



# MedArtSal Management Model for Mediterranean Salinas Sustainability





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Project website:  
[www.enicbcmed.eu/projects/medartsal](http://www.enicbcmed.eu/projects/medartsal)

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**The MedArtSal project aims to develop a comprehensive Sustainability Model for Coastal Artisanal Salinas in Mediterranean countries.**



# 1

## **Medartsal approach: How to improve sustainability in artisanal Salinas**

The MedArtSal project aims to develop a comprehensive Sustainability Model for Coastal Artisanal Salinas in Mediterranean countries. However, what does it mean exactly? It means finding ways to help artisanal Salinas to be more sustainable in terms of economy, environment, and social well-being. To achieve this objective, our work has focused on two main areas: firstly, identifying the key aspects of sustainability within a Salina, and secondly, enabling Mediterranean Salinas to enhance their salt production and economic management, environmental conservation efforts, and the development of innovative and diversified activities.

There are numerous definitions of the concept of sustainability, but they all converge towards the same idea that we could summarize in «Sustainability is the development that meets the needs of the present without compromising the capacity of future generations, guaranteeing the balance between economic growth, protecting the environment and social well-being».

The Sustainability Model for Coastal Artisanal Salinas in Mediterranean countries encompasses a complex blend of economic, social, cultural, management, and governance factors. Among these, 22 quantitative variables from three interrelated categories (socio-economic, environmental and diversification) were selected. For example, socio-economic variables include the size of the productive area and the amount of fleur de sel produced, while environmental variables encompass the implementation of educational and biodiversity monitoring programs. Diversification variables, on the other hand, involve the number of secondary products and innovative activities. Governance has been included in the model through a benchmarking analysis, identifying the best practices in Mediterranean countries.

Although the creation of a model will never obtain a 100% explanation of a system variability, it is a tool widely used in numerous studies to help to understand the most probable scenarios or make reliable predictions of future changes (Halpern et al., 2012; Mori and Christodoulou, 2012). The MedArtSal model is built as a multispectral complex model that considers economic, social, environmental, cultural, management and governance variables, by integrating quantitative but also qualitative aspects (Figure 1).

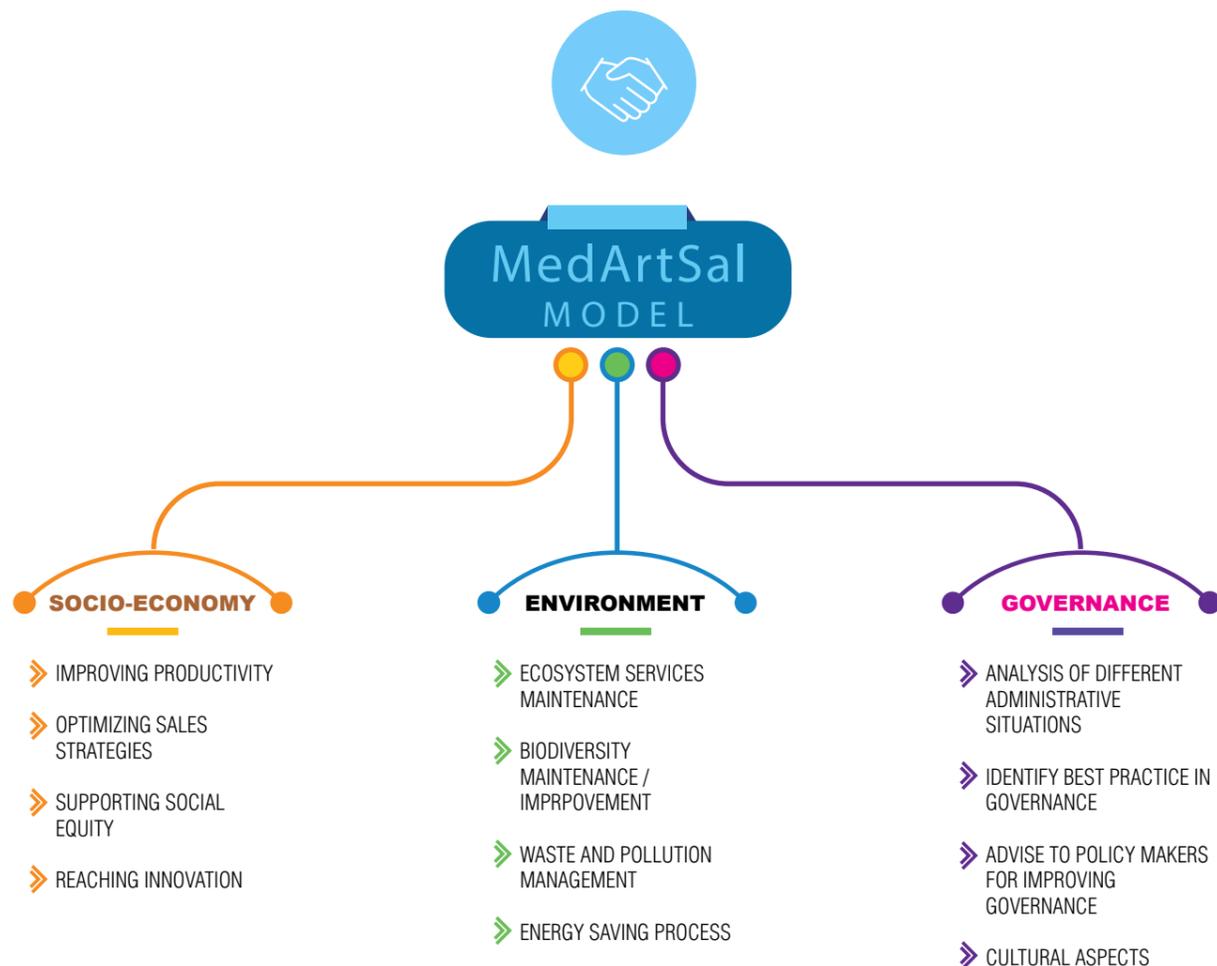
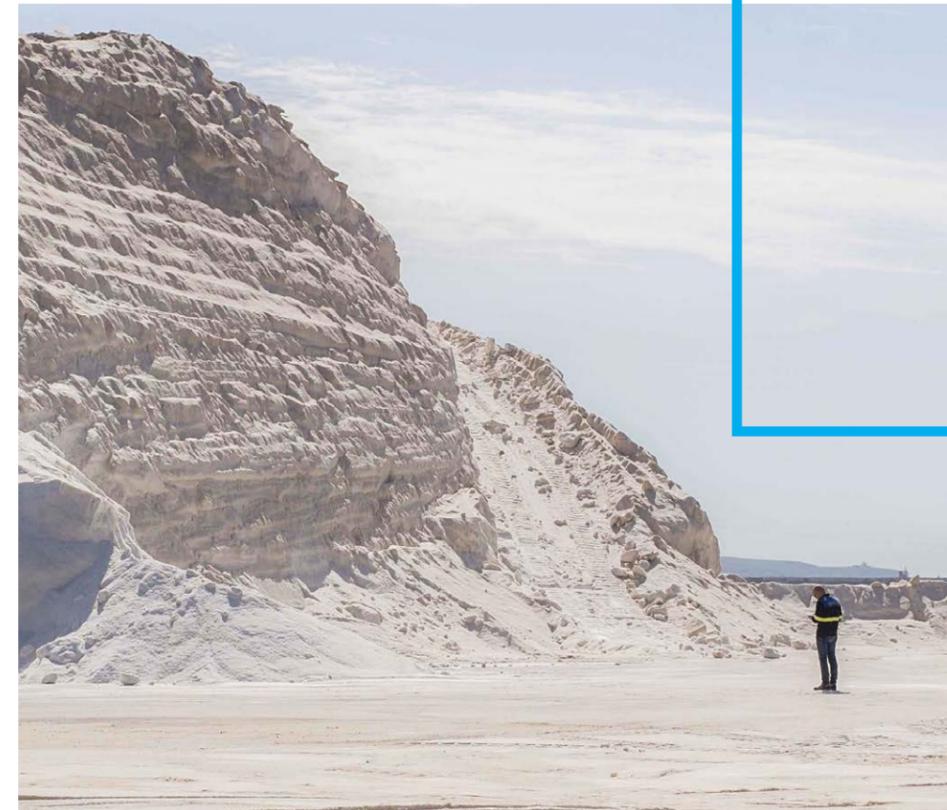


Figure 1 | Main components of the MedArtSal model

To gather data, we conducted a survey among Mediterranean artisanal Salinas, and the initial responses were used to establish the upper and lower limits for each variable. Subsequently, through collaboration among experts from various countries, a scale of values was determined to measure the influence of these variables on each of the mentioned categories. Based on this information, a Salinas Sustainability Index (SSI) was created as a practical tool for salt owners and managers to evaluate the sustainability of a Salina in terms of economy, environment, and innovation. The SSI has been developed so that it can be used as a general index, considering all the 22 variables, but it can also be employed in three separate sub-indices, which can provide information on specific aspects of Salinas: socio-economic, environmental and diversification/innovation sub-indices. After extensive research, we found that the sustainability index accurately reflects the reality of the salt, following the proportions established as follows:

**SSI (100%): SOCIECONOMIC (50%) + ENRVIRONMENTAL (30%) + DIVERSIFICATION (20%)**

The model has revealed that the most sustainable Mediterranean Salinas demonstrate strong correlations with factors such as local sales, gourmet salt extraction, and the development of eco-tourism activities. Essentially, the key to establishing a profitable salt business lies in diversification. By identifying strengths and weaknesses within artisanal Salinas, the SSI facilitates improvements in their operations, paving the way for a more sustainable future.



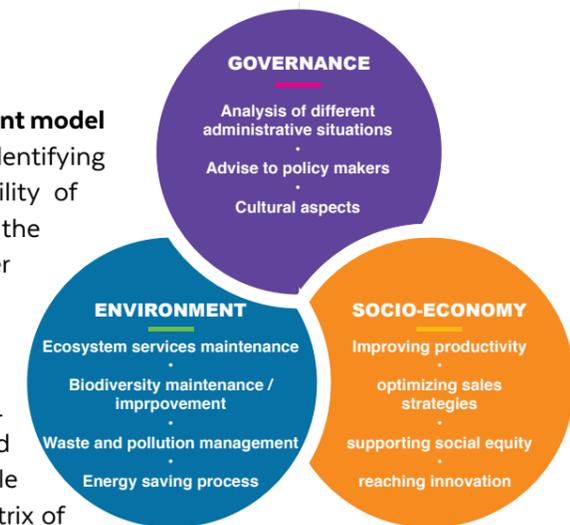
**OPTIMAL PRACTICES** to be applied through a **matrix of sustainable action.**



## 2

# Sustainability practices in **MedArtSal** Subgrants' (Pilot Actions)

The **Sustainable development model for artisanal salina** aims at identifying the gaps in the sustainability of artisanal Salinas across the Mediterranean and offer individual solutions that can be easily applied. Salt-owners or managers can identify **OPTIMAL PRACTICES** to be applied toward Salinas sustainable management through a matrix of sustainable action. The choice of the suitable practice application will depend on Salinas/territorial development orientation.



Within the project 15 pilot actions (sub-grants) applying practices related to the MedArtSal Model have been implemented as shown in the following images.

1  
Figure

## Italian sub-grants



- » [IT]\_03\_Saline Ettore e Infersa srl:  
*Recovery of ponds and canals of the Salina Infersa*
- » [IT]\_04\_Parco della Salina di Cervia s.r.l.:  
*Salt from Cervia: sweet by nature*

2  
Figure

## Spanish sub-grants



- » [ES]\_01\_Salinas y Celebraciones San Vicente SL.:  
*Adaptation to the environment and salt production in the Salina San Vicente*
- » [ES]\_03\_ALEMA Turismo Medio Ambiente S.L.:  
*Use of natural resources in Salt pans for health and leisure*
- » [ES]\_04\_Asociación Naturalista del Sur Este (ANSE):  
*Restoration of Marchamalo Salt pans*
- » [ES]\_05\_CPV Bahía de Cádiz:  
*Sustainable cultivation of microalgae by means of raceway in the Preciosa and Roqueta salt pans*

3  
Figure

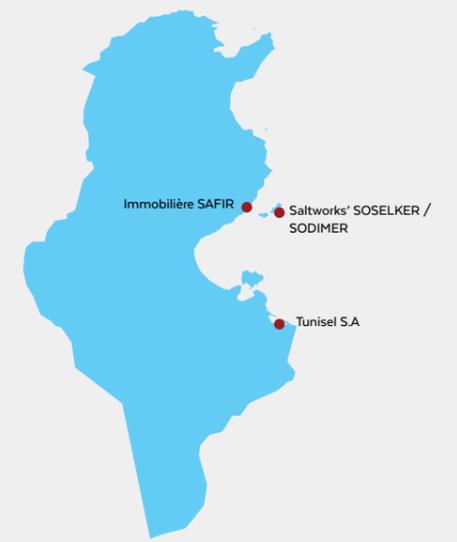
## Lebanese sub-grants



- » [RL]\_01\_Sleiman Elias Sleiman:  
*Restoration of Sleiman Sleiman Salinas*
- » [RL]\_02\_Georges Hanna Sleiman:  
*Development of George Sleiman' Salinas*
- » [RL]\_03\_Hafez Dib Jreij: Maison du sel -  
*Sustainable development of production and activation of ecotourism*
- » [RL]\_04\_Imad Malek:  
*Development of Malek's Salinas*
- » [RL04]\_2\_Georges Najjar Salinas  
*Rehabilitation of the salinas and internationalization*
- » [RL05]\_2\_Kamel Anjoul Salinas  
*Increase of productivity and cultural tourism activities*

4  
Figure

## Tunisian sub-grants



- » [TN]\_01\_TUNISEL S.A.:  
*Rehabilitation of the salina towards an eco-friendly quality of production.*
- » [TN]\_02\_Immobilière SAFIR :  
*Jebel Hadifa Salina*
- » [TN]\_04\_SOSELKER / SODIMER:  
*DESK - Ecological Development of Kerkennah Saltworks' SOSELKER / SODIMER*



“  
In the context of the MedArtSal project, a **sustainable Salina** would be one that **uses natural resources to obtain economy but in a socially and environmentally respectful way, ensuring the use of resources in the future.**  
”



The 15 pilot actions aimed so far at foster the salinas' local economic development based on a sustainable salt production and development of new products/service, while preserving the local environmental and cultural values.

An overall overview of the topics of the 15 sub-grants is shown in the following figure.

SUB-GRANT TOPICS	SPAIN				ITALY		TUNISIA		LEBANON						
	ES_03	ES_02	ES_03	ES_01	IT_03	IT_04	TN_04	TN_01	TN_02	RL(01)_02	RL(01)_04	RL(01)_03	RL(01)_01	RL(02)_04	RL(02)_05
Commercial chain and sales strategies improvement															
Touristic activities															
Salt production improvement															
Macroalgae activities															
New products development															
Services improvement															
Environmental and biodiversity enhancement															
Restoration of damaged areas (e.g. embankment, channels, salt tanks, water level and substrates management)															
Waste, pollution, noise control and energy measures															
Re-activation of salt production															

Figure 5 | Sub-grant's topics per country

By considering the specific activities implemented by sub-grants it can be stated that:

- 15/15 sub-grants include activities related to the socio-economy component of the MedArtSal model (Figure 6).
- 12/15 sub-grants include activities that contribute to the improvement and/or enhancement of the environmental characteristic / behaviour of the salina. However, it must be highlighted that only 3 sub-grants include direct actions in this sense (Figure 7).

### SOCIO-ECONOMY

- › Improving Productivity
- › Optimizing Sales Strategies
- › Supporting Social Equity
- › Reaching Innovation

- Salt production improvement
  - Enlargement of ponds
  - Restoration of damaged areas (e.g. / embankments, channels, salt pond, water level and substrates management)
- Service improvement
- Waste, pollution, noise control and energy measures
- Commercial chain and sales strategies improvement
- New Products development
- Diversification of activities
  - Touristic activities
  - Macroalgae activities



Figure 6 | Sub-grant's actions within the MedArtSal model' socio-economy component.

### ENVIRONMENT

- › Ecosystem services maintenance
- › Biodiversity maintenance / improvement
- › Waste and pollution management
- › Energy saving process

- Enhancement of environment and biodiversity - direct actions (e.g. bird's nests improvement)
- Enhancement of environment - indirect actions (e.g. reactivation of the salinas, restoration of damaged areas, like embankments, channels)
- Waste, pollution, noise control and energy measures



Figure 7 | Sub-grant's actions within the MedArtSal model' environment component.

None of the sub-grant is considering direct actions devoted to the governance component of the model. However, all sub-grantees started new discussion with relevant stakeholders or take profit from the sub-grant and the participation in the MedArtSal project (with particular reference to the Tunisian Fair in March 2022 and Lebanese Fair in June 2023) in order to consolidate collaborations or start new relationship with stakeholders, with particular reference to other artisanal Salinas, operators of the touristic or gastronomic sectors (Figure 8).

## GOVERNANCE

- » Analysis of different administrative situations
- » Identify best practice in governance
- » Advise to policy makers for improving governance
- Cultural aspects

No direct action under the sub-grant's activities BUT EACH SALINA ENTERTAIN active discussion or profit of other stakeholders support in the development of their activities (e.g. *touristic activities*)

IT MUST BE HIGHLIGHTED THAT

- 4 salinas owners (ES) collaborated in the definition of two touristic packages (Academic and Experiential) and the creation of a Cluster of interest between Tour Operators-Stakeholders-Suppliers-Consultants.
- Municipality of Anfeh (RL) supported sub-grants in some of the sub-grants activities, giving visibility to the salinas (e.g. *contract signature, presentation to stakeholders*)
- Exchange of experiences & techniques and active collaboration between sub-grants borne during and after the Tunisian Fair (e.g. *Spanish salina was invited in Italy*).
- New company management strategy and policy
- New collaborations established

**Figure 8** | Sub-grant's actions within the MedArtSal model' governance component.

**In the Framework of the Second Mediterranean Salt Fair Organized in Lebanon in June 2023, 15 Salinas and 12 Stakeholders signed an MoU** where signatory expressed their interest in cooperating beyond the MedArtSal project, and agreed to create a Mediterranean network titled "MedArtSal" Network, with a vision to preserve and promote Salt Production Heritage, fostering the MEDARTSAL pillars for environmental and economic sustainability in the Mediterranean Region. The network will enable such institutions and organizations to work together to protect the salt production heritage and to promote it as a sector that can still be an economically viable and environmentally sustainable one for the different Mediterranean salt producing regions.



Some examples of integrated activities implemented by the pilot action is reported here after. For each example, the reference to the Model component is highlighted on the left side.

### Maintenance or repairing of ponds embankment

(Salina of Ettore & Infersa, Trapani, Italy)



- Salt production improvement
- Waste reduction
- Diversification of activities
- Enhancement of environment - indirect actions
- Circular economy
- Cultural aspects

◆ Reconstruction of 500m of embankment to **increase the efficiency** of the salt pan's **hydraulic circuit** by sealing its internal areas with respect to the infiltration of sea water, and with consequent **protection** of the degree of salinity and of the whole **ecosystem** >> expected increase of sea salt production by 10-15%.

◆ Use of local tuff ashlars installed "dry", according to the consolidated centuries-old technique (cultural aspect) of the Trapani salt masters, and by reusing existing materials (**waste reduction, waste recovery, circular economy**). The increase in the efficiency of the salt pan's hydraulic circuit is expected to increase sea salt production by 10-15%.

◆ New and more safe touristic trips (pedestrian and bicycle itineraries).



### Algae and microalgae farming

(La Chiclana salina, Preciosa and Roqueta salina, Spain) - SAIDA (case study development, Tunisia)

- New Products/service development
- Service improvement
- Commercial chain and sales strategies improvement
- Enhancement of environment - indirect actions

La Chiclana Salina, among others activities:

◆ **new cosmetic production line - macroalgae**;

◆ Improvement of the **attractiveness, comfort and accessibility** for users, with a **30% increase in turnover**, an increase in the value of its market value, and a positive impact on the **biodiversity** of the environment



## Reduction of energy consumption and CO2 production

(Sleiman Sleiman Salinas, George Sleiman Salina, Malek's Salinas, Lebanon)



- Salt production improvement
- New Products development
- Service improvement- energy costs reduction
- Enhancement of environment - indirect actions
- Energy efficiency measures
- Pollution reduction

Sleiman Sleiman Salinas, among others activities:

- ◆ installation a windmill for water pumping reaching the **0-energy consumption** for the pump.
- ◆ rehabilitation of existing tanks and create a new one to prevent the **Water shortage**
- ◆ Attracting algae to grow and to be a **new product** of the Salinas

The Malek's Salinas is **zero fuel energy** by having a wind wheel to pump water and a solar energy system and at the same time **decreasing the pollution** and improving the environmental condition of the salina



## Touristic and cultural services

(SOSELKER/SODIMER, Kerkennah Salina, Tunisia)

- New Products/ service development
- Service improvement
- Commercial chain and sales strategies improvement
- Enhancement of environment - indirect actions
- Cultural aspects
- Company change in policy/ governance



- ◆ development of **new professions, products** and their commercialisation in sectors such as food, cosmetics and health, by preserving local **environmental** and cultural values in order to generate profit in an environmentally friendly.
- ◆ development of **new services, touristic circuit** and integrated multitrophic aquaculture (AMTI)
- ◆ preserving local **environmental** and cultural values in order to generate profit in an environmentally friendly.
- ◆ Networking activities - inhabitants of Kerkennah and young graduates from the region of Sfax

## Reduction of energy consumption and CO2 production

(Sleiman Sleiman Salinas, George Sleiman Salina, Malek's Salinas, Lebanon)

- Salt production improvement
- New Products development
- Service improvement- energy costs reduction
- Enhancement of environment - indirect actions
- Energy efficiency measures
- Pollution reduction

George Sleiman Salina, among others activities:

- ◆ Installation of **solar panels** to operate the pumps that will deliver water to the Salina, contributes to the **reduction of pollution and energy waste**
- ◆ Improvement of **marine biology and biodiversity**
- ◆ Increased **Local Tourism**
- ◆ Introduction of salt in natural and home **therapy**



Preciosa and Roqueta salina, among others activities:

- ◆ Sustainable cultivation of **microalgae** by means of raceway with the objective of the production of microalgae by new systems for the diversification of artisanal salt pans.
- ◆ It seeks to develop **new products** and their commercialisation in sectors such as food, cosmetics and health.
- ◆ Recovering of abandoned spaces of the salina



## Algae and microalgae farming

(La Chiclana salina, Preciosa and Roqueta salina, Spain) - SAIDA (case study development, Tunisia)

- New Products/service development
- Service improvement
- Commercial chain and sales strategies improvement
- Enhancement of environment - indirect actions



**SWOT  
analysis  
by countries**



# 3. Salinas Situation in **MedArSal** Project countries' and Policy commendations



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 monastery. 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 sectors. This presents enormous potential for diversification of products and activities in the artisanal Salinas. However, developing of 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 would be crucial for promoting the products effectively.

**Lebanese SWOT analysis** | The top five strengths, weaknesses, opportunities, and threats are presented in the following table:

S STRENGTHS	W WEAKNESSES	O OPPORTUNITIES	T THREATS
<ul style="list-style-type: none"> <li>» Existence of abundant resources in the Salinas that can be exploited economically: natural, tourist, heritage, cultural and gastronomic.</li> <li>» Fleur de sel as an haute cuisine product.</li> <li>» High potential of diversification of products/ services (macro &amp; microalgae, tourism, outdoor activities).</li> <li>» Specific and high-quality products and services that can only be obtained or developed in certain places, such as in the Mediterranean.</li> <li>» Potential to create Gourmet products in which there is growing interest.</li> </ul>	<ul style="list-style-type: none"> <li>» Important deficit of infrastructures that allow the development of tourism in the Salinas: signage, tourist information points, accesses, basic services, etc.</li> <li>» Direct financial public aid and via credit are required, as well as advice for corporate actions and brand creation.</li> <li>» Lack of promotion both physical and online. Little knowledge of market segmentation.</li> <li>» Lack of synergies between Salinas and associations to create, for example, designations of origin, labels, etc.</li> <li>» Initial support would be necessary for the implementation and viability of business projects, both economic and administrative facilities.</li> <li>» Undervalued product and low profitability.</li> <li>» Fragmented and abandoned property for many years.</li> </ul>	<ul style="list-style-type: none"> <li>» Improve the environmental protection for the Salinas.</li> <li>» Development of a "salt tourism" taking advantage of the landscape and ecological value of the artisanal Salinas.</li> <li>» Promote tourism in the area.</li> <li>» High demand for natural, healthy, functional, and organic products. Gastronomic tourism boom.</li> <li>» Concentration on brands for the creation of a single designation of origin or label, especially for the international market.</li> <li>» Institutional promotion and local direct sales actions in the municipalities.</li> </ul>	<ul style="list-style-type: none"> <li>» Legal status. Rent from monastery, unsure period.</li> <li>» Old regulation (Insufficient or deficient sector regulations).</li> <li>» Difficult maintenance of the structures of the Salinas.</li> <li>» Market price pressure threatens the competitiveness of local and organic products.</li> <li>» Lack of a legal framework to protect and promote the artisanal management of salt pans.</li> <li>» Lack of coordination in the corresponding administrations, slowness, and bureaucracy.</li> </ul>

## Key Policy recommendations

By developing relevant laws and regulations, putting in place incentive programs and providing technical support, national and local governments can enhance the management of artisanal Salinas, to generate both economic and environmental benefits. This factsheet represents the main recommendations compiled by the ENI CBCMED MedArtSal project based on the analysis of artisanal Salinas in Lebanon:

- » **ESTABLISH A COOPERATIVE OF OWNERS** of Salinas who actively participate in law and decision-making related 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 for certain commercial activities such as ecotourism.
- » Include the maintenance of Salinas in the management plans of **NEW PROTECTED AREAS**
- » **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.
- » **LEGALIZE 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.





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 production of sea salt is not an extractive activity as well (despite the fact 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.

To this must be added the 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, flavors, quality, nature, and the environment, which differentiates it from rock salt. Unfortunately, the higher production costs means 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 internationalized 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 the 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.

**Italian SWOT analysis** | The top five strengths, weaknesses, opportunities, and threats are presented in the following table:

S STRENGTHS	W WEAKNESSES	O OPPORTUNITIES	T THREATS
<ul style="list-style-type: none"> <li>» Existence of abundant resources and values in the Salinas that can be exploited economically: natural, tourist, heritage, historical, cultural, and gastronomic.</li> <li>» Possibilities of preparing a “tailor-made” salt for gourmet cuisine.</li> <li>» High environmental value in active artisanal Salinas (biodiversity and ecosystems services).</li> <li>» High potential of diversification of products/ services (macro &amp; microalgae, tourism).</li> <li>» Potential to create Gourmet products in which there is growing interest: fleur de sel, algae, etc.</li> </ul>	<ul style="list-style-type: none"> <li>» High economic and technical cost of maintenance of Salinas structures.</li> <li>» Non-compliance with the legal obligations.</li> <li>» There is not a regulatory council for quality approval for fleur de sel and virgin salt.</li> <li>» Undervalued product and low profitability.</li> <li>» Marketing in very local markets, lack of internationalization.</li> </ul>	<ul style="list-style-type: none"> <li>» Opening to international markets.</li> <li>» Nature-based Solutions opportunities to protect, sustainably manage, and restore natural and modified ecosystems addressing societal challenges effectively.</li> <li>» Networking to conduct marketing actions with other small businesses.</li> <li>» Increased demand for tailor-made tourism (“salt tourism”) and nature &amp; outdoor experiences taking advantage of the landscape and ecological value of the artisanal Salinas (ecotourism).</li> <li>» Foster national and international co-operation (business, research, etc.)</li> </ul>	<ul style="list-style-type: none"> <li>» Lack of differentiation between artisanal salt and industrial salt. There is no clear regulation of the organic salt standard (product).</li> <li>» Denaturalisation (and disappearance) because of climate change effects.</li> <li>» Market price pressure threatens the competitiveness of local and organic products.</li> <li>» It is difficult to make projects in artisanal Salinas economically sustainable.</li> <li>» Lack of public financial and policy support for the implementation, maintenance, and viability of business projects, both economic and administrative facilities.</li> </ul>





## Key Policy recommendations

By developing relevant laws and regulations, putting in place incentive programs and providing technical support, national and local governments can enhance the management of artisanal Salinas, to generate both economic and environmental benefits. This factsheet the main recommendations compiled by the ENI CBCMED MedArtSal project based on the analysis of artisanal Salinas in 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, management and provide access to funding opportunities.
- » **CREATE A SUSTAINABLE VALUE CHAIN** for salt pans through public subsidies.
- » **SIMPLIFY ADMINISTRATIVE PROCESSES** and develop a specific regulatory framework for the artisanal sectors.
- » **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.



## Spain

In Spain, the main challenges are found at local level, where the coastal spatial planning and regulation system is deficient. Urban pressure in favor 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, the salt producers experience great difficulties in establishing their companies and projects, leaving the sector reduced to a few elderly workers.

In view of these difficulties, it is very important that the salt producers create synergies among themselves in search of a 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 salt-works and thus be able to rank them appropriately.





**Spanish SWOT analysis** | Spanish SWOT main elements after the experts' analysis. The top five strengths, weaknesses, opportunities, and threats are presented in the following table:

S STRENGTHS	W WEAKNESSES	O OPPORTUNITIES	T THREATS
<ul style="list-style-type: none"> <li>» High environmental value in active artisanal Salinas (biodiversity and ecosystems services)</li> <li>» High potential of diversification of products/ services (macro &amp; microalgae, tourism)</li> <li>» Potential to create Gourmet products in which there is growing interest: fleur de sel, algae, etc</li> <li>» Existence of abundant resources and values in the Salinas that can be exploited economically: natural, tourist, heritage, historical, cultural, and gastronomic</li> <li>» Specific and high-quality products and services that can only be obtained or developed in certain places, such as in the Mediterranean</li> </ul>	<ul style="list-style-type: none"> <li>» Lack of synergies between Salinas and associations to create, for example, designations of origin, labels, etc.</li> <li>» Age of Salinas owner/worker and difficulties for generational renewal</li> <li>» Lack of coordination in the corresponding administrations, slowness, and bureaucracy. Complicated governance, lack of legal framework to protect artisanal management. old regulations</li> <li>» The artisanal salt product is not complemented with other typical products of Salinas, such as aquaculture, gastronomy, environmental education, etc. or have difficult conditions for tourism</li> <li>» Important deficit of infrastructures that allow the development of tourism in the Salinas: signage, tourist information points, accesses, basic services, etc.</li> </ul>	<ul style="list-style-type: none"> <li>» Nature-based Solutions opportunities to protect, sustainably manage, and restore natural and modified ecosystems addressing societal challenges effectively</li> <li>» "Increased demand for tailor-made tourism ("salt tourism") and nature &amp; outdoor experiences taking advantage of the landscape and ecological value of the artisanal Salinas (ecotourism)"</li> <li>» Resurgence of the gourmet and natural market. Gourmet salt market growth both in volume (3.6% per year) and in value (4.8% per year)</li> <li>» High demand for natural, healthy, functional, artisanal, organic, and local products.</li> <li>» Blue Carbon market</li> </ul>	<ul style="list-style-type: none"> <li>» Lack of differentiation between artisanal salt and industrial salt. There is no clear regulation of the organic salt standard (product)</li> <li>» Insufficient or deficient administration and/or spatial planning regulations (Territory)</li> <li>» Pressures due to urban developments or land use changes in favour of intensive agri/aquaculture developments</li> <li>» Lack of public financial and policy support for the implementation, maintenance, and viability of business projects, both economic and administrative facilities</li> <li>» Scarcity of local commercial links</li> </ul>

## Key Policy recommendations

In the light of these difficulties, it is very important that the salt producers create synergies among themselves in search of a greater recognition of the product and to promote the change of regulations at the national level. As with 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.

- » **PROFESSIONALISE THE SECTOR** by developing a specific training program and a professional category for salt workers.
- » Given its low impact, Artisanal salt-making should be legally **TREATED AS AN AGRICULTURAL ACTIVITY** rather than extractive mining
- » **PROVIDE TECHNICAL SUPPORT** and public subsidies for salt workers and entrepreneurs.
- » **GAINING INSTITUTIONAL SUPPORT** for conservation, natural resource management, governance, and decision-making.
- » **ESTABLISHING OF A LOCAL NETWORK** between salt owners to develop a common label which encompasses 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.)





# Tunisia

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 to achieve economic profitability without compromising the natural values of the area.



S STRENGTHS	W WEAKNESSES	O OPPORTUNITIES	T THREATS
<ul style="list-style-type: none"> <li>» Place of recreation for society; Outdoor activities.</li> <li>» High potential of diversification of products/ services (macro &amp; microalgae, tourism).</li> <li>» Potential to create Gourmet products in which there is growing interest: fleur de sel, algae, etc</li> <li>» Existence of abundant resources and values in the Salinas that can be exploited economically: natural, tourist, heritage, historical, cultural, and gastronomic</li> <li>» High environmental value in active artisanal salt mines (biodiversity and ecosystem services).</li> </ul>	<ul style="list-style-type: none"> <li>» Undervalued product and low profitability.</li> <li>» Lack of coordination in the corresponding administrations, slowness, and bureaucracy.</li> <li>» Weak technical information.</li> <li>» Important deficit of infrastructures that allow the development of tourism in the Salinas: signage, tourist information points, accesses, basic services, etc.</li> <li>» Investment in productive information and communication technologies is low.</li> <li>» High economic and technical cost of maintaining salt works structures.</li> </ul>	<ul style="list-style-type: none"> <li>» Opening to international markets.</li> <li>» Promote national and international cooperation (business, research, etc.)</li> <li>» Taking advantage of the image of the agro-environmental product due to the ecological value of the artisanal Salinas.</li> <li>» Implement new commercial channels, e-commerce.</li> <li>» Nature-based Solutions opportunities to protect, sustainably manage, and restore natural and modified ecosystems addressing societal challenges effectively.</li> <li>» Improve the environmental protection of the Salinas.</li> <li>» High demand for natural, healthy, functional, and organic products. Gastronomic tourism boom.</li> <li>» Development of a "salt tourism" taking advantage of the landscape and ecological value of the artisanal Salinas.</li> </ul>	<ul style="list-style-type: none"> <li>» The online market is concentrating on large distribution companies.</li> <li>» Lack of differentiation between artisanal salt and industrial salt.</li> <li>» Market price pressure threatens the competitiveness of local and organic products.</li> <li>» Large distribution requires a high volume of production.</li> <li>» Consumer belief that ecological, bio, natural, etc. they're synonyms.</li> </ul>



## Key Policy recommendations

- » By developing relevant laws and regulations, putting in place incentive programs and providing technical support, national and local governments can enhance the management of artisanal Salinas, to generate both economic and environmental benefits. This factsheet shows the main recommendations compiled by the ENI CBCMED Midtarsal project based on the analysis of artisanal Salinas in 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 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) to allow the production of other products beside salt.
- » **DEDICATE GREATER PUBLIC INVESTMENT** to develop artisanal Salinas. This includes public aid for salt producers and support scientific research on the quality of salt and to increase the selling price accordingly.



# 4. General Recommendations

Considering that some of the actions proposed by the participant countries have common and similar goals, several general measures could be implemented. These are the most important recommendations for the stakeholders involved in Salinas at any level:

- Promote and encourage the organization of salt producers into cooperatives or associations to foster collaboration, information exchange, and standardization of processes and pricing.
- Creating a network or coalition of Salina owners can also help facilitate participation in legislation procedures and advocacy for the interest of the sector.
- Create a thematic cluster or network of Italian Salinas, from the salt producers to territorial business activities of HoReCa, to promote the role of salt pans as benefit of the territories.

- Change regulations at national and international level to give coastal Salinas their own framework, highlight their importance and value the products and services they can provide.
- Give technical and financial support to salt producers to diversify their products and ecosystem services to revive Salina's economy and culture.
- Protect Salina's natural habitat by including them into Natural Areas catalogues, preventing abandonment and promoting biodiversity conservation plans.
- Internationalize and modernize the sector by giving salt producers access to technology and marketing information.
- Create a professional category for salt workers and apprentices.





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