

09

Landscape perception
as a basis for
landscape strategies.
Developments in
Portugal

Rosário Oliveira,
Instituto de Ciências Sociais da Universidade de
Lisboa; SHIFT – Environment, Territory and Society
Research Group

Introduction

The perception of landscape and its transformation underpins the process of socio-ecological awareness that is essential to a healthy relationship between Humans and Nature. One of the great challenges to contemporary and future society is the vital need to increase knowledge and awareness of the development model that has led us to the global ecological crisis that we face today. We know that resources may become scarce if we continue to consume them at the current rate, especially if the rise in atmospheric temperature exceeds certain limits. The landscape reflects this economic model and the decisions that are taken on the territory. Different expressions may be used depending on the scale and intensity of the transformation that has occurred as the landscape is a resource that is essential not only to the development of economic activities but also to the qualification of the territory and the well-being of the population (Cassatella and Peano, 2011).

In Portugal, the result of two critical trends can be observed in the landscape - the depopulation of rural areas with the consequent concentration of population in urban settlements influenced by the

coastline, and the inevitable simplification of the agricultural and forest cultural mosaics.

Considering the landscape as a concept and a methodology for intervention in the territory, we should, above all, take the opportunity to manage the territory innovatively through a more integrated vision and a transdisciplinary and intersectoral approach; an integrated approach since the landscape is the result of the interaction of biophysical and human components over time, and a transdisciplinary and intersectoral approach as its planning and management inevitably imply the active involvement of its users and the coordination of decision-making at various scales (Antrop and Van Eetvelde, 2017).

The European Landscape Convention (ELC), approved by the Council of Europe in 2000, reinforced the social, cultural and political dimensions of the landscape as an inherent part of the right of all citizens to a quality landscape and the duty to manage it with this objective. The transposition of this Convention into Portuguese law through Decree 4 of 14th February 2005 thus allowed the creation of a new framework for intervention in the landscape that was reinforced by the National Policy of Architecture

and Landscape in 2015 and the amendment to the National Programme for Spatial Planning Policy in 2018. As a national programme that includes landscape in its measures for territorial enhancement, the latter represents an excellent opportunity to exert influence on the regional and local levels to follow these guidelines.

This legal context along with the studies, strategies and programmes in which the landscape has received particular attention over recent decades (Cancela d'Abreu, A., 2004; Cancela d'Abreu, A., 2005; Oliveira et al, 2011; Oliveira and Guimomar, 2017) now enables us to be more ambitious than in the past. Regarding its integration into the discussion and implementation of a wide range of sectoral policies and emerging themes that intersect the fields of the environment, society, economy and culture, some examples of which are climate change, ecological and cultural integrity, sustainable consumption, the qualification of urban peripheries, energy efficiency, urban sustainability and the reinvention of the rural environment.

As a synthesis of broader methodological guidance (Oliveira, 2021), the methodology presented below intends to support the definition of

local landscape strategies, namely their integration into the Municipal Master Plans (PDM in Portuguese).

It is, therefore, an open and flexible methodological proposal that can be adapted to different purposes and scales, from the preparation of a municipal landscape strategy to the formulation of programmes, projects, measures or individual or collective actions that contribute, in whole or in part, to the qualification of the municipal territory. Furthermore, we know that landscapes in Portugal are very diverse, as are the problems that they present.

To understand what it means to talk about landscape nowadays, we will start by briefly framing the approaches taken at the international, national and regional levels.

Since we focus on the municipal scope, a secondary objective is to address the possibility of dealing with landscapes at this scale of intervention, both as a landscape strategy and in the framework of the elaboration or revision of a Municipal Spatial Management Plan (PMOT in Portuguese).

We will, then, present the main concepts and methodologies useful for the elaboration of a landscape strategy and the definition of the

actions inherent in its planning and management.

The landscape in the international, national and regional scope

Commitments to landscape management derive from conventions, policies and strategies at a variety of levels from international to local that must be coordinated and articulated for its concepts and forms of action to be implemented efficiently (Busquets and Cortina, 2008).

In the last two decades, the widespread recognition of landscape quality as a public good that promotes social well-being, economic competitiveness and cultural identity has led to the adoption of International Conventions, Declarations and Intergovernmental Resolutions in the European Union, the Council of Europe and the United Nations. The European Landscape Convention (ELC) arose out of the Council of Europe's intention to recognise the quality and diversity of European landscapes as an enshrined right for all its citizens. Thus, the ELC is a Human Right and its fulfilment depends on the strategic importance that we give to the cultural, ecological, social and economic dimensions of the landscape as cohesion, identity and equity factors

in the quality of life in urban and rural environments. In response to this framework, the ELC was conceived to combine several disciplinary approaches that emerged in the second half of the 20th century in order to make its concepts and guiding principles easier for the general public to understand and grasp, especially by turning the more or less abstract idea of the landscape into principles of action (EC, 2008). Such action should be structured by a Landscape Policy understood as the 'formulation by the competent public authorities of general principles, strategies and guidelines that allow the adoption of specific measures with a view to the protection, management and planning of the landscape'.

To this extent, the ELC introduces a social, collective and political dimension into the understanding that we should have of the landscape in the 21st century by suggesting that all citizens should be involved in its management, whether it is a landscape of excellence or an everyday landscape. All landscapes deserve proper management that involves the principles of quality. It has been proven that a quality landscape induces better physical, psychological and social health. Thus, the concept of landscape as defined by the ELC is 'an area, as perceived by the pop-

ulation, whose character is the result of the action and interaction of natural and/or human factors' over time.

The interpretation of this concept involves understanding at least four aspects:

- a. the difference between territory and landscape;
- b. the significance of local populations perceiving part of the territory;
- c. the meaning of the character of the landscape and how this is the result of the action and interaction of natural and human factors;
- d. the need to consider this interaction over time, even though this is not referred to in the ELC's definition of landscape.

The difference between territory and landscape presupposes that the former is of an eminently objective and tangible nature, i.e., quantifiable, while the latter is of a subjective and intangible nature and, therefore, qualifiable.

As such, the territory may be understood as the foundation that underpins a multiplicity of resources, processes and dynamics that are the result of the interaction between society and nature. In very general terms, the greater the availability of resources, the greater the po-

tential development of the territory. Moreover, the territory is what the public policies that bring about a certain transformation impact as the result of the sum of multiple decisions that are taken regarding their implementation. Therefore, in light of the ELC, spatial planning is the process that coordinates the implementation of public policies for the necessary balance between the use of natural resources and meeting the needs of society.

This multiplicity of factors results in a certain configuration of the territory that acquires the status of landscape depending on how it is perceived and understood, whether individually or collectively.

Every landscape can be evaluated in the sense of identifying its character, i.e., the specificity of the interaction between its natural and human components that differentiates it from any other landscape.

Notwithstanding, it is also important to understand the meaning of the local population's perception of a particular part of the territory by perceiving how the users of a given landscape perceive and appropriate it and what their belief systems and values are, as these are factors that influence decision-making regarding its management. From



The landscape being perceived by different users. Photo: Rosário Oliveira

this dimension of a more social and cultural scope, the sensorial component, the memories and aspirations regarding the future are also related to the temporal dimension to be considered in planning and management.

This approach to the landscape thus implies a process of analysis of each of its components and the interaction between them over time. A long path of temporal and spatial dynamics explains the evolution of

the landscape that has come down to us today, where the responsibility falls to project the future use that we intend to make of it.

In this sense, the implementation of the ELC presupposes that land use planning integrates landscape management to establish quality objectives through a process of active participation and negotiation between institutions and local actors. This process implies, in turn, the use of concepts, methodologies,



Examples of participatory approaches in landscape management programmes. Photo: Rosário Oliveira

policies and instruments that are suited to the context in question. Turning this concept into actions implies that the local scale has particular relevance for the implementation of the ELC since only the local population's perception of the landscape's protection, management and planning purposes can be analysed and integrated when considered at this level.

Thus, the participatory dimension should play a fundamental role in

all phases of landscape planning, design and management, as it will allow the knowledge and aspirations of the actors to be understood and integrated into the management process.

If we position ourselves on the basis of this conceptual framework, we will cease to understand the landscape as a more or less abstract scenario and start to interpret what we see, what we hear, what we smell and what



Every landscape presents a specific character that is the result of the interaction between natural (climate, geology, morphology, hydrography, soil, fauna, flora) and human (land use and occupation, buildings, historical and cultural heritage) components over time. The sensorial and aesthetic components should also be considered in the interpretation and perception of a landscape with a view to its planning and management for its qualification. Photo: Rosário Oliveira

impresses us, and realise that what we have before us is a creation that has been constructed over the course of history by farmers, shepherds, miners, builders and the military, as well as many others who have transformed the territory. A new concept of cultural landscape emerges from this understanding, in the sense of the cultural expression with which its users have shaped it over time, which is fundamental to its identity.

One of the main challenges in this framework is related to the definition of Objectives of Landscape Quality, understood by the ELC as ‘the formulation by the competent authorities of the aspirations of the public with regard to the landscape features of their surroundings’. It is therefore a question of defining the purpose of conservation, management and planning measures according to a participatory process whose results are capable of de-



fining these objectives and taking them into account in any actions.

Various approaches have been pursued in other ELC signatory countries. In most cases, the character of the landscape has been assessed. This has been the case in Portugal, Spain, France, the Netherlands, Croatia, Switzerland, Slovenia and the United Kingdom, for example, and these studies have sometimes been the basis for urban planning policies at the local level (England), Landscape Strategies (Ireland, Sweden and Switzerland), National Landscape Policies (Portugal and the Netherlands), Regional

Landscape Policies (in several Autonomous Community of Spain) and Landscape Charters (Italy, Spain and Belgium) (EC, 2007).

In Portugal, however, the need for landscape policy is referred to in Article 66 of the Constitution, according to which it is incumbent upon the State 'with the involvement and participation of citizens' (...) to promote the planning of the territory 'with a view to a correct location of activities, balanced social and economic development and the enhancement of the landscape' and also to create and develop 'natural and recreational reserves and

parks' and classify and protect 'landscapes and places, in such a way as to guarantee the conservation of nature and the preservation of cultural values and assets that are of historical or artistic interest'. These same principles have been included in the Environment Framework Law of 1987 and the Spatial Planning Framework Law of 1998 (Law no. 48/98), although it has been noted that these assumptions have not always been put into practice. On the contrary, these principles have often been devalued to the detriment of very rapid and significant transformations to the landscape such as urban expansion, intensification of agriculture, depopulation, forest homogenisation, road infrastructure and the growth of the tourism sector. Given the current socio-demographic and economic context, it is time to establish priorities that translate into the enhancement of the territory and the well-being of the population.

In 2015, the National Policy of Architecture and Landscape (NPAL), approved by Resolution of the Council of Ministers no. 45/2015 of 7th July, was the outcome of an almost decade-long process in which knowledge, aspirations and strategic objectives were established by a vast number of individuals and entities

who believe that these two areas, architecture and landscape, are fundamental to a new approach to spatial planning, urban planning and nature conservation. Its main objective was, therefore, to foster a new culture of territory that would enhance the qualification of the landscape with a view to making the economy more competitive and improving the well-being of the population.

In addition, the National Programme for Spatial Planning Policy (PNPOT in Portuguese) was revised and updated in 2018 (DGT, 2018). The PNPOT provides a set of measures aimed at implementing the NPAL and its transfer to the regional and municipal levels.

The methodological guidance presented here is an excellent opportunity for the development of landscape strategies, programmes, plans and projects that can be implemented in this territorial management reference framework, either more formally if they fall within the scope of landscape integration in territorial management instruments, or less formally in the case of other public or private initiatives.

Thus, given its strategic nature and the challenges it poses, the NPAL is most likely to be implemented

as the result of synergies between other public policies at the various levels of Public Administration: central, regional and local. Its guiding principles should be included transversally in all territorial management instruments and sectoral strategic action lines, together with the creation of an open network of public and private partners, individuals and legal entities that share the same vision and objectives, to put into practice actions oriented towards the qualification of the territory.

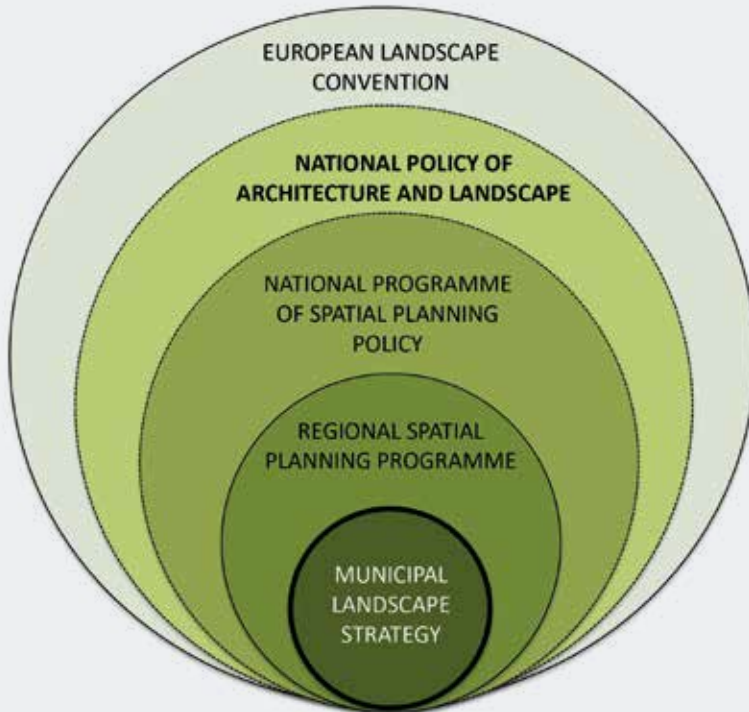
The regional scope will be appropriate for establishing the broad strategic lines in which the landscape can constitute both a resource and an added value for the territory. It will enable the identification of the thematic areas that can generate relevant territorial dynamics with possible impacts on the landscape. Thus, any activities that may represent pressures on or threats to the landscape should be given special attention to ensure that qualification measures can be taken in the municipal sphere.

The definition of general landscape quality objectives at a regional level can also be a starting point for their formulation at the municipal level and the establishment of indicators which allow the evaluation and

monitoring of the transformations of the regional landscape.

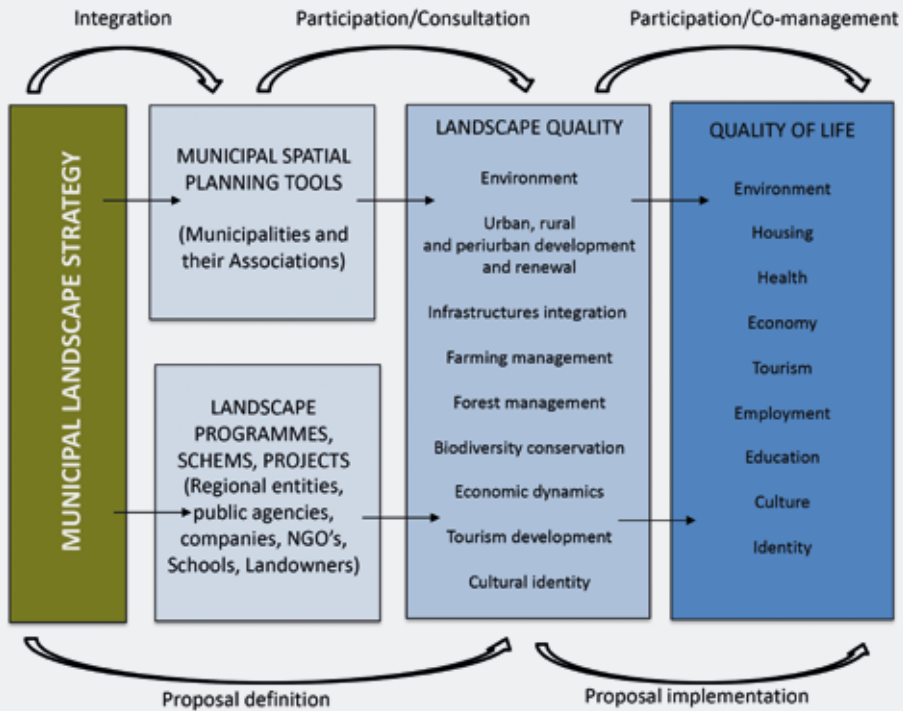
It is now widely recognised that new approaches to territorial management are needed to promote the qualification of rural, urban and peri-urban landscapes to encourage the enhancement of architectural, archaeological and landscape heritage and to develop the culture of the territory. Such approaches consist of the definition of landscape strategies at the municipal level. These may be considered either in the normative context of territorial management or through other opportunities beyond this instrumental scope where space for innovation and creativity is seen as desirable. In the first case, it presupposes that the landscape is integrated into Spatial Management Tools (IGT in Portuguese), i.e., that it is associated with a strategic formulation as an exercise that defines the landscape of the future according to a given territorial model. The definition and implementation of this plan should, in turn, be the result of a participatory process that allows concerted action between local actors coordinated by entities with competence in this area, as is the case of Municipalities or Intermunicipal Commissions, depending on whether this involves

The PNAP as an interface



The PNAP as an interface between the ELC, at the international level, and the other levels of territorial management: national, regional and local. This methodology focuses on the municipal level. Prepared by author

Landscape Strategies at the municipal level



Two possible approaches to the development of Landscape Strategies at the municipal level. Prepared by author

a Municipal Spatial Management Plan or an Intermunicipal Spatial Management Plan.

In the second case, other initiatives such as landscape programmes or projects may arise from public or private entities on very diverse scales and with a wide range of themes such as urban development, infrastructure installation, agriculture and forest management, biodiversity conservation and the promotion of culture, with the objective of contributing to the qualification of the landscape and the development of a territorial culture. The entities driving such dynamisation may be public such as regional directorates, local agencies, parish councils, or private organisations such as associations, cooperatives, companies, schools and landowners, either individually or in partnership.

Landscape Strategies at the municipal level

In the framework of the ELC, landscape policy means an expression by the competent public authorities of general principles, strategies and guidelines that permit the adoption of specific measures aimed at the protection, management and planning of landscapes.

Applying the concepts, principles, measures and guidelines concerning the landscape from the international to the local scope presupposes the consistent and integrated coordination of an action programme. Thus, one of the great advantages of giving the landscape a strategic dimension lies in the fact that its analysis and diagnosis allow some specific territorial features to be identified that can serve as a basis for differentiation from other territories, thus enabling an action programme to be devised that responds to these characteristics. This approach is valid at the municipal scale, but it is also useful to differentiate the character of the landscapes within the municipality itself as this would be a guiding thread to establish the action programme that can best suit the requalification of all or part of the municipal territory. In this methodological approach, we propose that the concept of landscape should evolve towards a transition into a social-ecological system when designing policies, strategies or programmes. This concept is also based on the dynamic relationship between the biophysical system and the human system in which the former provides the latter with the natural capital essential for the satisfaction of human needs, and social and human capital in a bal-

anced relationship between supply and demand (Fischer et al., 2015). In this sense of landscape, the main objective of management is to provide ecosystem services through landscape co-management. In turn, landscape co-management is guided by landscape quality objectives implemented through an action programme that pursues a participatory and collaborative logic at the decision-making level.

Considering the territory with a view to social, environmental and economic well-being presupposes the identification of one or more aggregating themes based on some specific biophysical and socioeconomic attributes that can constitute the guiding thread for strategic and concerted action at the decision-making level.

A landscape strategy may itself be a guiding element of the territorial model to be established for a municipality, and by including landscape quality objectives oriented towards management, it may also play an important role in supporting the implementation of other programmes or plans.

Such action also necessarily implies a process of social and cultural transformation, for it is only from this that the collective construction

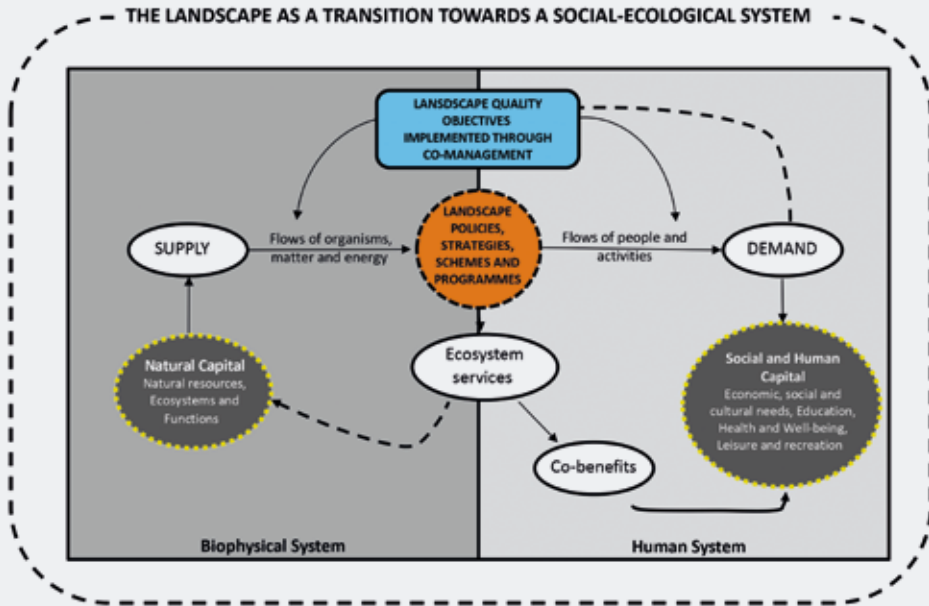
of initiatives that respond to local needs and expectations can be envisaged.

A landscape strategy may constitute a guiding element of the territorial model to be established for a municipality, and by including landscape quality objectives oriented towards management, it may also play an important role in supporting the implementation of other programmes or plans.

Examples of interventions in the territory that may benefit from a municipal landscape strategy or foresee the definition of quality objectives within the scope of its implementation:

- Public and private projects subject to environmental impact assessment;
- Urban planning and design;
- Food planning;
- Occupation, use and transformation of the coastal strip;
- Conservation and use of water;
- Outdoor advertising activity;
- Interventions in the built heritage or its surroundings;
- Recovery of historic centres;
- Tourist resorts;
- Integration of infrastructure and equipment;
- Sports, recreational and leisure spaces;

Landscape as a transition towards a socio-ecological system



Landscape as a transition towards a socio-ecological system centred on the qualification of the territory through policies, strategies and programmes of municipal scope. Prepared by author

- Nature conservation strategies and management of protected areas;
- Planning of agricultural and forestry spaces and management of these activities;
- Urban and rural development;
- Cultural and educational programs.

Assuming that landscape assessment will be the basis of any approach that allows the integration of landscape strategy into a Municipal Spatial Planning Plan (PMOT in Portuguese), it is important that it is oriented towards the definition of Landscape Management Units (LMU). In relation to the methodology that has been applied in landscape studies, it is, therefore, a question of strengthening the knowledge related to management, in addition to the attributes that allow to differentiate between the units from the point of view of their identification and characterisation. In turn, the identification of LMUs should form the basis of a strategic diagnosis from which a prospective vision can be established and the fundamental areas for the territory's qualification identified through the Landscape Quality Objectives (LQOs) that are to be considered in the definition of the territorial model. This dimension of the definition of the Landscape Strategy

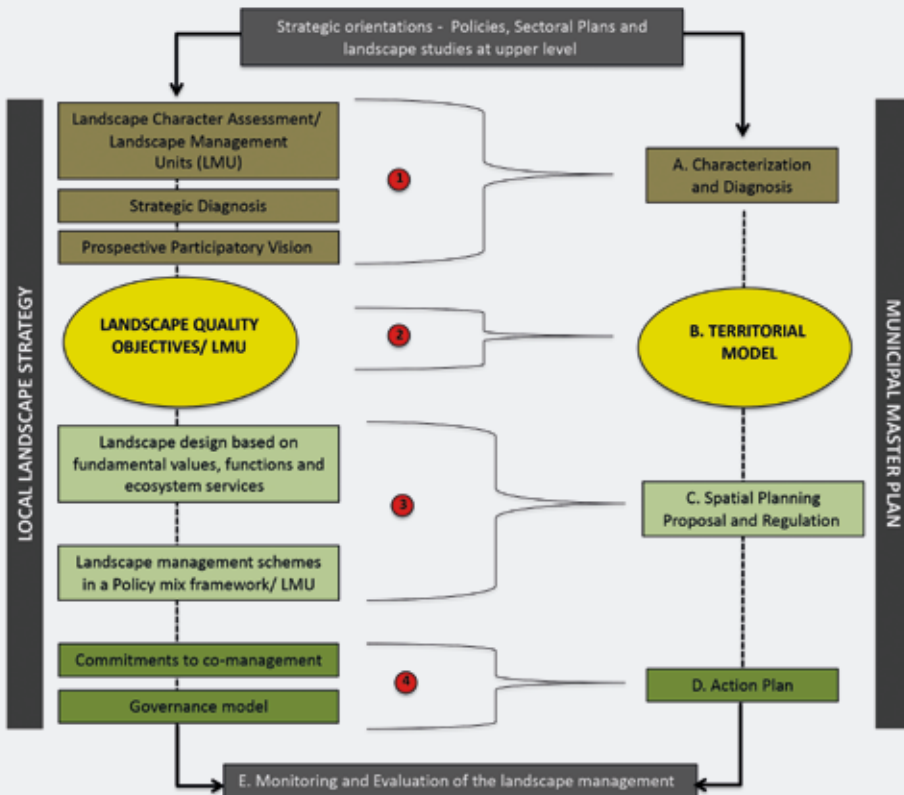
is considered to attribute quality to the territory.

The participatory and collaborative dimension of the definition of the territorial model is essential, not only because it allows the integration of information, knowledge and experiences that go beyond the strictly technical-scientific approaches, but also because it allows a relationship of identity and responsibility to be established between the subject, the collective and the territory, which should be translated into the governance model that will be responsible for the implementation of the established management measures.

Based on next figure, it is considered that different modalities of participation may better adapt to each of the phases, although this reference is merely exemplary since this dimension has to be established according to the socio-cultural context.

1. Landscape Assessment-Survey and consultation methodologies with the main landscape user groups.
2. Landscape Quality Objectives-Workshop discussion groups with focus groups.
3. Landscape design and management measures-Focus group discussions in indoor and outdoor workshops.

Methodological components to be considered into the revision of a PMOT



Summary of the methodological components to be considered in the integration of landscape into the revision of a PMOT, including the participatory dimension in each phase. Prepared by author

4. Commitments to management and governance model-Workshop-style discussion groups with focus groups open to any participant.

Regarding the relationship between the components of the Master Plan and the Landscape Strategy, we now follow the general methodological approaches for each of the five stages.

Characterisation and Diagnosis

a. Landscape character assessment

What it consists of

Landscape character assessment is an objective, technical and scientific assessment that involves at least three steps: (i) identification and description of the main components of the landscape; (ii) interpretation of the landscape based on the resulting interaction between its main components and (iii) identification of landscape units, or landscape management units, based on a specific pattern, translated into landscape character that gives it its own identity.

Increasingly, Landscape Management Units (LMU) are being defined that, in addition to the assessment of landscape character, allow to consider how they are managed

by the respective actors and decision-makers.

How it is applied

This evaluation implies the selection of cartographic, statistical, bibliographic and photographic information relative to physical, biological and human variables such as:

- Geological framework;
- Climate;
- Morphology/relief;
- Hydrological systems;
- Soils;
- Flora and fauna;
- Land use systems and their dynamics;
- Typology of the built environment;
- Heritage values;
- Road systems;
- Other relevant elements

The integration of the collected information can be done by expertise or based on geoprocessing. Both procedures require an interdisciplinary approach and field validation.

This methodology must take into consideration the territorial context in question, the objective at which it is aimed and the scale of analysis established. The result of its application is a map of LMUs, the graphic representation of which should suggest a flexible rather than rigid boundary.

What is the purpose of the map?

Besides allowing for a deeper understanding of the area of intervention, it allows for the integration of the landscape component into the analysis and diagnosis phases of studies, plans, programmes or projects in which the landscape has a strategic relevance.

Increasingly, if we understand the landscape as a social-ecological system, as suggested in figure on page 258, in addition to identifying and characterising the landscape in this type of unit, it is also important to know the flows that are established between them, i.e., the exchange of materials, resources, energy, goods and people. This knowledge is important to better understand the relationship between the supply of available natural capital and the demand for these same resources by the human system and its various economic, social and cultural needs.

b. Assessment of landscape by its users

What it consists of

The aim is to gather knowledge about the experiences, expectations and needs of the most relevant population groups that use and enjoy this landscape. It is normal that different groups of

users, and even different users in the same group, establish various types of interaction with the landscape, either through the activity that they perform there, the cultural identity that they establish with it or the attractiveness factor that led to a possible visit, for example. This knowledge, of a more subjective nature, should be considered alongside the more objective knowledge referred to in the previous paragraph.

How it is applied

This consultation is normally done using methodologies characteristic of the social sciences, such as interviews, questionnaires or surveys by sampling, which should correspond to an acceptable level of representativeness of the total population involved. It is important to begin by mapping the actors and identifying the most representative groups to whom the analysis should be directed (e.g., farmers, residents, entrepreneurs, tourists, etc...).

What is it for

This assessment is particularly relevant for ascertaining the needs and expectations of the population in relation to the desired landscape. It can also be useful in the pursuit of a participatory and collaborative process so that the proposed

intervention in the landscape can be well received and adhered to in the implementation phase. This information is also necessary for defining the management and governance model.

c. Evaluation of the dynamics of the landscape over time

What it consists of

This assessment is based on the analysis of the main transformation factors that took place over a certain time horizon, the identification of the critical moments and the fundamental factors that led to change. It may be associated with land use transformation, demographic or economic dynamics or the occurrence of natural, anthropic or political phenomena that have significantly influenced the landscape.

How it is applied

This analysis is based on geographic analysis techniques and stems from the comparison of cartographic, statistical and documentary elements that allow the comparison of the indicators of change such as land use, socio-demographic, economic or other dynamics. It is translated into charts, tables or graphs in which it is possible to establish this evolutionary analysis over the period studied.

What it is used for

Understanding the trajectory of change can support the projection over time of a given proposal or a more detailed scenario that can be considered in the participatory process.

d. Evaluation of current and potential functionalities

What it consists of

It consists of identifying the typologies of functions and sub-functions performed by a given landscape such as functions Regulation, Habitat, Production, Information and Support. This evaluation is normally carried out for each landscape unit.

How it is applied

This approach derives from an expert assessment in which relative values are assigned to each of the functions or sub-functions per landscape unit. The results obtained from this exercise allow to identify which functions are most performed in each landscape unit and which landscape units provide the most multifunctionality in the area in question as a whole. The analysis can be made with respect to the current and potential situations.

What it is used for

This assessment is useful for understanding how we can use a

landscape management proposal to reorient or enhance certain types of functions that may have the potential to be performed or certain dysfunctionalities that can be corrected, when comparing to current and potential situations.

e. Assessment of natural and anthropic vulnerabilities

What it consists of

In the context of adaptation to climate change and the need to reduce risks arising from natural or anthropogenic vulnerabilities, their assessment should be considered since landscape management will have to meet such objectives. Examples are risk assessment of desertification, earthquakes, the effect of heat waves, etc., in both rural and urban settings.

How it is applied

This assessment focuses on a very specific area of knowledge that is very closely associated with the geophysical sciences, which is one of the disciplines to be integrated into landscape assessment whenever risk situations are identified.

What is it used for

This information should be considered in the analysis and diagnosis, in the definition of Landscape Quality Objectives and

in the management component. It serves to prevent and mitigate risks and to provide adaptation solutions to vulnerabilities that put people and property at risk. It is particularly useful for defining standards and constraints in the proposal and implementation phase of landscape programmes, plans or projects.

f. Evaluation of the state of conservation of natural capital

What it consists of

This assessment is based on the inventory and distribution of physical factors and biodiversity from which the state of conservation of the components of natural capital is evaluated, particularly regarding ecological integrity and possible fragmentation of the landscape with natural capital, understood as the value of natural resources from the perspective of producing a product or ecosystem service.

How it is applied

Natural capital is the basis for the provision of the ecosystem services through which environmental or human needs can be met. Assessing its conservation status involves combining several methodologies from environmental sciences, geology and hydrology to biology.

What is it for

This assessment is relevant in both rural and urban contexts to enable landscape management to be able to respond to the challenges of conservation and restoration of resources such as soil, water, and biodiversity. The spatialisation of natural capital and ecosystem services enables the identification of key points where landscape management should ensure the potential for the provision of such services to society.

g. Assessment of the state of conservation of the built and cultural heritage

What it consists of

Since the landscape is the result of the interaction between natural and human factors over time, it is necessary to take into account the assessment of the state of conservation of tangible and intangible heritage, as they contribute to the quality and identity of the local landscape.

How it is applied

Starting from the inventory of heritage elements or heritage groups, it is important to define indicators for assessing and monitoring their state of conservation and establish how relevant they could be for conservation, recovery or enhance-

ment. This evaluation could be entrusted to architects, historians or anthropologists.

What is it for

This assessment is relevant whenever the proposed landscape management includes heritage intervention and can be considered in the definition of landscape quality objectives, in the proposal phase, in implementation and monitoring.

h. Evaluating ecosystem services

What it consists of

It consists of the identification of the ecosystem services that are most relevant to landscape management. They are the results of the assessment of the conservation status of the natural capital referred to in f) and its subsequent valuation, as a service, which has no market value, but may be essential to human well-being. An example of this would be the availability of water in quantitative and qualitative terms.

How it is applied

Its analysis can be organised according to different groups: provision, regulation, support and culture. As with the assessment of the multifunctionality of the landscape, this methodology can also undergo expert analysis in which the ecosystem services provided

are categorised, usually on a scale of 1 to 5 based on each typology of natural capital in the relationship established with, for example, land use, if this is the variable that is determinant for the provision of the ecosystem service). The results obtained from this matrix can be categorised and spatialised.

By combining various economic science methodologies, it is possible to define a value that society will be willing to pay to provide the ecosystem service rather than another economic activity that is considered non viable.

What is it for

This evaluation will be even more relevant if we consider the perspective of remuneration of ecosystem services that justify financial support for landscape management to ensure the provision of such services to society.

i. Assessment of the institutional context

What it consists of

It consists of understanding the decision-making system and the governance model inherent in land and landscape management.

How it is applied

Such an assessment may involve

mapping actors and identifying the interactions that arise from this, which may result in partnership practices, knowledge and responsibility sharing, etc. This is a matter that falls within the scope of social science methodologies.

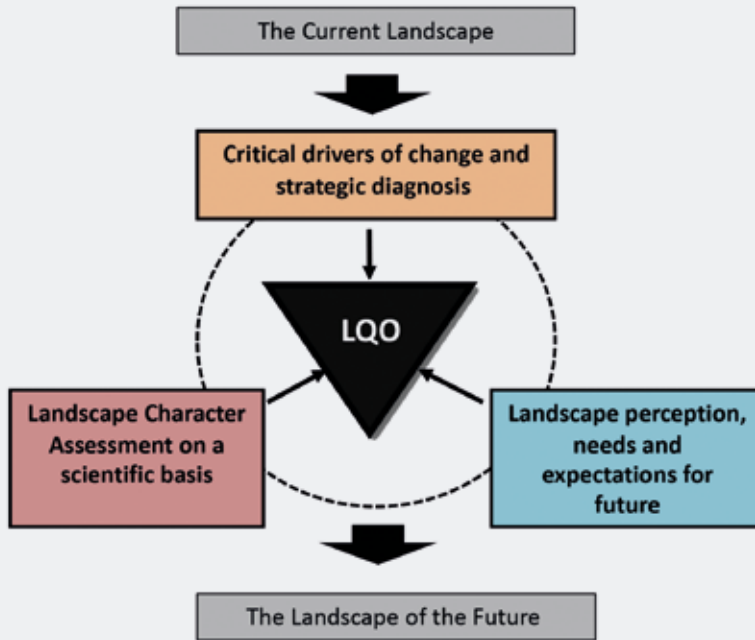
What it is for

It serves to identify where the decision-making model should be amended to define the appropriate governance model for the efficient implementation of the proposed landscape management.

Territorial Model

Landscape Quality Objectives (LQOs) are a core component of the methodology for defining a landscape strategy since they are positioned as the interface between the results of the landscape evaluation as an analysis/diagnosis, and the establishment of a participated strategic vision, which can constitute the basis for a scenario exercise of the desired landscape. In the case of a landscape strategy, the LQOs should be the starting point for landscape design and subsequent management measures. In either case, it is the LQOs that to some extent mediate between the landscape that we have at present and the landscape that we aspire to in the future. The implementation of the LQOs through an action

Factors for defining Landscape Quality Objectives



General and specific factors for consideration when defining Landscape Quality Objectives. Prepared by author

programme necessarily implies that commitments are made and responsibility is shared by the actors charged with their implementation.

The critical change factors for the territory in question should also be taken into consideration. The assessment of the landscape dynamics referred to in the previous section is particularly useful here as it allows the diagnosis to be related to a prospective vision. Knowledge of what was critical for the transformation that took place in the landscape in a given time frame enables the identification of the determining factors for the future change that is intended.

Furthermore, the identification of the strategic and critical change factors should include both a technical assessment, which derives from the expert knowledge of the various components of the landscape and has been translated into the assessment of its character and the result of the assessment of the perception of the public and their elected representatives of the landscape and the change factors.

Thus, landscape perception is a fundamental tool in the methodology for the participatory and collaborative definition of local-level landscape strategies and for their

respective co-management practices.

Spatial Planning Proposal and Regulation

a. Programming and Proposal

The programming phase for intervention in the landscape allows us to move from a strategic level to an operational level. Assuming that the methodology pursued so far has led us to define what we want for the future landscape, it is now a matter of defining what to do in order to achieve the LQOs.

The programming for landscape management is thus placed at the level of landscape design and definition of measures and respective actions to be implemented in a spatialisation perspective.

The methodology for this phase should begin with the definition of the main structures and systems that will define the landscape design as a graphic translation of the LQOs and make use of all the information processed in the landscape assessment phase, the strategic diagnosis and the participatory vision for the landscape. Once the main systems and structures that should be considered in the proposal have been established, management measures can be defined.



Example of a socio-ecological landscape where quality objectives are met. Photo: Rosário Oliveira

These systems and structures, which are fundamental to landscape management, are essential for identifying the most appropriate types of measures for the territorial context in question and the landscape assessment carried out in the previous phase. If the proposals of the ELC are pursued, it will be possible to differentiate between protection measures, management measures and planning measures. Essentially, the first will identify solutions to

conserve resources and values of high interest to the landscape, the second will harmonise uses from a sustainability perspective and the third will reorganise or reinvent uses that need to be reconsidered to better respond to current territorial issues.

For example, for protection measures, essentially, we should consider the results of the assessment of the state of conservation of biodiversity, natural capital and heritage.

For management measures, we must inevitably take into account the results of the assessment of the dynamics of the landscape, its functionality, and the ecosystem services that it can provide, which are closely related to land use. For planning measures it will be necessary to take into account the perception of the landscape, its changes and the expectations of different local actors.

However, other typologies can be established if they fit the previously defined territorial model and vision better, including regeneration, reconversion, rehabilitation, and dynamisation measures, among others.

The integration of these layers of information into a geographic information system allows to obtain the spatialisation of the LQOs and indicates the location of the management actions to be implemented in each landscape unit. This is the starting point for the landscape design, which will allow the implementation of the management proposal in collaboration with its actors.

Action Plan

We have thus reached the stage where the landscape strategy can be implemented. This includes the

set of actions that must be ensured so that a particular proposal can have a positive effect on the territory.

The practical sense of this action is evident in the context of territory management and landscape management. It is also assumed that, as a way of aggregating the decision-making capacity of different actors, public or private, individual or collective, social capital is of crucial importance for the pursuit of the objectives set by a landscape strategy, whether integrated into the municipal spatial planning plans or elsewhere. Therefore, it is intended to move towards a perspective of shared landscape management or co-management of the landscape, understood as local management that includes actions taken by individuals, groups or networks of actors, with various motivations and levels of empowerment, to protect, care for or responsibly use their own landscape in pursuit of environmental and/or social and/or economic outcomes in various socio-ecological contexts.

The coordination of this co-management process presupposes the application of a governance model that should guarantee the execution of commitments by the defined institutional framework.

Monitoring and evaluation of the landscape management

Evaluation and monitoring of landscape management are recognised as essential, not only for the quantification of the results obtained in a given period of time, but also for the provision of information that feeds a process of feedback, learning and decision support on a permanent basis.

There are several methodologies that meet this need, and in each situation care must be taken to adapt them to the evaluation scopes and indicators to be considered.

One of the methodologies that is most easily adapted to various territorial contexts is that which assumes three evaluation moments: ex-ante, as a reference situation, at the beginning of the implementation of the landscape strategy; on-going, during its implementation, with the frequency deemed appropriate, and ex-post, after the implementation of the strategy to assess its impacts on the landscape.

In general, six dimensions of landscape management evaluation can be considered, although they can be reduced or increased whenever justified:

- Environmental

- Cultural Heritage
- Perception/Information
- Territorial
- Economical
- Institutional

Based on these six dimensions, the assessment will be made based on a Pressure-State-Response (PSR) model, where 'P' corresponds to Pressure indicators, which allow quantifying the human activities that exert pressure or degradation on the quality of the environment or landscape, 'S' corresponds to the state of conservation indicators that allow assessing the various natural or cultural resources in relation to a reference situation, and where 'R' corresponds to the response indicators given by the institutions to solve or minimize the impacts previously identified. It is hoped that these responses can thus effectively contribute to reducing the pressures exerted on the resources over time, contributing to the quality of the landscape.

We can thus verify that these dimensions of evaluation allow us to make use of the results of the first phase of the methodology of this guide, the landscape assessment, which, in turn, constitute key elements for the definition of indicators, particularly for the first moment of evaluation and moni-

toring of landscape management, the ex-ante evaluation.

Conclusions

The participatory and collaborative dimension is essential to the definition of the municipal Landscape strategy, not only because it enables the integration of information, knowledge and experiences that go beyond strictly technical-scientific approaches but also because it enables a relationship of identity and responsibility to be established between the subject, the collective and the territory, and this should be reflected in the governance model that will be responsible for implementing the co-management measures established.

Based on figure on page 260, it is considered that different participation modalities may be better adapted to each of the phases, although this reference is merely exemplary since this dimension has to be established according to the socio-cultural context.

It is admitted, therefore, that associating the landscape to the territory allows for better matching approaches in socio-ecological, socio-economic and socio-cultural terms. The ultimate goal is the definition and implementation of

solutions that best serve territorial and human needs, for which the involvement, participation and accountability of all the actors involved are fundamental.

The landscape may thus be understood as the stage of integration of various sectoral policies and different administrative levels according to landscape quality objectives, i.e., as the context where various sectoral objectives converge according to a strategic vision and the monitoring of the transformations that have occurred.

What has been verified in Portugal is, precisely, the lack of participative processes, without which the spatial planning process may become a mere question of spatial organisation rather than the construction of a social and economic product as an element of identity. To this spatial dimension, which is very much focused on the distribution of land uses, it is also important to associate the temporal dimension, as a way of distinguishing the two concepts. The landscape is assumed to be a context in permanent dynamics and its transformation is understood not necessarily as a problem but as a characteristic. It is the recognition of this dynamic and complex nature of the landscape that makes it pos-

sible to equate phenomena such as urbanisation, industrialisation, concentration and specialisation, intensification or extensification, degradation and abandonment, or others that today affect territories with unprecedented intensity and require new types of intervention in order to guarantee balances that were traditionally empirically ensured by local communities.

The landscape can then be understood as the stage of integration of various sectoral policies and different administrative levels according to the landscape quality objectives, i.e., as the context where various sectoral objectives converge according to a strategic vision and monitoring of the transformations that have occurred.

Thus, the formulation of the LQOs (figure on page 267) should generate the main options for landscape design and, in turn, the types of management measures to be recommended for their implementation, which sometimes implies resorting to innovative solutions since the response to many of the critical change factors that we face today also require new responses in terms of management. And this can only result from a new perception of the landscape as the basis for new attitudes and behaviours, some-

times referred to as the transition to sustainability. Examples of this are adaptation to climate change, decarbonisation of the economy, carbon neutrality, circular economy, biodiversity conservation, management of protected areas or areas in demographic decline, amongst many others.

Bibliography

Antrop, M. and Van Eetvelde, V. (2017) *Landscape Perspectives. The Holistic Nature of Landscape*. Springer

Busquets, J. and Cortina, A. (ed.) (2008) *Gestión del Paisaje. Manual de protección, gestión y ordenación del paisaje*. Ariel

Cancela d'Abreu, A., Pinto Correia, T. and Oliveira, R. (2004) *Contributos para a Identificação e Caracterização das Paisagens de Portugal Continental*. Universidade de Évora, Direção Geral de Ordenamento do Território e Desenvolvimento Urbano

Cancela d'Abreu, A., Marques Moreira, J. and Oliveira, R. (coord.) (2005) *Livro das Paisagens dos Açores. Identificação e Caracterização da Paisagem dos Açores*. Secretaria Regional do Ambiente e do Mar dos Açores

Cassatella, C. and Peano, A. (ed.) (2011) *Landscape Indicators. Assessing and Monitoring Landscape Quality*. Springer

European Council (2008) *Recommendation CM/Rec (2008)3 of the Committee of Ministers to member states on the guidelines for the implementation of the European Landscape Convention*

European Council (2007) *Synoptic Presentation of the Status of Landscape Policies Pursued by the member States of the Council of Europe 2006-2007*

Decreto 4/2005, de 14 de Fevereiro. Aprova a Convenção Europeia da Paisagem, feita em Florença em 20 de Outubro de 2000. *Diário da República*

n.º 31/2005, Série I-A de 2005-02-14. Available at: <https://dre.pt/dre/detalhe/decreto/4-2005-596314> [Accessed: 3/11/2023]

Direção-Geral do Território (DGT) (2018) *National Programme of the Spatial Planning Policy. Territorial Agenda*. Available at: <https://pnpot.dgterritorio.gov.pt/node/646> [Accessed: 3/11/2023]

Fischer, J., Gardner, T.A., Bennett, E.M. et al. (2015) Advancing sustainability through mainstreaming a social-ecological systems perspective. *Current Opinion in Environmental Sustainability*, Vol. 14, June 2015, pp 144-149. Available in: <https://doi.org/10.1016/j.cosust.2015.06.002> [Accessed: 3/11/2023]

Oliveira, R. (2021) *A Paisagem no âmbito municipal. Orientações metodológicas para a implementação do Programa Nacional da Política de Ordenamento do Território, da Política Nacional de Arquitetura e Paisagem e da Convenção Europeia da Paisagem*. Direção-Geral do Território. Available at: https://www.dgterritorio.gov.pt/sites/default/files/publicacoes/VFF_G-PDM_Paisagem_26Abril2021.pdf [Accessed: 3/11/2023]

Oliveira, R. and Guiomar, N. (2017) Landscape Character Assessment and Regional Landscape Strategy in Azores, Portugal. In: *Pungetti, G. (ed.) Island Landscapes: An Expression of European Culture*. Taylor & Francis, pp. 101-112

Oliveira, R., Cancela d'Abreu, A., Botelho, M.J. and Afonso, M. (2011) *A Paisagem na Revisão dos PDM. Orientações para a implementação da Convenção Europeia da Paisagem*. Direção

Geral de Ordenamento do Território e Desenvolvimento Urbano. Documentos de Orientação 2/2011

Oliveira, R., Dneboská, M. and Pinto Correia, T. (2007) From Landscape Perception to Landscaping Action. How long is the way? In: *Berlan-Darque, M., Luginbühl, Y. and Terrasson, D. (ed.) Landscapes; From Knowledge to action.* Versailles: Editions Quae, pp. 217-227

Resolução do Conselho de Ministros n.º 45/2015, de 7 de julho. Aprova a Política Nacional de Arquitetura e Paisagem. *Diário da República* n.º 130/2015, Série I de 2015-07-07, pp. 4657-4667. Available at: <https://dre.pt/dre/detalhe/resolucao-conselho-ministros/45-2015-69736204> [Accessed: 3/11/2023]