MedArtSal

Sustainable Management Model for Mediterranean Artisanal Salinas

A.3.4.1. ANALYSIS OF THE REGULATORY FRAMEWORK AND GOVERNANCE OF SALINAS IN THE MEDITERRANEAN REGION: THE CASES OF TUNISIA, ITALY, LEBANON, AND SPAIN

WP3. OT3.4.

30/01/2023 - Málaga, Spain
Final report

Activity period: 11/2021–02/2023
Delivery date: January 2023
Partner in charge: IUCN
Partners involved: all
Status: definitive
Distribution: public

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%).

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.

Produced by: IUCN Centre for Mediterranean Cooperation (IUCN-Med), Malaga, Spain

Prepared by: Katia Hueso Kortekaas (Consultant)

Coordination: Lourdes Lázaro, Catherine Numa and Helena Clavero Sousa (IUCN-Med)

Citation: Hueso Kortekaas, K. IUCN (2023). *Analysis of the regulatory framework and governance of salinas in the Mediterranean region: the cases of Tunisia, Italy, Lebanon, and Spain*. Sustainable management model for Mediterranean artisanal salinas (MedArtSal) project technical report.

Available at: https://medartsal.com

About the MedArtSal project

MedArtSal - sustainable management model for Mediterranean Artisanal Salinas - 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 CUEIM – University Consortium for Industrial and Managerial Economics (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).

https://www.enicbcmed.eu/projects/medartsal

The 2014-2020 ENI CBC Mediterranean Sea Basin Programme is a multilateral Cross-Border Cooperation (CBC) initiative funded by the European Neighbourhood Instrument (ENI). The Programme objective is to foster fair, equitable and sustainable economic, social and territorial development, which may advance cross-border integration and valorise participating countries' territories and values. The following 13 countries participate in the Programme: Cyprus, Egypt, France, Greece, Israel, Italy, Jordan, Lebanon, Malta, Palestine, Portugal, Spain, and Tunisia. The Managing Authority (MA) is the Autonomous Region of Sardinia (Italy). Official Programme languages are Arabic, English and French. For more information, please visit: www.enicbcmed.eu.

PROJECT PARTNERS

CUEIM
(Lead Partner)

ASSOCIATED PARTNERS

Table of Contents

Acknowledgements

This publication was produced under the coordination of the IUCN Centre for Mediterranean Cooperation in the framework of the **MedArtSal project-Sustainable management model for Mediterranean Artisanal Salinas,** thanks to the funding provided by the European Union under the ENI CBC Med Programme. The Partners of MedArtSal would like to thank all the individuals and organisations who provided valuable input into the development of this report, either by reviewing and sharing feedback on its contents, providing information or simply having been part of the process that led to this publication.

The report of David González Piñeiro (González Piñeiro, unpublished), who worked for IUCN-Med, served as a basis and collected useful literature for the development of this report. We would therefore like to thank him especially for his help and good performance.

Abstract

This report entitled "Analysis of the regulatory framework and governance of salinas in the Mediterranean region: the cases of Tunisia, Italy, Lebanon, and Spain" provides an overview of governance, planning and regulations affecting the management of artisanal solar evaporation salinas in the Mediterranean. The first chapter addresses governance and sustainability form a more theoretical approach. It also identifies the main challenges these salinas face, both at a generic, region-wide level as more specific difficulties, as stated in previous surveys conducted within the MedArtSal project. Tools to facilitate sustainable management and financing are also offered here. The chapter ends with a brief explanation of the methodology used in this report. The second chapter provides a framework of governance for salinas at international, European, and national levels, with a case study on Ramsar sites. A brief explanation of the MedArtSal partner salinas in Spain, Italy, Tunisia and Lebanon as well as a few examples of good governance elsewhere in the region are offered here. The third chapter focuses on practical aspects of governance, such as the identification of stakeholders and the styles of governance that can be applied. It then links these topics with some thoughts about artisanal salt making in the past, present and future. The fourth and last chapter gathers the issues addressed in the report and gives recommendations for sustainable governance at various levels, aimed especially at the salinas and their managers.

1. Background and justification

1.1 What is governance

Governance can be very simply explained as the "management of public life", that is, governing people, resources, and institutions. Traditionally, public life was steered by command-and-control mechanisms, supported by legislation and a hierarchical decision-making system under the direct control or supervision of the authorities. In past historical eras this followed an authoritarian, despotic and even theocratic model, gradually moving towards a bureaucracy-based, colonial, or elitist perspective in the more recent past. Today, it has a more managerial, pragmatic, and democratic approach, albeit still with a top-down, narrow perspective. This latter model, still limited in scope and obsolete in its philosophy, is ill-suited to dealing with the new issues and problems raised by sustainable development (Sgobbi & Fraviga 2006).

Strictly speaking, governance is not the same as government. The concept of governance -as opposed to government- arises from the need to simplify and flexibilise regulatory processes, that traditionally stem from governmental institutions (Rosas-Ferrusco *et al*. 2012). It seeks a more horizontal, equitable approach than the old-fashioned way of managing public life, as shown above. Governance is much broader, inclusive, dynamic and encompasses actors such as communities, businesses, and NGOs (Lemos & Arawal 2006). It rests on the principles of sustainability, cooperation, participation, and consensus building among stakeholders. In the light of sustainable development, governance highlights the importance of environmental stewardship and empowerment of people, with an increasing emphasis on public-private partnerships, and the systematic adoption of a bottom-up approach to development (Sgobbi & Fraviga 2006). An adequate governance has thus been described as participatory, transparent, with public control, effective, fair and consensual (Rosas-Ferrusco *et al*. 2012). Governance can be considered a "new art of governing" in which citizens collectively solve their problems and respond to the needs of society, using the government as the instrument -rather than leading- to achieve this. Civil society becomes thus the protagonist of the act of governing, instead of being a passive subject, and the territory becomes the centrepiece of public policy and decision making.

The United Nations Development Programme (UNDP 1997) thus defined governance as "the exercise of economic, political, and administrative authority to manage a country's affairs at all

levels. It comprises the mechanisms, processes and institutions through which citizens and groups articulate their interests, exercise their legal rights, meet their obligations, and mediate their differences". Although initially linked to country-level decision making, governance can be applied to any level of regulatory processes, whether from the geographical perspective or the sectorial one. It can be international, national, regional, or local and can even extend to the public-private realm. From the sectorial point of view, one of the most common applications of the concept is the urban management (e.g. Agenda 21 processes) or large institutions such as universities.

However, within the context of this work, the focus will lie on the governance of natural assets and, more specifically, artisanal salinas in the Mediterranean region. While governance for the conservation of nature is a political phenomenon, it is also, and always, a cultural expression, reflecting the concepts, values, and world views of diverse societies (Borrini-Feyerabend & Hill 2015). Examples exist of the percolation of these aspects of governance into international policy instruments related to the environment.

The Ramsar Convention, supported by specific guidance in the "Wise Use Handbooks" series, acknowledges the need to address an open, culturally sensitive approach to wetland management. On the other hand, the Water Framework Directive of the European Union is a pioneering example of a regional legal instrument defending basin-scale co-management (MEA 2005).

The broad scope of governance therefore calls for a more open definition. Bennet and Satterfield (2018) propose the following: "the institutions, structures, and processes that determine who makes decisions, how and for whom decisions are made, whether, how and what actions are taken and by whom and to what effect". Three terms are important to discuss in this last definition. Firstly, *institutions* can be considered "as both the formal (e.g., constitutions, laws, policies, tenure systems) and informal rules (e.g., cultural context, social norms, prevailing power structures) that shape human interactions (e.g., in the form of decision-making structures and processes) and that guide, support, or constrain human or management actions". Secondly, the term *structures* refers "to the formalised bodies or entities (e.g., decision-making arrangements,

co-management bodies) and organisations (e.g., levels of government, private sector organisations, civil society organisations) as well as informal networks of actors and organisations that embody governance capacities (e.g., efficiency, participation) and perform different functions (e.g., producing rules and decisions, enabling management actions)". Lastly, processes "are the means for realizing the functions and the performance of governance, and include articulation of institutional mandates, negotiation of values, conflict resolution, law making, policy formation, diffusion of information, and application of policy" (Bennett & Satterfield 2018). An overview of governance structures, institutions and processes in the context of environmental protection and management is provided by Bennett and Satterfield (2018), see also Figure 1.

Wise governance taps from an integrated, complete but efficient combination of legal and regulatory instruments (laws, etc.) as well as enforcement mechanisms, (administrations, monitoring, policing, justice etc.). These should be supported by scientific and technological tools, methods, and infrastructure, that are in turn fed by a vision of continuous improvement and innovation. Outputs to society in the form of communication, education and participation are also essential.

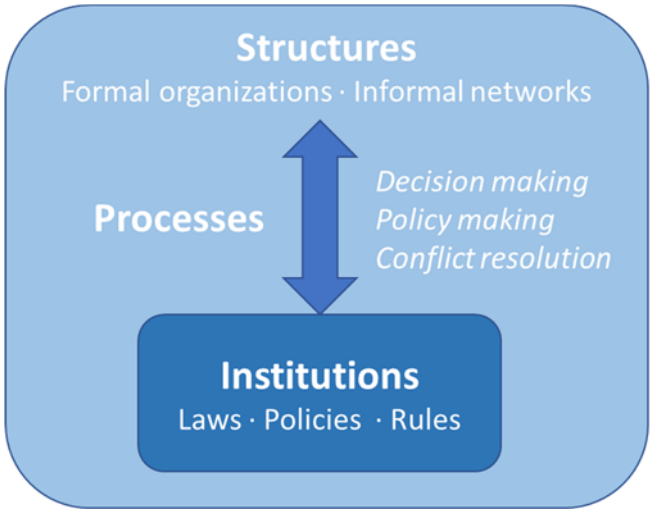

Figure 1: Elements of governance. Adapted from Bennett & Satterfield (2018)

1.2 Sustainability in governance

The mainstream definition of sustainability as stated in the Brundtland report (WCED 1987), "meeting the needs of the present without compromising the ability of future generations to meet their own needs", has gradually been understood as a relation of interdependence between three pillars, namely the environment, society, and the economy. Two main models exist to explain how this interaction takes place, namely weak and strong sustainability (Figure 2).

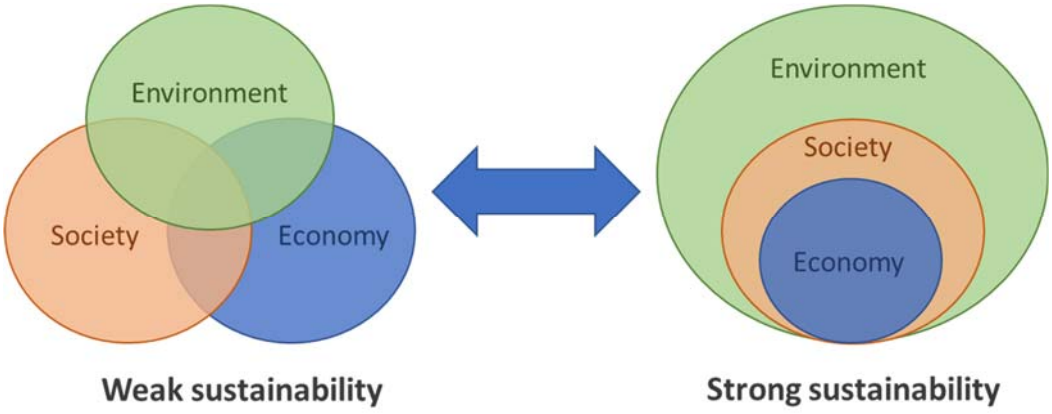

Figure 2: The two models of sustainability. Adapted from Morandín-Ahuerma (2019).

The first, based on the original definition, puts the three spheres on a level playing field, therefore having the same importance and even a certain degree of autonomy from each other. The second implies a hierarchical, nested relation between the three pillars, as there is a weighted interdependence form each other (Giddigs *et al.* 2002). It understands that the environment supports society via the provision of natural resources and ecosystem services, and society is the foundation of a healthy economic activity (Figure 3).

This latter model snugly fits with the reality of artisanal salinas, given their dependence on the proper functioning the saline ecosystem to produce quality salt. Also, because artisanal salinas heavily rely on manual labour for their activity, and thus generate a healthy socioeconomic environment that has strong ties with the local community.

Figure 3: The sustainability of salt making encompasses the triad product, process, and landscape. Photo: KHueso/IPAISAL

In this sense, understanding the linkages between governance and sustainability is paramount:

> *Salt making is a complex activity from the point of view of planning and management, as it needs to comply with numerous regulations. Good governance of salinas is therefore not only focused on the internal aspects of their functioning, but also strong, stable, horizontal, and transparent relations with other stakeholders in the area.*

Governance and local socioeconomic development in the context of artisanal salinas

Coastal salt making is one of the pillars of the so called "blue economy". It includes all industries and sectors related to oceans, seas and coasts, whether they are based in the marine environment (e.g. shipping, fisheries, energy generation) or on land (e.g. ports, shipyards, land-based aquaculture and algae production, coastal tourism, and, thus, salt making). Alongside traditional activities, innovative ones are evolving and growing, such as offshore renewable energy, biotechnology, and desalination, thus providing new prospects and creating jobs. It is a thriving sector that would equal the world's 7th largest economy (EU 2021).

Artisanal salt making is therefore an excellent example of blue economy that also can provide opportunities for innovation by generating subproducts and by-products of scientific, technological, and industrial interest. However, salt making sites are in serious decline across the Mediterranean basin. An estimated loss of 90% of the salt making sites (Figure 4) that ever existed in the region makes this activity an endangered one and in need of viable alternatives to the traditional salt production. Contrary to other transformations of traditional activities, the innovations described are compatible with artisanal salt making, thereby preserving the natural, cultural, and human values they host (Hueso Kortekaas 2019).

Figure 4: Abandonded salinas of Psili Ammos, island of Samos, Greece. Photo: KHueso/IPAISAL

1.4 Challenges and obstacles to governance

The governance of a complex activity such as salt making faces numerous challenges and obstacles, some of which have been identified by the partner sites of the MedArtSal project. In this report, three categories of challenges have been identified. A summary of them can be seen in Figure 5.

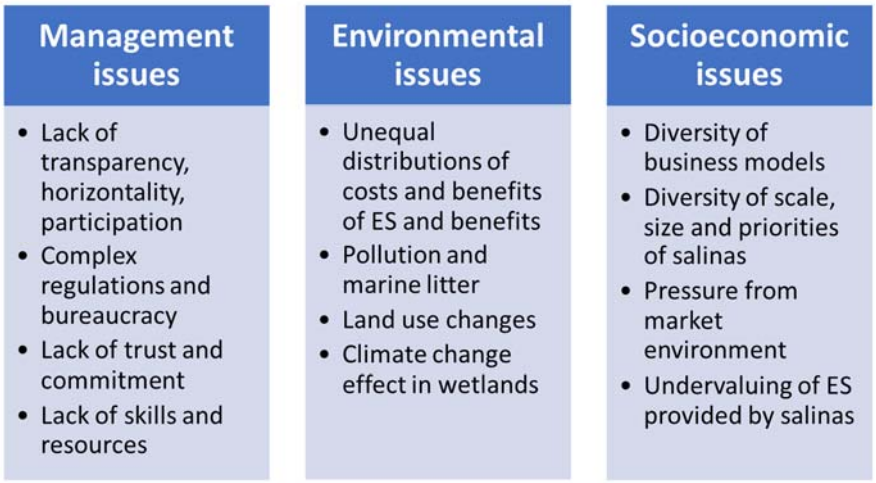

Figure 5: Summary of the main challenges and obstacles to the governance of salinas in the Mediterranean. Source: Prepared by the author.

1.4.1 Management issues

Management and governance are closely linked and mutually interdependent concepts and therefore management needs to be taken into consideration to achieve a healthy degree of governance. While governance questions "who decides what the [policy] objectives are, what to do to pursue them and with what means; how those decisions are taken, who holds the power, authority, and responsibility and who is (or should be) held accountable", management is about the means and actions to achieve policy objectives (Borrini-Feyerabend & Hill 2015). Hence, both concepts are inextricably linked.

Managerial obstacles to governance are still commonplace. Firstly, there is a lack of tradition in demanding the assets that governance is known for: transparency, horizontality, participation. There is a deep ingrained tradition of accepting hierarchical relations and decisions from institutions, that often feel too far out of reach to even try. An example of this is the dependence on external aid to start or improve an existing business on the one hand, and the donor then

failing to do a follow-up and creating the conditions to help the business thrive. In the salinas of San Juan, in Guadalajara (Spain), a substantial subsidy from the Ministry of the Environment in the early 2000s helped reconstruct the site with the idea of making it operational again. The architects, apparently unaware of the effect of saline environments on materials and failing to seek vernacular knowledge, built walls and channels that rapidly deteriorated and rendered useless. The owners of the site were forced to find resources and expertise elsewhere, and a few years later, they could finally start making salt. No amendment or improvement of the site was offered by the original donor.

The governance of Mediterranean wetlands is generally considered weak. It is burdened by "bureaucratic and compartmentalised political structures, ineffective decision-making mechanisms, inconsistent law enforcement and disagreements between countries" (Taylor *et al*. 2021). In worst case scenario, another aspect that threats governance, especially in weaker states, is corruption, abuse of power and the skewed defence of selfish interests by decision makers. But even in the friendlier scenarios, decision making can also be prone to bias, in other words, to cognitive traps that threat a rational, non-judgemental, and disinterested mindset. Eccleston and March (2010) identify over 30 such biases in collective decision making related to policy. A typical case in this context is the tension between the management of a salt making site (usually in hands of private companies, with a focus on industrial rather than environmental-related activities) and the protection of the natural area that hosts the salina (usually steered by the public authority in charge, very focused on strict biodiversity conservation).

Aside from these difficulties, Berkowitz (2020) identifies many different regional-specific challenges in the Mediterranean, of which those related to the management of the salt making sites are highlighted and adapted in Table 1. The following list also includes the threats and weaknesses identified by the partner sites of MedArtSal:

Table 1. Challenges and obstacles affecting Mediterranean salinas.

Related in extrinsic factors (beyond the control of the salinas)	Related in intrinsic factors (partially controlled by the salinas)
• Regulatory inconsistencies in the region, i.e. Multi-layered and multi-level governance instruments that sometimes clash with each other or cancel out the efforts of others (e.g. Mining vs agriculture vs industry) • Lack of or insufficient artisanal / organic salt-specific regulations, certification schemes, labels, and similar instruments • Variability in cultures, traditions and customs related to participation, communication and decision making • Lack of financial and human resources but also social capital and willingness to try new governance models • Pressure from the economy of scale model, i.e. Low market prices for industrial salt and subsequent unfair competition • Lack of commitment of all stakeholders (public administrations, businesses, scientists, civil society) and resistance to change of established actors • Lack of general capabilities needed for the governance (either in business, science, policy or civil society, or innovation brokerage, especially among Small and medium-sized enterprises (SMEs) and entrepreneurs	• Lack of local collective action (especially regarding networking, volunteerism and building of synergies and partnerships • Lack of trust, deep ingrained tradition of taking advantage of situations, resources and even others as a means of survival • Immaturity of business models in emerging sectors or among traditional family-based or informal economic activities • Lack of entrepreneurial skills in lagging regions, especially in the primary sector • Lack of commercial and marketing links, platforms or networks for artisanal salt and subsequent low visibility in the market • Unclear differentiation between industrial and artisanal salt/salinas • Difficulties to find motivated and/or trained workers and managers for artisanal salt making

Source: Adapted from Berkowitz (2020)

Yet another major challenge facing governance is **imperfect knowledge**. In an ideal situation, decisions should only be taken when all the existing knowledge, in favour or against an option, is known and accepted without bias. However, this is rarely the case in real life. Risks need to be taken when information is not complete, making assumptions and calculating the probability of an event occurring (from natural disasters such as floods to price fluctuations of salt, for example). **Ambiguity** can also threat a robust decision since its predicted outcome is not clear. For instance, when a salt making company diversifies its products or innovates with technological applications of its sub-products. Related to this is uncertainty, which occurs when the outcomes are known

but not the probability of them occurring. Examples in the context of artisanal salt making would be deciding to shift markets or change the corporate image. It can be predicted that the income or the final customers will change, but how exactly is more difficult to assess. When ambiguity and uncertainty come together, this results in ignorance of both the outcomes and the probabilities, becoming a highly risky endeavour and should be avoided (Common & Stagl 2005).

From a more practical point of view, **(an excess of) regulations** can be another managerial obstacle to governance (Figure 6). There is a high risk to suffer a mismatch between jurisdictions, policy objectives, and institutional culture. Salt is generally considered a mining or an industrial *product* and is treated as such in the authorisations needed for the production *process*. This may create complex situations with the regulations affecting the *site*, often located within natural protected areas, and hence dependent on the environmental or agricultural authorities, as shall be seen. In addition, the management of a coastal salt making site, can become a legal and bureaucratic maze, as coastal authorities come into the picture. Coastal sites need to comply with land use regulations that do not only affect the authorised use of the terrain, namely productive, but also with boundaries related to tides, coastal dynamics, and ownership.

The case of Spain

In Spain the fringe of coast is considered public domain, regardless of its legal ownership, forcing owners and managers to request permission for every small decision, including those related to the salt making operations within the salina. Contrary to salt mines, solar evaporation salinas are highly seasonal and lagging institutional responses may cause severe delays in the maintenance, production and / or harvest of salt. This situation is similar for those salinas inside natural protected areas (NPA), which need to comply with the NPA's plans and regulations in force, which may interfere with the salt making activity in terms of location (e.g., due to the presence of vulnerable species in productive areas) or time (e.g., breeding season of protected birds).

Another example is the need to maintain certain water levels in the ponds (e.g., for invertebrates), or the size, and materials of the dikes, that should be compatible both from the flora and fauna, as for the machinery that uses them to move around the site. Again, permission must be requested to perform any change in the activity of infrastructure, however necessary and urgent it may be for the salt making activity. To further complicate this issue, given that salt making is usually considered a mining activity, the site must comply with specific health and safety regulations and limit the right of public access, which interferes with the NPA vocation of showcasing nature and educating the public about it. With a good mutual understanding of each other's position, salinas can combine these demands with their own needs.

Figure 6 shows the view different state regulations have of the salt as a product, of salt making as a process or activity and of the salina as a site or landscape type. The differences between the interpretations of the regulations can be quite dramatic in philosophy, as indicated above (see also other MedArtSal documents for further details). In addition, in the case of Spain and in some cases also in Italy, regional administrations are the intermediary between the state and the salt making companies, adding further steps into the request and update of authorisations and other red tape.

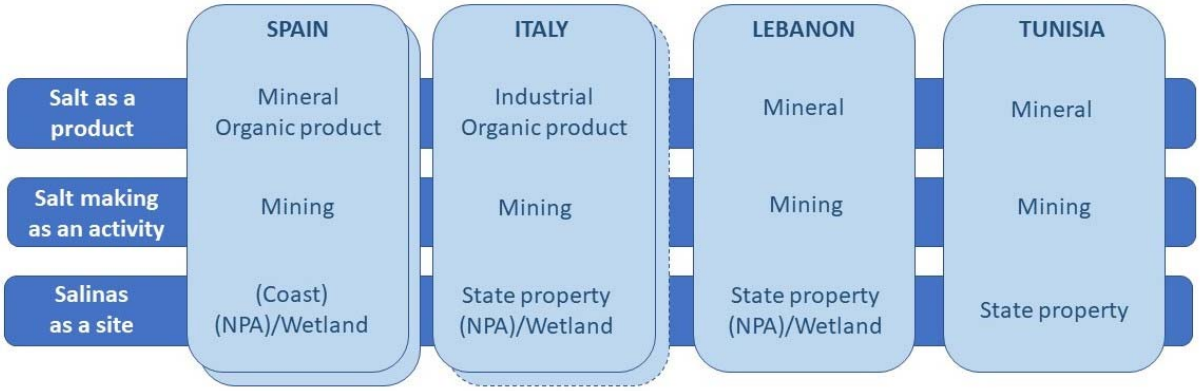

Figure 6: Schematic representation of the view on salt, salt making and salinas the different regulations have in the MedArtSal partner countries. The layers represent different levels of government. Source: Prepared by the author

1.4.2 Environmental issues

The multiscale spatial, temporal, and social character of environmental problems adds significant complexity to their governance. Decoupling or shifting scales risks generating unequal distributions of costs and benefits of ecosystem services and benefits (Lemos & Arawal 2006). Salinas and saltscapes offer a broad range of ecosystem services, as has been indicated by numerous authors (da Silva *et al.* 2014, Soares *et al*. 2018, Hueso Kortekaas 2019, 2020) and reviewed by the University of Cádiz within the framework of the MedArtSal project. However, these are not adequately valued, as shall be seen below.

The Mediterranean Region faces several major intertwined challenges particularly related to the blue economy, from overfishing to marine litter and pressures from mass coastal tourism and climate change. These directly affect salt making, as will be further explained below. At local scale, marine litter is mainly composed of degraded or raw plastic that is transformed into micro- or nanoparticles that enter the biological systems and living organisms. Salt making sites suffer from microplastic pollution and the removal of plastic from salt is a difficult, time- and labour-consuming task, especially in the case of artisanal salinas (Figure 7). The presence of plastics, in addition, threats to decrease the perceived quality and culinary value of hand harvested salt.

Other forms of sea pollution because of as spillages and tank cleaning procedures may cause harm to the trophic structures of a salina and decrease the quality and cleanliness of the brine.

Figure 7: Marine litter and plastic debris is one of the greatest threats to the quality of salt

At a broader scale, land use changes in the Mediterranean, especially in its northern shores, has put a significant pressure on natural resources. Flat areas such as wetlands have been drained and transformed into resorts, marinas, and other recreational venues. In addition, wetlands have traditionally been perceived as nuisances, due to the presence of insects, especially the malaria-bearing mosquitoes, thereby increasing the pressure to drain them. The remaining wetlands are sensitive to pollution from wastewater effluents, the presence of invasive alien species and altered coastal dynamics caused by new infrastructures such as beaches, harbours, and dykes (Figure 8).

Figure 8: The salina of Calpe in Alicante, Spain (centre-left) is engulfed by buildings and infrastructures. Urbanisation is one of the causes of disappearance of traditional salinas across the Mediterranean. Source: Josemanuel/WikimediaCommons

Climate change is also a threat to coastal salinas, due to the predicted sea level rise, that may flood the sites. Also, extreme weather events are becoming more common, and precipitation and wind patterns are changing, therefore rendering salt making operations and harvests less predictable. Droughts may cause dryness in parts of the salina, such as the bottoms of ponds or in dykes and channels, causing cracks in the soil and involuntary drainage of the brine or leakage to other sections of the site.

1.4.3 Socioeconomic issues

Salt making is a very diverse activity from the point of view of business structure and environment, as has been shown above. From individual entrepreneurs to transnational corporations, many scales and sizes of companies exist. They also operate in different markets, from the strictly mining business delivering salt to the chemical or food processing industry, to selling salt in small packages as a souvenir to visitors, anything seems possible. This range of possibilities in scale,

size, market, and priorities make it very difficult to establish a common ground for the valuation of societal challenges and opportunities around salt making.

Coastal salinas are usually located in salt marshes and occupy large wetland areas, what causes an inevitable tight contact with a broad range of stakeholders. Aside from landowners and managers, are public institutions in charge of enforcing policies and regulations, which are complex in these environments. The business partners, sponsors, suppliers, collaborators, customers and even competitors also form part of the societal structure around salt making. And finally, other land users such as farmers, birdwatchers, hunters, sportspeople, visitors, etc. (see also section 3.1). It is a great challenge to keep these relations in balance. This is especially the case in regions with a low level of socioeconomic development, which is characterised by weaker human and institutional capacities, low and unequally distributed income, and a scarcity of financial resources. These regions often suffer from governance difficulties (World Bank & UN DESA2017).

It is difficult to assess the socioeconomic status of Mediterranean salinas as a whole. The diversity of salt making sites in the region is overwhelming. According to the survey performed by the MedArtSal project, responded by 27 salinas across the Mediterranean (Figure 9), two thirds of the salinas are owned privately or have a public-private partnership (n=18), and one third is owned by a public body (n=9). Again, two thirds of them are artisanal salinas, whereas the rest is either strictly industrial or has a section dedicated to the manual harvesting of gourmet salt types. The latter had a significantly higher total annual productivity, as would be expected. Most of the respondents were coastal salinas, with a few inland solar evaporation sites or salt mines. The average size was 7.5 hectares, but with a high variability, as one of them reached 3,350 hectares in surface (in Tunisia). Due to the higher labour intensity of artisanal salinas, 40% of them declared not having had profits in the year 2019. Also, given the high dependence on meteorological factors and (in the case of inland artisanal salinas) on the availability of underground brine, there is a high variability of salt production from one year to the next (pers. obs.), rendering the profits very volatile.

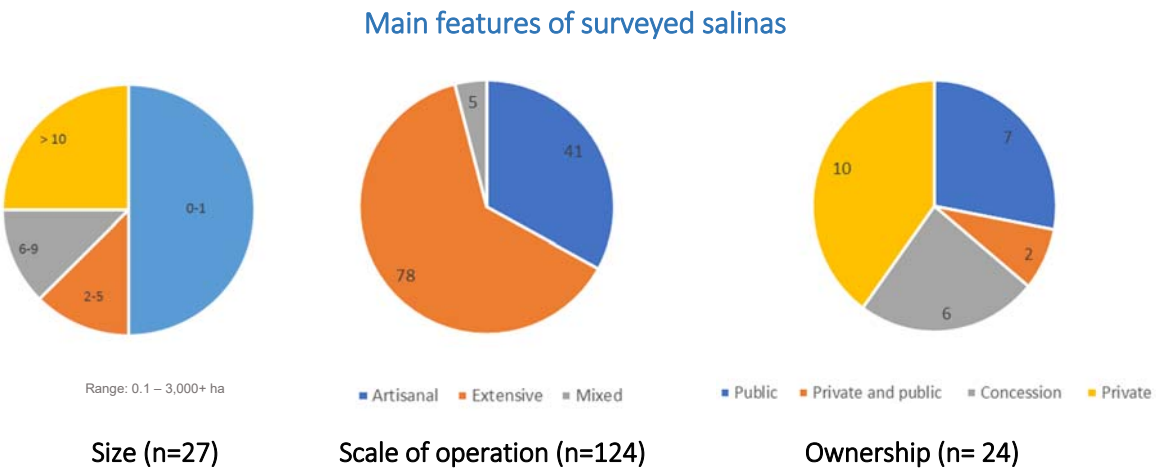

Figure 9: Typology of salinas in the Mediterranean, according to the MedArtSal survey. Source: UCA (2021)

Also, the valuation of the ecosystem services of a salina is clearly underrepresented in the profits it makes (if any). The market only provides a revenue for the products and services considered of commercial value. However, salinas provide several ecosystem services that are not considered and are essential not only for the internal operations, but also for nature and society. Examples of the ecosystem services are flood mitigation and control, conservation of biodiversity, prevention of erosion, nutrient cycling, etc. Especially relevant in salinas are the cultural services, given the tight connection to the socioeconomic fabric of the territory (Hueso Kortekaas 2020). An optimal institutional structure relates the societal demand for ecosystems services to the supply. It takes the values of the ecosystem services into account to attain a well-balanced result. For most ecosystem processes, because of high transactions costs, the difficulty in attaching quantitative values to ecosystem services, and the nonexcludable character of the ecosystem services themselves, no traditional market exists where price is the only coordination tool. There also seems to be paradox in the valuation of ecosystem services, namely that the more ecosystem services are provided simultaneously, the more difficult to get a payment for ecosystem services based on the social value of the exchanging ecosystem services. One reason for this is the separated responsibility of the ecosystem services over different jurisdictional levels (de Blaeij *et al*. 2011).

1.5 Tools to support to governance

1.5.1 Ownership models and management tools

Ownership models

The issue of ownership is crucial to understand the resilience of the salt making activity. Before analysing the different models of ownership in salinas, it is important to distinguish between 'rights-holders', namely the actors socially endowed with legal or customary rights with respect to the site, and 'stakeholders', or those who possess direct or indirect interests and concerns about it, but do not necessarily enjoy a legally or socially recognised entitlement to it (Borrini-Feyerabend & Hill 2015, see also Table 2). In this section, the focus is on the first group.

Table 2. Key players in the governance of salinas.

Key player	Examples
Individual / family-owned salinas: Smaller salt making sites that typically belong to one single individual or family	Sleiman salinas in Lebanon or Salinas del Alemán in Spain. Many similar sites exist in inland Spain, the Canary Islands, Portugal, Malta, or Greece.
Small company / cooperative: Sites owned and / or run by SME or similar independent legal structures	Aveiro or Rio Maior in Portugal, San Pedro del Pinatar or Es Trenc in Spain, Atlantic salinas in France, Cyprus, etc.
Corporate / transnational company: Large salt making companies, whether independent or belonging to larger consortia	Camargue in France; Torrevieja, Cabo de Gata or Bonmatí in Spain; Trapani, in Italy; Messolonghi in Greece, etc.
Government: Public administrations that take care of the heritage of salt making sites in decline	The "salinetta" of Comacchio, Italy; Salinas de la Esperanza or Marchamalo in Spain. Publicly owned salinas are often managed by private companies, as is the case in Sečovlje, in Slovenia.
Public-private partnerships: Agreements between public owners and private entities to manage a salt making site	Fundação Samouco in Alcochete, Portugal or the Fundación Valle Salado in Salinas de Añana, Spain.

Source: Prepared by the author.

Individual / family-owned salinas (Figure 10), due to their small-scale ownership, allowing fast decision making, but is in fact the weakest from the point of view of business, especially if the site is in decline. Resources (financial, technical, human) are scarce in all cases, but the capacity of accessing them becomes hard for private individuals. Most owners in this situation have an indifferent or even resigned attitude towards their sites. Many have been working there for

generations and have witnessed or experienced first-hand the hardships of the job. Now aged, probably pensioned, few have the mood and energy to initiate a recovery process. At the most, they maintain the activity on 'survival mode', that is, keeping the investments and costs at the minimum possible to obtain a product that is just good enough for the market.

On the other hand, precisely because of the effort they or their family has been forced to make to purchase the land, now feel reluctant to allow third parties in the management of their property. However, only those owners who decide to open their business to other entities, may have a chance to obtain resources for the recovery of the site. Personal and institutional relations are key to attain success, especially in isolated rural areas, although this may be flawed by (past) personal conflicts or diverging political views.

In some cases, small salinas are being acquired or recovered by young entrepreneurs who have the drive and the training to offer a variety of products and services, generate synergies with other stakeholders and establish partnerships with other businesses and initiatives. Among these young entrepreneurs, the discourse of sustainability and governance is very alive. However, the lack of financial and technical resources, not only for their business but also simply to live and thrive in rural areas, can demotivate them in the long run.

Figure 10: Small scale inland salinas of Iptuci, in Cádiz, Spain. Photo: KHueso/IPAISAL

Small companies / cooperatives (Figure 11), having a legal structure as a SME or being run by one provides better opportunities to address challenges inherent to the salt making business, such as cooperation with other institutions, access to financing and visibility in the market. Having a diversified and specialised workforce increases the efficiency of the company and provides flexibility in the organisation and prioritisation of its activities. Cooperatives are very common in Western France and the model has been exported elsewhere across the world (see below).

Figure 11: Mid-sized salinas of Ettore e Imfersa in Sicily, Italy. Photo: KHueso/IPAISAL

Corporate / transnational companies (Figure 12) tend not to produce salt at artisanal scale but do get inspiration from the diversification of activities that smaller salinas are choosing to do. While industrial scale salinas used to focus on the production of large quantities of salt destined to corporate customers, they are gradually appreciating the value of quality products aimed at niche customers, such as high-end culinary outlets (foodie markets, top end restaurants, souvenir shops), as well as the sale of by products such as mother lay, muds or plants. Large companies have more intrinsic resources to experiment with new products and services and can easily adapt to market changes and trends, even at a broad geographical scope.

Figure 12: Industrial salinas in Tavira, Algarve region, Portugal. Photo: KHueso/IPAISAL

Government or public administrations (Figure 13) often end owning salt making sites, with the aim to recover the natural and cultural heritage they host. These sites have usually gone through a period of abandonment and investments are needed to recover the salt making activity, if possible, at all. Public administrations are more capable of attracting resources but are hampered by steep hierarchical structures and slow decision-making process, thus the business of salt making becomes hardly feasible and the focus then shifts to heritage tourism and environmental awareness, education and interpretation. Often the management of the site is given in the hands of trusts, NGOs or universities, as a paradigm of co-management.

Figure 13: The salinas of Samouco, in Alcochete, Portugal, run by the Fundação Salinas Samouco. Photo: KHueso/IPAISAL

Public-private partnerships (Figure 14) are a combination that seems to work well, either via ad hoc agreements or the creation of a trust or foundation. They tend to be not-for-profit and have a more horizontal, long term and well-structured management and planning approach. This solution taps from the best of both worlds: the robustness and trustworthiness of public institutions with the swiftness of action and flexibility of private entities. Resources are more easily obtained, as sponsors tend to trust this type of agreements. They can also more easily form partnerships, synergies and collaboration agreements with third parties, thereby increasing the efficiency of the business and the environmental and social resilience of the site.

Figure 14: The salinas of Añana are owned by Gatazgak S.L., a private company, but managed by the Fundación Valle Salado, a public-private not for profit trust. Photo: J-Pde Krijger/IPAISAL

More on partnerships

Asides from ownership, the management and governance of natural resources and wetlands can benefit from a broader perspective. Landowners and companies cannot operate single-handedly in complex activities (both from the regulatory as the environmental points of view) such as salt making. On the other hand, recognition of the importance of public participation and equity in decision-making is growing, and national policies are increasingly being used to support stakeholder participation (MEA 2005). Increasingly, cross-scale governance mechanisms are being shaped by nonstate actors including NGOs, international environmental organisations, intergovernmental and multilateral organisations, market-oriented actors (e.g., transnational, and multinational companies), and epistemic communities. These new actors both introduce innovative tools and mechanisms and positively shape power relations within the policy arena. (Lemos & Arawal 2006).

Therefore, new forms of partnerships (see Figure 15) arise that flexibilise management and governance of a site, tapping from the advantages of each form of management.

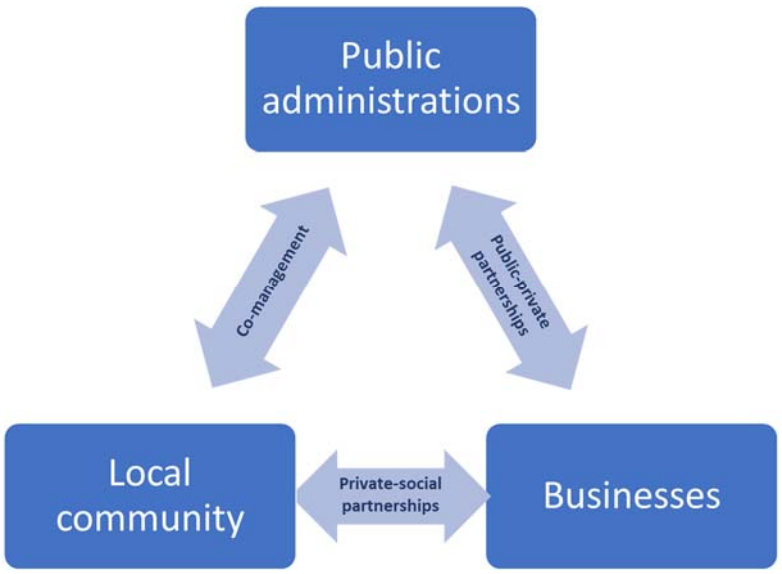

Figure 15: Partnerships for environmental governance. Adapted from Lemos & Arawal 2006.

Models of land stewardship

Land stewardship is a mechanism of sustainable management of natural resources that promotes the idea that nature and biodiversity conservation at the level of ecosystems and landscapes is compatible with human activity. It is especially helpful when sustainable management -rather than absolute protection or preservation- of natural resources is the objective. It is closely related to governance, as it encourages the involvement of actors and stakeholders beyond the role of owners and managers of the site. At the core of land stewardship lies the principle of co-responsibility in the management of natural resources. It is based on voluntary agreements between landowners and/or managers and land stewardship organisations. Using a wide variety of tools and resources, it involves many different stakeholders, especially landowners and NGOs, but also land users, public and private organisations and even the public at large. While many stewardship approaches rely on private mechanisms, it should not be viewed as a solely private approach to conservation. Rather it rests on two elements coexisting in a civil society: private initiative (on the part of an individual landowner, a resource-user, a business and/or an NGO), and public policies (which provides a framework in the form of programmes, incentives, land use planning and a supportive climate for private organisations). Hence its tight links with governance (Sabaté *et al*. 2013). Land stewardship is becoming a widespread mechanism, especially in privately owned protected areas as in areas with high natural value that are not (yet) formally protected, as is usually the case with saline wetlands. Several organisations such as

Natuurmonumenten in The Netherlands, *Xarxa de Custodia del Territori* in Spain or *Conservatoire du Littoral* in France, have extensive experience in this approach.

There are three general categories of land stewardship agreements, depending on the relationship of the landowner retains with his or her property, namely (Sabaté *et al.* 2013):

- *Non-agreement mechanisms:* short-term agreements that do not need but the occasional use of the land or any kind of transfer in property or other rights (e.g. awareness-raising, education campaigns towards the general public, punctual actions of landowner support, volunteer actions, or acknowledgement actions)
- *Management support*: agreements where the landowner continues to manage the land, but he or she commits to conservation-oriented actions (via collaboration convention, sometimes supplemented with a management plan document)
- *Management transfer:* agreements where property's management is, totally or partially, transferred to the land stewardship organisation (e.g. via the donation, cession or purchase of the rights of use)
- *Property transfer*: agreements that imply transfer of property title to the land stewardship organisation, also known as (e.g. sale, legacy, donation or exchange)

An example of successful land custody in salinas can be seen with the salinas of El Rasall in Murcia, Spain. Located in the Regional Park Calblanque, Monte de las Cenizas y Peña del Águila, this 18-ha salt making site is privately owned but was abandoned in the 90s of the past century. The salinas are built on a on a coastal lagoon with high biodiversity value. Since 2011, the site has been managed by the Association Calblanque. Aside from the protection of its habitat and biodiversity, the association maintains the water circuit and harvests salt with the aid of volunteers (Figure 16).

Figure 16: Invitation to participate in the symbolic salt harvest at El Rasall, Murcia. Source: Asociación Calblanque

Ecolabelling and certification schemes

The recognition of the quality of a product has usually been highlighted via certificates, labels, and brands, commonly seen in primary sector commodities such as coffee, timber, and energy. Some certificates are legally required, such as energy labels in certain appliances, but in most cases, ecolabeling and certification schemes are forms of voluntary agreements wherein producers agree to meet known quality and/or environmental standards related to the product (e.g. IFS, HACCP), production process (e.g. slow food), location (e.g. geographical indications) and protection of natural values of the site (e.g. organic farming, *Marca Parque Natural* in Spain). Such standards may be set up by third party actors, an industry association, or even the government. These schemes function thanks to the willingness of consumers to pay higher prices for a product that provides proof of quality, care for the environment and/or support local traditions. Given the complexity of the control mechanisms of these schemes, it is sometimes difficult to distinguish real from cosmetic schemes (Lemos & Arawal 2006).

Salt makers across the world are gradually embracing already existing schemes, such as Slow Food, Label Rouge, or PDO/PGI. Others are creating their own corporate schemes, such as "sal de Parques Naturales" in Spain, for a single company's salt. Interesting initiatives are the Life SALINAS certification scheme, which addresses the three pillars indicated above: product, process, and landscape (Hueso Kortekaas et al. 2022, unpublished report). One of the perceived weaknesses of the survey among artisanal salinas was the lack of clarity and support towards a certificate of salt. More transparency and dissemination is needed for those certificates already existing, before yet an new one is created.

1.5.2 Financial support tools

The behaviour of companies, nations and citizens is strongly influenced by the prices they pay for goods and services. However, in the case of natural resources and wetland-based goods and services, both the direct economic losses caused by the degradation of water and wetland ecosystems as the negative externalities that affect the community beyond the business environment of the company, are not considered. Even positive externalities, such as the quality of the natural values of the site and the ecosystem services it provides, are not compensated for.

A range of different Market-Based Instruments (MBIs) can play an important role in integrating the costs associated with the loss or gain of value into decision making and consequently influencing the behaviour of citizens and companies. Examples include taxes and charges, quantity-based instruments, carbon offset mechanisms, and payment for ecosystem services (TEEB, 2011 in Russi *et al.* 2013).

The provision of incentives and disincentives is an important tool to encourage conservation, sustainability and governance (Borrini-Feyerabend & Hill 2015). Taxes, fees and charges discourage environmentally harmful activities by increasing their costs compared to other more environmentally friendly alternatives. Subsidies, where duly targeted, reduce the costs related to the sustainable management and provision of activities or products, thereby increasing their market competitiveness (Russi *et al.* 2013). Additionally, instruments such as microfinancing can be a good incentive for micro-enterprises, entrepreneurs and family-run businesses in less affluent areas. Artisanal salinas are typically run by entrepreneurs, micro- enterprises or not-for-profit institutions such as trusts, NGOs or research centres. These entities lack the financial capacity and resilience of large industrial companies and minor changes in their revenues or stringent regulations may threat them with closure. This section discusses flexible management instruments that may contribute to their resilience (see Table 3).

Microfinancing schemes

Access to funds often marks the difference between thriving of abandoning the salt making activity, but these companies lack the assets to endorse credits or the stability to attract sponsors. One instrument that may be of intertest is microfinance, defined as “the provision of financial and non-financial services to the poor who are excluded from financial and credit markets because they are considered unbankable” (Bassem 2009) Aside from helping vulnerable groups, the purpose of microfinance institutions (MFIs) is to contribute to the development of a country, by supporting small businesses and entrepreneurs, often in rural areas. Despite the risks inherent to granting credit to projects without the usual guarantees, MFIs need to ensure financial sustainability and are therefore a good instrument to help initiatives by small and micro enterprises, common in artisanal salt making. The Euro Mediterranean region is rich in active MFIs, with existing programmes in the four countries addressed in this report. Some of these are:

FRD, 10 Talenti, Fond S. M. Socorso, Fond S. G. Moscati in Italy; Al Majmoua, Ameen, and CHF-AM in Lebanon; CODESPA and WWB in Spain and Enda and BTS in Tunisia.

Microcredits for small-scale salt making exist in sub-Saharan Africa or Latin America. An example of successful entrepreneurship are the companies "Le Comptoir du sel" and "Les Marais salants", producing artisanal salt in the area of Sing-Sing, in the region of Kaolack in Senegal. Senegal is well known for its industrial-scale salt production, especially in Lac Rosé near Dakar, but still 12% of the salt in the country is produced by hand. These two companies are run by Ms. Awa Sarr Rivet, who benefitted from microfinancing programmes aimed at women and youth in her region.

Payment for Ecosystem Services

Payments for Ecosystem Services (PES) systems (Vatn 2010) involve the voluntary transaction between an ecosystem service provider and an ecosystem service buyer, by recognising that the provision of these services requires an effort and adaptation to regulations and policies. PES programmes therefore translate the free provision of these services into financial incentives for their conservation, targeted at the local actors who own or manage the natural resources. Artisanal salinas, as has already been discussed, produce an array of different ecosystem services, and their valuation needs a combination of economic, ecological, and institutional perspectives to determine the adequate economic governance (de Blaeij *et al*. 2011). Funding is provided either directly by the ecosystem service users or by foundations, NGOs, or government agencies, when the ecosystem service user is the society as a whole or a very broad category of stakeholders (Russi *et al.* 2013).

Well known is the case of the National Reseve Salinas y Aguadablanca in Peru, known for its high-altitude saline lagoons, whose communities obtained payment to protect the provision of freshwater to the communities along the river Chili, which flows from this wetland area and arrives in good condition.

Figure 17: Saline lake at the Salinas y Aguadablanca National Reserve in Peru. Photo: Diego Delso/Wikipedia

Carbon offset

Salt marshes and even salt making sites are known for their capacity to absorb greenhouse gases and can therefore be considered carbon sinks (de Mesquita *et al.* 2021). The carbon sequestered in oceans and coastal ecosystems, also known as "blue carbon", is captured by living organisms in oceans and is stored in the form of biomass and sediments from mangroves, salt marshes, sea grasses, and algae. Salt marshes are therefore considered key habitats, as they fix carbon at a much higher rate than comparable terrestrial systems. They can capture up to five times the amounts of carbon absorbed by tropical forests, and they present an important opportunity for ecosystem-based climate mitigation, which also preserves the essential ecosystem services of these habitats (World Bank & UN DESA 2017). The European Union is working on the certification of carbon removals, as part of the Circular Economy Action Plan. Also, as stated in the EU's Farm to Fork Strategy, the European Commission will promote carbon farming as a new green business model that creates a new source of income for actors in the bioeconomy, based on the climate benefits they provide, complementing the main income of the salt making activity. Member States will be able to accelerate this mechanism of financial support for landowners involved in

carbon farming practices in the context of the Common Agricultural Policy (CAP), for instance via eco-schemes or rural development support, and through State aid (COWI *et al.* 2021). Both mechanisms, the certification of carbon removal and the support for carbon farming, form part of the EU's Green Deal.

The project LIFE Blue Natura, finished in 2019, aimed at quantifying the carbon deposits and carbon sequestration rates in the seagrass habitats and wetlands of Andalusia, Spain. The project measured carbon stocks and fluxes in active and abandoned Salinas in Cádiz and Huelva. The project concluded that active salinas were more effective in the sequestration of carbon and their protection and conservation should therefore be prioritized (CEAB-CSIC 2019).

Figure 18: View of a salt marsh in Cádiz, Andalusia, Spain. Photo: KHueso/IPAISAL

1.6 Governance analysis: Methodology used in this document

The research methodology employed for this report rests on three axes. One the first hand, a review of the literature on governance in general and governance in wetlands and productive landscapes has been done, with special emphasis in the Euro-Mediterranean region. Especially important were also the challenges faced by these environments and this region.

Secondly, basic information has been obtained from interviews that have been done with the salt making sites participating in the MedArtSal project. These interviews are essential to understand the governance and sustainability challenges the sites face and have provided a good overview of different situations. The scale of operations ranged from family businesses to large industrial companies. The location also gave a broad range of environmental, cultural and socio-economic contexts. The interviewed salinas are in the northern, eastern and southern shores of the Mediterranean, one of them even facing the Atlantic. This geographic diversity is especially important to understand the policy framework in and around salt making across the region.

Finally, the report offers recommendations that stem both from the literature as from the personal and professional experience of the author. Tapping from 20+ years of experience in the planning, management, and sustainability analysis of both artisanal and industrial salinas in Europe has allowed to understand and contextualise the case studies of the MedArtSal project. The recommendations are distilled from this combination of general and site-specific knowledge.

2. Characterisation of the governance situation of Mediterranean salinas

2.1 Governance at the international level

2.1.1 Policy and legislative framework

Perhaps the most evident policy instrument that favours environmental governance is the Aarhus Convention. Officially known as the UNECE Convention on Access to Information, Public Participation in Decision-making, and Access to Justice in Environmental Matters, which was adopted on 25th June 1998. Its main features are the acknowledgement of the connection between environmental and human rights. The main idea is that sustainable development can be achieved only through the involvement of all stakeholders and bearing in mind the wellbeing of future generations, the linkages government accountability and environmental protection and the interactions between the public and public authorities in a democratic context. The Convention is not only a multilateral environmental agreement, but also spins around government accountability, transparency and responsiveness. All these aspects are at the core of good governance.

Regarding (artisanal) salt making, the policy and legislative framework can be considered very complex, due to the multiple sectorial and geographical and administrative scales involved. The protection of saltscapes and the cultural and natural heritage around them is often only partially achieved. Legal protection measures normally focus on either natural or cultural aspects, rarely on both and even more rarely on the role of humans in shaping and maintaining this heritage. The protection instruments do not acknowledge living landscapes and consider the salt making activity as a past asset, forcing to transform dynamic heritage assets into static museum objects and living landscapes into parks. Inevitable as this may be when the salt making activity has stopped altogether, saltscapes and their associated heritage values should best be preserved “alive”, thus including the activity that shapes them. Table 3 offers an overview of a selection of most relevant policy instruments that may be applied to saltscapes. Most measures, if not all, are compatible with each other and, most important, compatible with a living landscape. This list is far from exhaustive and only intends to offer a policy framework.

An indirect way to keep traditional saltscapes alive is to protect the salt that is produced in them. Despite recent legislative efforts in Europe (*Real Decreto 1634/2011 in Spain; Decreto-Lei n.º 350/2007 in Portugal or Décret no 2007-588 in France*), little is regulated about what makes a salt artisanal, traditional or hand-harvested, except when described by labels based on voluntary agreements (Nature et Progrès 2005) or by professional entities (Association Française des Producteurs de Sel Marin de l'Atlantique Recolte Manuellement 2008, Necton 2006).

Salt manufacturers and distributors are thus free to label their salt as artisanal or traditional if they feel like doing so. Often, they offer true but incomplete or vague information, thereby risking misleading the customer. Examples of this are salts that label themselves as natural because they have been obtained within a natural protected area, but in fact are refined as many others. With respect to its geographical origin, commercial food-grade salts in Spain are forced to state the registry number of the packaging company (R.*D. 1424/1983 del 2 de abril por el que se aprueba la Reglamentación Técnico-Sanitaria para la obtención, circulación y venta de la sal y las salmueras comestibles*) but nothing needs to be said about where the salt itself comes from; neither whether it is sea, mine or spring salt and how it has been harvested.

Table 3. Main agreements and plans on the protection of cultural and natural values of saltscapes and salt heritage.

Scope	Name of instrument
International	– Convention on the Wetlands of International Importance, Ramsar 1971 – Man and Biosphere Convention, 1971 – Convention on the Conservation of Migratory Species of Wild Animals (CMS), Bonn 1979 – Convention on Biological Diversity (CBD), Nairobi 1992 – Rio Declaration on Environment and Development, Rio de Janeiro, 1992 – Water Conventions, Helsinki, 1992 and New York, 1997 – Charter for Sustainable Tourism, Lanzarote 1995 – Millenium Declaration, New York 2000 – Global Code of Ethics for Tourism, New York 2001 – Quebec Declaration on Ecotourism, Québec 2002 – Convention for the Safeguarding of the Intangible Cultural Heritage, Paris 2003
Mediterranean	– Mediterranean Landscape Charter, Seville 1993 – Convention for the Protection of the Marine Environment and the Coastal Region of the Mediterranean, Barcelona 1995

	– Integrated Coastal Zone Management (ICZM), Madrid 2008 – Mediterranean Strategy for Sustainable Development 2016-2025
Europe	– Council of Europe's Convention on the Conservation of European Wildlife and Natural Habitats, Bern 1979 – European Landscape Convention, Florence 2000 – Water Framework Directive 2000/60/EC – Convention on the Value of Cultural Heritage for Society, Faro, 2005 – Directive 2009/147/EC of the European Parliament and of the Council of 30 November 2009 on the conservation of wild birds – Council Directive 92/43/EEC of 21 May 1992 on the conservation of natural habitats and of wild fauna and flora – EU Biodiversity Strategy for 2030, Brussels, 2019 – European Green Deal, Brussels, 2019
Spain	– Ley 45/2007, de 13 de diciembre, para el desarrollo sostenible del medio rural – Ley 42/2007, de 13 de diciembre, del Patrimonio Natural y de la Biodiversidad, modificada por la Ley 33/2015, de 21 de septiembre – Ley 2/2011, de 4 de marzo, de Economía Sostenible – Ley 2/2013, de 29 de mayo, de protección y uso sostenible del litoral y de modificación de la Ley 22/1988, de 28 de julio, de Costas – Plan Nacional de Paisaje Cultural (2012) – Plan Sectorial de Turismo de Naturaleza y Biodiversidad (2013-2020) – Plan Estratégico del Patrimonio Natural y la Biodiversidad (2011-2017) – Plan Estratégico Español para la Conservación y Uso Racional de los Humedales (2000)
Italy	– Legge 6 dicembre 1991, n. 394. Legge quadro sulle aree protette. – Legge 31 dicembre 1982, n. 979. Disposizioni per la difesa del mare – Legge 28 dicembre 2015, n. 221.Disposizioni in materia ambientale per promuovere misure di green economy e per il contenimento dell'uso eccessivo di risorse natural – Legge 3 febbraio 2011, n. 4. Disposizioni in materia di etichettatura e di qualita' dei prodotti ta' dei prodotti alimentari – Strategia Nazionale per lo Sviluppo Sostenibile (2017)
Tunis	– Stratégie nationale de développement durable 2015-2020 – Stratégie nationale de protection de l'environnement poste 2020 – Stratégie nationale de l'économie verte en Tunisie
Lebanon	– Loi du 29 juillet 2002 relative à la protection de l'environnement

Adapted from Hueso Kortekaas 2019.

2.1.2 Lessons learnt in salinas with international recognition: The case of Ramsar

The Convention on Wetlands of International Importance, called the Ramsar Convention, is the intergovernmental treaty signed in Ramsar, Iran, in 1971 and adopted by most UN countries worldwide. The Convention provides the "framework for the conservation and wise use of all

wetlands through local and national actions and international cooperation, as a contribution towards achieving sustainable development throughout the world".

The Convention considers wetlands among the most diverse and productive ecosystems as that provide essential services and supply all fresh water needed by humans. However, they continue to be degraded and converted to other uses and therefore deserve protection. The Convention uses a broad definition of wetlands. It includes all lakes and rivers, underground aquifers, swamps and marshes, wet grasslands, peatlands, oases, estuaries, deltas and tidal flats, mangroves and other coastal areas, coral reefs, and all human-made sites such as fishponds, rice paddies, reservoirs, and salt pans. The Ramsar Convention protects over 2,000 sites worldwide. Of these, among the human-made wetlands, are the so called "salt exploitation sites". Of the 77 sites included in this category, the Mediterranean shores include 22 of them (Table 4). None of the sites of the MedArtSal project is a Mediterranean Ramsar site; although the Bahía de Cádiz is a Ramsar site, strictly speaking it is facing the Atlantic.

The declaration of a Ramsar site is not a protection instrument by itself but a recognition of its natural values, primarily focused on bird communities. This allows a large degree of flexibility in the management and governance of a site and, most importantly, is compatible with salt making. Being a Ramsar site attracts the attention of the public, therefore enhances the possibility to develop sustainable tourism initiatives. It also serves as a stimulus for sponsors and subsidies, which see the declaration as a seal of natural quality of the site and therefore a good opportunity for marketing and corporate visibility.

Table 4. Mediterranean Ramsar sites that host active salinas.

Northern Mediterranean		Southern Mediterranean	
Country	Site and date	Country	Site and date
Spain	Salinas del Cabo de Gata (1989) Mar Menor (1994) Lagunas La Mata y de Torrevieja (1989) Salinas de Santa Pola (1989) Delta del Ebro (1993) Salinas de Ibiza y Formentera (1993)	Morocco	Sebkha Bou Areg (2005)
France	Les Etangs littoraux de la Narbonnaise (2006)	Algeria	Les Salines d'Arzew (2004)

	Camargue (1986) Salins d'Hyères (2008)		
Italy	Saline di Cervia (1981) Saline di Margherita di Savoia (1979) Stagno di Molentargius (1976) Trapani and Paceco salt ponds (2017)	Tunisia	Sebkhet Soliman (2007) Salines de Monastir (2005) Salines de Thyna (2007)
Slovenia	Sečoveljske soline (1993)	Egypt	Lake Bardawil (1998)
Montenegro	Ulcinj salina (2019)		
Greece	Messolonghi lagoons (1975)		

Source: Ramsar database, https://rsis.ramsar.org/ (accessed July 2022)

2.2 Governance at the European level

2.2.1 Salt-related governance aspects at European scale

There are different instruments that operate at continental scale and can be useful to build and support governance in European saltscapes. At landscape level, the most relevant one is belonging to a Natura 2000 site. All members of the European Union are obligated to implement the Birds and Habitats Directives. This implementation includes the designation of Special Areas of Conservation (SACs) under the Habitats Directive and Special Protection Areas (SPAs) under the Birds Directive. Together, these areas form the Natura 2000 network. According to the EU, "Natura 2000 is not a system of strict nature reserves from which all human activities would be excluded. While it includes strictly protected nature reserves, most of the land remains privately owned". Although the responsibility of Natura 2000 sites lies on the shoulders of the member states, this is often delegated in regional governments or even partially commissioned to landowners, thereby achieving a more bottom-up, co-management style of governance. Also, conservation of nature in these sites is rather focused on the sustainable management of natural assets and therefore also supporting local socioeconomic development. This instrument is also beneficial for governance, as it is very flexible in the implementation of conservation-related guidelines and restrictions. Most operating salinas in the northern Mediterranean belong to a Natura 2000 site, even those found inland.

From the point of view of the activity, namely salt making, food regulations, seals and certificates may help. These instruments have already been discussed as potential tools to enhance governance. However, salt making is a fringe activity that can be considered a raw material for industrial uses on the one hand and a finished food item on the other. Artisanal salt making sites

tend to lean towards the latter and pressure has been put on the authorities to authorise the granting of organic character to salt. The European Union Council regulations on organic food certification are rather clear as to which products are entitled to apply for such a certification. Since 2018, the Regulation (EU) 2018/848 of 30 May 2018 on organic production and labelling of organic products and repealing Council Regulation (EC) No 834/2007 includes salt in its list of products for the first time. This Regulation also states that "sea salt and other salts used for food and feed should be included in the scope of this Regulation because they may be produced by applying natural production techniques, and because their production contributes to the development of rural areas, and thus falls within the objectives of this Regulation." This should allow artisanal salinas to access the organic label recognition in Europe and therefore gain competitiveness[1].

Meanwhile, given the fact that regular, industrial food grade salt has suffered a refining process and has certain additives (e.g. anti-caking agents, iodine, fluoride), some salt producers are interested in acknowledging the fact that they are selling unrefined, additive-free salt. To this end, certain certification organisms have agreed to design certification standards for salt. Examples of these certificates are *Intereco* (certifies salts produced by industrial manufacturers in Spain, such as *Infosa* and *Salinera Española*), Sativa (certifies artisanal salt from Tavira in Portugal) and *Ecocert* (certifies salts produced by industrial manufacturers in France, such as *Groupe Salins*). Artisanal salt makers are in the process of joining similar certification schemes. Whenever possible, they resort to the official organic certification regulations in their region.

[1] However, given the composition of the EU organic salt evaluation committee, it seems likely that industrial salt and even salt from mines will also be able to apply for this certificate (pers. obs.).

A pioneer example from Spain is Sel des Pyrenées, from Salinas de Oro, Navarra, which obtained the official Bio certificate provided by the regional agency in Navarra (CPAEN) well before this change in the EU's regulation. On the other hand, salt from Salinas del Alemán in Huelva obtained it from the Andalusian agency (CAAE). Both these salts are harvested by hand. However, salt from the industrial salinas of Bras del Port in Alicante has also obtained the "ecological" certificate, in this case by CAECV, the regional agency of the Valencian region.

Figure 19: View of Salinas de Oro in Navarra, Spain. Photo: KHueso/IPAISAL

2.2.2 The role of European funded projects in saltscape governance

The support of public administrations and other funding efforts has put the spotlight on artisanal salt production and hand-harvested salts are being ever more appreciated. Considerable merit is to be granted to EU-funded projects, which have facilitated the consolidation of this activity in large areas of the Mediterranean and Atlantic regions of Europe. These projects have contributed to the professionalisation of the artisanal salt making activity and the management and

governance of the sites, with training courses, publications, exchange of experiences and know-how, promotion, and infrastructure recovery. The main advantage of transnational programmes in terms of governance is the opportunity to exchange, observe and adapt models of management and governance that have succeeded elsewhere. Tapping from the experience of others is a powerful tool to save time, efforts, and resources. In this section, relevant programmes, and projects prior to MedArtSal are briefly discussed.

Phare ALAS All about salt (2000-2002)

The Phare programme (*http://www1.aegean.gr/alas/general.htm*) was one of the three pre-accession instruments financed by the European Union to assist the applicant countries of Central and Eastern Europe in their preparations for joining the European Union. The ALAS "All About Salt" project had as a main goal to promote salinas as poles for local development. As a result, it produced a series of documents related to salt heritage management and guidelines were proposed for the creation of salt museums. The focus was on the professionalisation of salt-related jobs in tourism, environmental management and salt making itself.

Interreg SAL Salt of the Atlantic and ECOSAL Atlantis projects

The Atlantic Area Programme of the Interreg community initiative has aimed at achieving significant and tangible progress in transnational cooperation geared towards cohesive, sustainable, and balanced territorial development of the Atlantic Area and its maritime heritage. The Atlantic Area covers the entire territory of Ireland and the Atlantic regions of Spain, France, Portugal and the United Kingdom. This programme has co-financed two large salt heritage projects: SAL and ECOSAL Atlantis.

The Interreg SAL "Salt of the Atlantic" project (2004-2007) attempted to promote a specialised form of salt tourism by creating the "Salt Traditional Route of the Atlantic", which was constituted by the 11 salt making sites that participated in the project. It also supported improvements in the salt museums at Figueira da Foz, in Portugal and Ré and Daviaud, in France and contributed to the creation of salt museums in Aveiro, Portugal and Salinas de Añana and Fuerteventura, Spain (Hueso & Carrasco 2008a). Alas, the route did not develop any further beyond the scope of the SAL project and had to wait until the end of ECOSAL Atlantis to gain some momentum.

The main objective of the "ECOSAL Atlantis" project (2010-2013) aimed at the development of a joint, integrated, and sustainable tourism based on the cultural and natural heritage of traditional Atlantic salt making sites. The project focused on three key issues to develop tourism in Atlantic saltworks: heritage, territorial development, and biodiversity and ecotourism. One of the tangible results of the project is the revival of the "Salt Traditional Route of the Atlantic". The route was then redefined and redesigned, to host new members and to allow swift action, but again did not gain the notoriety the project partners had envisioned.

More information: *http://www.interreg-atlantique.org/ and http://ecosal-atlantis.ua.pt/*

LIFE programme

The LIFE strand of the European Commission's DG Environment has contributed to the conservation of saltscapes and recovery of salt heritage in many different sites. During the lifetime of the programme, 20 projects have been devoted to the recovery and conservation of coastal salinas, six to saline lakes and two to inland salinas. These projects are usually focused on one single site, but sometimes cooperation between sites is also achieved. An example of one of the transnational LIFE projects is provided here:

Project MC-SALT LIFE10 NAT/IT/000256 Environmental Management and Conservation in Mediterranean Saltworks and Coastal Lagoons (2011-2016)

The project originated from the results of LIFE00NAT/IT/7215 on the Comacchio salt works, and clustered together Natura 2000 sites' managers who were facing similar conservation issues. The common feature of the Natura 2000 sites involved into the project was that they hosted a (former) salt making site. They were found in different stages of activity, ranging from a production interrupted 25 years ago to still active. The participating sites were Molentargius, Comacchio, Cervia in Italy; Camargue and Aigues-Mortes in France and Atanasovo lake in Bulgaria. The project aimed at preserving the halophyllic habitats and species while maintaining commercial activity. The ecological restoration methods included coastal management practices, removal of invasive species, recovery of infrastructures, construction of breeding sites and mitigation of disturbance from predators.

More information: *http://www.mc-salt.eu/*

2.3 Governance at the national and sub-national levels

2.3.1 MedArtSal areas and sites of interest

Despite the recent interest in the valuation of artisanal salinas, efforts should be made to create a sustainable livelihood for this activity. The MedArtSal project has identified 227 salinas in 18 Mediterranean countries, from the 4,000 sites that have been estimated to ever have existed in the region (Marín & d'Ayala 1997). Of those still surviving at the turn of the millennium, 90 salinas were still producing salt, of which around 40 were artisanal (UCA 2021 and Figure 20). According to other surveys, of these active salinas, 75% were found in the European shore of the Mediterranean, namely in Spain, Greece, Italy, France, and Portugal (Walmsley 1999).

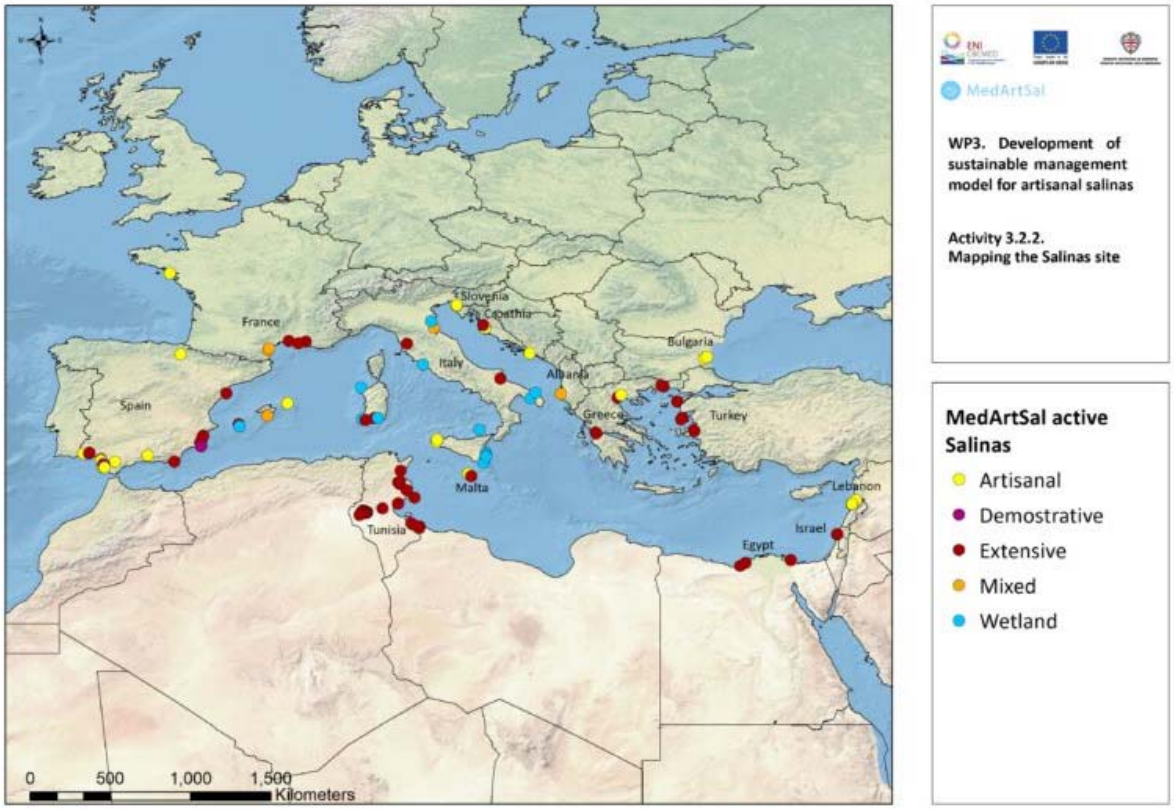

Figure 20: Location of active salinas in the Mediterranean, according to the previous analysis carried out in the framework of the MedArtSal project. Source: https://medartsal.com/b2b/ / Mapping of active salinas. ©MedArtSal

Other countries had fewer than ten active salinas each, possibly less at the time of writing. Calculations made at regional scale in different European countries show an average decline of ca 90% of salinas lost in the past century (Hueso Kortekaas 2019). Given the great variability in size, productivity, and management models, it is difficult to pinpoint strategies for success in governance. The MedArtSal project has identified four areas of interest, with salt-related entities that take part in varying degrees and forms of cooperation (Figure 21).

Figure 21: Location of areas of interest of the MedArtSal project, with some salt pans of the area shown in the images. Source: Prepared by the author (Cartographic base: ©GoogleEarth)

Some of the saltworks sites or organisations of interest for implementing the Sustainable Management Model for artisanal salinas developed and promoted by MedArtSal[2] in each country are mentioned below, to list a few (they are already pilot sites of the project or participate in it in some way). A directory of the salinas of interest to MedArtSal, which are part of the MedArtSal Network, can be found at: https://medartsal.com/ section Network/MedArtSal Network.

[2] 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/)
More information: https://www.enicbcmed.eu/medartsal-model-vision-sustainability-artisanal-salinas-mediterranean

Several Mediterranean salinas have benefitted from the grants offered by the MedArtSal project to put into practice the components of this Model (https://www.enicbcmed.eu/14-mediterranean-saltpans-selected-sub-grants-within-project-medartsal; https://www.enicbcmed.eu/medartsal-model-vision-sustainability-artisanal-salinas-mediterranean). Some are also mentioned below.

Spain

Salinas la Esperanza Chica / University of Cádiz (UCA)

One of the key sites in the Bay of Cádiz is the Salinas de La Esperanza (MedArtSal pilot site). Located on public maritime-terrestrial domain land, they were rescued by the Directorate General of Coasts of the Ministry of the Environment, Rural and Marine Affairs in 2007 as part of its "Land Acquisition Programme". It was subsequently granted in concession to the University of Cadiz for, among other activities, the exploitation of artisanal salt, environmental education and ecotourism activities, as well as biodiversity research and conservation activities. The restoration of the Salina La Esperanza Grande was achieved during the Interreg - SAL project (see above). The site has obtained numerous grants and subsidies, both from public and private sponsors, to achieve these goals. The ecological maintenance is currently under tender with a company, which allows the university to carry out scientific studies on ornithological, gastronomic, biotechnological, and biological aspects, as well as dissemination activities aimed at a broader public.

Fundación Salarte

The Trust for the Custody and Recovery of the Salt Marsh (*Fundación SALARTE*) is a not-for-profit organisation founded in 2012 by a group of independent professionals in the Bay of Cádiz, Spain. The area hosts numerous salt-making sites of different sizes and degrees of industrialisation, as well old salinas transformed into aquaculture farms and others that are simply abandoned. Its main strategic objective is the recovery, conservation, and revitalisation of the salt marshes in general and the artisanal salinas, more specifically. In its participation in the MedArtSal project, SALARTE aims to promote the development of a sustainable and adaptable management model for the recovery of artisanal salinas. They intend to diversify the salt-related socio-economic

activity with the production of high-quality salt, as well as by obtaining other products for marketing (such as food and cosmetics) or exploring their potential for ecotourism.

Biomaris (Huelva)

Another relevant site, the only artisanal salina in Huelva (west of the Bay of Cádiz) is Salinas del Alemán. It was built in 1954 by young people from the area, but owned by German businessmen, who named it *Biomaris* (the name it had until quite recently). After its construction, the foreman Manuel Gómez remained in charge of production, which was exported in its entirety to Germany. In 1985, the salinas became his property, which he operated until his retirement in 2003. One of his daughters, Manuela Gómez took them over and gave the company a new twist by adding value to the production of different types of salt in a traditional way. It specialised in the production of *fleur de sel*, salt flakes and virgin sea salt. In 2013, *Biomaris Ambiental* was created, offering visitors tours of the salinas with information about the production processes, the native flora and fauna of the salt marshes. Manuela Gómez has won numerous awards and her story is being used as inspiration for Andalusian (female) entrepreneurs.

MedArtSal grant salinas

In Spain, Salinas de Chiclana (Cádiz) obtained a grant for the development of a new line of cosmetic, with the production of a cosmetic using macroalgae. Salina Preciosa and Roqueta (Cádiz) has proposed the sustainable cultivation of microalgae to diversify the activities of the site. Salina San Vicente, also in Cádiz, obtained a grant to restore the old salt mill in their facilities. Lastly, ANSE, the NGO managing the salinas of Marchamalo in Murcia, obtained some funds for the restoration of these abandoned saltworks.

Italy

Salina di Comacchio – Delta del Po Natural Park

The Salina di Comacchio is part of the Comacchio Valleys and is located south of the Po delta. It is a wetland of international importance according to the Ramsar Convention, protected within the Po Delta Regional Park, as well as a Natura 2000 site. The site has a great historical value because of the production of salt. In the 1960s onwards, the mechanisation of the site intensified its productivity and was exploited until 1984, when it shut down due to the low profitability. In

2015, several public administrations (Municipality of Comacchio, the Regional Park of the Po Delta - Emilia Romagna and CADF SpA, L'Acquedotto del Delta), signed an agreement for the management, use and redevelopment of the area.

A small production area, called La Salinetta, was recovered during a LIFE project. Initially, the aim of this area was to preserve and disseminate the salt making know-how and to produce a small quantity of salt for demonstration and educational purposes. It is a fully operational miniature version of the traditional salina (before the modernisation of the 1960s). The daily harvesting of the salt is done manually by salt workers who still use traditional tools.

MedArtSal grant salinas

The project MedArtSal has awarded grants to two projects in Italy: One is devoted to the enlargement and recovery of tanks and canals of the Salina Ettore e Infersa, in Sicily, in order to increase productivity. The other project, "Salt from Cervia: sweet by nature", in Parco della Salina di Cervia, aimed to promote the salina brand and product diversification, with the development of new types of salt. In addition, the environmental conditions in the salt works have been improved with the restoration and construction of suitable areas for nesting birds.

Lebanon

MedArtSal grant salinas

Salinas of Anfeh

The municipality of Anfeh, south of Tripoli, used to be the salt making capital of Lebanon. Today, Lebanon counts with 15 active salinas out of 44 that were present in Anfeh alone. The Sleiman salinas are a small salt making site on a terraced bank, at the shore of the Mediterranean, south of the town. The site is being exploited by the Sleiman family, who started their business about fifty years ago. They now produce between 30 and 50 tonnes of salt per year, which are sold within the country. The main difficulty they face is the competition from Egyptian salt, which is imported and sold at lower prices, keeping the Sleiman's income very low. The business is not profitable enough to constitute their sole source of income.

Over the course of the MedArtSal project, Georges Sleiman Salinas (Evaura) have used the granted funding to enhance the salinas sustainability by increasing the production of salt through the rehabilitation of old salina ponds and structures, like the old windmill, improving the brand and product diversification, and installing solar panels to supply renewable energy. They have also built a small pool for foot brine baths. The project MedArtSal has also granted funds to Imad Malek Salinas (Sea Jewels), who used them, *inter alia*, to optimise the sales and packaging strategies of the salts and developing initiatives to promote tourism that will lead to an increased knowledge about the traditional historical process of salt production. The salt operator Hafez Jreij Salinas, with the proposal "Maison du sel: Sustainable development of production and activation of ecotourism" has worked on the development of the House of salt and tourist activities in the area. Al Najjar Salinas (*Blanc Sel* -White Salt-) has also implemented improvements in saltworks structures and salt marketing.

Tunisia

Tunisia is traditionally a salt producing country. The production of salt is obtained both at coastal salinas as in inland depressions called *sebkha*. There are five main areas of salt production, four of which are coastal: south of Sfax in Thyna, in the Kerkennah islands, in the salt pans of Sahline near Sousse, in the south of the country in the region of Zarzis and a continental area in Chott el Djerid. There are several companies producing salt, Mare Alb (former COTUSAL) being the largest.

Societé SAIDA S.A. (Sahline, Monastir)

One of the smaller companies is the Société SAIDA, whose saltworks are located on the banks of the largest sebkha in Tunisia, Sebkhet Sidi El Hani-Mlichet Zeramdine (Meddeb 2014). The latter is one of the partners of the MedArtSal project and pilot site. Within the framework of the project, it has worked, for example, on the diversification of its products, with the development of microalgae cultivation and derived cosmetics, or on the environmental improvement of its facilities.

MedArtSal grant salinas

In Tunisia, four projects have been awarded a grant from the MedArtSal call. The company TUNISEL proposed to rehabilitate the salina towards an eco-friendly quality of production, while

SOTUSEL planned to upgrade the Frada Salina. The company Immobilière SAFIR obtained a grant to be invested in Jebel Hadifa Salina to improve the accesses to the saltworks. The society *Les Diamants de la Mer* – SODIMER, which manages the salina El Abbassia, in Kerkenah Islands, earned a grant to implement the project "Ecological development of the Kerkennah saltworks", thanks to which ecotourism itineraries have been created in the salina, a salt museum has been built, the facilities have been improved environmentally, various activities have been organised, together with local NGOs, to raise awareness of the salina values, an inventory has been made of the site's biodiversity and the range of products on offer has been diversified, among others.

Other artisanal salinas in the Mediterranean

Few artisanal salinas still exist in the Mediterranean region. Some are surviving the pressure of tourism development and are exploited manually by small companies or family businesses. Thus, is the case of most rock salinas in Malta, Peloponessos (Greece), a few inland sites in Spain and some of the remaining salinas in Lebanon. Others are semi-industrial salinas or slightly larger sites that have been able to modernise their products into high-quality salts, such as the salinas of Es Trenc in Majorca (Spain); Aveiro, Figueira, Samouco and Castro Marim (Portugal); Trapani (Italy); Sečovlje (Slovenia), Nin and Ston (Croatia) or Cyprus. A third group are those sites that operate at industrial scale but have reserved a part of their production as high-quality, artisanal-like salts. This is the case in numerous sites in eastern Spain (e.g. Bras del Port, La Trinitat, Cabo de Gata, Torrevieja, San Pedro del Pinatar) or Camargue in France. Little has been found about the state of conservation, scale and size of other salinas in countries like Albania, Turkey, Syria, Egypt, Lybia or Algeria.

2.3.2 Good practices and lessons learned in governance of salinas elsewhere

Whether in the Mediterranean or beyond, there are a few examples of good practices (Figure 22) in salinas that may increase the quality of management and governance elsewhere. Here follow some cases that can be inspirational:

Figure 22: Map of selected case studies of good practice in governance, with pictures of each site. Source: Prepared by the author / ©Google Earth

Cooperatives of salt makers in France

https://www.leguerandais.fr/

Perhaps the best-known example of sustainable artisanal salt making is found in the area of Guérande. These salt marshes are located in the southern half of Brittany (France) between the mouths of the rivers Loire and Vilaine, on the Atlantic Ocean. They form a very large wetland zone, composed of tidal mudflats, a large proportion of which is devoted to the artisanal production of salt. In the early 1970s the salt making activity was under severe threat: with the growing number of summer visitors in the area, several tourism and urban development plans were made to increase capacity and create new leisure facilities. However, developers encountered strong opposition from different social groups (salt makers, Breton nationalists, environmentalists….). The few remaining salt makers in the area started to get organised, with the creation of a professional association in 1972, which later became the cooperative *Le Guérandais*, which now runs two thirds of the salinas. In 1990, another association, *L'Association pour la Promotion du Sel Artisanal* (APROSELA), was created to encourage the production of high-quality salt in Guérande. In the past, the *sel gris* typical from this area had been considered a

second rank quality product, as it was not as uniform, pure and white as was traditionally required.

The salt makers of Guérande managed to change the quality paradigm and enhance the value of an irregular, grey, mineral-rich hand-harvested salt, which is now considered top rank, rich in nutrients and culinary properties. In addition, from 1995 onwards, a formal training programme exists in the area, in coordination with regional employment authorities and the cooperative, to become a certified salt maker (Figure 23). A key issue in the empowering of salt makers was the strong union formed by the different stakeholders that fought the development plans in the early seventies. The management of the site is fully horizontal and there is close cooperation with other stakeholders, such as regional authorities, tourism businesses, etc. This formed the seed of a strong social and political awareness in the area, that has now grown to become a solid, well organised supporting tissue in the region.

Figure 23: *Paludier* or salt master preparing the crystallisers in Guérande, France. Photo: KHueso/IPAISAL

Today, the number of salt makers approaches 300, of which two-thirds belong to the cooperative. Three quarters of them are young and coming from other regions of France, thereby ensuring the

replacement of workers on the long run. The salt produced in Guérande is exported to more than 150 countries and has been recognised with the food quality Label Rouge and the EU Protected Geographical Indication PGI (Hueso Kortekaas 2019). Similar cooperatives exist now throughout western France, such as Noirmoutier or Île de Ré, enhancing the artisanal production of high-quality salt.

Public/private partnership in Slovenia

https://www.soline.si/en

The Sečovlje salinas, separated in several sectors, are located in the upper Adriatic, on the southernmost tip of the 46 km stretch of coast in Slovenian Istria, at the border with the Republic of Croatia. Perhaps the most relevant factor in the history of salt making in the area is the geographic position of the salinas, in a region of high geopolitical turbulence. The traditional manual harvesting of salt in these salinas, over 700 years old, is a representative feature of the cultural heritage of Mediterranean Slovenia. Until the beginning of the 20th century, the saltworks were owned by wealthy families, churches, monasteries, and charitable institutions. The salt worker was merely the tenant of the salt field and the producer of the salt.

The golden age of salt making in Sečovlje lasted from the 15th century to the end of the 18th century, under the control of the Venetian Republic. During communist times, the saltworks were operated by a state-owned company. In this period, efforts were made to modernise part of the salinas, increasing the efficiency of the salt making process. Also, formal training for the production of salt was introduced in Yugoslavia. With the fall of the country, in 2000 the Sečovlje Salinas Nature Park (Figure 24) was designated the first protected area in Slovenia where the concession for its management has been given to a business company (SOLINE Pridelava soli d.o.o.), which is owned by the national biggest phone company (Mobitel d.d.). The company is responsible for the management of the Nature Park and use of its natural resources. In return, the Republic of Slovenia provides funding for the management of the protected area, a good example of payment-per-ecosystem services. Their salt is well known in the Eastern Mediterranean and the site constitutes an example of good management practices and smooth transition from a communist to a capitalist economic system. This case shows how different types of governance systems and entities can manage a complex site such as this.

Figure 24: Old salt making site of Fontanigge in Sečovlje Natural Park, Slovenia. Photo: KHueso/IPAISAL

Salt making and women (Morocco and other locations)

https://coindjeblichefchaouen.blog4ever.com/cooperative-al-wifak

Salt making has often been a task performed by women. In many locations, it was a seasonal, low paid job which needed no special qualifications, and was seen as a complement to other activities such as subsistence agriculture. In many parts of the world, women have turned this situation into their favour, by creating all-female cooperatives to organise, manage and improve the salt making activity. Such cooperatives exist in Las Gilces in Ecuador, Oaxaca in Mexico, Ilha de Maio in Cabo Verde, Faoyé in Senegal, etc. (Hueso Kortekaas & Carrasco Vayá 2022).

An example of one of these organisations is the Al Wifaq Cooperative, created in 1999 in Morocco. It brings together 21 women from the douar Zerradoune near Ouezzane. The salt is obtained from a natural brine source and harvested from crystallisers. The production activity lasts for an average of 3 to 4 months during the summer period. For a long time now, the women of this *douar* have made a living from extracting salt from this source, albeit now in organised form. This is a small-scale extraction, sold in bulk in the souks of the region. Grants from national and international NGOs have enabled them to modernise their technique. They have also bought a mill to grind the salt, a mixer to produce iodised salt and a small machine for packaging in plastic

bags. The creation of recipes for bath salts, based on dried plants and essential oils, allows them to market their products with added value. Thanks to *Coin Djebli*, a shop in Chefchaouen -a highly touristic town- selling products from female cooperatives, the Al Wifaq cooperative has access to a new clientele and is beginning to make itself known to distributors in Marrakech and Casablanca.

3. Analysis of the governance of traditional salinas

In this section, the different aspect of governance analysis will be presented. Firstly, a detailed description of stakeholders typically found in and around the governance and management of salt making sites will be described. Secondly, different features of governance to look out for will be indicated. Thirdly, the relation between salt making and sustainable governance will be outlined. And lastly, a word about the future of sustainable salt making will be offered.

3.1 Identification of stakeholders

Public participation and stakeholders' involvement in environmental decision making have become an increasingly important aspect over the past few decades. One of the key issues in governance is the identification of relevant stakeholders, but how to distinguish relevance? Aside from the more obvious roles of owners, managers or users of a given site, many other types of stakeholders exist that need to be addressed. The degree of influence of each stakeholder is very diverse, but they all form a delicate fabric of relations, like the trophic network of an ecosystem (see Figures 15 and 25). There are overlaps between the spheres of influence that further complicates matters. In addition, individuals representing stakeholders may be present in different roles, which affects their behaviour. This is especially frequent in rural isolated areas. In addition, they do not only need to be relevant in spatial terms, but also in temporal scale. Some may be more involved in early stages of a situation, while others enter the stage at a later moment in time.

Failing to identify relevant stakeholders may cause coordination issues down the line. Xavier Sabaté, in the context of land custody agreements, distinguishes the following main categories of stakeholders (Sabaté *et al*. 2013):

- *Actors*: those owners, managers, workers and users that take an action to protect nature and/or restore habitat or ecosystem function. These can be salt makers and owners of a salina.
- *Facilitators*: organisations that work with actors to identify opportunities for collaboration, co-management, land stewardship agreements and similar solutions to governance. These can be NGOs, trusts, businesses.

- *Enablers*: entities that create the conditions for the first two groups to cooperate. These can be public administrations at any level (local, regional, state and EU), regulators, donors, support networks and platforms, nongovernmental organisations, and funders. Academia, research centres and other technical resources that provide knowledge, evaluation and innovation opportunities can be considered enablers, too.
- *Public*: this group includes the public (residents, visitors, interested) who receive the direct (products, service) and indirect benefits (ecosystem services, social cohesion, local development) of a healthy governance and provide support for it.

Other stakeholders that have an influence on the governance relations can be:

- *Market*: The supply and demand of products and services responds to a delicate balance that also includes competitors, business partners and service providers. It has overlaps with public administrations, who provide a regulatory basis for business relations
- *Opinion leaders*: This is a heterogeneous group of individuals who have the power to influence on the decision-making processes, often in an informal way. In certain cultures, the opinion of the elderly, certain group leaders or important families, have the capacity to steer governance decisions by themselves, disrupting horizontal or bottom-up processes.

Figure 25 summarises the relations between stakeholders in the management of saltscapes and salinas. The darker the colour, the stronger the implication in the decision-making processes. Groups with dotted lines have an indirect influence, as they do not necessarily participate in decision-making, but can trigger an outcome. Hence, they need to be identified and addressed, too. Some of these stakeholder groups in relation to governance of salinas are discussed below in further detail:

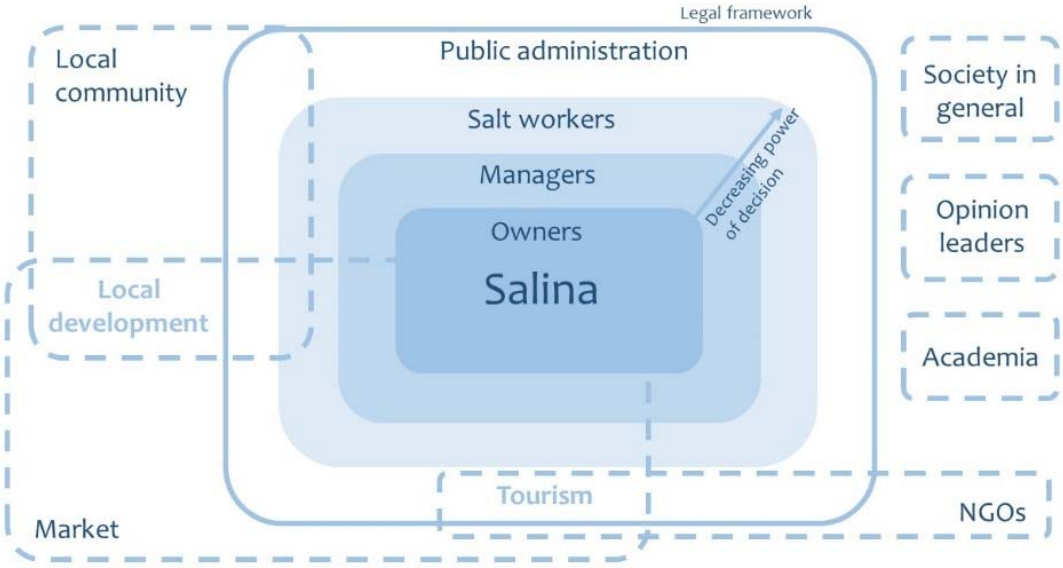

Figure 25: Schematic overview of the stakeholders involved in salt making. Source: Hueso Kortekaas 2019

Salt makers

Salt makers can be considered the most basic and fundamental stakeholder to keep a saltscape alive. Their specialised know-how is based on the management of the water to create brine and let it crystallise as salt. It also includes the maintenance of infrastructures, the manufacture and use of tools, the understanding of nature and weather to efficiently use them to the advantage of salt making, etc. Depending on the site and its conditions, different salt workers may have specific roles, or may concentrate all this knowledge and tasks on one person. The latter is usually the case in artisanal salt making sites.

Salt makers usually work for third parties, namely the owners and / or managers of the site. These are often small or medium sized companies. Sometimes the owners are families who have inherited the business from their ancestors. Occasionally, the salt making site is owned or managed by public authorities. or by a local association via a land stewardship agreement. A good coordination and cooperation between owners, managers and salt makers is needed to guarantee the success in the operation and to earn reasonable revenues from the activity. To this end, transparency, confidence, and mutual understanding are essential values. These values are not earned overnight and sometimes long negotiating sessions are needed. Even then, situations change, and resilience and adaptation capacity are also needed.

Auxiliary salt-related activities are the storing, cleaning and packaging of the salt; quality control, marketing, sales, research and innovation, etc. Larger salt making sites will also need to employ specialised workers, not all of them specifically related to salt making. Managers, accountants, tourist guides, information technology (IT) specialists, maintenance staff, etc. are jobs associated to these facilities. Many of these employees usually work from an office away from the field and may not ever set foot on the salina itself. Under certain circumstances, other collaborators will be needed, such as architects, ecologists, microbiologists, archaeologists, lawyers, etc. for specific tasks. Other service providers can be used to cover different needs (transportation, materials, catering…).

Very rarely are salt makers themselves owners of the site. In these cases, salt makers are sometimes grouped in the form of associations or cooperatives. Being an independent salt maker gives of course a great degree of freedom in all decisions concerning the activity. Working as salt maker has a strong component of solitude and the arrival of people interested in this profession can be interpreted as intrusion. Slowly by slowly, some professional associations are growing in Europe (see below, also Table 3) and the benefits of belonging to one of them are very gradually being seen. A more open and cooperative attitude is also being perceived among the older salt makers in smaller sites.

Professional and other associations around salt

As indicated above, professional associations for the defence of the interests of salt makers are arising in all salt making areas. Table 5 offers a list of them at European scale, although most of them operate at local or national level. France is perhaps the most active country in that respect, with the longest tradition of gathering professional *paludiers* (i.e. artisanal salt makers in the Atlantic salinas of France). The above mentioned APROSELA succeeded with the protection of the salt of Guérande and the *Associação de Produtores e Marnotos da Ria de Aveiro* (APMRA) and *TradiSal* from Castro Marim, in Portugal are trying to register the artisanal salts from Aveiro and Algarve, respectively. In Spain, professional associations such as the the *Asociación de Productores de Salinas Marinas Artesanales de Canarias*, the *Asociación Andaluza de Artesanos de la Sal* (ANDASAL) and the *Asociación Mallorquina de la Sal* (AMASAL), are local or regional entities negotiating with their authorities of reference to register theirs, although have been rather inactive in the past few years. Little is known about the efforts by the national entity *Asociación Española de Salinas Marinas Artesanales*, created in 2007 or its European counterpart, the *Fédération Européenne de Producteurs de Sel Marin Récolté Manuellement* to gain recognition on artisanal salts. Most of these associations are open only for salt makers and are devoted to the acknowledgement of their salt as an artisanal, high quality, agricultural product, with a restricted geographic origin. No associations have been found to defend artisanal salt making elsewhere in the Mediterranean region, although given that they often have a local scope, their efforts may have been undetected.

Large salt making companies are often sister or daughter companies from even larger enterprises with interests in the mining, energy, or chemical industries, usually. Often these companies operate at global scale and have their headquarters far from the salt making sites. Among these monster-sized businesses are also distributors of salt, who do not necessarily own or manage salinas but (re-)package and distribute salt further down the distribution chain. These companies are usually more difficult to reach, although the daughters or sisters in charge of the salt making site on the spot tend to be more open and sensitive towards aspects related to conservation, sustainability and governance.

Other associations represent large salt making companies at industrial scale and focus on legislation that affects salt for industrial rather than culinary purposes (use of chemicals, health issues or the use of road salt for de-icing, for instance). This is the case of EuSalt in Europe, or The Salt Institute (now extinct), at international level, plus other national entities, as shown in Table 5. Given their scope, noteworthy is the Association *Salimar*, created in 2019 as a response to the disappearance of the former *AFASAL/Instituto de la Sal* in Spain, which represented Spain's industrial scale salt making. The new association is focused on coastal industrial salinas, thereby excluding the Torrevieja site, which feeds the salina with a large percentage of inland brine, and of course relevant inland vacuum and mining sites. This shift from all industrial sites in *AFASAL* to only coastal salinas in *Salymar* responds to a commercial strategy defending the interests of the second group.

On the other hand, there are a number of associations interested in a broader concept of salt making, that is, in *saliniculture*[3] as a whole. These associations tend to welcome anyone interested in salt and other issues they may defend (local culture, nature, other forms of heritage…), such as the *Jurade de Sel* in Salies de Béarn or *Associazione per il Parco Molentargius Saline Poetto i*n Italy. Others operate at a larger geographical scope, such as IPAISAL/Institute of Saltscapes and Salt Heritage. However, they are usually seen as cultural or environmentalist groups with little or no influence in the salt making activity itself. Few exceptions exist, though: The *Asociación de Amigos de las Salinas de Poza* in Spain, has reached an agreement with the municipality of Poza de la Sal, which allows them not only to recover a portion of salina owned by the municipality, but also to produce and sell salt there. Similarly, the *Asociación de Naturalistas del Sureste* (ANSE), a conservationist NGO in southeast Spain, is recovering the remains of the Salinas of Marchamalo in Murcia.

[3] A neologism that intends to encompass not only the salt making activity, but also the heritage, know-how and culture around it

Table 5. Main non-governmental and not-for profit organisations* with interest in salinas.

Scope	Name of NGO
International	– Wetlands International – World Wetlands Network – BirdLife International
Mediterranean	– IUCN-Med – Mediterranean Wetlands Initiative (MedWet) – Mediterranean Institute for Nature and Anthropos (MedINA) – Mediterranean Wetlands Observatory – MAVA Foundation
European	– EU Salt** – Association STRA – Traditional Salt Route of the Atlantic (probably extinct)
Spain	– IPAISAL – Salimar** – Fundación Biodiversidad (FB)
Italy	– Legambiente (LA) – Federazione Nazionale Pro Natura – Osservatorio Nazionale del Paesaggio Rurale, delle Pratiche Agricole e Conoscenze Tradizionali
Tunis	– Alliance Femme et Environnement – Association Tunisienne pour la Protection de la Nature et de l'Environnement (ATPNE) – Association "Les Amis des Oiseaux" – Association Nationale du Développement Durable et de la Conservation de la Vie sauvage (ANDDCVS)
Lebanon	– Society for the Protection of Nature in Lebanon – Association for the Development of Rural Capacities – Fair Trade Lebanon – Friends of Nature Association

Adapted from Hueso Kortekaas 2019

*NGOs with regional or local scope are not included
**Industrial / trade associations

Many other local associations exist in salt making areas, which support the culture and heritage of their municipalities, but are certainly not specialised in this activity. These entities can play an important role in the promotion of tourism, as they are willing to share their knowledge on local heritage at a low to zero cost for the authorities. Given their local knowledge of the site and their roots within the local community, they serve as social hinges to smoothen tensions between stakeholders, facilitate access to technical, financial and human resources to recover artisanal salt making and even support some of the conservation and outreach activities in industrial sites.

Public authorities

Authorities have a very relevant role in the management of salinas. Not only as owners or managers of the salt making sites, which is a minor role, but as the entities responsible for the legislative framework that affects daily life in these sites. Authorities can operate at different geographical levels (local, county, province, region, state, national, European, international…) and sectorial scopes (agriculture, mining, industry, local development, nature conservation, culture, etc.). The relevance of each level or scope will depend on the weight of each entity, determined by the tradition of policy making in each area, and the cultural and natural values of each site. In some cases, authorities of equal geographical level but different sectorial scopes may offer conflicting guidelines to the site. Typically, nature conservation and agriculture measures are not always in line with each other. In Spanish coastal salinas, the *Ley de Costas* (Coastal Act) declares a fringe of 100 metres along the coast as public property, thereby directly interfering with the management of coastal salinas, usually of private property, which necessarily include a part of this fringe. To avoid contradiction between guidelines and regulations, it is essential to promote an open dialogue between the parts. Higher level public authorities have the capacity to organise and mediate this dialogue in an efficient manner, an ability that private entities or individuals lack.

The local community and beyond

The local community is usually neglected in salt making recovery projects. Unless a public participation process is opened, only stakeholders directly related to the activity are invited. In order to participate actively, residents need to join one of the organisations related to salt making, usually some association, or as council members in the municipality. At the most, residents are invited to a presentation of a recovery plan or the results of a certain action. Neglecting the local community may have an adverse effect on the products and services provided by the salt making activity and /or to visitors, risking a mismatch between the perceived demand and offer of these products and services by both parts.

Visitors, on the other hand, are seldom acknowledged. However, especially in small salinas, visitors are also customers, as they show an active interest in the site's products and services and even participate in their production (i.e. by making salt themselves). Given their commitment, it

is essential to consider the quality of the experience that is offered to them. Some sites perform quality assessment by means of standard questionnaires that hardly reflect the individual needs of travellers and focus rather on the average parameters of the local tourism market. However, they may have a multiplier effect on other visitors and customers, if their experience was positive, but will tend to express their opinion more eagerly, if the experience was negative. Tourism authorities also wish to attract repeated visits, which in the case of salinas is linked to the regular purchase of its product, whether for personal use or as gifts. An interesting initiative is the "Open for works" approach that is applied in the salinas of Añana, in northern Spain, by which visitors have been encouraged to visit during the renovation works that are being performed on the site ever since it started its recovery, back in the year 2000. Many visitors have been keen on repeating the visit, simply to witness the progress of the works.

A group that falls in between residents and visitors is that of temporary residents, usually summer dwellers, a relevant group especially in coastal sites with nearby beach resorts. This group shares features with both residents –as they are usual temporary dwellers of the site– but also with visitors –as their motivation to be there is mainly leisure and relaxation–. They tend to be overlooked by public authorities and managers. Even though they feel a sense of belonging similar to that of residents, their standpoints may differ from them and may be more akin to that of visitors. They tend to have a higher commitment to the local heritage assets and may offer a more complete view on the needs of both groups, residents, and visitors.

Another group easily looked over are informal opinion leaders. In rural areas, these are often hidden from sight, as they do not always belong to an organisation or, in case they do, it seems far from the topic of interest. They may be patriarchs of respected and/or powerful local families, have an important role in the community (religious leaders, doctors, judges…) or are simply popular for whatever reason. Typically, these people can be found in hunting or fishing clubs, parish groups, women's associations or simply are natural leaders easily detected at gatherings in public spaces such as cafés, squares or even churches/mosques.

The role of informal opinion leaders should be considered, as they can exert enormous influence on the thoughts, apparently neutral, of many residents, often following their personal interests rather than the wellbeing of the community. Opinion leaders can be found beyond the local

community, too. Journalists, artists, travel writers, cooks, and other people well-known by the public at large can contribute to the visibility of a site. Salinas and local authorities often use these public figures as resources to attract attention to the site. Often, visitors and residents rely on different opinion leaders (Figure 26), which may cause confrontation. But if these opinion leaders are seen as neutral or free of personal interest, they can help overcome the differences between both groups.

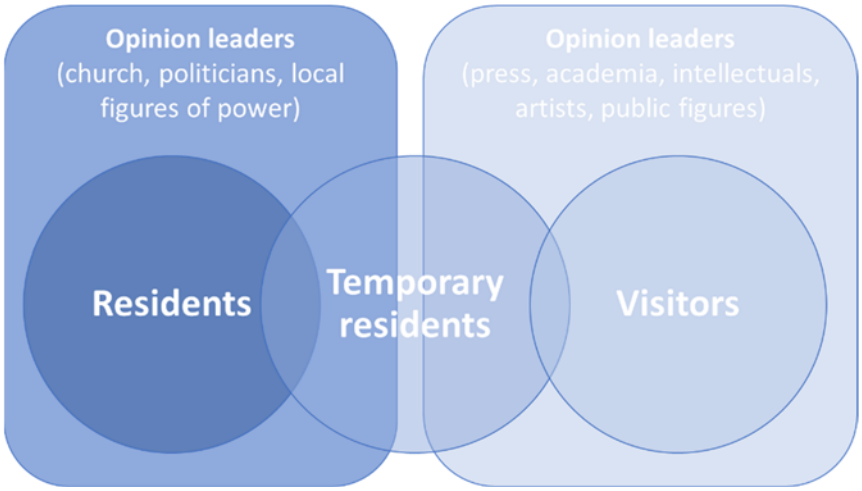

Figure 26: The relation between residents and visitors and the influence of opinion leaders on them. Source: Prepared by the author

An example of an external opinion leader that has been able to unite the interests of the local community, salt makers and visitors alike is Ángel León (Figure 27), also known as el Chef del Mar*, a renowned cook with his restaurant Aponiente located in the midst of the Natural Park Bay of Cádiz, Spain. He has ignited the development of businesses associated to sustainable fisheries and salt making, in close cooperation with his restaurant, which serves their products and celebrates the local culture and nature. His clients are thus invited to "have a different understanding of the sea". The restaurant has three Michelin stars.*

Figure 27: Ángel León in his restaurant A Poniente. Photo: Canal Sur Media

3.2 Governance models

Once stakeholders have been identified, a governance model needs to be created. This is a complex task in these types of sites, give the diversity of salt making sites (from the points of view of size, scale, ownership, strategic priorities, etc.). In this section, several types of governance are discussed and guidelines for governance and management of salinas are provided. The IUCN, in cooperation with the Convention on Biological Diversity, recognise four broad governance models for protected areas, that may be applicable to salinas (Borrini-Feyerabend *et al.* 2013, Borrini-Feyerabend & Hill 2015):

- *Governance by government*: one or more government bodies (such as a ministry or protected area agency reporting directly to the government, or a sub-national or municipal body) hold the authority, responsibility, and accountability for managing a site. This is the case of the Salinetta in Comacchio, Italy.
- *Shared governance*: institutional mechanisms and processes by which authority and responsibility are shared among two or more actors. In 'collaborative governance', formal decision-making authority, responsibility, and accountability rest with one agency (for example, a national governmental agency), but the agency is required, by law or policy, to collaborate with other stakeholders. In 'joint governance', decision making authority, responsibility and accountability are shared in a formal way, with various actors entitled to one or more seats on a governing body. This is the case of Salinas La Esperanza, in Spain.
- *Private governance*: The decisions on the administration and management of the site rest on private entities or individuals, which in any case need to comply with regulations that affect the site. Companies, cooperatives, trusts, NGOs are typical legal structures in this case. This is the case of the Societé Saida in Sahline, Tunisia or, at a very different scale, Sleiman Salinas in Lebanon.
- *Governance by indigenous peoples and local communities*: the site is governed and managed collectively by a community of people with shared values and cultural background. They generally advocate for collective rather than individual rights to their site. Their collective relationships have more to do with identity than with property and monetary values. To a certain extent, the cooperatives of salt makers in France or Morocco, or the associations in charge of the recovery of salinas in Spain, may respond to this model.

In addition, IUCN has established Principles of Good Governance for wetlands to highlight what good governance can contribute to their conservation. (Borrini-Feyerabend *et al.* 2013):

- *"Gaining legitimacy and giving voice*: Enjoying broad acceptance and appreciation in society; ensuring rights of access to information, participation, and justice; fostering engagement and diversity; preventing discrimination; fostering subsidiarity, mutual respect, dialogue, consensus and agreed rules.

- *Providing direction*: Following an inspiring and consistent strategic vision grounded on agreed values; ensuring consistency with policy and practice at various levels; ensuring clear answers to contentious questions; ensuring proper adaptive management and favouring the emergence of champions and tested innovations
- *Optimising performance*: Achieving conservation and other objectives as planned; promoting a culture of learning; engaging in advocacy and outreach; being responsive to the needs of rightsholders and stakeholders; ensuring resources and capacities and their efficient use; promoting sustainability and resilience
- *Being accountable*: Upholding integrity and commitment; ensuring appropriate access to information and transparency, including lines of responsibility, allocation of resources, and evaluation of performances; establishing communication avenues and encouraging feedback and independent overseeing
- *Sharing the benefits, minimising the costs*: Equitably sharing costs and benefits, without adverse impact for vulnerable people and communities; upholding decency and the dignity of all; being fair, impartial, consistent, non-discriminatory, respectful of procedural rights as well as substantive rights, individual and collective human rights, gender equity and traditional rights, including free, prior, and informed consent; promoting local empowerment"

These principles are gradually being understood by NGOs interested in not only salt making but also in the preservation of their heritage, both natural and cultural (see Table 5). In the past, these associations were often formed by scholars with a keen interest in the values of salt making, but with little practical connection to the activity. Today, the younger generation of salt makers are understanding the need of uniting efforts and using their salinas as multifunctional spaces with a plethora of products and services that go beyond simply salt. A quick look at the projects that have received grants from the MedArtSal project is a good proof of this (see above).

3.3 Artisanal salt production and its relation to sustainable governance

3.3.1 Artisanal salt making: from survival to a multifunctional activity

Solar evaporation salinas, being a specific type of artificial wetland, share many of the features of other wetlands in the Mediterranean (Papayannis & Salathé 1998). They are very diverse in size

and productivity, from primitive, informal salt harvesting operations (e.g., in Malta or certain areas of Greece) to large industrial sites (e.g., in France, Tunisia, Spain; see Figure 20). There is also a very strong cultural connection to them, cities like Venice and Tunis, are built on a wetland and owe their richness, in part at least, to the production of salt (Matvejević 1990). For a variety of reasons, Mediterranean wetlands are in a degraded condition and under threat. During the 20th century there has been an accelerated loss of more than half of them, which has resulted in a dramatic degradation of their functions and loss of their values (Finlayson *et al*. 1992). Wetlands represent less than 3% of the entire terrestrial surface of the Mediterranean Basin (Zedler *et al*. 2005), which is a very small part in terms of land use and planning for decision-makers. Therefore, in this region, wetlands are not high prioritised on the political and strategic development. This is partly explained by the fact that the region's public institutional priorities are economic growth, employment, food security, poverty reduction and national security. Nature is still considered, especially in southern countries, as free capital in development options, and the water component of wetlands captures interest for purposes of irrigation, water supply, tourism, industry, etc.

However, thanks to the efforts of international organisations and agreements, there seems to be an improved awareness of the values of wetlands. There is a continuous increase of protected wetlands sites and areas, conservation policies and strategic documents related to wetlands are updated and improved and there is an increased capacity and participation of civil society in wetland protection.

Salinas, being a specific type of wetland (also referred to as "artificial" or "commercial" wetland type) can be considered multifunctional landscapes. As explained by Mander (*et al.* 2007), "cultural landscapes are multifunctional through their simultaneous support of habitat, productivity, regulatory, social and economic functions". This can be understood as a mosaic of separate areas devoted to different activities and uses (farming, hunting, leisure, nature preservation, water provision, climate regulation…) but more often, the idea of multifunctionality refers to the synergic functional effects of integrated landscape elements. This means that, well planned, a landscape can serve different purposes, (e.g. leisure, conservation, production of goods and services). With this idea in mind, multifunctional landscapes constitute the basis of sustainable development.

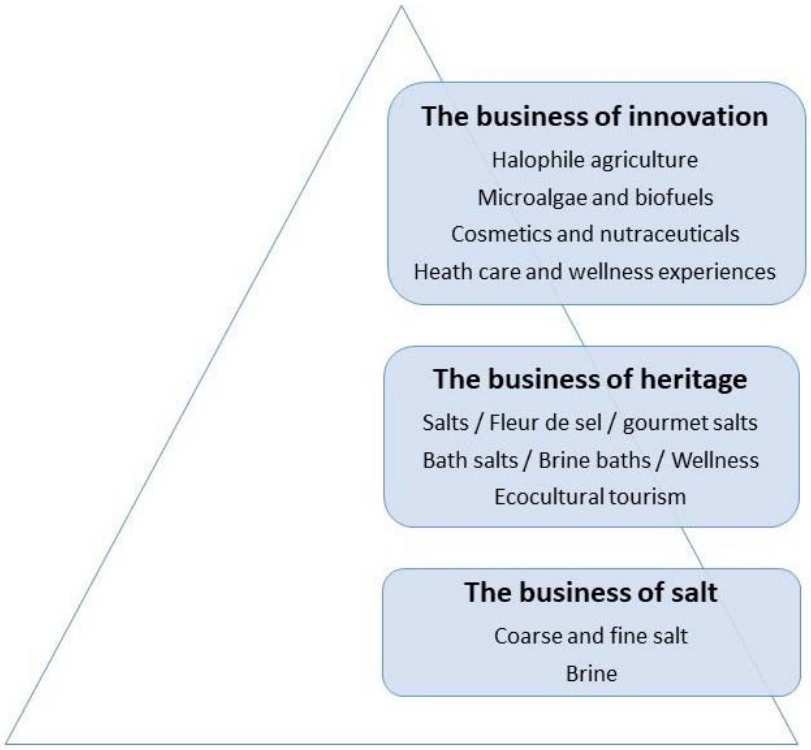

Figure 28: Conceptual evolution of artisanal saltscapes in the Mediterranean. Source: Prepared by the author

Artisanal salinas, on the other hand, have suffered a shift in paradigm: in their origin they are a productive activity inserted in the primary sector, namely the business of heritage. There was even a certain degree of secrecy and suffering and very little connection to the local community and beyond. Now many of these sites have a mixed activity in which the production of salt is combined with the provision of heritage-based services such as tourism, health, nature and culture, activities inserted in the tertiary sector. Some of them engage in technological research, innovation and development, through the experimentation, growth and sale of specific by-products and the offer of ever more sophisticated activities and experiences (Figure 28). This shift has also implied a 180º turn towards society, from a productive activity to a multifunctional landscape with close ties to the local community that enjoys the pride of both workers as residents. The diversity in the offer of products and services is enormous, despite having the same starting point: salt. It should be possible to find a unique combination of all of them that suits each site.

3.3.2 The future of Mediterranean artisanal salinas

As has already been stated, salinas host a number of values (natural, cultural, intangible) and functions (regulation of natural processes; production of commodities and raw materials such as salt, cosmetics, edible plants, microorganisms for biotechnological and industrial applications, etc.; economic activities such as agriculture, husbandry, tourism, recreation, health care, etc.; and education through research, interpretation, etc.) that make them complex habitats that require complex and site-specific governance approaches (see references in Hueso Kortekaas 2019).

Artisanal salinas are multifunctional sites that need to address multiple challenges related to the diversity of products, commercial and ecosystem services they offer. These products and services have become ever more complex and intertwined. From simply producing salt, artisanal salinas first moved into offering a range of traditional products (salt, brine, mud, and elaborations thereof) and services (leisure, education, tourism, gastronomy, health). In the past few years, these sites have been providing grounds for high-level research and innovation, creating opportunities for technological development, with the use of (micro-)organisms that are specific to these environments and have potential applications in biotechnology, biofuels, pharmaceutical industries, etc. In addition, sustainability has become part of the discourse of these sites, connecting with the local community via education, outreach and participation; using renewable energies, entering the circular economy and offering a coherent narrative in what they do and how they do it. These activities and products have been perceived as strengths and opportunities by the MedArtSal survey respondents. One of the conclusions that can be drawn from the survey is that this combination of products and services is unique to Mediterranean artisanal salinas and can contribute to strengthening their position in the market, and, as a consequence, to affirm their sustainability.

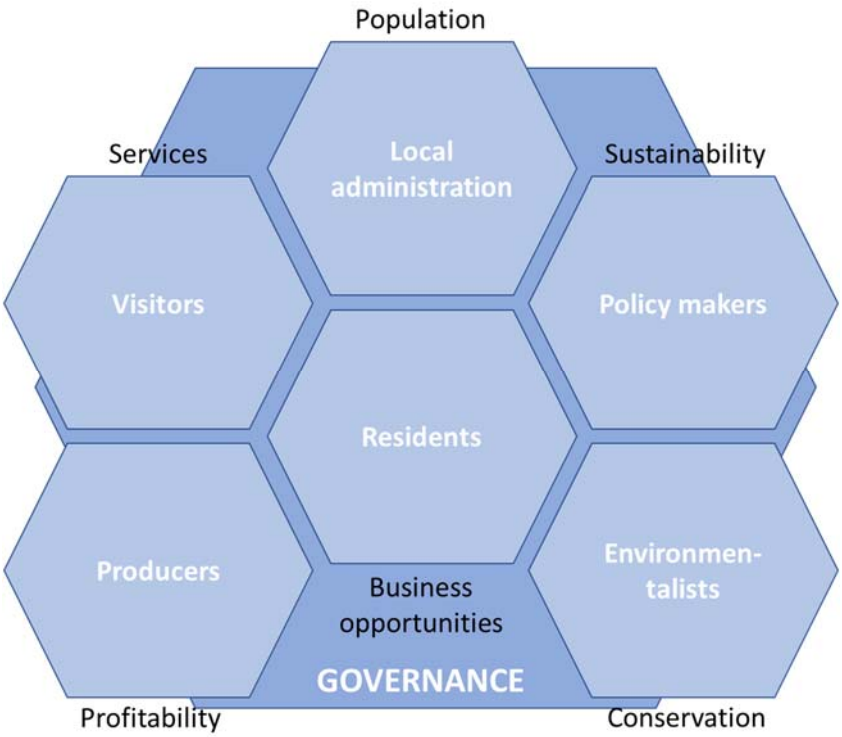

Figure 29: Different priorities, one target: Governance. Source: Prepared by the author

Perhaps the last level of sustainability that needs to be attained is governance (Figure 29). The different stakeholders identified earlier in this document are yet to be tightly connected. As has been proposed in the model of sustainable management, the foundations of sound governance are yet weak, and the ladder needs to be fully climbed. To reach full sustainability, all stakeholders should be on board the project. Often, policy makers make an academic exercise on the sustainability of productive landscapes, while producers focus on profitability; environmentalists try to preserve nature as pristine as possible; residents want to receive many visitors in their shops and restaurants and local administrations aim at halting depopulation. Conflicts of interest are thus common among stakeholders and reaching a balance between them is a complex task. Governance should be a tool to smoothen these conflicts and find sustainable solutions to the management of salinas and their landscapes.

4. Recommendations and conclusions

4.1 Main recommendations for governance

Stemming from the three sections of this report as well as from the surveys performed in the MedArtSal project, several recommendations can be issued, at different levels of governance. The following general recommendations apply to higher instances, namely policy making and strategic aspects of governance, aimed at public administrations and lobby groups. These stem from the analysis of different authors that have studied different governance contexts in relation to the management of wetlands and other natural areas in the Mediterranean region (Shipman & Rajković 2019, Berkowitz *et al*. 2020, Reggione Emilia Romagna & Generalitat de Catalunya 2020, Choucair 2021). They acknowledge the very different policy and decision-making styles, as well as social backgrounds in the region, and tap from the potential to link the northern and southern shores of the Basin. The EU's stated commitment to green diplomacy is seen here as an opportunity to invigorate cross-Mediterranean relations at the core. These recommendations are:

On governance and management

- Communicate domestic benefits of sustainable development and green economy more clearly, focusing on value creation, and the co-benefits such as job creation
- Align skill development and training assistance programmes with greening strategies
- Implement twinning strategies between a northern and a southern region or between a lagging and a more advanced region, to enable knowledge transfers and facilitate joint projects
- Orient research and innovation competitive calls and projects towards multi-stakeholder, challenge-driven areas
- Promote biotechnologies to address the Sustainable Development Goals (SDGs)
- Minimise the risk of cognitive biases among the participating stakeholders by applying a healthy, robust governance process, with a high degree of horizontal participation
- Ensure a good coordination and cooperation between owners, managers and salt makers to guarantee the success in the salt making activity. To this end, transparency, confidence, and mutual understanding are essential values

On environmental aspects of governance

- Avoid negative environmental externalities in the Southern Mediterranean from the European Green Deal
- Mainstream wetland values as nature-based solutions in spatial planning and environmental policies
- Create a dialogue between stakeholders, with a common understanding of ecosystem services provided by salinas
- Use labels and certificates to approach land managers, land users and final customers and as a tool to inform the public about the natural values of a production site

On socioeconomic aspects of governance

- Etch the concept of green and sustainable economy into existing frameworks more clearly in all policy documents and statements, as well as into trade agreements
- Include local communities, public administration, and civil society in greening the economy
- Support should micro, small, and medium enterprises (SMEs) in green and sustainable economy
- Shift finance of sustainable and green projects from large-scale corporations to smaller-scale businesses such as SMEs
- Empower actors in the tourism and high-value products value chain

4.2 Specific recommendations for governance

From a more local point of view, it may seem that salinas themselves (i.e., the owners/managers and salt makers) can do little to improve governance in their sites. However, as Table 6 shows, local stakeholders such as these can have a significant impact on governance; in fact, they are at its core. The following recommendations stem from the challenges identified earlier in this report, as well as the threats and weaknesses gathered in the survey performed by the MedArtSal project.

Table 6. Recommendations for sustainable governance in Mediterranean artisanal salinas.

Challenge	Recommendation	Stakeholders involved
General management aspects		
Lack of trust	Create and/or use opportunities to meet among peers and exchange know-how, experiences and lessons learnt (even online, if necessary)	• Salt makers • Salina owners
Weak participatory culture	Engage in controlled participatory processes with friendly stakeholders, gradually increasing the degree of commitment and complexity (e.g. from informing, to consulting and later to co-deciding); request the assistance of professional facilitators	• Salina owners • Stakeholders • Consultant/expert
Weak collective action	Create or join existing trade associations	• Salt makers • Salina owners
Lack of resources for governance	Request assistance of local/regional development agents or entities, private funding bodies and business angels	• Salina owners • Local/regional authorities • Local development associations
Lack of commitment from stakeholders	Build and develop trust through shared activities and events, invest in strong communication and awareness strategies targeted towards stakeholders of interest	• Salina owners • Public administrations • Local NGOs • Public • Consultant/expert
Complex, overlapping regulations	Join forces with others and lobby at regional or national scale, depending on the regulations and public administrations involved, seek the assistance of neutral stakeholders (e.g. academia) to facilitate meetings	• Salina owners • Public administrations • Political parties • Academia
Missing artisanal salt specific regulation	Join forces with others and lobby at regional or national scale, to request specific regulations, seek the assistance of neutral stakeholders (e.g. academia) to facilitate meetings	• Salina owners • Public administrations • Political parties • Academia
Need of a certification scheme	Join existing schemes, making a unique combination of labels for salt; request the assistance of experts to create a specific scheme	• Salina owners • Consultant/expert
Environmental aspects		
Pollution	Collaborate with researchers to identify the sources of pollution and create prevention and mitigation systems within the salina; lobby with other stakeholders to prevent the pollution at the source, if possible	• Salina owners • Salt makers • Academia • Local NGOs

Challenge	Recommendation	Stakeholders involved
Land use change	Join forces with other salinas and the public to lobby at local or regional scale, to stop urban/industrial development near the salinas	• Salina owners • Local NGOs • Public
Climate change and blue carbon	Collaborate with researchers to predict the mid- and long-term effect of climate change on the salinas and plan strategies to adapt the site to it	• Salina owners • Salt makers • Academia
Insufficient valuation of ecosystem services	Develop communication strategies to inform the business environment about the services the salina is providing, aside from the product itself	• Salina owners • Customers/visitors • Consultant/expert
Socioeconomic aspects		
Mismatch industrial vs artisanal salt making	Understand that the business of industrial salt is a totally different one than that of artisanal salt, adapt the communication to stakeholders, marketing strategies and relation to customers to this paradigm; collaborate with experts to develop new products and services	• Salina owners • Academia • Consultant/expert • Customers/visitors • Public
Lack of motivation / training among workers	Collaborate with education authorities and trade associations to create professional training schemes, provide opportunities for trainees to gain experience, facilitate the exchange of experiences between workers	• Salina owners • Salt makers • Public authorities • Academia
Weak business models	Request the assistance of experts to create, upgrade or adapt the business plan; survey customers and visitors to understand their needs; create synergies with local businesses and assets, to gain competitiveness and uniqueness	• Salina owners • Other businesses • Local tourism authorities • Local NGOs • Consultant/expert
Lack of entrepreneurial skills	Request authorities training to obtain or update entrepreneurial skills, exchange expertise with academia (skills vs salina as training/fieldwork site)	• Salina owners • Salt makers • Local development authorities • Academia
Need of institutional support for business	Request local and regional authorities support for common marketing and communication strategies and tools for local businesses, salinas, etc.	• Salina owners • Public authorities
High variability in size, ownership, and profitability	Meet with other (artisanal) salinas and find common features and goals, join forces via a network or association, highlighting the common aspects	• Salina owners • Salt makers

Source: Prepared by the author

These recommendations are of very practical nature and are inspired in the personal and professional experience of the author addressing similar challenges in artisanal salinas across

Europe and Latin America. Only a small investment is needed in terms of willingness to address the challenge, time to connect with and mobilise other stakeholders and, just in a few cases, in hiring the services of experts and consultants. The latter has been designed to be as low as possible and possibly even achievable via subsidies and grants, or exchange in kind. This report offers additional tools for financing and management across the text. The Table has been divided into three sections: general management, environmental and socioeconomic aspects, and includes the main stakeholders to be involved in the efforts.

4.3 Final remarks

In general, governance should be improved through increased transparency, accountability, participation, coordination, legitimacy, and adaptability, while fairness or equity could be increased through creating means to share the benefits of conservation locally, particularly by supporting local economic and tourism development, capacity-building programs, and hiring practices (World Bank & UN DESA 2017). Forging linkages and connections across scales and levels is critical for effective outcomes and happens via social learning—for example, through collaboration among organisations in scenario planning, visioning, and open discussion of alternatives.

Governance is built best from the bottom towards the top. Therefore, artisanal salinas should acquire a protagonist role and enhance sustainable governance at local scale, by establishing solid bonds with stakeholders and empowering themselves. This report has offered an overview of the governance framework of artisanal salinas in the Mediterranean, the challenges they face but also some tools to address them.

References

- Bassem, B. S. (2009). Governance and performance of microfinance institutions in Mediterranean countries. *Journal of Business Economics and Management*, 10(1), 31-43.
- Bennett, N. J. & Satterfield, T. (2018). Environmental governance: A practical framework to guide design, evaluation, and analysis. *Conservation Letters*, 11(6), e12600.
- Berkowitz, H. (2020). *Participatory governance for the development of the Blue Bioeconomy in the Mediterranean region*. PANORAMED Governance Platform, Generalitat de Catalunya, Barcelona, Spain.
- de Blaeij, A. T., Polman, N. & Reinhard, S. (2011). Economic governance to expand commercial wetlands: within-and cross-scale challenges. *Ecology and Society*, *16*(1).
- Borrini-Feyerabend, G. & Hill, R. (2015). Governance for the conservation of nature. In: G. L. Worboys, M. Lockwood, A. Kothari, S. Feary & I. Pulsford (Eds) *Protected area governance and management.* ANU Press, Canberra, Australia, pp. 169–206.
- Borrini-Feyerabend, G., Dudley, N., Jaeger, T., Lassen, B., Pathak Broome, N., Phillips, A. & Sandwith, T. (2013). *Governance of Protected Areas: From understanding to action.* Best practice Protected Area Guidelines Series No. 20. Gland, Switzerland: IUCN.
- CEAB-CSIC (2019). *Carbon stocks and fluxes associated to Andalusian saltmarshes and estimates of impact in stocks and fluxes by diverse land-use changes*. Group of Aquatic Macrophyte Ecology, LIFE Blue Natura action C2.2 report
- Choucair, J. (Coord.) (2021). *A Euro Mediterranean Green Deal? Towards a green economy in the Southern Mediterranean*. European Institute of the Mediterranean, Barcelona, Spain.
- Common, M. & Stagl, S. (2005). *Ecological economics: an introduction*. Cambridge University Press, UK.
- COWI, Ecologic Institute & IEEP (2021). *Technical Guidance Handbook - setting up and implementing result-based carbon farming mechanisms in the EU*. Report to the European Commission. DG Climate Action, under Contract No. CLIMA/C.3/ETU/2018/007. COWI, Kongens Lyngby, Denmark.
- da Silva, D. F., de Medeiros, R., de Lucena, J. E., Soares, A. M. V. M. & Lillebo, A. I. (2014). Análise dos serviços ambientais prestados pelas salinas solares. *BGG* 41, 34-49.

- de Mesquita, C. B., Zhou, J., Theroux, S., Hartman, W., Tian, Y. & Tringe, S. (2021). Microbial drivers of methane emissions from unrestored industrial salt ponds. *The ISME Journal,* 16, 284–295.
- Eccleston, C. H. & March, F. (2010). *Global Environmental Policy. Concepts, principles and practice*. CRC Press, Boca Raton, USA.
- European Commission (2021). *Communication from the Commission to the European Parliament, the Council, the European Economic and Social Committee and the Committee of the Regions on a new approach for a sustainable blue economy in the EU: Transforming the EU's blue economy for a sustainable future*. EC, Brussels, Belgium.
- Finlayson, C.M., Hollis, G.E. & Davis, T.J. (Eds) (1992). *Managing Mediterranean wetlands and their birds.* International Waterfowl and Wetlands Research Bureau, Slimbridge, UK.
- Giddings, B., Hopwood, B. & O'brien, G. (2002). Environment, economy and society: fitting them together into sustainable development. *Sustainable development*, 10(4), 187-196.
- González Piñeiro, D. (Unpublished). *Presente y futuro de las salinas tradicionales del Mediterráneo*. Master's thesis. Faculty of Law, Universidad Autónoma de Madrid. Master in Governance and Human Rights (2020- 2021).
- Hueso Kortekaas, K. (2019). *Salt in our veins. The patrimonialization processes of artisanal salt and saltscapes in Europe and their contribution to local development*. Parthenon Verlag, Kaiserslautern, Germany.
- Hueso Kortekaas, K. (2020). What are saltscapes worth? *El Alfolí* 27, 17-23.
- Hueso Kortekaas, K. (2022). *Acción E3.3 – Manual del certificado: indicadores y procedimiento*. Proyecto LIFE Salinas. Unpublished report
- Hueso Kortekaas, K. & Carrasco Vayá, J.-F. (2022). ¿Tiene género el trabajo en las salinas? *Proceedings of the 8th TICCIH Congress: Industrial heritage and public works*, Balmaseda, Spain, 2-4 June 2022, in press
- IUCN (2010). *Towards a better governance of the Mediterranean*. IUCN, Gland, Switzerland & Malaga, Spain.
- Lemos, M. C., & Agrawal, A. (2006). Environmental governance. *Annual review of environment and resources*, 31(1), 297-325.
- Mander, Ü., Helming, K. & Wiggering, H. (2007). Multifunctional land use: meeting future demands for landscape goods and services. In: Mander, Ü., Helming, K. & Wiggering, H. (Eds.) *Multifunctional land use*. Springer, Berlin, Heidelberg, Germany, pp. 1-13.

- Marín, C. & d'Ayala, P. G. (1997). *Nature and workmanship. Information and awareness promotion project*. Insula / UNESCO / European Commission, Brussels, Belgium.
- Matvejević, P. (1990). *Mediterranean: a cultural landscape*. University of California Press. Berkeley, Los Angeles, USA.
- Meddeb, S. (2014). *Etude d'evaluation socioéconomique des activités maritimes en Tunisie*. Pescares Italia, Italy.
- Millennium Ecosystem Assessment (2005). *Ecosystems and human wellbeing: wetlands and water. Synthesis*. World Resources Institute, Washington DC, USA.
- Morandín-Ahuerma, I., Contreras-Hernández, A., Ayala-Ortiz, D. A. & Pérez-Maqueo, O. (2019). Socio–ecosystemic sustainability. *Sustainability*, 11(12), 3354.
- Papayannis, T. & Salathé, T. (1998). *Mediterranean wetlands at the dawn of the 20th century*. Ramsar Bureau – Tour du Valat, Arles, France.
- Reggione Emilia Romagna & Generalitat de Catalunya (2020). *Better governance for a Mediterranean Green Deal*. Interreg MED PANORAMED network
- Rodrigues de Melo Soares, R. H., de Assunção, C. A., de Oliveira Fernandes, F., & Marinho-Soriano, E. (2018). Identification and analysis of ecosystem services associated with biodiversity of saltworks. *Ocean & coastal management*, 163, 278-284.
- Rosas-Ferrusca, F. J., Calderón-Maya, J. R., & Campos-Alanís, H. (2012). Elementos conceptuales para el análisis de la gobernanza territorial. *Quivera. Revista de Estudios Territoriales*, 14(2), 113-135.
- Russi D., ten Brink P., Farmer A., Badura T., Coates D., Förster J., Kumar R. & Davidson N. (2013). *The economics of ecosystems and biodiversity for water and wetlands.* IEEP, London and Brussels; Ramsar Secretariat, Gland, Switzerland.
- Sabaté, X., Basora, X., O'Neill, C. & Mitchell, B. (2013). *Caring together for nature. Manual on land stewardship as a tool to promote social involvement with the natural environment in Europe.* Landlife project. XTC, Barcelona, Spain.
- Sadoul, N, Walmsley, J. G. & Charpentier, B. (1998). *Salinas and nature conservation*. Conservation of Mediterranean Wetlands No. 9, Tour du Valat, Arles, France.
- Sgobbi, A. & Fraviga, G. (2006). *Governance and water management: progress and tools in Mediterranean countries*. Nota di lavoro, No. 151.2006, Fondazione Eni Enrico Mattei (FEEM), Milano, Italy.

- Shipman, B. & Rajković, Ž. (2019). *The governance of coastal wetlands in the Mediterranean – a Handbook*. PAP/RAC. Split, Croatia.
- Taylor, N. G., Grillas, P., Al Hreisha, H., Balkız, Ö., Borie, M., Boutron, O., ... & Sutherland, W. J. (2021). The future for Mediterranean wetlands: 50 key issues and 50 important conservation research questions. *Regional environmental change*, 21(2), 1-17.
- University of Cadiz (UCA) (2021). *State of the Art.* MedArtSal project deliverable A.3.1.2. Final report. (Available at: https://medartsal.com/download/state-of-the-art/)
- UNDP (1997). *Governance for sustainable human development: a UNDP Policy document*. United Nations, New York, USA.
- Walmsley, J. G. (1999). The ecological importance of Mediterranean salinas. In: *Proceedings of the post conference symposium Saltworks: preserving saline coastal ecosystems - Global NEST*, pp. 81-95.
- WCED (1987). *Our Common Future*. Oxford University Press, Oxford, UK.
- World Bank & United Nations Department of Economic and Social Affairs (2017). *The potential of the Blue Economy: increasing long-term benefits of the sustainable use of marine resources for small island developing states and coastal least developed countries*. World Bank, Washington DC, USA.
- Zedler, J.B., Kercher, S. (2005). Wetland resources: status, trends, ecosystem services, and restorability. *Annual Review Environmental Resources*, 30:39–74.


©H.Clavero/IUCN