

REPORT OF ALTERNATIVE SCENARIOS

(deliverable 3.3.1 – English summary)

Project Partner n. 9: RCDI -Development and Innovation Network

TABLE OF CONTENTS

A. TREND SCENARIO	2
B. ORIENTED SCENARIO.....	4
C. PREFERRED SCENARIO.....	8

16 November 2018

A. TREND SCENARIO

This scenario seeks to reproduce the continuity of current trends in three strategic areas: governance, environment and economic and social development. In this scenario the involvement of citizens is limited, management and the conservation policies do not encourage the involvement of all territorial stakeholders. Therefore it represents the continuation of the present development pattern, and it is not considered as the optimal framework for the achievement of the objectives, against the degradation of natural spaces.

The scenario highlights the weaknesses of the current situation regarding natural processes and human activities. The natural conditions of the wetland show a fragile ecological balance, highly vulnerable to weather and climate factors. This fragile ecosystem is also very vulnerable to the effects of human activities in the surrounding area, particularly residential occupation and agriculture. The sustainability of the wetland is threatened - as already happened with other lagoons in the same coastal system. The challenge is to counteract the involution process that is aggravated by human activity and climate change.

TREND SCENARIO			
Strategic area	Problem	Effects	Trends and critical issues
G. GOVERNANCE	PG1. Lack of organisation of local interest groups: the two major economic activities – rice farming and tourism do not have any kind of local collective structure to dialogue with public authorities and to defend their own interests.	Disperse and ad hoc response to group problems and challenges constrains development initiatives and opportunity seizing; hampers interaction among operators and with public authorities.	The need to act collectively or to join efforts is more easily acknowledged by farmers than by tourism operators. The former have already tradition on the joint management of the water in the rice fields. Tourism operators tend to be quite individualists.
	PG2. Insufficient interaction between public authorities and local economic operators: dialogue is strictly institutional and formal, restricted to legally defined procedures; little involvement of local operators in the decision making process regarding local problems and challenges.	Decisions taken by public authorities may affect local operators or even go against their interests. Mistrusting and misbelieve affect public-private relations and prevents consensual decision making.	Environmental protection measures taken by public authorities often collide with economic interests. Small private operators are often disregarded in many decisions and unfairly accused of causing environmental damage. Closer involvement of local authorities is required for the development of some group projects.
	PG3. Lack of coordination of the management tools of the public regional authorities: regional authorities do not regard the pilot area as an integrated system requiring joint action.	Difficulty to understand regulation and to identify responsibilities. Increased effort for private operators to implement their projects. Synergies are not fully exploited.	Although the trend is to pass the content of sectoral plans into the municipal master plan, specific environmental issues are often out of this process and several entities are required to issue binding, sometimes, contradictory advice on the same situation. Economic entrepreneurs face a cascade of licensing processes.
E. ENVIRONMENT	PE1. Inadequate sanitation: insufficient wastewater treatment: the urban system that includes a treatment	Contamination of groundwater and, occasionally, of surface runoff to the lagoon.	Primary wastewater treatment tends to improve in modern construction around the lagoon,

TREND SCENARIO			
Strategic area	Problem	Effects	Trends and critical issues
	plant is restricted to the urban centre; the location of the treatment plant does not prevent it from flooding during heavy rains; rural dwellings and the camping site located near the lagoon have inadequate primary treatment.	High level of nutrients in the lagoon cause eutrophication mostly under propitious weather conditions and, at limit, dystrophic crisis may occur.	but the problem demands a more efficient solution, such as wastewater drainage system and secondary treatment. This solution is already envisaged by public authorities but it is a medium/long term project.
	PE2. Risk of eutrophication: organic material in excess, associated to unfavourable climate conditions, create conditions that cause eutrophication.	Creation of dense blooms of noxious, foul-smelling phytoplankton that reduce water clarity and harm water quality. Increasing nutrients can create an anoxic, or oxygen-depleted, environment where fish and other organisms cannot survive. Dystrophic crisis may occur.	Climate change will aggravate the effects as episodes of high temperature and drought may become more frequent. Need to reduce the quantity of organic material reaching the lagoon.
	PE3. Alluviation of the lagoon: increasing sediment deposition and accumulation as a result of erosion processes both in the highlands (sediment transport) and in the sand barrier (wind and ocean erosion).	Water levels in the lagoon are reduced; shallow water is not so attractive to some water activities. Increased pollutants concentration.	The problem is aggravated by climate change effects. Forest management techniques (particularly, mobilization of soil) in the upper part of the river basin is a major problem.
D. ECONOMIC AND SOCIAL DEVELOPMENT	PD1. Rice production: low revenue, dependency on public financial support; current practices rely on Integrated Production that guarantees public financial support to farmers.	Marginal yield does not facilitate the adoption of more environment friendly practices. Farmers are reluctant to change to organic production as they risk lower production volumes. Integrated Production is found to be insufficient to prevent water contamination given the physical characteristics of the lagoon.	Abandoning the activity for economic reasons is a threat, which could affect the balance of the ecosystems, particularly the birds' habitats. Converting to organic production is being considered, but substantial public support will be needed to overcome the farmers' fear of reducing revenue.
	PD2. Tourism: non-consolidated and highly seasonal activity, oriented to the "sun and sea" demand; fragmented tourism supply, local non-qualified lodging and no integration with services; restaurants and other tourism services are very few and low quality; very little use of the lagoon for tourism activities.	The tourism potential of the lagoon is under worked. Low quality lodging is associated with poor environmental infrastructure (sanitation conditions). Fragmentation of the tourism supply does not facilitate the development of tourism support infrastructure (trails, boat piers, parking, etc.) and services.	Tourism supply needs structuring, together with improving quality and promotion. Increasing demand for activities in the lagoon (paddle, boating, swimming...); need to develop infrastructure and services.
	PD3. Fishing: not permitted in the lagoon due to regulation gap; current activity is mostly illegal.	Fishing is a social/cultural issue rather than economic. Fishing interdiction finished with the few local fishermen and with some traditional activities. Local typical gastronomy was also affected.	Unregulated furtive fishing has negative social and environmental impacts. Local population claims for fishing permission to regain a traditional activity that was part of the lagoon identity. Fishing is also considered to contribute to combat water stratification.

B. ORIENTED SCENARIO

The scenario considers all possible corrective actions, which are prioritized in order to contain and improve the trend scenario and control the unsustainable tendencies of the present process. It addressed the same strategic areas of the trend scenario: governance, environment and economic and social development. The aim of the scenario is to maximize both the environment protection area and the economic and social development. Thus, it has to be considered as a comprehensive scenario which draws protection oriented measures and development oriented ones.

The measures included in this scenario were identified in a series of meetings with the most relevant (influential) stakeholders, and completed with measures proposed by the project team to meet the expectations of the stakeholders. These measures address the most critical factors that affect the ecological balance of the Lagoon and/or constrain economic development: pressures on the ecosystem, low income of the population, insufficient community involvement. Some of the measures correspond to existing initiatives that have a good effect on the Lagoon ecological system and should be maintained.

ORIENTED SCENARIO				
Strategic area	Objectives	Measure	Action/Initiatives	Risks
G. GOVERNANCE	OG1. Promoting synergies for development	Association of rice farmers for commercial purposes	Preparatory actions (farmers' expression of interest, discuss the mission and status of the organisation, invite other members, etc.) Registration and preparation of an action plan; Coordination with other stakeholders.	Difficulty to mobilise farmers; Lack of institutional support; Need for technical assistance.
		Local association of tourism operators	Preparatory actions (operators' expression of interest, discuss the mission and status of the organisation, invite other members, etc.) Registration and preparation of an action plan; Coordination with other stakeholders.	Difficulty to mobilise t. operators; Lack of institutional support; Need for technical assistance.
	OG2. Citizens involvement	Local Supervision Committee for the Melides Wetland	Definition of the mission and structure of the Committee; Election of the representatives of the stakeholders in the Committee; Approval of the rules and procedures of the Committee.	No subscription of the Wetland Contract; Lack of interest of the stakeholders; Lack of institutional support.
			Creation of a local watch team for permanent surveillance of the status of the wetland.	
		Participatory Budgeting	Decision by the parish authority; Negotiation with the municipal council; Information to citizens; Installation of the technological support.	No decision of the parish authority; No support by the municipal council; Lack of technical assistance.
E.	OE1. Zero non treated	Construction of the	Project development;	Lack of funding;

ORIENTED SCENARIO				
Strategic area	Objectives	Measure	Action/Initiatives	Risks
ENVIRONMENT	waste water discharges	Melides Lagoon Waste Water System	Construction of the urban network; Construction of the major interceptor; Operation;	Illegal housing (secondary residences); Under estimation of peak water volumes.
		Cleaning non-septic tanks programme	Field survey to identify non-septic tanks; Contacting property owners; Programming action; Cleaning tanks	Illegal housing (secondary residences); Insufficient human resources;
		Construction of new treatment plant in the camping site	Project adjustment; Construction; Operation	No investment by the camping site owner.
	OE2. Restoration of the fluvial environment	Rehabilitation of the Melides river	Cleaning; Restoration of the riparian vegetation; Renaturalisation of some sections of the river.	Lack of funding;
	OE3. Improving the lagoon ecological status	Decontamination of surface water by infiltration	To use soil-aquifer-treatment (SAT-MAR) to remove pollutants from surface waters prior to their discharge in the Lagoon.	Lack of funding Non availability of land for the infiltration basins (difficulties with the land owner).
		Creation of green filters	Project development; Preparation of the tanks for plants and the water circulation system.	Lack of funding; Non availability of land (difficulties with the land owner); Dependency on energy for water circulation.
		Cleaning the Lagoon bed (dredging)	Preparatory studies; Cost-benefit analysis; Operation.	Negative impacts of moving the sediments; Unfavourable cost-benefit ratio.
		Oxygenation of the Lagoon	Installation of an artificial fountain to shake the water: preparatory studies; cost-benefit analysis; construction and operation.	Unfavourable cost-benefit ratio; Negative visual impact.
		Reducing sediment deposition in the Lagoon	Circulation of surface water runoffs through the rice fields for sediment deposition prior to reaching the Lagoon.	Lack of coordination among rice farmers.
		Breaching of the Lagoon	Maintaining the breaching of the Lagoon once a year to enable the entrance of ocean water.	No risk. It is already a current practice to renovate the lagoon environment.
		Fluvial continuity	Cleaning water streams in the catchment basin; Restoration of riparian vegetation; Elimination of exotic species.	No mobilisation of land owners.
	OE4. Promotion of good practices in the catchment basin	Environmental education and consciousness	Educational projects on: cleaning water streams; restoration of riparian vegetation;	No mobilisation of land owners and farmers in the highlands.

ORIENTED SCENARIO				
Strategic area	Objectives	Measure	Action/Initiatives	Risks
D. ECONOMIC AND SOCIAL DEVELOPMENT	OE5. Regional integration		good practices for soil mobilisation, etc.	
		Regional Network of Wetlands	Networking all wetlands located in Alentejo Litoral to enhance complementarities and synergies; Development of integrate conservation and valorisation initiatives.	Lack of institutional support.
	OD1. Valorisation of local rice farming	Conversion to organic rice production	Development of experimental project Gradual conversion of farms.	Lack of financial support; No association of farmers; Difficulties entering the market channels.
		Creation of a local commercial brand	Defining the rice varieties specific to the area; Preparation of the commercial project; Implementing production and marketing conditions.	No association of farmers; No institutional support; Commercial constraints.
		Joining synergies with tourism	Arranging trails in the rice fields; Organising visits to rice farms; Participation in the Centre for Environmental and Cultural Interpretation.	Difficulties coordinating activities with tourism operators; No institutional support.
	OD2. Promotion of environment friendly agriculture	Good environmental practices in horticulture and familiar livestock.	Reducing the use of agrochemicals; Actions to avoid infiltration of contaminants and open discharges of effluents.	Farmers' reluctance towards change; Lack of financial support.
		All rice farmers with Integrated Production	Identify the farmers that are not yet with Integrated Production; Prepare new rice farming projects; Implementing technical assistance contracts.	Farmers' reluctance to change practices; Lack of financial support; Lack of institutional support.
	OD3. Revitalisation of fishing in the lagoon	Creation of a fishing reserve.	Application for concession of a professional fishing zone.	Unfavourable ecological conditions; No authorization by the Nature Conservation Institute.
	OD4. Better tourism	Strengthening nature tourism	Intallation of infrastructure and equipment: arranging trails, 2nd birdwatching hut, sailing infrastructure, etc.	Lack of funding; Insufficient human resources.
		Centre for Cultural and Environmental Interpretation	Identify location and rehabilitate facilities; Preparation of an action plan; Development of cultural and scientific content; Implementation and operation.	Lack of financial resources; Lack of institutional support.
		Valorisation of cultural heritage	Rehabilitation of historic and cultural infrastructure; Development of gastronomic and	Lack of financial resources; Lack of institutional

ORIENTED SCENARIO				
Strategic area	Objectives	Measure	Action/Initiatives	Risks
			other cultural events.	support.
		Quality upgrading	Implementation of a Quality Chart for accommodation and restaurants; Development of a Guide on Good Environmental Practices; Upgrading small infrastructure (bike lane, tourism signalisation, etc)	Dispersion of tourism operators; reluctance to associate; Lack of institutional support.
		Structuring tourism offer	Development of integrated products: accommodation/animation, accommodation/catering; accommodation/rice farming. Creation of pedestrian routes with specific purposes.	Dispersion of tourism operators; reluctance to associate; Lack of institutional support.
		Regional integration	Development of products and articulation of the tourism offer with the surrounding regions in Alentejo.	Dispersion of tourism operators; reluctance to associate; Lack of institutional support.

C. PREFERRED SCENARIO

The preferred scenario is developed basing on the participation activities of the territorial labs and of the focus groups open to the public. It combines aspects of the trend scenario and the oriented scenario that are considered as most important to the members of the community and engaged stakeholders. It will balance the potential reality of the future while on one side providing opportunities to adjust to changing development patterns, and the other side addressing the desired objectives of environmental protection and economic development.

Priority elements of the preferred scenario are:

- Empowerment of local actors and joining efforts to profit from synergies;
- Mitigation of adverse natural processes;
- Strengthening local identity;
- Upgrading economic activities;

This scenario results from the discussion of the measures included in the Oriented Scenario. The discussion focused not only on the stakeholders' interest on each measure, but also on a preliminary assessment of the implementation feasibility. In this sense, this scenario can be considered the most realistic approach to the sustainable use of the wetland. Measures that were considered too complex or too resource demanding were either eliminated or adjusted to a simpler form. This methodology reduced the number of measures to be included in the action plan, but aims at a more successful implementation. A set of recommendations, not structured as measures, but equally important to be part of the action plan, will complement the scenario.

PREFERRED SCENARIO				
Strategic area	Objectives	Measure	Action/Initiatives	Risks
G. GOVERNANCE	OG1. Promoting synergies for development	G1.1 Melides Development Association	Creation of an association of local stakeholders, joining multiple interests (agriculture, tourism and culture, environment, local government), for commercial promotion of the Melides brand.	Stakeholders' lack of initiative; lack of institutional support (Municipal Council); needs technical assistance.
	OG2. Citizens involvement	G2.1 Local Supervision Committee for the Melides Wetland, including watch team	Definition of the mission and structure of the Committee; Election of the representatives of the stakeholders in the Committee; Approval of the rules and procedures of the Committee. Creation of a local watch team for permanent surveillance of the status of the wetland.	Should be created with the subscription of the Wetland Contract; may face lack of interest of the stakeholders and lack of institutional support.
		G2.2 Participatory Budgeting	Decision by the parish authority; Negotiation with the municipal council; Information to citizens; Installation of the technological support.	Depends on political decision; Needs technical assistance to be implemented.
E. ENVIRONMENT	OE1. Zero non treated waste water discharges	E1.1 Construction of the Melides Lagoon Waste Water System	Project development, including the connection to the camping site; Construction of the urban network; Construction of the major interceptor;	Lack of funding; Illegal housing (secondary residences); Under estimation of the peak volumes.

PREFERRED SCENARIO				
Strategic area	Objectives	Measure	Action/Initiatives	Risks
			Operation.	
		E1.1 Cleaning non-septic tanks programme	Field survey to identify non-septic tanks; Contacting property owners; Programming action; Cleaning tanks	Illegal housing (secondary residences); Insufficient human resources.
	OE2. Fluvial continuity	E2.1 Rehabilitation of the Melides river	Cleaning and restoration of the riparian vegetation; renaturalization of some sections of the river.	Lack of funding.
	OE3. Improving the lagoon ecological state	E3.1 Decontamination of surface water by infiltration	Implementation of soil-aquifer-treatment (SAT-MAR) to remove pollutants from surface waters prior to their discharge in the Lagoon.	Needs land owner agreement; needs funding.
		E3.2 Cleaning the Lagoon bed (dredging)	Preparatory studies; Cost-benefit analysis; Implementation.	Depends on the results of the preparatory studies and cost-benefit ratio; negative impacts on the ecological balance of the Lagoon.
		E3.3 Reducing sediment deposition in the Lagoon	Circulation of surface water runoffs through the rice fields for sediment deposition prior to reaching the Lagoon	Depends on coordination of rice farmers.
		E3.4 Breaching of the Lagoon	Maintaining the breaching of the Lagoon once a year to enable the entrance of ocean water.	No risk. It is already a current practice to renovate the lagoon environment.
		E3.5 Water quality monitoring	Maintaining a monitoring programme on water contamination (from agriculture and urban waste water).	Funding and human resources; engagement of local authorities.
	OE4. Promotion of good practices in the catchment basin	E4.1 Environmental education and consciousness	Educational projects on: cleaning water streams; restoration of riparian vegetation; good practices for soil mobilisation, etc.	Difficulty mobilising land owners and farmers in the highlands; reluctance towards adopting new practices.
D. ECONOMIC AND SOCIAL DEVELOPMENT	OD1. Valorisation of local rice farming	D1.1 Experimenting organic rice production	Development of a pilot project on organic rice.	Difficulty finding a land plot; lack of financial support; needs involvement of a research unit; depends on the commercial channels.
		D1.2 Creation of a local commercial brand	Defining the rice varieties specific to the area; Preparation of the commercial project; Implementing production and	Depends on the creation of an association for commercial purposes, with the participation of the Municipal Council

PREFERRED SCENARIO				
Strategic area	Objectives	Measure	Action/Initiatives	Risks
			marketing conditions.	and other relevant institutions.
		D1.3 Joining synergies with tourism	Arranging trails in the rice fields; Organising visits to rice farms; Participation in the Centre for Environmental and Cultural Interpretation.	Depends on the coordination of activities with tourism operators; should be implemented in the context of a local association.
	OD2. Revitalisation of fishing in the lagoon	D2.1 Creation of a fishing reserve	Application for the classification of the Lagoon as a recreational fishing zone.	Depends on the initiative of the local association conditions and the approval of the Nature Conservation Institute.
	OD3. Better tourism	D3.1 Strengthening nature tourism	Installation of infrastructure and equipment: arranging trails, 2 nd birdwatching hut, sailing infrastructure, etc.	Lack of funding; Insufficient human resources.
		D3.2 Centre for Cultural and Environmental Interpretation	Identify location and rehabilitate facilities ; Preparation of an action plan; Development of cultural and scientific content; Implementation and operation.	Lack of financial resources; Lack of institutional support.
		D3.3 Valorisation of cultural heritage	Rehabilitation of historic and cultural infrastructure; Development of gastronomic and other cultural events;	Lack of financial resources; Lack of institutional support.
		D3.4 Quality upgrading	Implementation of a Quality Chart for accommodation and restaurants; Development of a Guide on Good Environmental Practices; Upgrading small infrastructure (bike lane, tourism signalisation, etc.).	Dispersion of tourism operators; reluctance to associate; Lack of institutional support.
		D3.5 Structuring tourism offer	Development of integrated products: accommodation/animation, accommodation/catering; accommodation/rice farming. Creation of pedestrian routes with specific purposes.	Dispersion of tourism operators; reluctance to associate; Lack of institutional support.
		D3.6 Regional integration	Development of products and articulation of the tourism offer with the surrounding regions in Alentejo.	Dispersion of tourism operators; reluctance to associate; Lack of institutional support.