FOR IMPLEMENTATION	MEDARTSAL MODEL SUSTAINABILITY COMPONENTS			
		GOVERNANCE	ENVIRONMENT	SOCIOECONOMIC	DIVERSIFICATION
Important deficit of infrastructure that hinder the development of tourism in the salinas: signage, tourist information points, accesses, basic services, etc.	REGIONAL / EU POLICY-MAKERS				
	POLICY-MAKERS (AT LOCAL LEVEL)				
	NATIONAL AUTHORITIES				
	TECHNOLOGY ENGINEERING				
	SALINA OWNERS	Urging the competent administrations to work to enhance the value of artisanal salt pans			
Investment in productive information and communication technologies is low	REGIONAL / EU POLICY-MAKERS				
	POLICY-MAKERS (AT LOCAL LEVEL)				
	NATIONAL AUTHORITIES	Enable public aid to improve access to technology and information for the small-scale salt production sector			
	ENGINEERING & TECHNOLOGY EXPERTS			Liaise with the artisanal salt industry to analyse needs and promote the filling of possible gaps in available knowledge and techniques. Promote the dissemination of available knowledge and technology, adapting the language to the sector	Investing in R&D&I to make available better available techniques and technologies that allow the diversification of the activity in the saltworks
	SALINA OWNERS			Investing in the modernisation of the sector, as far as possible, and looking for possible existing subsidies	
High economic and technical cost of maintaining saltwork structures	REGIONAL / EU POLICY-MAKERS				
	POLICY-MAKERS (AT LOCAL LEVEL)				
	NATIONAL AUTHORITIES	Encourage the creation of new SMEs through adequate funding with financial incentives and provision of support			
	ENGINEERING & TECHNOLOGY EXPERTS				
	SALINA OWNERS				Integrate new sustainable activities such as ecotourism or the development of fish resources that naturally enter the basins to strengthen the operational structure of salinas





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