



Landscape facets

*Reflections and proposals for the implementation
of the European Landscape Convention*

Publishing
Editions



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Reflections and proposals for the implementation
of the European Landscape Convention



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French version

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de la Convention européenne du paysage*

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Preface

The Council of Europe European Landscape Convention (ETS No. 176) is a ground-breaking international treaty adopting an approach to spatial development that takes account of the landscape, in other words the quality of the environmental life of individuals and societies, in keeping with the Council of Europe's concerns with regard to human rights and democracy. It does this by recommending that member states involve the public in all stages of landscape policies.

Since the European Landscape Convention was adopted by the Committee of Ministers of the Council of Europe in Strasbourg and opened for signature in Florence in 2000, the Council of Europe has examined and illustrated some of the themes relating to the convention, in other words certain facets of the landscape:¹

- landscape, towns and suburban and peri-urban areas;
- landscape and transport infrastructures: roads;
- road infrastructures: tree-lined avenues in the landscape;
- European local landscape circle studies;
- landscape and education of children;
- training of landscape architects;
- landscapes and ethics.

This publication is a collection of the relevant reports drawn up by Council of Europe experts in the light of the conclusions of the meetings of the workshops for the implementation of the European Landscape Convention.² These reports were also presented at the Council of Europe conferences on the European Landscape Convention, held at the Palais de l'Europe in Strasbourg on 22 and 23 March 2007,

1. See the previous publication, *Landscape and sustainable development: challenges of the European Landscape Convention*, Council of Europe Publishing, Strasbourg, 2006, ISBN 972-92-871-5988-5.

2. The proceedings of the meetings of the Council of Europe workshops for the implementation of the European Landscape Convention have been published by Council of Europe Publishing in the collection European spatial planning and landscape, and these are available on the European Landscape Convention Internet site: <http://www.coe.int/Europeanlandscapeconvention>.

and 30 and 31 March 2009. The representatives of governments and of international governmental and non-governmental organisations that attended these conferences had the opportunity to discuss the relevant issues and to take the first steps towards optimum implementation of the convention.³

Following the order in which these reports were presented, we would like to express our gratitude to the experts for the high quality of their work and for their important contributions: Mr Diedrich Bruns, Mr Ignacio Español Echániz, Ms Chantal Pradines, Mr Terry O'Regan, Ms Benedetta Castiglione, Ms Ingrid Sarlöv-Herlin, Ms Marina Kuleshova and Ms Tamara Semenova.

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Development and the Sea

3. Conference reports: Documents T-FLOR (2007) 14 and CEP-CDPATEP (2009) 19.

I. Landscape, towns and peri-urban and suburban areas

Diedrich Bruns, Council of Europe expert



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Summary

The purpose of this report is to formulate proposals regarding the integration of landscape into town planning policies and to draft recommendations to member states of the Council of Europe with proposals on the development of policies concerning peri-urban and suburban areas in the framework of the European Landscape Convention.

Based on nine examples of town planning from different European countries, current practices concerning the protection, management and planning of landscape in urban areas are examined. Pertinent town planning policies are analysed and compared. “Urban landscape” as a term is used here, in its broadest sense, to describe and interpret the changing landscapes of cities and towns. The examples employed in this study include urban landscapes on a neighbourhood scale, on a city scale, and on a regional scale. The “urban landscape” concept assumes that these levels should be considered, not separate from each other, but together and simultaneously.

It is through complicated cultural and historical associations, which continue to bring a place alive, that “land” turns into “landscape”. Local communities and their culture are crucial to the identity and character of an area. This is especially relevant for urban landscapes where much of what we perceive on the ground is associated with symbols, icons and myths that are alive in buildings, open spaces and in the memory of people today. Just as former communities contributed to the landscape we have inherited, so the involvement of today’s residents is central to the way the landscape is evolving. Thus, policies for the urban environment have to be based on participatory processes.

Spatial thinking should look at the city as an entire landscape. Local town planning should be placed in the context of regional and subregional strategies, while strategic planning will benefit from being informed by the detail of individual localities, initiatives and projects. There appears to be a need for greater integration, vertically and horizontally, between all those who have stakes in and responsibilities for landscape. Landscape planning should incorporate landscape at all levels of spatially relevant decision making, providing correspondence between these layers. It should include social concerns, and urban programmes and projects. On

a regional scale, goals may become part of legal plans, on local scales they need to be adopted as measures. To better appreciate the “urban landscape” as a whole, comprehensive spatial planning may be linked with urban design.

Landscape is made up of a multitude of “modules” and “layers”, making it necessary to bring together as many different disciplines as possible. It seems important to overcome sectoral fragmentation in order to begin to understand the “urban landscape” as an entity in its own right. Networks of European cities and research facilities may be formed that would bring together the knowledge and experience of municipal government and administrations, and of different academic fields that have their focus on landscape. It is recommended to find innovative planning and design solutions, and that research on “urban landscapes” be organised.

Town planning in Europe offers a rich variety of different traditions and cultures. Integrating landscape into town planning policies provides a unique chance, for towns and regions, to benefit from each other’s strengths. Facilitating exchanges of experience would help makers and users of planning policies to learn about the potential of European capacities in protecting, managing and planning urban landscapes. Policies on landscape would appear to benefit from greater attention, articulation, and also from examples of “best practice”.

It may be important to implement the European Landscape Convention not only in national and regional policies and plans, but to bring its message directly to neighbourhoods and to individual people. This would require, among other activities, the involvement of communities that are managing landscape change. Landscape-related learning and education appears to need attention. Landscape policies will have to be translated into specific measures which should be adopted at the level closest to the citizen wherever possible. Through processes of local consultation, people should decide on their own landscapes, and people should also inform each other about landscape values.

Introduction: purpose of the study

The purpose of this report is:

- to formulate proposals to implement Article 5, paragraph d, of the European Landscape Convention regarding the integration of landscape into town planning policies in peri-urban and suburban areas (see Boxes 1 and 2); and
- to draft recommendations to member states of the Council of Europe with proposals on the development of policies concerning peri-urban and suburban areas in the framework of the European Landscape Convention.

Box 1 – “Definitions” (European Landscape Convention, Article 1)

For the purpose of the convention:

- “landscape” means an area, as perceived by people, whose character is the result of the action and interaction of natural and/or human factors;
- “landscape policy” means an expression by the competent public authorities of general principles, strategies and guidelines that permit the taking of specific measures aimed at protection management and planning of landscapes. ...

Box 2 – “General measures” (European Landscape Convention, Article 5, paragraph d)

Each Party undertakes:

to integrate landscape into its regional and town planning policies and in its cultural, environmental, agricultural, social and economic policies, as well as in any other policies with possible direct or indirect impact on landscape.

The focus of this report is on town planning policies carried out within the context of regional and local planning and decision making. Current practices concerning the protection, management and planning of landscape in suburban, peri-urban and other urban areas are examined based on a selection of examples from different European towns and cities.

1. Concepts of peri-urban and suburban landscapes

In June 2005, the third meeting of the Council of Europe workshops for the implementation of the European Landscape Convention was held in Cork, Ireland.⁴ The

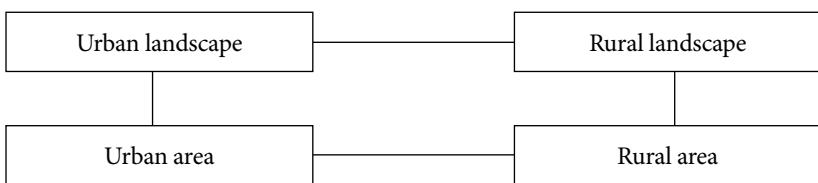
4. “Proceedings – Third meeting of the workshops for the implementation of the European Landscape Convention”, *European spatial planning and landscape series*, No. 82, Council of Europe Publishing, Strasbourg, 2007.

theme was “Landscapes for urban, suburban and peri-urban areas”. It was noted that the current phenomena of urbanisation make it increasingly difficult to clearly identify landscapes in the field; they are in old commercial and industrial areas, at the urban fringe, or what used to be the urban fringe, and outside of what used to be the “city” or “town” (“ex-urban”), where dynamic transformations are happening. Traditional settlement types have been remoulded, in some cases into completely new forms, and their character may have changed beyond recognition. With current demographic trends, dramatic changes are expected to continue, and they will soon also occur in seemingly stable residential areas.

The quality of future development will differ greatly. Urban areas may be extended, or they may be reduced (for example: “shrinking cities”, “brownfields”), archetypal rural and urban qualities may be diffused, leading to new types such as low density “new urban enclaves” (Martin and Bibby 2005) or the “city turned inside out” (Venturi 2004). Surveyors, while studying modern land use patterns, are finding categories such as “marginal fringe” and even “urban fringe” (Coleman 2000). The artist may see landscapes “*entre deux mondes*” (Janisset 2005). Statistical offices may simply refer to “semi-urban” areas (Eurostat 1992).

“Peri-urban” and “suburban” are terms used by the European Landscape Convention to refer to such “intermediate categories”, categories that are between urban and rural, both conceptually and spatially. During the Cork workshop on “Landscapes for urban, suburban and peri-urban areas” it was suggested that new concepts may be needed, and that new transdisciplinary partnerships should be formed in order to develop and apply these concepts.

Relating “urban landscape” to rural landscape, and urban and rural area



Questions have been raised regarding what exactly the specific qualities of such “intermediate areas” and “in-between landscapes” could be. Are they predominantly “urban” with some “rural” character attached? Should they be considered as new types of landscape in their own right? Examples of innovative approaches of reinterpreting “urbanised” and “semi-urban” areas are, among others, the “*Zwischenstadt*” (Sieverts 1997), “*Neue Urbanität*” (Oswald and Schüller 2003) and “metropolitan landscapes” (Tress and Tress 2004). During the Cork workshop, the term “urban

landscape” was used to include all phenomena considered in these approaches. It was suggested that “urban landscape” may serve as a research concept, as well as a planning and policy approach. Both are interrelated, ask complimentary questions (Box 3), and should thus benefit from each other (Antrop 2004).

Box 3 – Complementary questions asked within research and planning concepts of urban landscape

<i>Research concept</i>	<i>Planning concept</i>
<ul style="list-style-type: none">- What constitutes an urban landscape?- How does urban landscape function?	<ul style="list-style-type: none">- What are the problems and opportunities of urban landscape?- How should we react to the these?- What should be changed?

“Urban landscape” as a term is used here, in its broadest sense, to describe and interpret changing landscapes of cities and towns. The examples employed in this study include urban landscapes on a neighbourhood scale, on a city scale, and on a regional scale. The “urban landscape” concept assumes that these levels should be considered, not separate from each other, but together and simultaneously.

2. Examples of peri-urban and suburban landscapes

2.1 Criteria for selecting examples

For the purpose of selecting examples of town planning policies that are useful for this study, initially, both experts and recent literature on urban landscapes were consulted. Examples should represent current town planning practice and meet the following structural requirements. First, examples for this study should include a variety of different types and forms of “urban landscapes”. Second, all major land use types should be covered, including residential, commercial, industrial and recreational. Third, examples should have different locations within the greater landscape matrix. Location criteria relate to landscape history, especially where urban expansion or urban shrinking lead to suburban or peri-urban locations. Other locations may include urbanised areas that used to lie at the edge, but also areas that lie beyond the city edge.

A collection of structurally diverse examples was made. From this collection, those examples were identified that seem to best reflect: the relevant policy guidelines of the European Landscape Convention and the distinctive qualities of different European planning traditions.

With reference to town planning, five legal and administrative “families” may be recognised in Europe: the British, the French, the Germanic, the Scandinavian, and others. In many cases these “families” and their respective characteristics closely relate to specific types of government, organisation and legal system (Newman and Thornley 1996, Balchin and Sýkora 1999). These include hierarchical structures of administration and political order (for example, Switzerland and Germany), structures relating to a body of law that developed primarily from customs and judicial decisions based on precedent (for example, the United Kingdom and Ireland), unitary systems with relatively strong central planning competences (for example, France), and systems with planning powers substantially devolved to the municipalities (for example, Scandinavian countries).

Local self-government and the ability to find solutions collectively has been the cornerstone of Scandinavian planning traditions. One of the most distinctive properties of the French family, the application of abstract legal norms and intricate systems of codified rules, has been maintained in several countries, including France, Germany and Switzerland. Contributions of the British family include discussions of, and agreements on, planning objectives and environmental thresholds. Table 3 indicates how the examples selected for this study relate to traditional European policy and planning cultures.

2.2 Presentation of selected examples

A range of cities and towns has been included, with large metropolitan city regions at one end of the spectrum (for example, Ankara, Budapest and Copenhagen) and smaller towns at the other end (for example, Cork and Lucerne) (Table 1). Some cities and towns are expanding, some are shrinking, and others are more or less stable. Examples include urban open spaces (for example, Cork and Budapest), urban renewal areas (for example, Leipzig and Ankara), urban expansion areas (for example, Milton Keynes), and others (Table 2).

The territories of selected examples have been defined in a number of different ways, mainly considering:

- administrative areas;
- combinations of different land use types;
- physical appearance and organisation.

Some “urban landscapes” are clearly demarcated, for example as urban parks or residential development. Others lack border lines that are clearly visible in the field. They have been defined individually – as urban renewal areas, expansion areas, etc.

In assessing examples individually, indicators and criteria have been used such as:

- functional characteristics, including networks, infrastructure, etc;
- indications of identity, including cultural features, way of life and atmosphere;
- political and administrative realms, such as municipalities and regions (Table 3).

Table 1 – Overview of selected examples

Example	Territory of city/town (km ²)	Population and population density (people/km ²)	Location of example in town/city	Brief description of selected suburban and peri-urban landscape
Jerry O'Sullivan Park, Cork, Ireland	37.31	123 062 (2002)	peripheral	A former derelict green area restored to a new residential park
Stadtumbaukonzept "Grünes Rietzschke Band", Leipzig, Germany	297.60	498 491 (2005)	central	19th-century urban blocks that are partly being demolished and replaced by green areas
ESP (Entwicklungs schwerpunkt) Rontal, Lucerne, Switzerland Agglomeration (2005): City (2005):	20.28 5.15	121 754 57 300	peripheral	An infill development is planned within an existing industrial and commercial area
Strategisk grønstrukturplan for Groruddalen, Oslo, Norway	450	529 454 (2005) 3 700 people/km ²	peripheral	Urban development is planned in a part of Oslo that has been growing since the 1960s
Milton Keynes Eastern Expansion Area, United Kingdom	308.69	216 850 (2004)	peripheral	Development outside of current city borders

GPV (grand projet de ville) Communauté; CUS (1999) Neuhof, Strasbourg, France	78.27 305.97	264 115 3 374 people/km ² 451 240 1 475 people/km ²	peripheral	Mixed residential development, and services
Havneparken/ Islands Brygge, Copenhagen, Denmark	Greater Copenhagen: 2 500	City: 502 362 (2005) 5 600 people/km ²	central	Public waterfront near the city centre
Dikmen vadisi projesi, Ankara, Turkey	-	3 000 000	central	Replacement of squatter settlements with modern buildings and a large urban park
Park Millenáris/ Ganz Park, Budapest, Hungary	525	1 886 000	central	Creation of urban park as part of urban renewal

Table 2 – Current development trends in selected cities/regions

Example	Expanding	Stable	Shrinking
Milton Keynes Eastern Expansion Area, United Kingdom			
Strategisk grønnstrukturplan for Groruddalen, Oslo, Norway			
ESP Rontal, Lucerne, Switzerland			
Jerry O'Sullivan Park, Cork, Ireland			
Stadtumbaukonzept, Grünes Rietzschke Band, Leipzig, Germany			
GPV Neuhof, Strasbourg, France			
Havneparken, Copenhagen, Denmark			
Dikmen vadisi projesi, Ankara, Turkey			
Park Millenáris/Ganz Park, Budapest, Hungary			

Table 3 – Planning traditions relating to selected examples

Example	British	Germanic	French	Scandinavian	Transition
Milton Keynes Eastern Expansion Area, United Kingdom					
Jerry O'Sullivan Park, Cork, Ireland					
Stadtumbaukonzept, Grünes Rietzschke Band, Leipzig, Germany					
ESP Rontal, Lucerne, Switzerland					
GPV Neuhof, Strasbourg, France					
Strategisk grønnstrukturplan for Groruddalen, Oslo, Norway					
Havneparken, Copenhagen, Denmark					
Dikmen vadisi projesi, Ankara, Turkey					
Park Millénaris/Ganz Park, Budapest, Hungary					

3. “Landscape” in selected town planning policies

3.1 “Landscape” at different levels of policy making

“Landscape” may be integrated into planning policies at national, regional and local administrative levels. Ideally, national and regional policies provide landscape targets in a broad sense, while local policies specify “urban landscape quality goals”, and both correspond (Box 4). Where broad policy frameworks are provided, landscape may be regarded as the “common heritage of the nation”, and as a “shared concern” at regional and local levels. “Every citizen should participate in the decision-making process regarding landscape” (Ministère de l’Ecologie et du Développement durable 2005).

Box 4 – National and local policies specifying “landscape” and “urban landscape”

Landscape at the national level – An example: Norwegian European Landscape Convention policy	Landscape at the local level – An example: Oslo’s landscape policy
“The Government will give greater emphasis to landscapes in land use management, in accordance with the requirements of the European Landscape Convention” (Norwegian Ministry of the Environment 2005).	“Different parts of the city shall maintain their character. At the same time, modern architecture is wanted and approved of, within the frames given by the city’s scale, urban landscape and special surroundings” (City of Oslo 2004a).

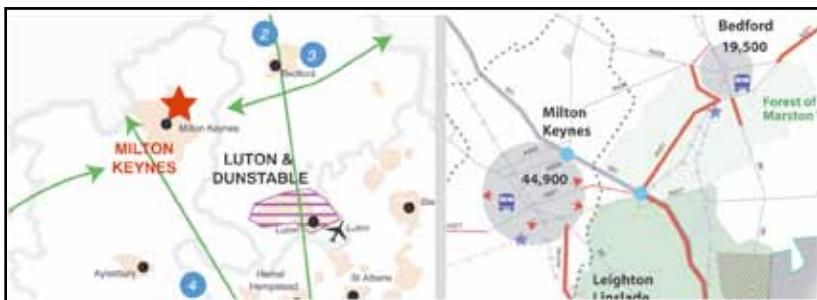
National government may provide strategic targets, such as to “safeguard the environmental qualities of landscape” and include these into broad policy documents (for example, Norwegian Ministry of the Environment 2005). Strategic planning may include spatial categories such as rural, peri-urban and urban areas, and specify development targets for these categories, as well as for individual regions or subregions. Environmental quality goals may refer to regional landscape character, cultural traditions, mixed-use development, provisions for public open spaces, and others (for example: Bundesamt für Raumentwicklung 2005, BUWAL 1998).

At regional levels, strategic policies may be adopted, by regional, subregional and local authorities, as an expression of combined ownership and responsibility for the territories in their area. Regional landscape strategies may also propose partnerships, crossing administrative boundaries and levels of decision making. Through the efforts of regional co-ordination, public and private parties would adopt regional landscape policies that help guide the management and development of their territory (Table 4).

Detailed guidelines may be specified for individual sites. In most European countries, municipal councils are responsible for comprehensive local planning, detailed local planning and for issuing building permits. Comprehensive local plans usually summarise and specify overall political objectives for the development of the municipality. Links at the interface between regional and local planning may include, for example, key themes such as economic visions, the location and design of urban areas; and the location of housing, workplaces, transport and green spaces (Box 5). The location and quality of urban shrinking has become a new concern.

Table 4 – Landscape focus at different levels of planning – Examples from Ireland

Level	Policy	Landscape focus	Relating to other level
National (Ireland)	National spatial strategy (NSS)	The NSS recognises landscapes as one of the major contributors to define national identity. The NSS includes landscapes as part of sustainable development.	Development plans are required to relate objectives to landscape character (Planning and Development Act 2000; landscape assessment guidelines, 2000).
Regional Example: South West Region	Regional planning guidelines (RPGs) identify four different zones (RPGs zones), including the Cork Area	The RPGs address the protection and enhancement of landscapes as one of the principle issues. The RPGs suggest urban renewal schemes, environmental improvement schemes, landscape character assessment (LCA), and other instruments, to ensure that “the public environment acts as a magnet to residents, shoppers, developers, businesses and tourists alike” (South West Regional Authority 2004).	Environmental reports must be included with all spatial and development plans (Planning and Development Act 2000). Landscape is one of the categories to be considered in these reports.
Local Example: Cork City Council	Cork Area Strategic Plan (CASP), Cork City Development Plan (including zoning)	Designated “Scenic Routes”, river corridors, amenity walks, views and prospects, conservation areas, landscape protection zones, public open spaces, sports grounds, etc., co-operation with neighbouring municipalities to protect views (e.g., ridge protection zones).	Local area plans, local improvement schemes, etc., with democratic and legal planning processes.



III. 1: Subregional strategy for Milton Keynes and the South Midlands (MKSM 2005, RPG 9 2001)

Box 5 – Cross-level policies specifying “landscape targets” (example: Milton Keynes)

Regional planning	Subregional strategy	Local plan
Definition of sub-areas with distinct boundaries and character. Recognition of Milton Keynes as a growth area (RPG 9 2001).	Up to 44 900 homes to be developed until 2021 within balanced and sustainable communities: “Where new or expanded communities are needed, these should be sustainable, well-designed, high quality and attractive places where people will choose to live and work” (MKSM 2005).	“Encourage good design in new development by promoting consideration of character; continuity and enclosure; quality of the public realm; ease of movement; legibility; adaptability and diversity” (Milton Keynes Council 2002).

3.2 Policy making across administrative borders

Ideally, spatial planning will be conducted and administered across administrative borders and levels. Close co-operation should be sought between the agencies at regional level, on the one hand, and the administrations of each municipality of a given area, on the other hand (SPD 2005). A classic example of providing a framework for cross-level and cross-border policy making is the Thames Landscape Strategy. A “plethora of statutory agencies and authorities with responsibilities along the river through London” are part of the strategy area and the planning process (Wilkie 1994).

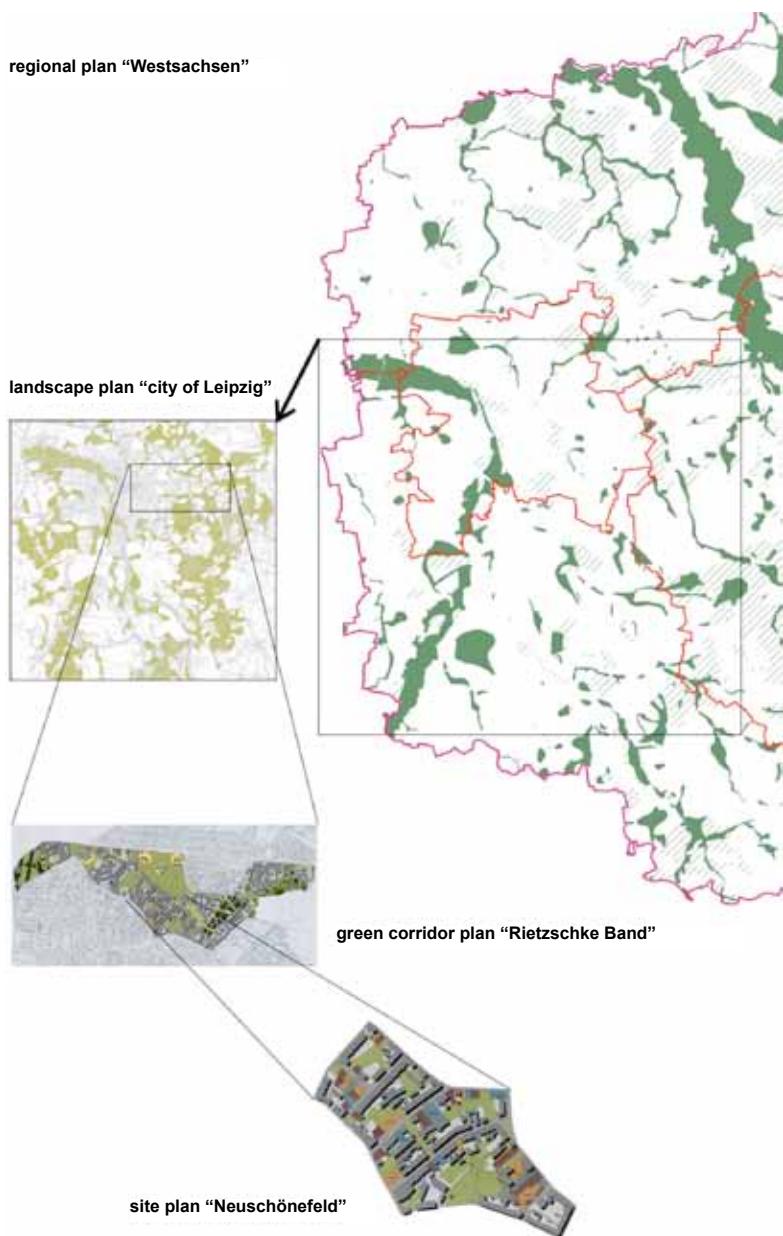
Landscape visions such as the Thames Landscape Strategy or Copenhagen’s Green Finger Plan may help support co-operation between municipalities that

share one greater landscape region (Ill. 2). The idea of “green belts”, derived from the *cordon sanitaire* of plague-ridden cities of the past, first became part of the “garden city” movement, and later expanded into concepts of “green networks” or “green corridors”.



III. 2: The Green Finger Plan for Greater Copenhagen from 1947 (SPD 2002)

Cross-level and cross-border co-operation is important for all urban regions, whether they are expanding, stable or shrinking. Strategies for expanding and stable cities may pertain to regionally optimal allocation of new buildings, aiming at, among other goals, the limitation of new building development (MKSM 2005). Shrinking cities are faced with a multitude of social, economic and structural issues that need to be addressed in the concerted efforts of neighbouring authorities. Large-scale transitions usually affect entire regions. The example of Leipzig illustrates how landscape policies may transcend administrative borders and policy levels (Ill. 3).



III. 3: *Landscape policies transcending administrative borders and policy levels: Leipzig, Westsachsen (individual images from: Westsachsen 1999, Leipzig 2003)*

Broad landscape policies and intersectorial co-ordination were developed in Ankara as air pollution increased and the need arose to maintain effective ventilation corridors throughout the core of the city. The Ankara 2015 Structural Plan provides for a recreational and green-zone framework. It proposes to develop an 8-10 km-wide green belt around the city. This green belt connects to radial corridors that support local wind systems and thus help improve air quality. The Dikmen vadisi projesi is part of this system (Nalbantoglu 2000).

Cross-level policy making may be supported by the corresponding budgets. In most countries, regional policy making includes financial planning, and individual regions are involved in allocating funds provided by the European Union, national programmes and other sources. The aim may be, among others, to assist the economic and social regeneration of areas that have experienced structural deficits (“La reconversion économique et sociale des régions en difficulté structurelle”, Region Alsace, France, 2005).

Additional mechanisms that make cross-level co-operation easier include, among others, thematic task forces, forums for public debate, information bulletins, etc. Such mechanisms are largely informal in nature, and they may be integrated with statutory planning instruments, such as building permits, and local and regional planning. They may also correspond to budgeting (Ministère de l’Ecologie et du Développement durable 2005). Non-technical language and good visual tools are important to support complex cross-level communication (Ill. 3).

3.3 Trans-sectoral policy making

The starting point for the preparation of landscape strategies and plans is often regional initiatives or discussions at the local level. These may lead to the decision to prepare a comprehensive plan for the territory of interest. The planning process may be led by an authority responsible for spatial planning, by a consultant hired for this purpose, or by another public or private agency. Usually, an increasing number of additional authorities, sectoral planning offices and a number of different interest groups get involved. Thus, while the social and cultural dimensions of the landscape may become visible during the planning process, the holistic nature of landscape may be lost. In order to re-integrate sectoral and individual concerns, it would seem advisable to link them together again, in one comprehensive plan (Box 6).

**Box 6 – Integrating sectoral concerns into one comprehensive plan
(City of Oslo 2004b)**

The action plan for the Groruddalen ties together seven in-depth sectoral studies	
- regional scenarios - local development programmes - plan for cultural activities - alternative financing of environment and transport projects	- transport plan - strategic plan for green structures - plan for conservation of cultural heritage monuments

“Landscape planning”, as practised in several countries, is the kind of tool ideally suited to integrate sectoral landscape concerns from the very beginning. The basic tasks of statutory landscape planning, as required by law in Germany, are to: be the official planning instrument of nature conservation and landscape management; as such, contribute to comprehensive spatial planning, such as regional planning and municipal local planning; and contribute to programmes and project approval procedures of other sectoral planning, such as transportation, land development and flood risk management. In this context, landscape planning provides important information for environmental impact assessment (EIA) and strategic environmental assessment (SEA).

Professional landscape planning will:

- make inventories of all relevant aspects of landscape;
- prepare probable scenarios for the future landscape;
- provide relevant, concrete goals and objectives for the protection, management and development of the landscape of the territory concerned;
- provide an assessment of the existing and future states (scenarios) of landscape, according to territorially defined goals and objectives;
- prepare strategies that include measures needed to realise territorially defined goals and objectives.

3.4 “Landscape” in environmental assessment

European regulations for strategic environmental assessment and for environmental impact assessment require landscape to be considered in such assessments. Methods that include both the subjective views of local residents (landscape “as perceived by people”, European Landscape Convention), as well as objective assessments of landscapes, still need to be developed. Nowadays, landscape classification and characterisation are prepared as part of professionally presented environmental assessments, and results are discussed during consultation periods.

Landscape and its character are also considered as important regional and local resources, and attempts have been made to quantify them. To get an idea of the quality of urban nature, the city of Copenhagen, for example, has developed a so-called “urban nature index”. The index measures biological quality and experienced urban nature values. The highest indices are seen in a park located close to the coast, offering peace and a large diversity of animals and plants. Paved areas have the lowest score in the urban nature index (CECE 2003).

Box 7 – Landscape character of four distinct district areas in Milton Keynes (Halcrow Group Ltd 2004)



Broughton Gate	Brooklands	Fen Farm and Eagle Farm North	Pineham and Brook Furlong
Slopes gently, low-lying arable farmland.	Flat arable farmland with hedgerows and some mature trees. There are also a couple of drains and watercourses (principal landscape character within the development area).	Low-lying farmland with two significant woods. Broughton Brooks offers important landscape identity.	Two sub-areas. One features urban transport facilities within dense tree planting. The other is a low-lying area of grassland dominated by sewage works.

4. “Urban landscape” in selected town planning policies

4.1 Appreciation of the “urban landscape”

The term “urban landscape” may be found in the literature to describe territories that are different from rural landscapes (Shot, Baarendregt and Wassen 2004), physically marked by built-up areas and by urban forms of land use, sometimes also referring to administrative boundaries (Flores et al. 1998). If, or where, boundaries are difficult to define, the concept of “urbanisation” may be useful to apply in order to describe processes that include changes in ways of life, housing, transportation and

employment patterns (Antrop 2000). In some parts of the continent, urbanisation spread over entire regions and a new type of city gradually developed which could be called a “regional city” (Ipsen and Weichler 2005). Former towns, suburbs and new urban centres merged with what once could be regarded as peripheral development, but is now part of a new matrix. Remnants of agriculture persist, small forests are left and new forests spring up on brownfields. Traffic corridors connect residential areas, and areas of trade, commerce and recreation. The “regional city” requires a new dimension of technical infrastructure – networks of water, power and gas, which add to accelerated urban expansion. At the same time, decreasing urban densities mean that the relative cost of infrastructure and services is rising (Venturi 2004).

Where cities, small towns and villages merge with suburbs, agriculture, forests, recreation areas, traffic corridors and infrastructure facilities, the traditional dualism of city and country loses its meaning. In order to understand this type of space in its uniqueness, the term “urban landscape” almost suggests itself. With the “urban landscape” approach, different patterns of land use and form are viewed in connection with natural conditions (topography, stretches of water, soil, vegetation). They can thus be understood as specific eco-cultural units that offer new landscape qualities.

Examples of suburban, peri-urban, and other types of urban landscapes, including those at the urban fringe, may be defined as:

- multifunctional complexes of very diverse land use types;
- highly fragmented morphology and physical appearance;
- fuzzy (zoning) borders and contours, uncertain delineations;
- form, uses and borders remain stable only for short periods of time; land cover and land use change rapidly, thereby;
- increasing landscape diversity, heterogeneity and fragmentation (Antrop 2004).



**III. 4: Park Millenáris/
Ganz Park, Budapest
(Mehrl 2005)**

4.2 Policies for sustainable “urban landscapes”

Regional and local landscapes are considered relevant to sustainable urban development. Examples include strategic plans for green systems integrated urban renewal schemes and policies for the rehabilitation of open spaces. Policies aiming at “brownfield” instead of “greenfield” development and at sustainable travel concepts serve as examples that help implement the idea of the compact city. Environmental impacts, like noise and air pollution, may be reduced by placing services close to traffic nodes, and by facilitating a high degree of urban density near these nodes (Box 8).

Box 8 – Sustainable urban landscapes, Oslo’s Comprehensive Development Plan 2004-2020 (City of Oslo 2004a)

The strategy for land use shall contribute to a sustainable urban development and is based on the principle of the compact city.

New housing will be planned in locations such as public transport nodes, central parts of the city, and redevelopment areas.

Areas for business and commerce will be provided close to traffic nodes, where a high degree of density will be permitted, with good access to public transport.

Different parts of the city shall maintain their character. This idea combines at the same time modern architecture and cultural heritage protection. All developments that take place will respect the scale of the city, the urban landscape of Oslo and the surrounding area.

Cross-border town planning encourages a high degree of sustainable development. The Rontal project, for example, focuses on the industrial development of the Lucerne region in Switzerland. Planning is done by four different municipalities in co-operation with the most important landowners of the 130-hectare project area. Plans are based on targets set by the regional plan that gives priority to projects taking advantage of existing development potential. The Rontal project starts out with a very attractive transportation infrastructure, and most new buildings will be erected on, or between, sites that have been built on previously (Ecoptima AG and Albrecht and Partner AG 2003). By placing development within the existing urban matrix, the extent of greenfield development is reduced and open space kept available for recreation, agriculture, nature conservation and other values and interests (Box 9). Goals of sustainable urban development also include consideration for the preservation and enhancement of regional and local identity.

Box 9 – Development of “brownfields” before “greenfields” (RPG 9 2001)

Vision: “The focus is on enabling urban renaissance, promoting regeneration and renewal concentrating development in urban areas promoting a prosperous and multi-purpose countryside.”

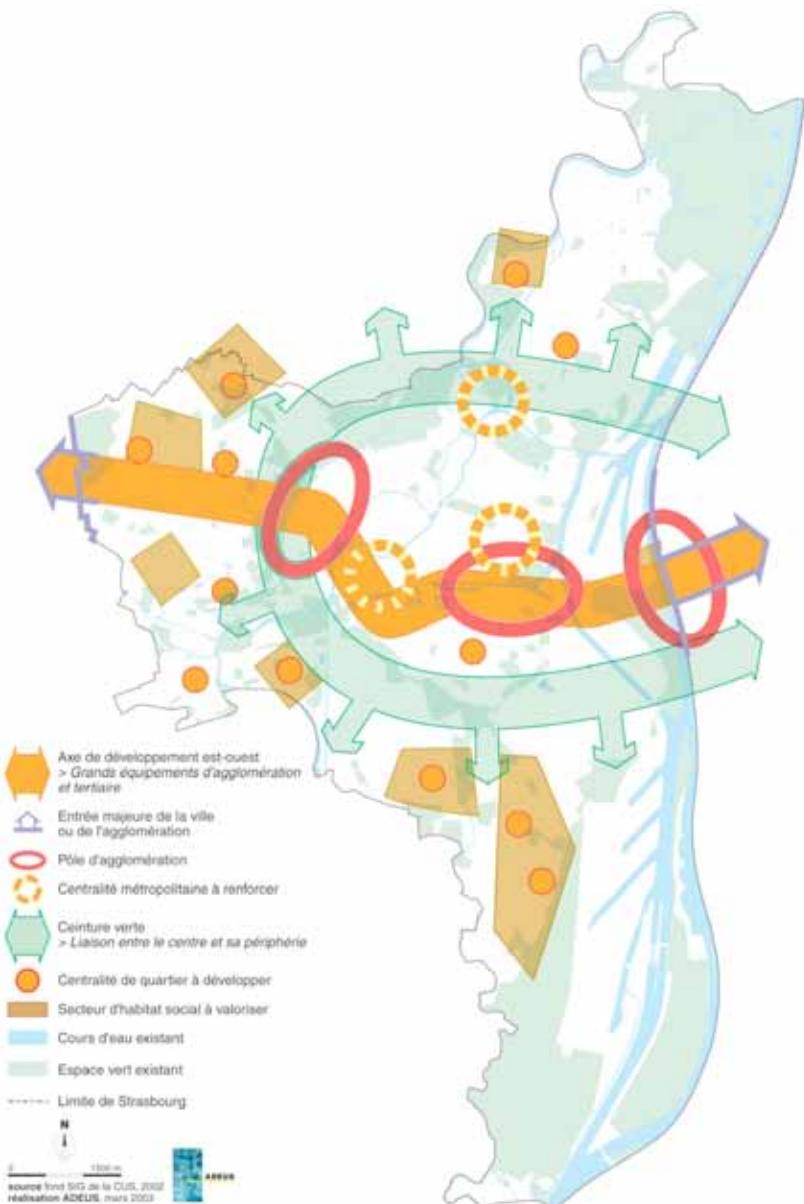
Implementation: “Concentration of development in urban areas. Greenfield development, only after all other possibilities have been checked.”

4.3 Green networks and urban open space

The historical patterns of settlement, determined by geology, climate and social and economic factors, constitute the basis for contemporary urban landscape. The main contours of “urban landscapes” may follow the natural lines of the coast, rivers, railways, motorways, hillsides, etc. These lines provide ideas for the main structure of long-term landscape strategies. Examples are metropolitan green belts, axial systems of urban open space, and specific strategies such as Copenhagen’s Green Finger Plan.

The idea behind the Green Finger Plan for Greater Copenhagen (Ill. 2) is that urban development should be concentrated in the “fingers” created by railway lines and motorways, and that the green wedges between the fingers should remain open and mainly serve recreational purposes (SPD 2002, Kobenhavns Kommune 2003). The Green Finger Plan has affected the alignment and placement of the city’s parks and open spaces since 1947, when it was introduced, and the basic idea is still included in the new park policy, which was adopted in February 2004. Similar strategies may be found in several European cities (Bauer 1996). The city of Strasbourg, for example, has adopted a policy where existing “elements given by nature” are used to create a system of “green finger connections”, including the present green belt and green space corridors. All parts of this system are to be connected to form a network that contributes to enhancing the scenic quality of urban and rural open spaces, their ecological richness and biodiversity, and the well-being of the inhabitants (Strasbourg 2004).

Broad landscape strategies such as green systems need to be implemented (Stiles 2005). On a regional scale, goals may become part of legal plans, whilst on a local scale they need to be adopted as measures. The Leipzig city region, for example, has received special attention as an “urban landscape” in official regional planning. Policies on the establishment of a “regional green axis” have been adopted by the Leipzig zoning plan and by the official municipal Landscape Plan, including details for a *Grüner Ring* and *Grünsystem* (Leipzig 2003, Westsachsen 1999).

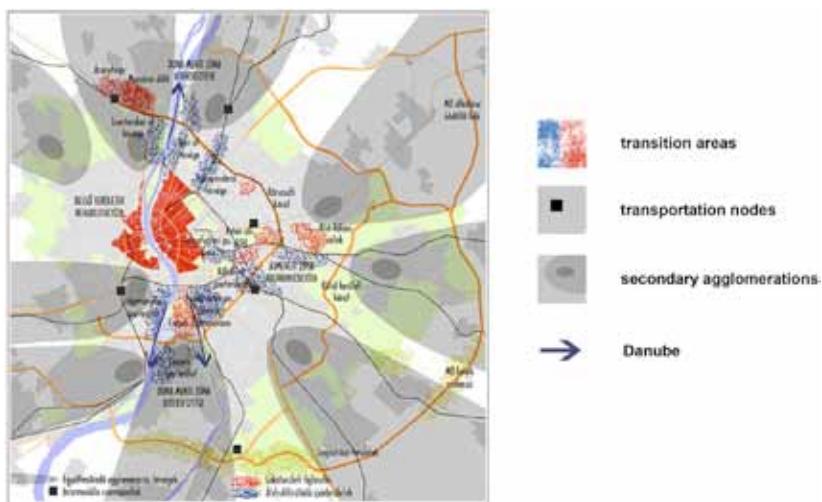


III. 5: Greater Strasbourg's green connections (Strasbourg 2004)

The recent Copenhagen Park Policy pays particular attention to the availability of open space to citizens (Kobenhavns Kommune 2003). It is implemented through individual projects, such as the "Havneparken". Sections of the natural environment as well as historic monuments are protected and developed with special care. Green spaces are developed in a way that citizens have access to parks and other open areas within 400 metres (CECE 2003).

4.4 Urban transformation and “urban landscapes”

One important quality of “urban landscapes” is that they are dynamic. They are constantly being altered, and they are changing with their inhabitants, the flow of goods, energy, etc. Of current interest are transformations that relate to urban expansion, on the one hand (for example, Lucerne (Switzerland) and Milton Keynes (United Kingdom; see Boxes 5 and 7, and Ill. 11), and to the shrinking of cities, on the other (for example, Leipzig, Germany; see below and Ill. 3). Transformation also includes conversion of illegal developments (for example: Ankara, Turkey, Ill. 7), of urban waste lands, military grounds and railroad lines, the restoration of wetlands and river channels, and several others. The following projects illustrate the revitalisation of old industrial areas and deprived residential districts.



Ill. 6: Transition of former industrial areas in Budapest (Mehrl 2005)

The district “Strasbourg sud-ouest” of Strasbourg, France, became an urban redevelopment project with the installation of a *Grand Projet de Ville* (GPV)

and the support of the Urban II programme of the European Union. The district had remained isolated from the rest of the city, and its residential quarters – consisting predominantly of social housing – were home to many social problems (Strasbourg 2003). The project has three major objectives (Strasbourg 2005):

- sustainable transformation of the district;
- improvement of living conditions;
- encouragement of economic development.

New tramways, streets and pedestrian lanes provide better connections to the city centre, to new allotment gardens and other recreational areas. A mix of different kinds of housing was created, through a large programme of demolition, reconstruction and redevelopment, the social housing was improved, and affordable residences built for private ownership or for rent. Playgrounds, recreation areas and sport facilities have progressively replaced the apartment buildings that were demolished. In addition, private gardens have been designed adjacent to residential buildings. The urban project Neuhof, which is part of the renewal scheme, takes advantage of the picturesque architecture in Neuhof village and the natural ambience of the surrounding areas. New enterprises are attracted to the area and employment has improved, together with public services (Strasbourg 2005).

In Leipzig (Germany), some city districts may be considered socially and economically consolidated, while others still need to respond to challenges related to a decade of urban shrinking. Residents are leaving, shops are closing, and buildings are falling empty. One of the areas affected is Leipzig East Side. Here, more than 50% of the building stock is empty, and entire blocks will soon disappear. Insufficient open spaces in Leipzig East Side have been identified as one reason for the ongoing exodus of residents. Open spaces are an important factor for the quality of life. They are related to neighbourhood satisfaction and must be considered part of the social and economic capital of a city area. The current situation provides a singular chance to overcome historic deficits and to enhance the quality of life for the remaining and potential new residents. Traditional open space patterns will not work here. New symbols, forms and uses for open spaces are needed, especially for the reuse and revaluation of abandoned sites. New and unfamiliar types of “urban landscapes” are emerging.

As a first step towards developing new “urban landscapes”, so-called “conceptional plans” are drawn up for different city quarters (*Konzeptioneller Stadtteilplan*). The plan for the East Side indicates possible futures, including 25% fewer flats in 2020, and a number of central projects. One of these projects is called the “Green Rietzschke Corridor” (Ill. 3).

This corridor is designed to snake through the entire East Side, and to connect, via the city centre, the outskirts from east to west. Demolition of buildings will be concentrated according to the plan, and a new type of “urban landscape” with a much higher proportion of open spaces will be created. The Rietzschke Corridor will not be a green corridor in the traditional sense. It will consist of sequences of large green areas, and it will incorporate a perforated structure of buildings and open spaces. Different features such as a light grove and a dark forest will be included as well. These are meant to create new interfaces between city and “country” in a formerly densely built part of the city. Unexpected scenes, like a temporary deer park, will be located right beside the central train station (Stadt Leipzig 2002).

The Conceptional Plan for Leipzig East Side outlines a new type of “urban landscape” that cannot be precisely determined. It will emerge step by step, with many aspects being left open so as to depend on the future development of empty lots. Land use decisions will have to be made, especially by each of the many private real estate owners, before we know exactly when and how many buildings can be demolished in the future. Within this process the role of local government becomes that of a facilitator and moderator between different groups of actors.



III. 7: New green open space through an area of urban renewal in Ankara, Turkey (photo D. Bruns)

With intensive migration to urban areas, squatter housing increased in countries experiencing structural transitions during the 1970s and 1980s. This caused several economic, social and ecological problems, such as a complete loss of public open space. Urban renewal became an important planning and development option.

In Ankara, for example, squatter housing was replaced by modern buildings and, supported by an intensive participatory strategy, green corridors like the Dikmen Valley opened up, linking once again the city centre with forested areas at the city's edge. The main issue in the participatory process was to solve the problem of how to offer the existing squatter inhabitants better living options within the same area of the city (Nalbantoglu 2000).

4.5 Identity of “urban landscapes”

Regional and local identity may be closely tied to particular landforms and vegetation, special landmarks and vistas, and indigenous species, to name but a few. For the appreciation of how landscape contributes to spatial identity, one first needs to look at how the natural landscape interacts with the urban landscape and to get an understanding of the history and the cultural associations of the landscape. “And we also need to be aware of the myths and memories evoked by our buildings, parks and place names, conjuring up more than the immediate visual impact” (Wilkie 1994).

Urban landscapes may contribute to local identity through particular styles of urban design, special green open spaces, regional architecture and others. Decisions on what and how much of the historic stock of buildings, parks, layout of streets, tramlines, waterfronts, etc., should be preserved are difficult to make. They require careful analysis, planning and design. Options for renewal will be subject to in-depth local consultation and participation of citizens. The impacts of planning and of development projects must be assessed, and the character of landscape considered in particular.

In the example of Leipzig above, a balance between preservation and demolition was found by assessing, on the one hand, the structural strength of buildings, and the economic resources of owners to continue their upkeep. On the other hand, the character of Leipzig East Side is closely tied to the layout and design of residential city quarters developed during a very important economic boom of the 19th century called *Gründerzeit*. The fundamental structure of city blocks and ornate facades was preserved, and where this could not be achieved rows of art installations and lines of trees took their place.

Other examples demonstrate how the revitalisation of industrial areas may help preserve local identity, for example by including important icons of the era into modern design (Ill. 8 and 9). Urban renewal in Budapest (Hungary) incorporated steel-frame structures reminiscent of 19th century engineering. With Copenhagen's Havneparken the idea was to create “a recycled park”. It is not just

the materials and elements of the harbour construction that have been reused, it is also the very openness of the site itself. All in all, it has given the site an authenticity which would have been very difficult to attain with a completely new structure (Dam and Nielsen 2003). A wide promenade along the waterfront maintains the character of a harbour. Different spaces within the park have special features, including elements reminiscent of nautical activities and of trade (Ill. 10). The harbour park is part of the harbour area, with an ambience that reflects its maritime and commercial history.



III. 8: Park Millenáris/Ganz Park – A new urban landscape including old industrial buildings and revitalisation of an industrial brownfield (Mehrl 2005)



III. 9: Park Millenáris/
Ganz Park (Mehrl 2005)



III. 10: *Havneparken/Islands Brygge – Recycled cultural heritage: the inverted hull of an old ferry (photo: D. Bruns)*

Urban expansion projects may also contribute to local identity, for example by maintaining qualities special to particular urban areas, or by including elements of regional architecture (Ill. 11). Cities often find how essential local identity and local qualities are for both business development and for people's quality of life (SPD 2005). Spatial planning may thus be successful by including existing urban features and landscapes, and by exploiting their respective opportunities for development (Boxes 10 and 11).

The Milton Keynes Eastern Expansion Area, for example, includes a "character area concept". It takes into account: traditional urban form, proposed land uses, the pattern of open spaces and watercourses, nearby buildings and the surrounding landscape. Through different design elements, such as landmark buildings, key frontages, the built form and materials, the expansion is planned to develop with its own strong character as part of the city (Halcrow Group Ltd., 2004).



III. 11: *Milton Keynes Eastern Expansion Area incorporating elements of traditional design into urban development (Halcrow Group)*

**Box 10 – Urban identity as part of policy for sustainable development
(Strasbourg, France)**

- | |
|---|
| The variety of its urban landscapes and the richness of its built-up heritage are taken into account in the transformations of the city through regeneration. |
| Urban landscape is understood in connection with, but not identical to, the architectural pool of buildings. |
| The urban and the landscape heritage shall be taken into account within the urban regeneration and development. |

Box 11 – Urban identity policy relating to urban character (Oslo, Norway)

National policy; example: Norway	Local policy; example: Oslo	
The environment includes the cultural sites, and archaeological and architectural monuments (Environmental Information Act 2003)	Oslo's physical, aesthetic and visual characteristics are central to the city's identity. All different parts of the city shall maintain their character. This idea combines at the same time modern architecture and cultural heritage protection. All developments that take place will respect the scale of the city, the urban landscape of Oslo and the surrounding area. (Kommuneplan 2004)	The plan develops models for protection and management of the 30 most valuable cultural heritage objects with supplementary registration with post-war heritage sites. (Cultural Heritage Plan 2004)

5. Co-operative and communicative planning and decision making

5.1 Integrated planning

“Integrated planning” is used here as a concept that includes two different forms of integration:

- comprehensive spatial planning, across administrative borders;
- landscape planning that integrates different environmental interests into comprehensive planning.

Both forms are closely tied in with cross-border, cross-level and cross-sectoral co-ordination and decision making. Examples of planning and co-ordination across subregional and municipal borders are the Øresund Region and Copenhagen, Milton Keynes and the South Midlands, and the Swiss canton of Lucerne. In the Øresund Region, Denmark and Sweden have the joint aim of developing the region into one of the cleanest urban regions in Europe. The partners in the Øresund project have co-operated to produce an environmental programme; one focus is comprehensive spatial planning (SPD 2002). Within the region, Greater Copenhagen comprises three counties with 48 municipalities, plus the City of Copenhagen and the City of Frederiksberg (SPD 2002). Milton Keynes and the South Midlands have produced a "subregional strategy" with a number of mechanisms for the implementation of objectives. These include inter-regional boards to ensure that all agencies deliver the policy commitment to meet these objectives. The boards bring together local authorities, government agencies and other key stakeholders of the region. In addition, joint local development documents and master plans are being prepared where development across administrative boundaries is concerned (MKSM 2005). Thus, it was possible to prepare spatial planning documents in a way that the drafting and consultation periods of different planning levels relate to each other, logically and consistently (Table 5). To further assist integrated implementation of regional development, the Swiss canton of Lucerne has established networks for inter-municipal co-operation and devised a dynamic strategy called "learning region". The Rontal project, for example, has introduced special "co-ordination sheets" to ensure the continued collaboration of all stakeholders, including all municipal administrations, local and regional councils, private interest groups, investors and landowners (Ecoptima AG and Albrecht and Partner AG 2003).

Table 5 – Participation in spatial planning, Milton Keynes (United Kingdom)

	RPG 8 regional	RPG 9 regional	MK subregional	MK local	Eastern expansion
Draft (1st deposit of plan)	1999	1998	2002	2000	-
Public consultation			2003	2000	2002
Public examination	2000	1999			2003
2nd deposit, changes	2001	2000	2004		
Public consultations			2004	2002	
Additional changes				2005	2005
Public participation				2005	
Publication of final version			2005	2005	2005

The second form of integrated planning included in this chapter is the kind of landscape planning that collects information about different environmental interests and integrates these, collectively, into comprehensive planning. Official landscape planning in Germany, for example, prepares environmentally comprehensive documents on landscape at all levels of state and municipal planning. Results are integrated, either after or during landscape planning, into regional and local plans. Stages of integration may include:

- strategic development goals;
- limits of acceptable change;
- landscape visions;
- conceptual development options, scenarios, alternatives;
- instruments and measures to implement goals and visions.

5.2 Co-operative planning

Co-operative, participative and communicative forms of planning and decision making have been introduced since the 1970s and 1980s (for example, see Boxes 12 and 13). Recently, they are being widely employed. The history of Copenhagen's Havneparken, for example, began in the 1970s, when the residents of Islands Brygge pointed out that housing density was very high and that the area needed a park. In the spring of 1984, several hundred residents laid out a provisional park, as a happening, that marked out the residents' wishes. In 1993, the Municipality of Copenhagen, represented by the Roads and Parks Department, decided to grant the money to complete the park as a permanent feature. The neighbourhood council established a fund to support the park. Planning commenced in 1993, and construction took place between 1995 and 2000. Experience from practical consultation work indicates that active participation in planning may initially take some time, but it results in significant benefits for the proponents of the plans and projects, and also for decision makers and third parties. Benefits may include cost effectiveness and, ultimately, faster project completion.

At best, citizens are directly involved in planning and implementation. One example of serious citizen involvement is Jerry O'Sullivan Park, Cork. This park originally consisted of waterlogged greens and overgrown shrubberies. Major drainage works were carried out over the complete area, and the entire park was regraded and extensive planting carried out. Initially, a landscape plan was drawn up by a landscape architect. Later, major development and construction were carried out in consultation with the local residents (Ill. 13). The park was officially opened in 1999. The park is proving extremely popular with the public and is an invaluable amenity.

Box 12 – Objectives of co-operative planning: the example of Strasbourg (SNDD 2003)

The concept of sustainable development should be comprehensible for everyone.

Credible and transparent information shall be given to the public.

The participation of the citizen in the public debate shall be encouraged and facilitated.



III. 12: *Public participation in GPV Neuhof (Strasbourg 2005)*



III. 13: *Local residents help implement Jerry O'Sullivan Park (City of Cork, 2005)*

Box 13 – Communication schedule relating to different phases of planning

Information on the aims of the activities; for example, a decision regarding a programme that would lead to a plan or project (this phase would include “screening” and “scoping” for environmental assessment).
Selection of reasonable plans or of project alternatives, based on economic and environmental assessment, etc. (this phase includes the defining of environmental and development goals; for example, environmental quality goals).
The adoption of a plan or project includes several stages of consultation; these should be conducted as long as all options are open; for example, “strategic alternatives” for programmes and plans.
Results of public consultations should be considered before the adoption of plans and projects. Approvals for plans and projects should include transparent considerations of results of public consultations.

5.3 Communication tools

Communicating the significance of the urban landscape and explaining projects will be critical in securing the agreement and involvement of people who live and work in the area (Wilkie 1994). Common tools include media, newsletters, schools, marketing and tourism activities. According to the Institute of Environmental Management and Assessment (IEMA 2002), the term “participation” incorporates a number of different techniques which are used to include individuals, groups and organisations in decision making. The most important criterion for selecting and adopting communication techniques is that they actually help people to understand what is in a plan. Ideally, visualisation should enable non-experts to influence “expert planning”. In other words, the tools would need to support interactive communication (Bishop and Lange 2005).

In summary, four levels of participation may be defined (IEMA 2002):

- education and information provision: the use of information dissemination to create an awareness of activities or issues;
- information feedback: the dissemination of information with a request for feedback to supplement knowledge and gain a better understanding of issues;
- involvement and consultation: formal or informal dialogue to identify issues of concern;
- extended involvement: participants are able to contribute to the formation of a plan or proposal and to influence a decision through group discussions or other activities.

Informal and early consultations have the greatest potential for success (LI and IEMA 2002). The following techniques are in current widespread use:

- correspondence;
- face-to-face discussion;
- presentation and informal public meetings;
- exhibitions;
- workshops;
- leaflets and mailings.



III. 14: Visualising future landscape character. Aerial view of Havneparken, Copenhagen (Bramsnæs 1999)

Conclusions

Items to be developed further

Some nine examples of town planning from different European countries have been examined. A summary of policy recommendations, learned from these examples, are included in Table 6. The following items seem particularly important, especially for the integration of landscape into town planning policies. They could be developed further during meetings of the workshops of the European Landscape Convention:

- Town planning in Europe offers a rich variety of different traditions and cultures, each suited to individual countries and “planning families”. Integrating landscape into town planning policies offers a unique chance, for towns and regions, to benefit from each other’s strengths. Facilitating exchanges of

experience would help makers and users of planning policies in learning about the potentials of European capacities in protecting, managing and planning urban landscapes.

- In practice, town planning already includes landscape to a certain degree. Promoting the use of landscape planning in all European countries would help strengthen protection, management and planning, especially of urban landscapes. Landscape planning corresponds to “landscape quality objectives”, as defined by the European Landscape Convention, and also to goals of sustainable management and development. Results of landscape planning may be integrated in town planning documents.
- Different disciplines are needed, communicating with each other, in order to explain and manage landscapes. Landscape itself is an interdisciplinary concept. First, landscape has physical properties, including space. Second, landscape is a culturally determined form that depends on perception and evaluation. Third, the treatment of nature is not only controlled technologically, but is subject to a variety of social rules.
- Policies for town planning should incorporate landscape at all levels of spatially relevant decision making, providing correspondence between these layers. They should include social concerns, urban programmes and projects, and they should make reference to examples of best practice.
- Broad landscape strategies, such as green systems and networks of open spaces, should be implemented. On a regional scale, goals may become part of legal plans; on a local scale, they need to be adopted as measures.
- Since landscape policies are the subject of specific programmes, and these are organised differently in individual countries, a “landscape atlas” may be provided, for the identification and classification of European landscapes, and for policies related to landscape. This atlas would pay particular attention to urban landscapes and include plans, charters and contracts on landscape. It would list public authorities and provide, by comparison, methods for landscape analysis, evaluation, planning and design.
- Reports on the “state of the landscape”, prepared by planning departments, would audit efforts and effects of spatial planning. These reports would describe the visions (for example, of the government) on planning policies and may be updated afterwards.
- To support and observe the integration of landscape into town planning policies, special agencies, councils and commissions for landscape may be introduced. These may include agencies for landscape (for example, Bundesamt für Umwelt, Wald und Landschaft, Switzerland), national and regional landscape councils (for example, National Council of Landscape, France) and others.
- Reports on the “state of the landscape” and the work of agencies, councils and commissions may be supported by demonstration projects intended to inspire new solutions and co-operation.

Table 6 – Summary of policy recommendations

Recommendations
New concepts and strategies may be needed, and new transdisciplinary partnerships be formed, for the protection, management and planning of landscapes in urban, suburban and peri-urban areas. The urban landscape concept may serve to include all phenomena of suburban, peri-urban and other urban areas.
To integrate landscape into town planning policies, countries may benefit from exchanges of experiences and from learning about planning cultures and their particular strengths.
National and regional policies provide landscape targets in a broad sense, while local policy specifies “urban landscape quality goals”.
To include phenomena of the “regional city”, town planning would need to be conducted and administered across administrative borders and levels. Where municipalities share greater landscape regions, co-operation may be aided by common “landscape visions” and by special communication forums. Cross-level policy making may also be supported by corresponding budgets.
In order to integrate sectoral and individual concerns, it is necessary to tie them together, in one comprehensive “landscape planning”, which may be the kind of tool ideally suited to integrate sectoral landscape concerns. Landscape planning may also help integrate landscape into statutory environmental assessment procedures.
Methods that include both the subjective views of local residents (landscape “as perceived by people”, European Landscape Convention), as well as objective assessments of landscapes, need to be developed.
With the “urban landscape” approach, different patterns of land use and form are viewed in connection with natural conditions (topography, stretches of water, soil, vegetation). They can thus be understood as specific eco-cultural units that offer new landscape qualities.
By integrating landscape into the goals of sustainable urban development, these would include consideration for the preservation and enhancement of regional and local identity. By placing development within the existing urban matrix, the extent of greenfield development is reduced and open space kept available for recreation, agriculture, nature conservation and other values and interests.
All green areas of the urban landscape contribute to building systems of open space networks that help to enhance the scenic quality of the urban and rural open spaces, their ecological richness and biodiversity, and to the well-being of the inhabitants.
Urban transformation provides a chance to enhance the quality of life for citizens. Town planning contributes to the making of new landscapes by including stakeholders. For the reuse and revaluation of transition areas, new and unfamiliar types of “urban landscape” may be considered.

Recommendations
Urban landscapes contribute to local identity through particular styles of urban design, special green open spaces, regional architecture, and others. Decisions on what and how much of the historic stock should be preserved, or altered for new identities, require careful analysis, planning and design.
In support of cross-level and cross-sectoral decision making, town planning and landscape planning may be integrated as “urban landscape planning”.
In support of sustainable landscape decisions, citizens may be directly involved in the preparation and implementation of policies and measures.
A variety of tools are available to support participatory planning. The most important criterion for selecting and adopting specific tools is that they actually help people to understand what is in a plan, and to understand each other. Tools such as visualisation aids and Internet-based platforms should support interactive communication.

Recommendations to policy makers and practitioners

The following recommendations have been drawn up and are addressed to member states of the Council of Europe, with proposals on the development of policies concerning peri-urban and suburban areas in the framework of the European Landscape Convention.

- New types of landscape are forming through processes of urbanisation, including “regional cities”, “urbanised countryside” and others. A new typology that includes all phenomena of urban landscapes is needed (Bruns, Ipsen and Bohnet 2000).
- Town planning policies would adopt this new typology and develop comprehensive strategies for the “regional city”, for the “peri-urban” and for the space “in-between” (Sieverts 1997, Prigge 1998). Spatial thinking would look at the city as an entire landscape.
- New and interdisciplinary approaches and organisational structures are needed to interpret qualities of new urban landscapes, to identify their potentials, and to design for their future. Landscape is made up of a multitude of “modules” and “layers” making it necessary to bring together as many different disciplines as possible in order to begin to understand the “urban landscape” as an entity in its own right (Corner 1999, Tress and Tress 2004). It may be important to overcome sectoral fragmentations that reflect the limited views people and institutions have of “their” part of the world.

- To better appreciate the “urban landscape” as a whole, comprehensive spatial planning may be linked with urban design (Meyer 2003), and with ways of creating symbols and signals (Koolhaas 1995, Wall 1999).
- “Transformation landscapes” is a term recently introduced into urban policy making and planning (Meyer 2003). This term relates to concepts that appreciate change as one of the most important qualities of “urban landscapes”. It includes physical changes, social changes and changes of spatial identity. Different processes of change are analysed, and new relationships between space and people are interpreted in innovative forms of planning and design. These forms may include parts of traditional landscapes as well as elements of “patchwork landscapes” that have little to do with patterns of what used to be the “city” and the “country”.
- Planning and decision making in town planning should support participatory processes. The European Landscape Convention provides basic guidelines to include “interested parties” in planning and decision making. In addition, the Aarhus Convention on Access to Information, Public Participation in Decision-Making and Access to Justice in Environmental Matters specifies, among others, reasonable time frames for participation, including provision for participation at an early stage, and obligations of the decision-making body to take due account of the outcome of public participation.
- During the Council of Europe Cork workshop it was suggested that “urban landscape partnerships” should be formed (Stiles 2005). Partnerships would be based on a network that includes a number of European cities and research facilities. The partnership would bring together the knowledge and experience of municipal government and administrations, and of academic institutions that have their focus on landscape. Its overall goal would be to promote good practice in the planning, design and management of European urban landscapes.
- In order to compare different phenomena of “urban landscapes” in Europe, and to find potential planning and design solutions for them, research needs to be organised with international co-operation, making use of different programmes where town planning is integrated with other disciplines. Such multi-centred and interdisciplinary research may profit from being linked with “urban partnerships”.

Cultural landscapes are part of European heritage. Natural and cultural diversity are common assets that require protection, management and planning. Their regional manifestation leads to local identity, not only in rural areas and the countryside, but in urban landscapes in particular. Town planning policy needs to integrate nature and culture, in particular the unique features they produce.

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II. Infrastructure and landscape: roads

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Summary

The aim of this report is to provide a starting point for discussing the role of roads in landscape. The European Landscape Convention draws attention to the landscape quality of all places and the need to improve and enhance them through all public policies. Roads are not only infrastructures which take us to landscapes; they also provide positive scenic routes through landscapes, as well as enjoying landscape values and a character of their own. Additionally, roads are collective spaces where everyday community life takes place. They must therefore be considered as community landscapes and managed accordingly. Road planning and management schemes have a part to play in landscape management and they must be seen positively. Recently, many positive initiatives have taken place in this field: roads as scenic routes, road design for character and landscape enjoyment, and road integration into landscape.

This report reviews the landscape qualities of roads, taking their different aspects and implications into consideration. First, the role of travel in attitudes towards contemporary landscape is briefly discussed. Then, access to landscapes and the values of road itineraries are reviewed. The next section deals with the perception of landscape from a vehicle and looks at all factors involved from the scenic itinerary to alignment and drivers' attention.

The following section focuses on road design for landscape, that is, both aimed at sustaining a sense of identity and character for the road and providing facilities for the enjoyment of landscape other than from within a vehicle. Another section approaches the question of road integration within landscape, both environmentally and visually. Finally, it is argued that there is a need to consider the landscape value of all roads.

The report is completed with four brief appendices, which deal with experiences in road management and design. The first appendix presents the role of roads in a nature park, the second deals with the cultural and natural values of itineraries, the third is about road alignment and integration into the landscape, and the fourth presents a road design for landscape enjoyment.



III. 1: Painting a water-colour at Ryde Beach, Isle of Wight, England. Visual aspects are fundamental in a personal and cultural approach to landscape (photograph by the author; unless otherwise indicated, all the photographs have been taken by the author)

Introduction: travelling, landscape experience and roads

Landscape experience as a cultural attitude

Landscape is a dual product of cultural attitudes. On the one hand, communities' needs and knowledge have shaped land and created landscapes, while, on the other, social attitudes, cultural viewpoints and ideals determine a community's perception of physical environment.

Early civilisations, which were obviously heavily dependent on the availability of natural resources, had a dramatic view of their environment, while more sophisticated cultures tended to idealise environmental processes through complex intellectual approaches. Landscape, in its current sensual and artistic sense, is in large part the result of the ideals of European society. Western idealisation of land had a marked Eastern influence. Nevertheless, with the advent of industrialisation a productive view of the environment and its profitable resources was added to this idealised view of nature. Later, increasing environmental awareness accompanied reactions against standardisation and loss of identity. Current attitudes towards landscape involve a dual view of both the reality of processes shaping the land as well as the sensual and artistic perception of their scenic results.

Contemporary attitudes and visual aspects

As a result of the increasing influence of mass media and dynamic communication systems, global society is developing new attitudes towards landscape. These tend to emphasise visual aspects rather than a more comprehensive view of its environmental processes. To a great extent, the visual enjoyment of

landscape is replacing other kinds of landscape experience. Several factors are involved in this process, such as:

- the original 18th-century approach to landscape resulted from a visitor's view of local reality; that is a "view from afar" attitude where idealisation, and formal and visual aspects play the main role;
- landscape has become a by-product of consumption within tourist and cultural businesses as well as a regional identity icon;
- the representation of reality through images is very effective in the competitive and dynamic information markets of today;
- simplification of landscapes into mere images provides a deceptive approach to the real complexity of cultural and natural features of communities and their lands.

Travelling and landscape experience

The rapid development of means of transport during the previous century played a major role in shaping attitudes towards landscape. Travelling is deeply rooted in the traditional Western sense of landscape, since travellers set the basis for the concept in the 18th and 19th centuries in Europe. Later, 20th-century improvements in transport provided people with better access to a wider and more diversified range of landscapes. Furthermore, transport has encouraged urban sprawl which, in turn, has created new approaches towards urban landscapes.

Long-distance travel takes tourists and visitors from very different cultures and environments to places where they experience landscape and other local values. In addition, day-to-day travelling experiences involve quite a varied range of landscapes through routine transport systems in conurbation areas as well as in rural regions.

Thus, environment is mostly perceived through the windows of cars, buses, trams and trains. Citizens of modern society spend a considerable part of their time in vehicles. This applies not only to everyday landscapes where citizens carry on their daily lives but also to those areas that are protected and distant. Landscape in these pristine or exotic areas is highly valued, but time to visit and enjoy them is generally limited.

Interest in landscape as a threat to landscape preservation

The number and diversity of landscapes available to people have increased due to the development of means of transport. However, the experience people gain from these landscapes has become increasingly simplified, to an almost exclusively visual event. Package tours and other means of fast travel are a good example of this. Specifically, scenic routes allow car travellers to view landscapes from the road as they drive.

This emphasis on visual aspects tends to overshadow more complex cultural and environmental values and processes. Actually, awareness of these processes is crucial since they are responsible for the maintenance of landscape values while preservation policies result from that public awareness.

Moreover, there is a dangerous vicious circle which involves transport infrastructure and landscape values at the same time. Roads and other transport means are still seen as basic infrastructure in development. This argument applies particularly to those pristine areas in which cultural and natural landscapes have been preserved due to lagging development.

Thus, road itineraries are envisaged for cultural tourist development based on the preservation of that very landscape that is degraded firstly by road construction, and later by resorts developed because of increased accessibility. Co-ordination between development policies, infrastructure planning and landscape management must be guaranteed.



III. 2: Bad quality road at Jandia Peninsula (Fuerteventura, Spain). The poor quality road prevents human pressure and development on special landscapes such as this volcanic massif

1. Roads and landscapes

1.1 Roads and landscape values

Infrastructure's main goal is to satisfy community needs within a given environment. Its alignment and structure result from applying technology to environmental resources in order to satisfy social needs. Specifically, roads serve mobility within a territory so that they belong to the general structure, organisation and processes of that territory. They are thus narrowly related to the cultural and natural aspects of land and landscape.

Therefore, roads enjoy different landscape values which are related to their linear nature and how this linearity involves landscape resources. Accessibility, and scenic and environmental qualities of roads contribute to all these landscape values.

In the first place, roads provide good, fast and safe access to different places, communities, environments and their landscapes. Good accessibility to landscapes gives freedom of choice, which, coupled with the availability of information, can result in a more profound landscape experience and knowledge.

Second, road itineraries have values of their own, since they have developed as part of landscape dynamics and, as such, reflect the cultural and natural aspects involved in those processes. Historic routes, geographical barriers and environmental diversity can be appreciated along road itineraries.

Third, roads can be considered as windows onto a landscape: they take observers across landscapes which are viewed from the road. Roads have a so-called “scenic quality”. Moreover, the view from a road gives a fair first impression of a landscape, which can be experienced later in a wider and deeper sense, once the car is parked.

Fourth, though functional and highly standardised, roads like any other public places have a character of their own which to some extent reflects the community and the culture where they belong.

Finally, roads take part in landscape scenery, being present as a specific element which can be perceived and appreciated. The integration of roads into environmental processes and landscape scenery is crucial in guaranteeing landscape values. After all, roads are flexible infrastructures which can be integrated into landscape with not much effort during design and planning.



III. 3: *The view from the road approaching Ragusa's new town (Sicily, Italy) invites one to get to know the town better. Roads provide scenic views as well as access to landscapes, and in doing so they often make an inviting and quite exciting introduction to a more involved and detailed visit after parking*

1.2 Access to landscapes: planning and management

Roads provide access to communities and places, and also to landscapes. In doing so, they allow sightseeing as well as providing a first approach to those areas that will be subsequently explored. This key visual and scenic quality will be discussed later in this chapter.

However, road accessibility to areas of interest can be a threat to landscape preservation, if subsequent pressure and development are not duly controlled. Lack of access and reduced accessibility are quite efficient measures to prevent undesired damaging effects on pristine areas.

An efficient road network will guarantee proper access to visitable areas, which could satisfy visitor demands without putting exclusive resources in danger. Moreover, a careful selection of scenic roads can provide a good introduction to areas and satisfy some visitors' demands, while keeping pressure away from the most sensitive areas.

Landscape and road management and planning must work together. Accordingly, road network plans must be co-ordinated with landscape enjoyment and preservation goals. They should be aimed at compromising development and preservation selectively, taking into account the specific conditions of each case. Although no general rule can be applied, the use of measures to deter access should be considered together with encouraging access to those areas specially selected for visitors in an appropriate landscape plan.

1.3 Itinerary values

Driving by car has become such a dull and routine activity that one almost ignores the sense of variation that logically comes from any movement. The road environment can be merely functional and standard. It generally adopts the characteristics of a “non-place” space where reference to land and values are often limited to signposting. Moving along these linear infrastructures, particularly on motorways and other high-speed roads, has been progressively detached from a sense of travelling through places and land.

However, road itineraries are the result of geographical, environmental and cultural processes, and can be perceived as such. Following road itineraries unveils essential values which are related to cultural, historical and natural features of the land and therefore of its landscape. Large geographical units and territories can show themselves along a long-distance road if its different features are appreciated. Mountain barriers, river valleys, high plateaus or coastline provide the physical base for road itineraries. Thus, climate diversity, geological structures and features, ecological phenomena and geographical variations can be traced along those itineraries.



Ills. 4 and 5: (Left) Paths, roads and land boundaries intermingle in this view of Arco San Jorge, Madeira (Portugal). (Right) Land plots and a road on the island of Gozo, Malta. Road itineraries, alignments and full networks develop as part of landscape patterns and dynamics, as roads are the result of cultural and environmental processes

Most current road itineraries are the result of ancient historical processes. Some local roads, which at present serve only small rural communities, were once main tracks for political and social systems that have long since disappeared. The road network of the Roman Empire is a good example of this. Long-distance religious pilgrimage routes, cattle transhumance itineraries, old trade routes and the expansion axes of cultural influence along valleys can still be traced today. Thanks to mechanisation and new means of transport, the processes of industrialisation reorganised the movement of people and goods in European geography, producing new itineraries, abandoning previous ones and the rediscovery of those which had been forgotten. Later, the development of motor vehicles and other means of transport once again reshaped movements.



Ill. 6: The LP-1 road on La Caldera de Taburiente (La Palma, Spain) – a traditional itinerary for communities predating colonisation and also for transhumance – provides an impressive view from the island's heights as well as of volcanic formations and original ecosystems

Although these cultural and geographical itineraries are not always directly visible in landscape, they are most valuable. They are cultural and environmental assets in themselves, as well as a means to achieve self-awareness, since they promote people's appreciation and concern for their environment, history and culture through landscape perception.

Thus, understanding the features of these special routes becomes very valuable. This approach to road itineraries must be adequately supported by different sources. The availability of information, such as that provided by maps, guides, signposting or visitor centres, can be very effective in illustrating these routes. Moreover, an appropriate management of both the scenic quality of roads and their relationship to landscape features can be very productive.

Special landmarks and features of various types play a main role in supporting an understanding of road itineraries. Cultural and natural elements and features that are visible in the environs of a road are thus important. Preservation of historic and cultural built elements close to or attached to roads, such as bridges, post houses, blacksmiths, milestones and old tracks, can be useful in this sense. A wide range of landscape features, such as vegetation, relief and rocks, rivers and water bodies, crop patterns and plots, etc., are thus important in supporting the visual perception of road landscapes.

Therefore, a comprehensive integration of key elements, landmarks and landscape features within the travel route is required. Co-ordination of available information and adequate signposting, with highlighting of scenic views and the role of stopping areas and landmarks, should form part of an integrated policy for the enhancement of itinerary values.

2. Landscape perception from the road

2.1 Roads as windows on landscapes

At the start of the 20th century, the scenic qualities of roads were being exploited by road planners. Scenic roads, parkways and landscape roads were planned and built for landscape enjoyment, that is, from the viewpoint of a moving vehicle. Landscape appreciation was assumed to be a main goal in planning a road. Their placement was designed to optimise views and panoramas, much like paths within landscaped gardens. Roadside landscapes were also specifically designed to be viewed from the road.

Nowadays, the scenic qualities of roads are fully taken into consideration by road planners and landscape managers. Viewing landscapes from roads is now very popular. Environmental concerns, tourist interests and a general demand for infrastructure of a better quality have favoured this approach to roads as visual itineraries.

Road maps generally include scenic itineraries and viewpoints are often signposted along main routes.

Nevertheless, selection criteria for scenic routes on maps and signposting are rarely clear, consistent or specified. Furthermore, landscape viewing from a moving vehicle is a very complex process, which is often dealt with in a simplified way. A very varied group of considerations must be carefully taken into account if landscape viewing is to be promoted.

These can be grouped into three main sets as follows:

- aspects related to landscape scenes viewed from the road and their management;
- scenic features of the itinerary such as the location of viewpoints or the need to obtain an adequate series of views; and
- aspects related to drivers' and travellers' attention and their relation to traffic safety.



III. 7: *The spire of Salisbury Cathedral, a main landmark, welcomes incoming traffic to town (Wiltshire, England)*

2.2 Roads as scenic and visual itineraries

Scenic roads should be viewed within comprehensive landscape management schemes. Roads benefiting from views onto quality landscapes should always be managed within goals and schemes devised for those landscapes. Inversely, the main resources of a landscape, such as panoramas, viewpoints and landmarks, can be positively promoted by means of scenic roads.

In addition to considerations of spatial planning of roads and landscape, the content and structure of the views should also be taken into account when a visual itinerary is

being planned. Landmarks play a main role in landscape perception and reading since they provide recognition keys to drivers and travellers who are to benefit from landscape viewing. Often, the availability of landmarks becomes a good enough reason in itself to prefer a visual itinerary to one in which there are no recognisable features.



III. 8: Road alignment leads the direction of sight to the landscape providing a fast succession of views. Movement gives a sense of landscape depth along the road itinerary

Factors related to the scenic properties of roads are therefore very important. In the first place, roads are part of the landscape's three-dimensional scene so that road itineraries provide a series of sights. Fast succession of views gives road travellers a sense of landscape continuity and depth. Therefore, moving views from a vehicle become both emotional and informative. Though usually fast and superficial, the experience is much appreciated by road users.

Road itineraries have a precise scenic location within the visual organisation of landscapes. Different itineraries provide different views of the whole scene and of the structure of landscape. Routes on the slopes of narrow valleys, although lacking visual access to the valley floor, provide a relatively complete view of the valley landscape, while routes on the valley floor itself provide viewpoints upwards. Depending on the scenic structure, special landscape landmarks and other items can be viewed from some viewpoints while they will be hidden from view on other itineraries.



III. 9: A pedestrian's view from a security barrier at a roadside allows for a view of the landscape. The little dam on the right, a main landmark in this landscape, can hardly be seen from a car, but walking along this road is very dangerous

Therefore, not all roads provide a good view of landscape. It depends on how the itinerary is integrated within the three-dimensional scene. Specific scenic features of roads must be taken into account very carefully if their landscape qualities are to be developed.

“Visibility” is a feature of roads that allows drivers to see the road ahead, so they can adapt their vehicle movement and speed to the approaching stretch of road. Roads which enjoy good visibility clearly show their alignment to drivers for several hundred metres, while bad visibility is typical of curved roads the next stretch of which is hidden behind a bend or the brow of a hill. Good visibility in roads is always desirable for safety reasons, especially in those roads which are designed for high-speed traffic where long stretches must be visible to drivers.



Ills. 10 and 11: Driving safely along difficult sections, such as the steep and curved roads shown in the pictures above, requires better visibility of the road ahead, so tall roadside vegetation has been removed

The quality of road visibility can be spatially extended to the perception of landscape ahead on the road and beyond. Therefore, some roads, the sides of which are occupied by long, solid barriers of objects (such as trees, buildings or relief), hide the landscape, while open roadsides allow travellers to perceive the landscape around and ahead.

The visibility of verges and roadsides is important when devising a visual itinerary, since it affects the basic visual patterns. Some considerations on this issue follow below.



Ills. 12, 13 and 14: *Landscape visibility on a road in the Cantabrian mountains (Alava, Spain). Above: good visibility for approaching stretches and landscape. Below left: bad safety features for this road hidden behind the curve and only good landscape visibility at the right side of road. Below right: bad visibility of landscape and traffic safety in this curved road along a thick forest*

Visibility of the landscape on the opposite side of the road depends on the full road width, oncoming vehicles and obstacles on the opposite roadside. Motorways and roads with high-density traffic offer little visibility of landscapes on the other side of the road. Hence, most of these roads have good landscape visibility in one direction only. Typically, roads aligned along a slope provide good views on one side (if there are not obstacles on the roadside), while the slope itself prevents views of the other side.

Commonly, landscape visibility appears fragmented along roads since the sides of some stretches will be free of obstacles while others will have visual barriers of different lengths.

Eventually, drivers and passengers get a reasonable idea of landscape from the series of occasional sights they get in between visual barriers. However, this effect can be very disrupting for sightseeing.

2.3 Road users' perception of landscape

In addition to factors related to scenic organisation of road alignment and roadsides, there is the effect of speed on landscape perception. Moreover, the different attention parameters of the road users must be taken into account.

Fast movement along a road has a narrowing effect on the breadth of vision of the driver. Objects standing very close to the roadside, such as trees and buildings, move along the field of vision of the observer almost as fast as the speed of the vehicle. This is why, when the vehicle travels fast, it is quite hard to recognise objects on roadsides. Objects in the far distance, such as mountains and forests, remain steady in the driver's field of vision, while those at a certain distance move at a low speed.

The effects of speed on depth of vision condition the driver's view of the road ahead. Higher speeds reduce depth of vision while slower movement increases it. This phenomenon affects not only the driver's view but also those of the passengers in the vehicle. Therefore, fast driving through a narrow landscape, such as in urban areas, stops a driver from seeing the environment, while travelling along wide, open stretches of road, such as in coastal areas, allows the driver to admire the landscape as long as there are not too many objects close to the road.

In relation to speed, pedestrians and those travelling in low-speed vehicles get a reasonable view of the landscape, while those in vehicles on motorways and high-speed roads can only appreciate open and distant scenes.



III. 15: Road from Altsasua to Olazagutia (Navarre, Spain). Despite the impressive views available, steep and curved mountain roads prevent sightseeing

A driver's attention to the landscape occurs within the constraints of handling a vehicle. The steeper, twistier and more visually limited a road's path is, the more attention demanded from the driver. Thus, mountain roads, which generally offer impressive views, limit a driver's enjoyment of the landscape since they normally have to tackle curved, steep and hard to drive sections.

In addition to the effort demanded by windy roads, extra attention is required when traffic density is approaching maximum road capacity, that is when traffic

is congested. Narrow roads can support limited amounts of traffic, while wide motorways with several lanes in each direction can handle high-density traffic, allowing for safe and comfortable driving.

Congested roads are usually difficult for landscape enjoyment, not only because of the visual intrusion of other vehicles, but also because drivers require extra attention to deal with other vehicles.

A driver's travel aim is also important in landscape perception, since it affects personal attitudes towards driving and landscape. Expectations and attention are higher for those exploring for the first time or those touring specifically in order to sightsee.

Those drivers habitually driving the same route have a special attitude towards road environs, which includes a special demand on landscape quality. They have a better knowledge of traffic and road features. They have a self-confident attitude towards driving. This frees up their attention so that they can admire the landscape, which in turn has a specific familiar character. The environs of roads used for commuting are seen and appreciated just as other collective social areas where community life takes place. Commuters greatly dislike landscape degradation; they are very demanding as regards quality standards, including road elements and landscape. Landscape quality is not exclusive to countryside roads in pristine landscapes; roads used for commuting must also assume a positive landscape profile.

Concentration factors also affect passengers. Personal motivation for travel, bad roads and dense traffic affect all travellers, and produce an uncomfortable and stressful travelling environment.

Consequently, smooth and safe roads with good traffic conditions are best suited for drivers' and their passengers' enjoyment of the landscape.



Ills. 16 and 17: Road character is generally functional and standard, and thus lacks a sense of identity and place. However, there is room for non-functional design

3. Road design for landscape character

3.1 Road aesthetics and landscape

The main aim of road design is to provide, in safety and comfort, the conditions for a certain flow of traffic. Road elements, and more generally aspects and the surrounding environment tend to be seen as merely functional, that is, are conceived and devised to serve traffic. Therefore, pavements, traffic signs, road markings and safety barriers create a special environment that lacks character and identity. Moreover, high-density traffic flows, including large numbers of heavy vehicles, make the road environment noisy, polluted and hazardous. Consequently, road structures such as lanes, pavements and roadsides are frequently unappealing and dirty.

Even those areas where travellers can get out of their vehicles, such as lay-bys, rest areas, and petrol and service stations, generally have a banal character. In those places, trademark icons and franchised styles are predominant. Where this is not the case, design is generally poor, plainly functional and very limited. Additionally, traffic conditions often preclude enjoyment of the landscape other than from within the vehicle.

Thus, a road's own landscape is often aggressive and poor, lacking landscape features, a sense of identity and character. Yet, people spend a great deal of their time in road environments because they have become part of their day-to-day lives.

The European Landscape Convention demands landscape quality for all areas including those commonplace and conventional areas such as roads and other public works. The design of infrastructure must take into account that it is perceived and can be appreciated as an important part of our community environment.

Despite its basic approach, road design can easily take quality and positive landscape goals into account without compromising safety and functionality. Furthermore, some roads can integrate side elements for specific landscape enjoyment such as scenic viewpoints, walks or parking places.

The landscape profile of roads can be improved in two different ways. First, some road design features can use landscape character as a basic reference. Second, additional side elements can allow for a better appreciation and experience of landscape rather than that obtained from within moving vehicles.

3.2 Road design for identity and landscape character

Elements of road design such as road markings, traffic signs, pavement, hard shoulder, etc., arise from the need for traffic safety. These have rigid designs since

they must satisfy strict safety standards. However, other road elements enjoy different degrees of design freedom. Safety barriers, embankments and cuttings, retaining walls, garden elements and information signposts are among the latter. Furthermore, some special structural elements such as roundabouts, bridges, parking places, petrol stations, and service and resting areas are specific areas where road character can be developed positively.

Road identity can be promoted by different design strategies. Road elements can integrate landscape character features, or assume a formal identity of their own. The latter includes different possible approaches, such as naturalisation and others.

Landscape character is based on those features which make landscape unique. In addition to large-scale aspects such as relief or vegetation pattern, features such as local trees and bushes, or traditional building materials can easily be used by road designs. In addition to characteristic references, roads can include non-conventional design elements such as safety barriers, parapets, safety bollards and others which can give a specific sense of identity to road environs.



Ills. 18 and 19: Wooden safety barriers on roads provide a sense of the natural and rural. However, as increasingly used standard elements, they run the risk of creating a lack of identity



Ills. 20 and 21: Traditional parapets newly built but with an old-fashioned design (left) or preserved in their original state (right) provide a familiar look

Supporting structures, such as retaining walls for embankments or cuttings, can play a major role in road character. Cuttings on unstable terrain require supporting elements at the base of the slope. Where normally inclined embankments are not feasible due to lack of room or other reasons, strong retaining walls are required to support the road platform. These structures are often constructed with concrete walls, standard plaque walls, or piled with heavy rocks. Although they guarantee stability, all three systems are poor in terms of aesthetics.

Traditional stone walling is a common retaining solution when quality design is implemented. Local traditional stone walls can be easily integrated into road structures, thus providing a sense of local character. Stone walling is sometimes used to give the impression of a return to nature. Generally, the retaining structure is a modern and effective system constructed with concrete or tension-supporting elements concealed under a stone wall finish.

In addition to elements within the road structure, road verges are fundamental in providing roads with a sense of character. Actually, roadside areas are places of transition between the functional and aseptic road environment and the local landscape itself. Traditional elements, such as rows of trees, traditional stone walls and others, can play this transitional role well if they are used and integrated with care.



Ills. 22 and 23: Traditional stone walls are one of the features of a landscape. (Left) Walls made of dry limestone are a traditional feature of the island of Mljet (Croatia). (Right) Characteristic retaining walls made of volcanic stone for vertical vineyard embankments on the island of Madeira (Portugal)



Ill. 24: The picture above shows a road the embankment of which is supported by a prefabricated slabbed wall partially hidden behind a tree on the right side of the picture. The road cutting on the same stretch leans on an inclined concrete retaining wall, which helps to support both the slope and a ramp



III. 25: *A traditional stone wall works as a retaining wall for the road cutting, while the embankment has been successfully laid to grass so as to give it a natural feel*



III. 26: *The road platform is held by a retaining wall concealed under a finish of traditional stone walling. Traditional stone walling and an old-fashioned white parapet provide a good result in functional and landscape terms*

However, objects at road verges, that is, close to driving lanes, represent a problem in terms of traffic safety, so integration of the roadside areas must consider safety aspects carefully. Adjacent historic and cultural elements and vegetation must be adequately taken into account in road design and maintenance. Among these elements, rows of trees require special attention.

Measures such as traffic calming, special structural solutions (tunnels, bridges, lowered roads, barriers, etc.), landmark protection areas and grassy roadsides should be integrated as special elements in road design. Furthermore, roadside areas as zones of transition can be designed according to continuity criteria so that the road benefits from the character of the adjacent landscape.



Ills. 27 and 28: (Left) Humilladeros (Comillas, Cantabria) are traditional countryside chapels on the verges of old roads in Spain. Cultural and natural heritage adjacent to roads is extensive. (Right) Local road and the old wall at San Giminiano (Italy), a safety area has been established between the road and the monument



Ills. 29 and 30: Road verges provide a sense of landscape to roads, their integration into road design must take safety standards into account. (Left) Traditional housing very close to the road's hard shoulder creates safety problems (reduces visibility, access problems to and from the road, etc.). (Right) An area off a side road creates a clean transition between pavement and landscape; it includes landscaping, a stone wall parapet and traditional cropped rounded walls



Ill. 31: Trees on a road verge in southern England. Their proximity to the road makes these rich landscape elements a safety risk (note the memorial on the tree trunk on the left side of picture)

Trees on road verges present certain driving hazards, as does any obstacle very close to a road. The hazards are related to safety and frequently cause fatal accidents involving vehicles leaving the road. They also have a narrowing effect on lane width. Nevertheless, rows of trees on road verges are a very special and rich landscape resource. In most cases, they are a cultural product that is much appreciated by local communities, being a main feature of many cultural landscapes. They also have the benefit of bringing environmental cycles to the arid road landscape as well as providing protection from wind and sun. As they are dangerous obstacles for traffic, their preservation must be combined with speed control measures. Rows of trees must only be recommended for slow roads such as roads approaching urban centres, mixed-traffic pedestrian roads and other local roads.



Ills. 32 and 33: Lines of trees on road verges. (Left) Road in the Pyrenees-Atlantique (France). Trees lining verges are considered a cultural asset, the preservation and maintenance of which are positively managed in France (photo by B. Uriarte). (Right) Chestnut trees at the side of a road at Ezcaray, La Rioja (Spain)



Ills. 34 and 35: Lines of trees on road verges. (Left) An allée of trees in the Cotswolds, England. Rows of trees filter sunlight and wind, and give a vertical sense to roads. (Right) A line of cypresses in Tuscany (Italy). Lines of cypresses are an internationally renowned Tuscan landscape feature

Gardening and environmental recovery measures can be adopted in order to naturalise a road landscape. While gardening is more sophisticated and creative, usually involving exotic species, environmental recovery is aimed both at landscape and environmental purposes, such as preventing erosion. Environmental recovery measures include soil treatments, plantations and reafforestation. Urban road verges, traffic islands, roundabouts, and central reservations on motorways are areas suitable for gardening. Cuttings and embankment slopes, roadworks sites and decommissioned roads are typical areas for environmental recovery and reafforestation.



Ills. 36 and 37: *Gardening and environmental recovery in road design. (Left) Olive trees and ornamental plants on a gardened roundabout. (Right) Environmental recovery of an embankment slope (photo by E. Rico)*

In addition to regular road elements, other special elements and areas of roads have a specific role in creating a sense of identity. These are bridges, tunnels, roundabouts, rest areas, service stations, parking areas and bus stops. Each of these elements has special functional requirements and different landscape roles.

Road bridges have a strong presence, especially in landscape integration terms, that is, when viewed as part of the landscape. They also play a role in creating an identity for a road. They are very singular and must be dealt with specifically. Traditional bridges can provide a colourful character to roads, whereas modern structures can have a discreet effect with little effective presence or, on the contrary, they can have a spectacular character which imposes itself on the landscape.



Ills. 38, 39 and 40: Bridges and road character. (Above) Simple arch bridge on the Segura River at Los Gallegos (Spain). The modern and simple structure has a modest presence. (Below, left) Stone bridge and parapets at a road in Montseny Nature Park, Catalonia. Consistency of materials and techniques gives a sense of road character. (Below, right) Spectacular bridge by Santiago Calatrava in Ondarroa, Biscay (Spain). Bridges can have an imposing presence, which is not always in keeping with the character of the landscape



Ills. 41 and 42: Mouths of two tunnels. (Left) Carved tunnel for a one-lane road on the island of El Hierro (Spain). (Right) Red ornamental protection marquee and plastered rocks at a tunnel in the Ricote Valley, Murcia (Spain) (photo by L. Cruz)



Ills. 43 and 44: Mouths of two more tunnels. (Left) Structure covered by stone wall on the island of La Palma (Spain) (photo by J.T. Rodríguez). (Right) Sophisticated ornamental walls for the Cantábrico Motorway (Spain). Note in both cases the slope of the hillside above the tunnel is partially integrated into the external design

Tunnels hide roads underground, yet their entrances have a special role to play in road identity and character, and they have to deal with the special features of their surrounding areas. Here, the functional elements of roads and tunnels merge, with the resulting consequences of construction works (rock fall, landfills, previous working tracks and facilities, etc.) as well as with pure landscape elements such as rocks, vegetation, buildings and others.

Most tunnel mouth design solutions include support and protection structures. Small tunnels can show their carved rock uncovered. This gives a very powerful aspect to the landscape. Medium and large tunnels have to deal with rock collapses of the slope above the tunnel entrance, so they generally include either special treatments for the slope surface (extra cuttings, forced local collapses, special finishes, etc.), or protective structures of different sizes and shapes, or both. As in bridges, the exterior of these structures can be spectacular, functional, colourful and traditional, or just simple and discreet.

Petrol and service stations, together with rest and parking areas, are special areas in the sense that travellers get out of their vehicles and directly experience the landscape. However, these places have an irregular landscape profile since only exceptional landscape and road character are taken into account in their design. While rest area designs normally follow quite a sensitive approach to landscape and environment, petrol and service stations are basically oriented to serve the trademark identity.

Parking areas are generally functional with little or no reference to landscape or character features. Parking areas are strategic in providing adequate road access to quality landscape areas such as nature parks or historic urban centres without allowing cars to get into these sensitive areas. Their location must be discreet.

Bus stop design sometimes strongly reflects local features; at other times it adopts a functional and minimal approach. All these “stationary vehicle” areas have a special landscape potential which can be developed positively.



Ills. 45 and 46: *Parking area design. (Left) Stone walling and fruit trees at a parking area in Ibiza (Spain). (Right) Parking area at Oma, Biscay. Characterful elements such as trees and traditional stone walls have been integrated within the parking areas*



Ills. 47 and 48: *Bus stop design. (Left) Colourful and picturesque bus stop, Cantabria (Spain). (Right) Minimal and functional bus stop design in the Netherlands*



Ill. 49: *Homage to La Rioja wine tradition at the centre of a roundabout in Labastida (Spain)*

Finally, roundabouts must be pointed out as special character elements since frequently they adopt a clear identity by incorporating landscaping, monuments and other artistic elements. Very often they present the area's main cultural features, such as traditional industry and agriculture, art and history, traditions or celebrations. The motifs one can find on roundabouts are very varied.

3.3 Road elements for landscape enjoyment

Some roads include adjacent lanes that are specifically devised for people's enjoyment of the landscape, such as footpaths, bicycle lanes, scenic viewpoints and parking areas. These areas require a special planning approach since they have to combine landscape enjoyment with traffic functions.

Footpaths and bicycle lanes must be safe and comfortable. They are better suited to low-traffic roads and need to be separated from road traffic. A discreet separation can be efficient.



III. 50: Separate bicycle lane. Safety barrier and low parapet separate pedestrians from traffic



III. 51: Footpath. A row of trees gives shade and protection from traffic

Scenic viewpoints require a very specific location. The best landscape views are not always found in suitable places. There has to be at least enough space for safe access,

vehicle parking, standing areas or benches, information panels and waste disposal. The design of facilities must be adequate. Safety conditions must be guaranteed for vehicle access to the scenic viewpoint.



Ills. 52 and 53: Scenic viewpoint. (Left) Parking lane and access. (Right) Parapets and barriers for pedestrian safety



Ills. 54 and 55: Scenic viewpoint information panels. (Left) Orientation panel at Sete Cidades volcanic lakes in San Miguel de Azores (Portugal). (Right) Panel displaying a map of Killarney National Park at a scenic viewpoint (Ireland)



Ills. 56, 57 and 58: Scenic viewpoint facilities design. (Left) Stone parapets, stairs, walkways and look-out areas at different levels leading to an observation point. (Centre) Rusted steel, white parapets and lava rocks make up this scenic viewpoint facility. (Right) White clay and sand walls, stairs and arch frame the view

3.4 Landscape approach to road design

For an approach to road design based on considerations of landscape each of its aspects must be considered together with traffic safety and comfort, and respect for the environment and landscape within a comprehensive approach, so that the selection criteria regarding the character, identity and landscape facilities of the road, and its integration into the landscape, should produce high-quality infrastructure that benefits from landscape resources without compromising on safety and sustainability.

In this sense, road design must avoid damaging landscape features and should instead integrate them harmoniously. Traditional structures, such as walls, agricultural infrastructure, milestones, architecture, etc., as well as vegetation, such as individual trees, tree groves, hedges, lawns and others, should be respected and incorporated in the landscape of the road.



Ill. 59: Typical stone walling and chestnut trees at road margins are features of the Cotswolds' landscape. These can be easily and discreetly integrated into road design



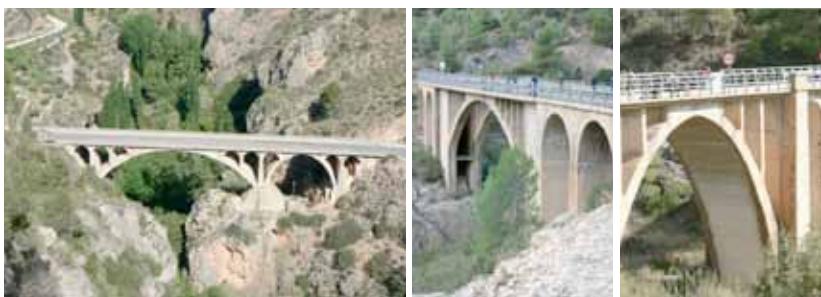
Ills. 60, 61 and 62: Sandstone is a consistent material which, when used in different roadside elements (retaining wall, drains and parapets), builds up a sense of identity

A consistent approach to the design criteria of special elements is also recommended so that identity and character can be reinforced. The consistent use of the same design criteria (type of stone, barriers, signposting, etc.) gives a sense of unity to road space.

This is good for both infrastructure identity and traffic safety. Consistency helps the driver to understand the role of each element within the road system.



Ill. 63: *The parapet in the foreground is a traditional stone wall that is integrated with modern materials, such as the safety bollards. In the background a retaining wall is covered with traditional black stone, while at either end there are local plants and trees and large rocks as well. All these elements together manage to create a sense of identity for the road*



Ills. 64, 65 and 66: *The consistency among three different road bridges in the mountains of Alcaraz and Segura (Spain) – they all share similar arched structures – gives the road a uniform identity*



Ill. 67: *The linear character of roads determines their role in the landscape. The visual presence of roads and their effects on perception of the landscape are based mainly on their linearity*

4. Road integration within landscape

4.1 The role of roads within landscape

Roads are special elements within the landscape and they should be treated as such. They have a specific role which is mainly related to their linear character. Volume of traffic, earthworks and their functionality are special features that determine their impact on landscape.

First, roads have certain specific short and long-term environmental effects that must be taken into account if landscape preservation is desired.

Second, from a scenic viewpoint, roads have a dual character since they can be considered as windows moving across the landscape as well as part of the scene. Roads run along the landscape taking part in different sights and landscape views.



Ills. 68 and 69: Roads on the slope and at the bottom of a valley in the Serra de Água, Madeira, Portugal. A variety of environmental effects of roads should be taken into account. (Left) Short-term effects: water aquifer reserves can be drained by the effect of road cutting at the base of the aquifer formation. (Right) Roads are an axis for human activity that must be taken into account in strategic planning

Third, they are linear, continuous and geometric elements the aspects of which often contrast with the generally organic features and elements of landscape.

Fourth, their functional aspects, particularly those of some of their special elements (such as bridges, road markings, safety barriers, signposting, etc.), bring functional meanings to the perception of traditional and natural landscapes.

4.2 Environmental effects of roads

The environmental effects of roads can be grouped into the following:

- destruction of environmental resources;
- barrier effect of roads;
- the effects of traffic on noise, air and water pollution and safety;
- long-term effects on development and conservation patterns.

Destruction of environmental resources such as soil, flora and fauna, cultural and community assets, etc., takes place during construction along the edges of the land that is occupied by the road and its earthworks. The alignment of new roads must be defined carefully, particularly those of roads which have wide sections or require much earthwork, or those that cross rich or fragile areas. Similarly, upgrading of existing roads, such as to cater for increased capacity or straightening, must avoid, or at least minimise, these irreversible effects on environmental resources. In addition to environmental impact assessments, which are always advisable, road planning and design criteria must also be integrated positively into the prevention and reduction of negative environmental effects.



III. 70: *The effects of road barriers are varied. Road embankments affect tide cycles and therefore inland wetlands biodiversity in this estuary of La Rabia, Cantabria (Spain)*

The effects of roads as barriers affect different environmental processes. There is a severance of community links, habitat fragmentation and run-off disturbance. Context-sensitive design, and definition of alignment and transversal sections (including special solutions for tunnels, bridges and cut-and-cover tunnels) must prevent these effects. Sensitive areas (urban and dispersed housing areas, nature areas, flood and river plains, etc.) should be avoided. New roads in sensitive areas such as these must incorporate special permeability elements (see COST 341 – “European handbook on habitat fragmentation due to linear transportation infrastructure”). For existing roads, habitat defragmentation, community severance recovery and hydrological restoration of rivers affected by roads should be included as part of road planning schemes.

The effects of traffic on noise, air and water pollution vary according to the composition, intensity, speed and driving styles of road users. Some areas, such as urban areas (particularly housing areas), nature areas (fragile forests) and quality water bodies (reservoirs, wetlands, etc.) are especially sensitive to exposure to noise, pollutants and traffic hazards. All these should be taken into account when planning new roads and upgrading existing road networks.

Finally, the long-term effects on development and conservation should be taken into account in road management schemes, especially when high-capacity roads (such as motorways) are involved. Roads cause deep structural transformations, such as economic, demographic and social changes of different types, as well as increasing pressure on fragile nature areas and the consequent environmental degradation. Among the former, improvements in access brought about by roads encourage long-term urban sprawl, abandonment of agricultural land, industrial decentralisation, enlargement of trading centres' catchment areas, second residence areas, social deprivation of adjacent areas, etc. Among the latter are the increase of human activities in fragile nature areas, together with major land and housing developments in protected zones. A strategic view of road management schemes should include the prevention of these long-term effects.



Ills. 71 and 72: Roads not only offer views of the landscape, they are also part of it. (Left) The coast road that offers impressive views of Dubrovnik (Croatia) shows itself on the slope. (Right) The road leading to this view of a limestone cliff in Malta is enclosed on either side by a wall

4.3 The road into the landscape

Roads run across a landscape offering views and also taking part in the scenery. In addition to the environmental effects of roads, which transform landscape processes, there are also effects on landscape perception.

In the first place, this scenic effect depends on how road alignment relates to landscape patterns. Morphology, rivers, fields, vegetation, as well as buildings, form landscape patterns. Some roads are aligned on landscape patterns, whereas others cross them. While it can be said that the former contributes to the harmony of landscape composition (that is, it is compatible), the latter causes a sense of disruption which, in some cases, can damage landscape value.

When road elements are discreet and compatible, the road's linear character can have a positive effect on landscape perception. A road's alignment gives a sense of depth to scenes which would be perceived as flatter without such a road. Alignment linearity and continuity mark irregular geo-morphologies providing a reliable reference on relief variations. Regularity of functional elements, such as safety barriers and road markings, contribute to this sense of depth and relief.



III. 73: *The road runs at the base of the slope in this narrow valley of the River Jucar (Albacete, Spain). Road presence can be discreet and unimposing when its size and alignment follow basic landscape patterns*

However, road alignment requires earthworks such as cuttings and embankments. These can become something of an eyesore when road speed and capacities need to be high (which implies soft ramps, open bends and wide sections) and morphology is adverse. Additionally, roads include bridges and tunnels when they need to go across deep ravines or through high mountains. When these road elements are large, they can have an imposing effect on landscapes. They produce contrasts in scale and introduce new shapes into landscape morphology. Adjusting the alignment of new roads minimises these effects. Road upgrading can greatly enlarge cuttings and embankments. Environmental recovery of earthwork slopes and adjacent areas, together with landscaping at traffic islands and roundabouts, can reduce the artificial aspect of earthworks.



Ills. 74 and 75: *The linear effect of a road can emphasise landscape composition by giving a sense of depth. (Left) The alignment of a small road shows off the morphology by providing a continuous reference to the observer along the hills. (Right) Linear presence of roads, reinforced by “teeth-like” parapets, gives a sense of depth and real relief*



Ill. 76: *Construction of a separated dual carriageway to expand capacity. Earthworks, particularly those of high-speed and high-capacity roads, determine road presence in the landscape. Road infrastructure involves a variety of elements, such as separate lanes (1 and 2), embankments (4 and 5), cuttings (3), service side road (7), and building installation areas (6)*



Ill. 77: *Slope cutting of roads produces a “scar effect” on the landscape, which can only be partially reversed when the slope allows through revegetation measures and rock treatments*



III. 78: Stone walls as retaining walls have a positive effect on landscape

Cuttings have a strong landscape effect since they expose bare rock material. Slope cuttings can have a “scar effect” when the slope is not adequately treated. Embankments are normally more discreet since they are not steep.



III. 79: Cypresses on an old path, Tuscany, Italy. Roads, tracks and paths, and their formal elements play a positive role in landscape character

When embankments or cuttings are replaced by retaining stone walls, the road's integration into the landscape is more effective.

The special character of elements, such as rows of trees, bridges, traditional safety barriers, stone walls, milestones, etc., greatly enhances the landscape. They provide cultural keys to landscape perception.

Road bridges have a very distinctive presence in a landscape, not only because of their special characteristics, but also because of their scenic value and location.

Bridges span rivers or ravines and thus frame the landscape. Despite their primary function of providing support, there are light elements in bridges, such as pillars, arches or suspension cables, which lend a airy aspect.

The landscape properties of all these road elements, such as alignment, standard items (safety barriers, road markings, etc.), embankments, cuttings, retaining walls, bridges and others should be taken into account in road management schemes and plans.

Landscape management schemes must include a consideration of the role of roads in the landscape and how this varies according to their alignment and special elements.



III. 80: *Traditional character elements, such as a teeth-like safety barrier and retaining walls made from local stone, encourage positive landscape integration*



III. 81: *Road bridges have a powerful effect on landscape, which can be spectacular or discreet, the latter being the case of this stone bridge on the River Avon (England)*



Ill. 82: *The bridge at Mostar (Bosnia and Herzegovina), built in 1566, destroyed in 1993 and restored in 2003. Infrastructures are not merely functional artefacts, they often possess special cultural and social meanings*

Conclusions: landscape values on every road

Landscape values

Landscape values which have been reviewed in the previous paragraphs are not exclusive to protected areas, or to very special roads. On the contrary, all roads enjoy these positive landscape features. This is so because all roads are part of territories which are perceived as valuable landscapes. Landscape values are shared by all roads to a greater or lesser degree.

Commuters have a better knowledge of traffic and road characteristics. They have a self-confident attitude towards driving. This somehow liberates their attention to take in the landscape which has a special familiar feel. The environs of roads used by commuters are seen as just other collective social areas where community life takes place. These drivers dislike landscape degradation, being very demanding on quality standards in these areas. Landscape quality is not exclusive to countryside roads in pristine landscapes; roads serving routine movements must also assume a positive landscape profile.

All roads provide access to places and landscapes of varying degrees of interest. Some take us between home and work every day. Others allow us to explore our regions and countries. They also facilitate our trips to new and different places, allowing us to enjoy their distinctive culture, nature and landscape.

All roads have scenic qualities in so far as they provide itineraries through different scenes and views. Road management schemes must consider the scenic quality of all roads and not just those in areas of outstanding landscape. Any road through

any landscape has some sort of scenic quality, that is, it has a certain potential to show off a landscape. Although not always noticeable, roads follow itineraries that are related to the nature and history of the land they cross. Thus, any road through any landscape enjoys different landscape values, such as cultural and natural aspects of its own itinerary, some sort of scenic quality and a certain character of its own.

In relation to identity and character, it is true that functional elements, safety standards, advertising and trademark images are always present and very much to the fore in roadside scenery, yet these are not the only available clues. Road environs always enjoy a certain sense of identity – often hideous and in some cases conspicuous – supported by an array of subtle clues. These give us a sense of place which frequently lies beneath the instantly perceptible.

Many roads include facilities for the enjoyment of landscape other than from within the vehicle. There are footpaths, scenic viewpoints, or just parking areas to leave our vehicles and start walking into the landscape. When roads do not enjoy these specific facilities, they can be envisaged, particularly if the resources are available and the goals of any spatial planning project are properly defined and implemented.

Finally, roads enjoy a certain degree of landscape integration in terms of the environmental processes they disrupt and in relation to their role as elements of landscape perception and enjoyment.

Road policies and management, and landscape values

All these road features are positive in themselves. If adequately managed they can create a sense of landscape in addition to the functional benefits of the circulation of traffic. Landscape is a unique cultural and natural heritage which often appears disguised, misperceived and, thus, degraded, if it is not positively adopted by planning policies. Road management schemes are crucial in this sense. Inversely, the relationship between road travel and the landscape is rich and fruitful for landscape awareness and perception; it must therefore be adopted by those responsible for the landscape. The promotion of road landscape features should not be restricted to special landscape areas. If positively adopted, access, scenic qualities, character and the other landscape values of roads can be greatly enhanced by road planning, management and design.

Therefore, road landscape values should be considered in any road management scheme. According to the spirit of the European Landscape Convention, schemes for management and planning of road networks must integrate the scenic value of roads (as well as other landscape values) as a cultural resource. Values such as visual capacity, identity, and natural and cultural aspects of the route can be enhanced through specific measures within an adequate and sensitive process for planning and design.

Appendix 1 – Landscape management and road planning



III. I-1: *Los Geneveses Bay is a sandy bay within the Cabo de Gata Natural Park, Almeria, Spain*

The Cabo de Gata Natural Park is located in the south-east of the Iberian Peninsula. There are chains of volcanic mountains which approach the Mediterranean Sea, leaving little sandy bays in between. It is a hot, dry environment, the harsh climate conditions of which encourage rare flora and fauna, including numerous endemic species. The shallow waters are home to extensive and rich posidonia seaweed forests. Old fortresses and small fishing villages are scattered along the coast. Historically, this underdeveloped area has suffered from inland isolation and remoteness, the sea being a better connection to outside influences. Exhausted gold mines and very poor agriculture were not able to develop the area during most of the 20th century. Lack of development preserved the natural features of its landscape. The end of the 20th century saw the rapid development of tourism in the south-eastern coast of Spain. Tourist resort developments on the coastal fringe, together with the expansion of greenhouse-intensive agriculture, threaten the landscape values of this area. Currently, the development pressure, which has transformed most of the western Mediterranean coast, is restricted here to certain areas. However, tourist demand in the area is a pressure on this landscape.

The role of road accessibility, particularly access to beaches and the coast, is crucial in determining development potential. Some tracks are kept unpaved and rough as part of the park's management policy.



III. I-2: *Volcanic mountains and cliffs by the sea at Monsul Beach create a well-preserved wild beach and a pristine landscape*



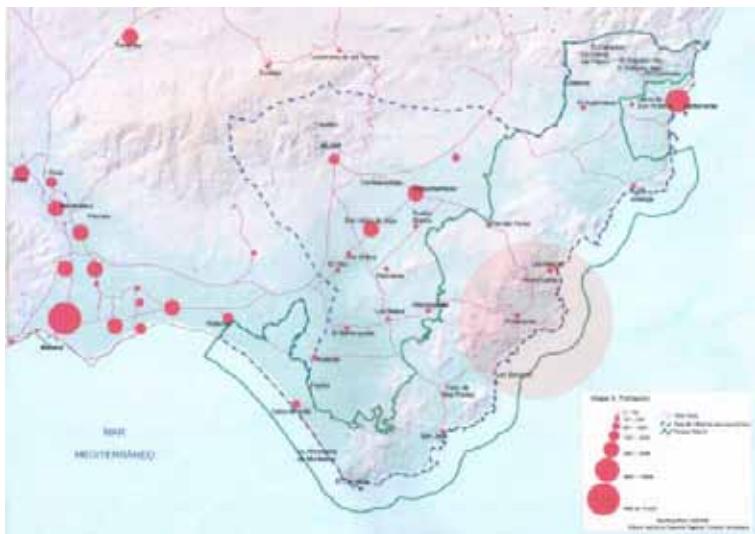
III. I-3: Rare psammophile and halophile (foreground) survive alongside tourist activity at the beach in Los Geneveses Bay



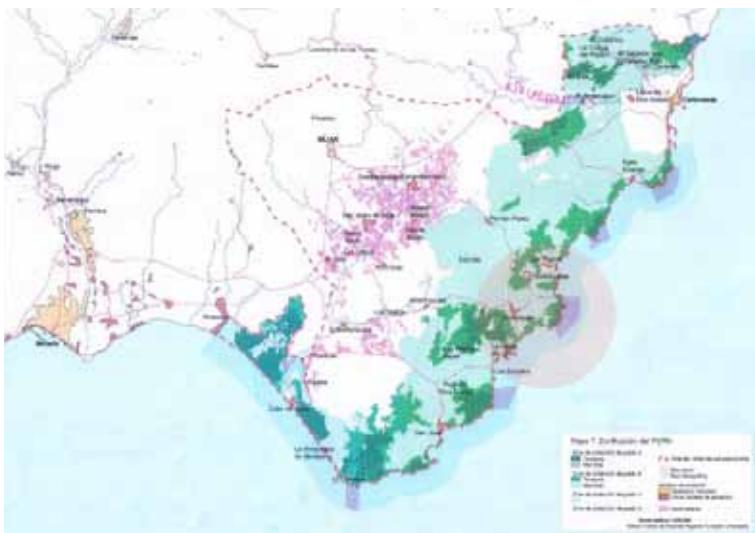
III. I-4: The traditional fishing village of Isleta del Moro, currently a modest tourist centre



III. I-5: 17th-century fortress at Rodalquilar Bay



III. I-6: Population settlements and roads around the Cabo de Gata Natural Park. The dark circle shows the area photographed (graphic by L. Donada)



III. I-7: Cabo de Gata Natural Park's Natural Resource Management Scheme. The grey dotted line is the park's boundary; blue areas are posidonia fields; the dark green areas are zones strictly protected; and pink areas are greenhouse cultivation. Note the road network and its relation to preserved areas. The dark circle shows the area photographed (graphic by L. Donada)



III. I-8: The landscape of Monsul includes unique resources such as a huge sand dune, palm bushes (*Chamaerops humilis*) and an agave tree on the beach. A sandy track (right) provides access to the beach



III. I-9: A track leads down from the arid hill towards the bay of Los Geneveses



III. I-10: Narrow roads at Isleta del Moro. Note groves of palms and pines



III. I-11: A fully-equipped road crosses Rodalquilar Valley. It provides a connection from south to north through all the main nuclei in the park

Appendix 2 – Landscape, ecology, art and history of a road itinerary



III. II-1: A view of the upper part of the Rubagón River Valley (Palencia, Spain). The Castilian plateau extends in the background to the left. To the right of the picture, the Natural Park of Fuentes Carrionas

The Rubagón River Valley traces the limits of the Old Castile, in the province of Palencia (Spain). From a height of 1 000 metres at its head, the valley opens as it descends gently from north to south. The mountains at the upper and western part of the valley form a natural barrier between the central plateau and the Atlantic valleys. Geographically, the Rubagón River Valley is a place of transition between the Mediterranean and the Atlantic systems. The Natural Park of Fuentes Carrionas has extensive mountain forests of Mediterranean oak, where the influence of the Atlantic climate can be felt. Throughout history, the Rubagón River itself has served as a main communication axis. Roman Empire communications systems in northern Spain included a main road to the north, parallel to the Rubagón River, and another across the river, to Cantabria in the north-east.

Later, after the Muslim invasion, Christian colonisation of the plateau started in this valley. The original settlement system, which was established by Christian settlers during the 10th and 11th centuries, has been preserved to the present day. As a result, a rich set of Romanesque hermitages are scattered around the valley. Hermitages are also historic evidence of the north-to-south settlement process, since they were built when sufficient resources were available, that is, when the new community was deeply established on the land. Though housing and nuclei evolved, the settlement distribution was maintained because the local economy was based primarily on agriculture and hunting.

It was not until the beginning of the 20th century, with the start of coal mining, that the expansion of some settlements in the north of the valley occurred and some new ones appeared in the east. However, the Rubagón River still functioned as the main

communication axis when a new railway line for coal transport ran parallel to the river. A landscape of industrialisation took over until mines were exhausted and pits closed in the last century. At present, the unique and varied collection of Romanesque hermitages, and the natural areas in Fuentes Carrionas attract cultural tourism, which still follows the Rubagón River as its main communication axis. The current P-220 road gave rise to this very rich geographical, ecological, artistic and historical itinerary.



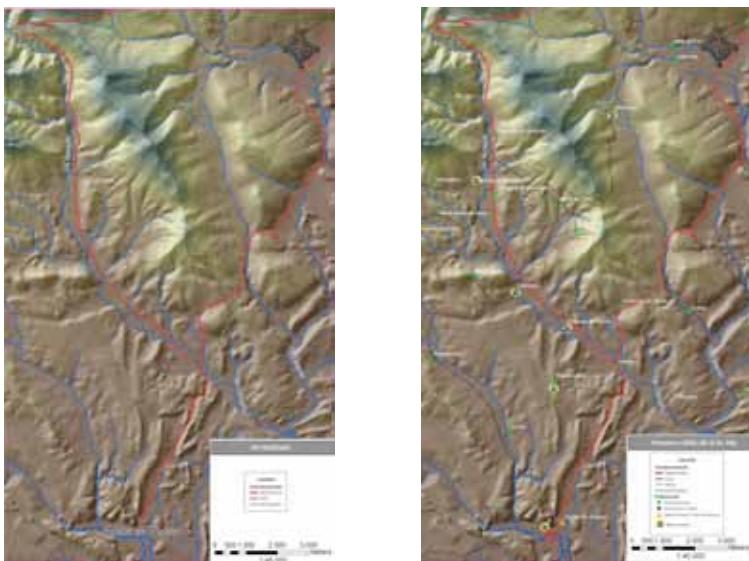
III. II-2: Oak tree (*Quercus pyrenaica*) forest in the Rubagón Valley shows the transition between Mediterranean and Atlantic ecological systems



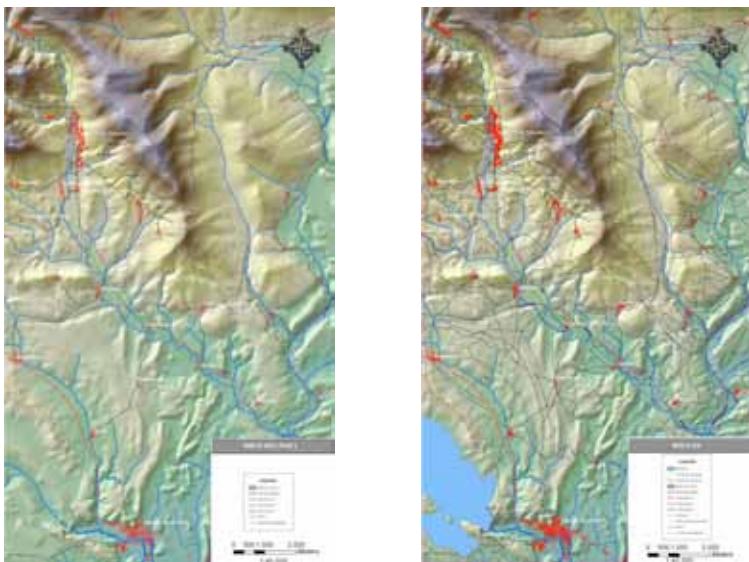
III. II-3: Stone bridge of Roman origin on the Rubagón River at Nestar. The Roman road to the north-east and the present-day P-220 road run parallel to the river to the left of this picture. The Roman road to Cantabria split off here



III. II-4: The P-220 road passing by Villavega de Aguilar, where new housing stands near the parish church and cemetery (a listed monument)



Ills. II-5 and II-6: (Left) Main roads in the Roman period. (Right) Christian colonisation settlements, 9th and 10th centuries (maps by J. García-Villar)



Ills. II-7 and II-8: (Left) Mining settlements at the beginning of the 20th century. (Right) New developments in the 20th century: reservoir (1950s), motorways (1990s) and windmills (2000s) (maps by J. García-Villar)



Ills. II-9 and II-10: (Left) Archaeological research works at Santa María La Real in Cillamayor. (Right) San Cipriano and San Cornelio in Revilla de Santullán, two impressive Romanesque churches in the Rubagón Valley



Ill. II-11: Old mansion house in Santa María de la Nava



Ill. II-12: Miners' housing at the verge of the railway and the P-220 road. Note mining waste being restored in the background



Ills. II-13 and II-14: (Left) Upper part of the Rubagón Valley where mining waste is being restored.
(Right) Bus stop and traffic signs on the P-220 road in Villavega de Aguilar

Appendix 3 – Road alignment and integration in the landscape



III. III-1: The A-3002 road in Álava (Spain) offers views of good quality scenery. It has been upgraded to include landscape facilities such as a bicycle lane and a footpath

The A-3002 connects the town of Vitoria-Gasteiz, in Álava (Spain), to the recreational area of Ulibarri-Gamboa, some 12 kilometres north. This road starts in the northern suburbs of Vitoria-Gasteiz, shortly afterwards crosses the A-1 ring road motorway, and then runs north along the Álava plains and the villages of Durana and Arroiabe to reach the shores of the Ulibarri-Gamboa reservoir. This area, situated at the bottom of the Aitzkorri mountains, is very popular. Its landscape is very much appreciated.

The road has a high scenic quality. It goes north along the plains by the River Zadorra until it reaches the concrete dam. The road then runs around the reservoir between the mountain slope and the water shore. The road was built using cuttings on the former and embankments on the latter. Despite little room being available, its section was later extended and diversified to include a bicycle lane in the plains and a footpath around the reservoir.

A platform was built along the side to hold the footpath without damaging shore vegetation. This vegetation has a strategic role since it supports ecological connectivity underneath the road. A safety barrier and a low parapet separate pedestrians from traffic. A guardrail prevents access to the shore. In addition, traffic calming measures such as rumble strips were adopted.



III. III-2: A conventional bridge allows the A-3002 to cross the A-1 ring road motorway. Note urban graffiti on the walls



III. III-3: The road follows an old way and passes through two villages, Durana and Arrioabe. Traditional stone walling and old housing very close to the road's hard shoulder give character. Speed reduction is applied here for safety



III. III-4: The Ulibarri-Gamboa dam seen from the A-3002 road



III. III-5 and III. III-6: (Left) Picturesque bus stop. (Right) Recreational activities by the reservoir; parking and access from the A-3002 road



III. III-7: A view of Ulibarri-Gamboa from the A-3002 road



III. III-8: Construction of a side platform has enabled a footpath to be built adjacent to the A-3002. A white parapet and a safety barrier separate pedestrians from traffic and a guardrail prevents access to the shore



III. III-9: Cuttings and embankments alternate together with short bridges on the small ravines, which allow habitats access to the reservoir shores



III. III-10: The side platform (on the left) respects vegetation on both sides of the road, encouraging ecological connectivity



III. III-11: Speed reduction marks on the road and a low safety barrier create more footpath safety and comfort



III. III-12: The A-3002 follows a scenic itinerary around the reservoir

Appendix 4 – A road for the enjoyment of landscape



III. IV-1: *A view of Lekeitio from the road to Karraspio on the opposite side of the mouth of the River Lea: the beach of Isuntza (left) and the fishing harbour (right). In the foreground, a tide dam runs across the picture*

Lekeitio is a fishing town on the coast of Biscay (northern Spain). The nearby beach of Karraspio is connected to Lekeitio by a road which starts on the other side of the mouth of the River Lea. This road runs around a cliff – half cut into its vertical slope and half on a flying platform – and finally descends down to the beach of Karraspio. This beach is covered completely at high tide. The alignment of the road on the opposite side of the mouth of the Lea allows for a beautiful panorama of Lekeitio fishing port, the surrounding traditional housing, the central town park, the beach of Isuntza, the Lea River mouth and the small rocky island of Saint Nikolas right on Karraspio beach.

The road is in fact a cul-de-sac which ends at the beach. It has little traffic, which is only seasonal. In addition to conventional use by traffic, the road has an important social use as an attractive landscape walkway. Some road facilities allow for this enjoyment of landscape. There is a footpath which runs along its full length. It is separated from traffic by a low parapet decorated with some gardens. A series of lights stands on the parapet, reinforcing the separation effect. An unpretentious railing protects people from falling from the outer side of the walk onto the beach at high tide.

The narrow space cut into the slope for the road has been extended by a side platform, which allows for two traffic lanes, the pedestrian walkway and two scenic viewpoints. Near the river mouth, where the road starts, there is a rest area with some shady trees (*Acer pseudoplatanus*) and a couple of benches.

At the round corner of the cliff, there is another scenic viewpoint which has been built on the flying platform. This belvedere at the corner has a privileged location because it allows people to look out at Lekeitio to the west, the island of Saint Nikolas

to the north and Karraspio beach to the east. Finally, the road and its footpath reach Karraspio beach. Here, some panels explain the character of this beach. There are stairs that descend to the beach from the footpath.



Ill. IV-2: A view from the road to Karraspio shows the fishing harbour and historic centre of Lekeitio, and the open sea on the right. In the foreground is the tide mill dam



Ill. IV-3: Saint Nikolas Island and the beach of Karraspio as seen from the road. The tide dam runs from the island to the left



Ills. IV-4 and IV-5: (Left) The Karraspio road cuts into the rocky slope. The cuttings of the main road to Ondarroa are noticeable above. Note the flying platform on the left. Sea is at high tide. (Right) The dam for the tide mill shows its alignment from Saint Nikolas Island to the river mouth at low tide. Note, on the right of the picture, the flying platform of the road to Karraspio



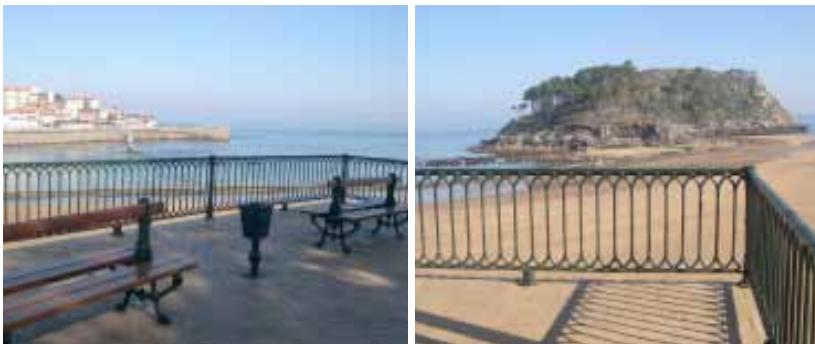
Ills. IV-6 and IV-7: (Left) Bridge over the River Lea. (Right) The beginning of the road to Karraspio includes a small rest area with shady trees and some benches



Ills. IV-8 and IV-9: (Left) Santa María church in Lekeitio as seen from the side walk. (Right) A view of the mouth of the River Lea at low tide



Ills. IV-10 and IV-11: (Left) Footpath separated from traffic lanes by a white parapet, including top landscaping and lights. (Right) The footpath around the road bend includes a scenic viewpoint



Ills. IV-12 and IV-13: (Left) Double-sided benches and a litter bin. (Right) The beach and the island of Saint Nikolas can be seen through the railing



Ills. IV-14 and IV-15: (Left) Side platform on the rocks. (Right) Stairs down to the beach



Ills. IV-16 and IV-17: (Left) Footpath by the beach, in the background Lekeitio. (Right) A panel explains Karraspio beach features

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III. Road infrastructures: tree avenues in the landscape

Chantal Pradines, Council of Europe expert
With the collaboration of the Association “Trees and Roads”



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Summary

This report focuses on a feature of landscapes we are familiar with – a feature for which some regions of Europe have been, and in some cases still are, renowned: tree-lined roads and streets.⁵ It follows up on the Council of Europe document T-FLOR (2007) 10 report entitled “Infrastructure and landscape: roads”, presented in 2007 to the Council of Europe Conference on the European Landscape Convention, which identified tree-lined roads as a landscape feature and cultural asset meriting conservation.

Many countries today use the French term allée – generally translated as “avenue” in English – to designate a road lined with trees which have been deliberately planted at regular intervals on either side of the roadway, be it a pathway in a park, an urban thoroughfare or a country road. As we will see, the use of the term allée or avenue is both correct and deeply rooted in the history of this type of feature. In the English version of this report, we will refer to “tree-lined roads” or “avenues” to designate roads with trees planted on one or both sides.⁶

This landscape feature was once widespread across Europe and draws on a long and rich heritage. It offers innumerable benefits for the landscape and the environment, and also in safety and economic terms. Yet projects which recognise this value and engage in a policy of highlighting and conserving it are rare. Some countries have gone to the other extreme: this heritage has already more or less disappeared under the combined influence of car culture, reduced awareness and loss of specialist expertise. Elsewhere it is to be feared that tree-lined roads are becoming a thing of the past. Can anything be done to halt this trend?

5. This report is not concerned with individual trees, or with rows of trees bordering other landscape features – canals, for example – even though these may share some characteristics with tree-lined roads. Their contribution to our landscape and culture would merit a study in its own right.

6. The question of terminology is examined in Appendix 1 to this report, where we propose that the French term *allée* – used in the French title of this chapter – should be more widely adopted in the future.

Introduction

After outlining the history of tree-lined roads and surveying the current situation, we will show why this is part of heritage that we must preserve. Drawing inspiration from good practice identified in countries which have recently become aware of the importance of conservation, we will outline the framework of a conservation policy and finally make a number of recommendations.

This report does not claim to be exhaustive. We have simply attempted to cite specific examples in order to clarify the current situation in 15 or so European countries. It is important to emphasise that these examples are not intended to convey value judgments: they simply serve as concrete illustrations of the challenges we face in this area, to help us advance our common practice and conserve our heritage effectively.

Paragraphs shaded in grey present historic references, quotations and examples illustrating the main text. Readers may skip them without detriment to the main argument of the report.

1. History

The rows of trees we can still see today along some of Europe's roads and streets have a long and rich history. The earliest features of this type date back nearly 500 years. In our view, it is important to take account of this historical dimension – even though its treatment here is necessarily brief – because of the light it throws on the rich heritage that still survives in some regions of Europe.



III. 1: Map of Bäckaskog Castle (Sweden) dating from 1773, showing all the tree-lined roads around the castle

1.1 Baroque avenues (*allées*)

Tree-lined avenues seem to have made their first appearance on the European continent in the Italian Renaissance gardens of the first half of the 16th century. They were “imported” to France, where they were soon described using the term *allée*, which had been used for passageways in buildings in previous centuries and now came to designate a passageway in a virtual edifice, the garden.

These *allées* became inextricably linked with the formal, French style of garden design, which used them lavishly to emphasise the main lines of the composition and to guide the eye towards a chosen focal point. Initially, this focal point was located within the garden, but designers soon came to prefer vistas which led into the distance – towards the summit of a nearby mountain or a far-off castle. Alternatively, they resorted to artifice to create an illusion of space – by placing a painting at the far end of the *allée*. This practice was evident in France in the first half of the 17th century and also in the baroque gardens of southern Germany and Austria. With Le Nôtre’s influence in France and in gardens following the formal French style elsewhere, the preference was for perspectives opening onto infinity.

Having invited the gaze to roam beyond the boundaries of the garden itself, tree-lined avenues soon did likewise, moving into the surrounding countryside. This transition came about within just a few decades and affected all countries. Previously limited to the gardens around the castle or manor house and the avenues leading towards it, tree-lined roads now extended beyond this sphere, criss-crossing entire estates – as can still be seen today in the south-east of Sweden, for example.

Between 1596 and 1605, the Duke of Croÿ planted tree avenues leading to the castle at Heverlee, now in Belgian Flanders, and also around the fields of the estate. In 1647, Friedrich Wilhelm of Brandenburg planted six rows of lime trees leading from his residence over a distance of 1 km – creating Berlin’s famous boulevard Unter den Linden. In 1667, garden designer André Le Nôtre created the Avenue des Tuileries, which started at the Château du Louvre in Paris and opened onto countryside, with two rows of elms framed by two rows of plane trees extending over nearly 2 km.



III. 2: One of the many avenues in the grounds of Övedskloster Castle leads towards the church. The clipped style of pruning, which is rare in Sweden, retains the view of the church, accentuating the formal qualities of the design. **III. 3:** Avenue leading to the castle at Gasiorowo, in the Polish county of Olsztyn

1.2 Tree-lined malls, promenades, boulevards and avenues

Although the baroque *allée* is primarily associated with manor houses, castles and then with their surrounding areas, it also appears at town gateways in the 16th century in the form of ornamental promenades and malls, or connecting the town with a nearby castle or chateau. Tree-lined avenues also accompany fortifications, as can be seen from relief maps of fortified towns in France under Louis XIV, from the late 17th century onwards.

The Promenade de la Treille, a historic esplanade in Geneva, was planted with walnut and mulberry trees in 1558, then with limes and elms in 1706; two rows of chestnuts were added in 1720-21. Since 1818, one of these chestnut trees – which was replaced in 1905 – has been designated as the city's "official" chestnut tree: the appearance of its first leaf marks the start of spring and is announced in the press.

In the 19th century, towns and cities were transformed. Ramparts which had become obsolete were dismantled, leading to the birth of the “boulevard” – a term which had its origins in military engineering but now took on a new meaning, designating a tree-lined promenade around the outskirts of a town or city.

Unlike Gothenburg in Sweden which dismantled its ramparts in 1807 and planted boulevards in 1823, and Brussels which did the same between 1820 and 1840, the northern French town of Soissons initially restored its ramparts in 1821. However, they proved ineffective in the war of 1870 and so they were demolished and replaced by boulevards around 1885.



III. 4: This painting, *View of the Château de Mariemont* by Jan Brueghel the Elder (1612), shows Chaussée Brunehaut, a tree-lined avenue leading to the chateau. **III. 5:** Seven other hunting avenues were built on the estate including this one, which has survived through the centuries, becoming incorporated in the town as it has grown; it is known in Belgium as the "Drève de Mariemont"

Within towns and cities the appearance of tree-lined streets was driven by other changes. From the early 19th century, following the earlier example of St Petersburg, cities in Scandinavia – Helsinki in 1817 and Vänersborg in Sweden in 1834, for example – began to create wide thoroughfares which were planted with trees, the aim in this case being to prevent and limit the destruction caused by fires. In Paris, prefect Haussmann embarked on a programme of grand avenues, which came to be known as boulevards, on a scale more ambitious than anywhere in Europe except Vienna. In 1856 this programme was underpinned by an edict specifying the number of rows of trees to be planted according to the width of the roadway.



III. 6: Just before Haussmann, from 1830 onwards, prefect Rambuteau created the new Champs-Élysées avenue in Paris, lined with "English" style pavements planted with trees. **III. 7:** Avinguda Diagonal in Barcelona, another avenue structured by rows of trees

1.3 Tree-lined country roads

While tree-lined avenues were becoming common in the gardens and then around the properties of wealthy landlords, and while rows of trees were being planted around and within the perimeters of towns and cities, trees were also being planted in rows along the roads crossing the countryside of Europe. France seems to have been the first country to issue a decree to this effect, under King Henri II in 1552. Other states took similar measures – Saxony in 1580, Hesse in 1625, Prussia in 1714, Sweden in 1734, Austria in 1763, Brandenburg in 1765 and Denmark in 1793, to name just a few examples.

These edicts were designed to meet specific needs – foremost among them a shortage of wood caused by forest clearing, wars and harsh winters, and sometimes by all these factors combined. The timber was primarily destined for the army and navy, along with cartwrights and firewood, and – in the 19th century and the first half of the 20th century – industry. The leaves were also used to feed cattle and for sericulture and the fruits too had their uses.

For Chaumont de la Millière, responsible for the administration of French roads between 1781 and 1792, tree planting along roadways was vital because the scarcity of wood was “beginning to cause concern which is all too well founded” (Reverdy 1997). By 1789, the shortage of firewood was beginning to make itself felt, its price having more than doubled in 20 years.



Ill. 8: Sweden's willows supplied firewood, fodder and wood for fences

The planting of trees along roadways was also driven by another important factor: the desire to prevent neighbouring landowners trespassing on public territory, and vice versa. An edict issued by Henri III in France in 1579 states this explicitly.

Tree planting also fulfilled a technical function: the trees drained and stabilised the highway and the verges, which was especially important in marshy areas, in Prussia for example. They also sheltered travellers from the wind – as with the cypresses in southern France, for example – or provided shade in unsheltered sunny areas. Moreover, they helped to prevent soil erosion caused by wind, as on the southern coasts of Sweden.

Trees also played an important role in guiding travellers and troops during snowy or foggy weather, in times of flooding and by night, as well as functioning as a protective barrier. During the 1930s some trees along Swedish roads were explicitly designated as *skyddsträd* – in other words trees fulfilling a security function.

In the 19th century, stagecoach operators in Langres in eastern France complained that, "there are many gaps in the rows of trees along the roads they travel and that as a result there is nothing to mark the borders of the roads on dark nights or in the snowy season. Travellers are suffering grievous accidents in consequence. The petitioners request that these roads be lined with trees in those places where they are lacking at the cost of the proper authorities" (Raffaeu 1986).

1.4 The eternal quest for beauty

To say that the rows of trees planted along country roads fulfilled not just practical purposes but also a deep-seated aesthetic impulse, just like Baroque *allées* and urban boulevards, is neither a misreading nor a merely modern interpretation.

In fact, comparisons between tree-lined roads and garden avenues have always been made. From the early 17th century onwards, Baroque *allées* were the subject of theoretical treatises which precisely defined their geometry, applying principles of regularity, symmetry and proportion; likewise, the trees planted along country roads were set at regular intervals and, in France at least, observing a strict symmetry – elm opposite elm, etc. Of course roads in the countryside are not always straight, but gardens too had curved avenues which appeared as a result of the English influence from the early 18th century.



Ills. 9, 10, 11 and 12: The beauty of the spring landscape in Luxembourg and Sweden, with its mixed rows of chestnut and pear trees, is every bit as striking as the fiery autumn colours of tree-lined roads in France and Poland.

During his travels in France between 1787 and 1790, Arthur Young admired the French roads, as “much more like the well-kept alleys of a garden than a common highway” (Raffaeu 1984). In 1802, Baron de Pradt expressed the view that “[tree] plantations ornament and honour a country. What more impressive and at the same time more agreeable sight can be offered to the traveller, be he foreign or even French, than these uninterrupted rows of trees which everywhere provide shelter from the sun’s heat and from blustery winds, presenting the road he travels on in the same form as the avenues in his garden” (Depradt 1802).

The elegant avenues of trees which define the structure of a garden, and then of the surrounding countryside, offer the local populace a visible symbol of the magnificence, power and wealth of the person who planted them. This extraordinary emblematic expression of power and control exercised over the countryside and its inhabitants, inextricably linked with ideas of prestige, has remained attractive through all periods and at all social levels. This drive to embellish and to exercise influence is a real and constant force that is clearly apparent in many quotations from the 16th century through to the present day.

For Stanislas, Duke of Lorraine, in 1741, and for Chaumont de la Millière, in charge of the administration of French roads, in 1790, trees were “one of the principal ornaments of roads” (Chaumont de la Millière 1790). In 1874, Swedish building regulations encouraged the planting of trees along roads above all for their aesthetic and ornamental value. In Luxembourg, in 1915, “the primary objective must not be lost from view: this being to authorise only appropriate and aesthetically satisfying tree plantations along public highways” (Wagner 1915). In 1979, a circular from the French roads department notes that “trees planted along our roads, generally in rows, framed them beneath a vault of greenery, giving our road network a distinctive identity which was internationally renowned” (Direction des Routes et de la Circulation routière (Roads and Road Traffic Department) 1979). In 2004, the Danish roads department, referring to trees which lined the roads before 1950, acknowledged that they represented one of the most attractive landscaping features ever seen in Denmark.

1.5 The 20th century: a turning point

The long and rich history of tree-lined roads reached its peak in the late 19th and early 20th centuries. In 1897, France had 2 935 000 trees along its roads, accounting for nearly two thirds of all the roads where tree planting was possible. As tree-lined roads became ever more widespread they became more democratic in character. This trend went on generally through to the 1920s with the garden cities and the planting of fruit trees in the countryside, continuing even up to the Second World War. By this stage, the popularity of this type of feature remained high: so much so in Sweden, for example, that private householders were fond of planting trees along the pathway leading to their house, however modest it might be.

Yet, the advent of the automobile and the dynamic economic growth of the post-war period were to radically transform this heritage, to disastrous effect.

Tree felling

Motorway construction boomed in response to the increase in road traffic; existing roads were expanded, irregular roads were straightened, and the trees were swept aside in the process. These developments were condemned as vandalism in the Swedish press as early as 1928. Yet, most of the devastation in western Europe took place in the post-war period. Eastern Europe in turn saw a boom in car ownership in the 1990s and it is to be feared that large-scale tree felling now threatens the remnants of Europe's heritage.

Comparing the former West Germany with the former East Germany, where the heritage was preserved for a long period, provides a striking illustration of the devastating effects of previous development policies: even though the west is 2.5 times larger, its tree-lined roads – those lined with trees on both sides – cover nearly five times less distance than those in the east (5 200 km compared with 23 000 km). In France, the département of Seine-et-Marne, even though it is one of the most aware of its heritage, now has less than one tenth (17 500) of the number of trees planted along its roads in the late 19th century (200 000).



III. 13: In 1895, 87% of roads in the French département of Meuse were lined with trees on both sides: a total of 44 000 trees. Now just fragments of this heritage remain, comprising less than 7 000 trees in all

Alongside the increased number of cars on the road, improved vehicle performance, particularly in terms of speed, made road safety a serious problem for society as a whole. The number of deaths on the roads grew dramatically over an extended period culminating in the 1970s in western Europe. Eastern Europe saw an even more spectacular rate of increase in the early 1990s. Road safety policies were widely adopted, and enhanced over time, with impressive results despite the fact that overall distances travelled were constantly increasing.

7. For simplicity, the name of the state is abbreviated to Mecklenburg hereafter.



III. 14: Road widening works on the outskirts of Riga. **III. 15:** Tree felling in Masuria, Poland

In 1972, France recorded 16 545 deaths on the road. The total in 2007 was 4 620: down by two thirds. In Germany, the number of people killed on the roads in the federal state of Mecklenburg-Western Pomerania⁷ fell from 624 in 1991 to 144 in 2007 (a decrease of 77%).

Faced with road accidents ending with a violent impact against a tree, however, the public authorities' response was a simplistic one: cutting down the trees.

In the 1960s, Italian writer Gianni Roghi protested against the destruction of 260 000 trees lining Italy's roads over a five-year period, "on the pretext that they would be dangerous for drivers" (Roghi 1964). In France, in 1970, President Georges Pompidou protested against a ministerial circular because "felling roadside trees will become the norm, under the pretext of safety". His protest apparently went unheeded: as recently as 2008 the Conseil général of Mayenne was subsidising the felling of roadside trees.⁸

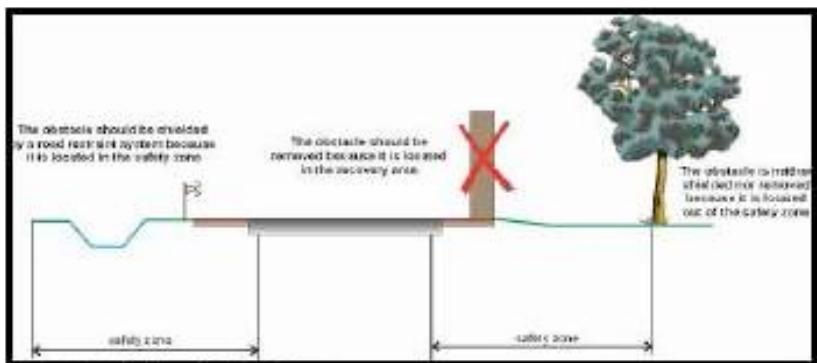
These radical measures are in keeping with the "forgiving roadsides" or "Vision Zero" concepts implemented, for example, in Sweden and Switzerland. Based on the idea of the right to error, this kind of approach maintains that the seriousness of an accident should not be exacerbated by the way road verges are configured. These concepts are the subject of countless working parties, drawing on the findings of road safety inspections and EuroRAP, the European Road Assessment Programme. In concrete terms, this means the definition of so-called "safe" distances within which all fixed obstacles should either be removed or protected by crash barriers.

8. See Appendix 3.



III. 16: Trees are still accused of being the cause of deaths on the roads and whole rows of them are being cut down, as evidenced by the titles of these recent newspaper articles: "The killing trees" and "No brake on tree felling"

The World Health Organization Report on Road Traffic Injury Prevention, referring to Sweden's Vision Zero, recommends the "systematic removal of roadside hazards, such as trees, utility poles and other solid objects" (WHO 2004). The disappearance of most roadside trees in Denmark resulted from the application of a ministerial circular to the same effect as early as 1952.



III. 17: The image used to define the concept of a "safety" zone in Europe's Roadside Infrastructure for Safer European Roads (RISER project). Even though the definition applies equally to utility poles, parapets and so on, the picture still shows a tree

Compared with tree-lined roads in the open countryside, the situation regarding tree-lined urban streets is more varied. Some of the heritage in this area has been conserved, or even supplemented, as the result of political will, in many

cases going back to the 1980s or 1990s. Yet, where these features are not endangered by the pressure on land availability, the trees are often disregarded during real-estate or infrastructure projects and totally neglected while the works are under way, resulting in unnecessary loss through felling or tree death.



III. 18: Riga, a “green city”, with a large number of trees which require constant vigilance, as in forest regions

In 1949 the Geneva press published an article which is just as pertinent today: “The 18 majestic chestnut trees, more than a century old, which lined the Geer estate in Malagnou have just fallen beneath the woodcutter’s axe. ... The company, which currently owns the estate, has decided to build ... an imposing group of 4 buildings for letting One question springs instantly to mind: why wasn’t this huge edifice located in such a way as to spare the trees?” (Garance 1997).

Planting shortfall

The history of tree-lined roads in the 20th century is also shaped by another key factor: the fact that tree planting virtually grinds to a halt. Even though a few countries or regions – Luxembourg, some of the German *Länder*, particular provinces in Sweden and the Netherlands, for example – have maintained a tradition of planting or resumed it in the very recent past, the impact of these initiatives can be very limited or held in check by restrictive regulations: prohibitions on gap-filling, for example, or on planting along particular road networks, as in the German state of Brandenburg.

At the dawn of the 21st century, Denmark's roads department acknowledged that even though the felling had not been systematic, there had been no concerted planting effort, either, with the end result that: "broadly speaking, all the trees lining the country's roads have disappeared with the modernisation of the road network, within the space of just a few decades" (Vejdirektoratet 2004)

"Forgiving roadsides" policies have impacts extending beyond tree felling. They also explain the cessation of tree planting, because planting beyond the "safety" zone calls for land acquisitions that are difficult and costly, as well as making the maintenance of roadside verges even more expensive. So it is quite natural to abandon the idea altogether.

In Denmark the safety zone varies between 7 m and 9 m for roads with a 90 km/h speed limit, and in Italy, trees must be planted at a distance equal to their maximum height: which means ... 30 m for a plane tree.



Ills. 19 and 20: *Planting at a greater distance from the roadway requires difficult land acquisitions. Examples from France and Sweden*



Ills. 21 and 22: Even when the local authority decides to bear the additional costs involved in land acquisition, excessive planting distances make it impossible to recreate the “cathedral” effect produced when the proximity of the road and the trees creates a distinctive and integrated space

This planting shortfall is critical given the natural ageing process affecting the remaining trees. The crisis is all the more severe because tree ageing and death are accelerated when the trees located alongside roads or streets are mistreated – and such mistreatment is all too evident.

In 1824 the town of Brive in France was described as possessing avenues planted with magnificent trees (Orloff 1824); in 2006, 40% of the 7 000 roadside trees were diseased or nearing the end of their lifespan.

Incorrect pruning undertaken by staff lacking the necessary expertise is particularly symptomatic of this state of affairs. “Anyone can cut, but few know how to prune”, said Jean-Baptiste de La Quintinie, Louis XIV’s gardener. Sadly, his words still hold true today. Quite apart from the distressing visual results – diametrically opposed to the quest for beauty which inspired the planting of the trees in the first place – these expensive and inappropriate interventions can weaken the trees and lay them open to attack by pathogenic agents.



Ills. 23 and 24: Technically incorrect, aesthetically offensive. These recent examples from Latvia and France are just a very small sample of practices which ought to be banned



Ills. 25 and 26: These examples are from Poland and Italy. Ill. 25 shows another location where tree avenues were planted in the 19th century: cemeteries

D. Depradt (member of France's Constituent Assembly from 1789 to 1791) remarked: "There is nothing more pleasant and at the same time more impressive than a tree bearing all its branches, and there is nothing more unpleasant or perhaps more ridiculous than trees stripped of their branches; and yet the latter is the state in which they appear on some of the roads in France" (Depradt 1802).

Works undertaken as part of an ongoing highway maintenance programme (mowing, shoulder grading, mechanical snow clearing) and as part of larger construction projects (earthworks, ditches for utilities, etc.) inflict multiple wounds on the trunk and the roots which can cause lasting damage. Further impacts and mutilations are caused by vehicles and agricultural machinery travelling along the road and by vandalism.

Tree death can also be accelerated by chemical substances, particularly salt: salt used for snow clearing and to stabilise unsurfaced roads, as in Sweden, or brine and detergents discharged by market traders, as in France.



Ills. 27: Example of damage caused by shoulder grading works



Ills. 28 and 29: Examples of vandalism in France and Sweden. In the Netherlands, a car dealer infuriated by the tree in front of his showroom resorted to poisoning; in Luxembourg, nearly 1 000 trees have been vandalised since 1994

Other attacks may be less obvious because they are less visible, but they are just as damaging, including asphyxiation caused by compacting the soil around the tree, and changes to its hydric environment. These conditions may arise when the water table is lowered, when leaks from underground pipe networks are repaired, when irrigation of neighbouring agricultural land is discontinued (as in the south of France), with embankment works – even temporary ones, and in particular when the level of the highway is altered.

The main factors affecting young trees are defective tree quality and lack of expertise (planting pits not large enough, soil not decompacted, lack of aftercare and especially inadequate watering), which very often compromise the future of the plantations.

It would appear that the observation by agronomist J.-B. Rozier in 1789, decrying the malpractices perpetrated in some nurseries, remains true today: trees are “torn out of the ground with mutilated roots measuring 8 or 9 inches on each side ... then we are surprised when a very large number of the trees fail to recover” (Rozier 1789).



Ills. 30 and 31: Poor quality plants, poor planting conditions and lack of aftercare impede the creation of high-quality tree-lined roads

In addition to these factors relating to tree management and the trees' environment, other external factors also play a contributory role in weakening our heritage: diseases, pests, climate change, etc.

Heritage in danger

The consequences of the situation outlined above can be illustrated by three concrete examples:

- between 1995 and 2008, some routes in Sweden lost half of their trees as a result of tree deaths;
- in France, in a *département* which has actually had a renovation plan for its tree-lined roads in place since 1992, 15 years later one of its major roads had lost 10% of its trees and 50% of the remaining trees had to be cut down due to disease;
- in the canton of Geneva in Switzerland only one road lined with fruit trees on both sides survived beyond the 1950s. It covers a distance of 400 metres on either side of the Route de Bardonnex.

In these three cases replanting has been either non-existent or nowhere near sufficient to make up for the losses. Will we have to echo the 19th-century engineers of France's *École nationale des Ponts et Chaussées* (National School of Civil Engineering) who observed that there were "great stretches without any trees" and predicted that "soon we won't see any trees at all along our roads" (Raffaeu 1986)?



Ill. 32: Remnant of rows of Swedish whitebeams along a coast road in Scania (Sweden)

2. A multifaceted heritage

2.1 A shared heritage

Avenues and boulevards, *allées* in gardens and cemeteries, tree-lined country roads: there is nothing very surprising in the fact that we find all these kinds of features in various places in Europe. The continent has always been a place of intensive cultural exchange, particularly in the 18th century, and this effect has been overlaid by influences resulting from conquests and alliances.

Although tree-lined roads have existed far beyond the European arena, their rapid dissemination across the western world is closely linked with the influence of the French style of gardening: this is reflected in the use of the terms *allée* and “avenue” in many countries, terms which are also used for tree-lined roads in the open countryside. Having founded the *École des Ponts et Chaussées* in 1747, France exported both its expertise in road construction and its engineers’ taste for regular planting schemes, and this also played an important role.

Circulation of ideas and people: André Mollet, from a dynasty of French gardeners, worked in England, Holland and at the court of Queen Christina in Sweden. He published a small treatise, Jardin de plaisir [The pleasure garden], in French, German and Swedish, in Sweden in 1651; it was translated into English at a later date. Here, he recommends that the gardener’s primary ornament should be “a great avenue with two or three rows of trees, either wych-elms or limes” (Mollet 1651) perpendicular to the facade. France also inspired King Frederick V of Denmark. Having visited Versailles in 1764, he summoned three French engineers whom he appointed to create a network of modern roads in Denmark. They imported allé – the Danish term for tree-lined roads. In Prussia, the first Chausseen (from the French chaussée) were built in 1787, drawing inspiration from French models. A decree of 1814 made it compulsory to plant trees along these roads.



Ills. 33 and 34: *Tree-lined roads in Romania and Italy*

2.2 A heritage forging identity

Tree-lined roads create an effect of coherence which gives an estate or region its own distinctive appearance, a face: the landlord who planted his garden and the countryside with *allées* was clearly marking his ownership of the territory, both in the eyes of travellers and of his own subjects.

For English soldiers in the First World War, for example, France was identified with the endless lines of trees along the roads which led them to the front. Even today, in a highly urbanised département like Val-de-Marne, near Paris, rows of trees and the cohesive identity they create are used to differentiate roads managed by the Conseil général from roads managed by the municipal authorities.

Yet if tree-lined roads share a common language, every region, every country, and every individual *allée* has its own particular accent and mood which sets it apart: there is nothing dull or predictable about this kind of feature.

The plantations can be geometrically varied: square planting, as was the norm in France, or in a quincunx – a pattern used for narrower roads in north Germany,

Belgium, Luxembourg and the Netherlands, for example, and still preferred today in some of these countries; symmetry of the species in relation to the road's axis (France) or lack of symmetry; variation in the number of rows of trees from one to two, four, etc.

Some “very beautiful staggered rows of beeches” are mentioned near Bayeux in France in 1823 but this style of planting is rare, perhaps because – as Du Breuil mentions in his manual of arboriculture in 1860 – this form was thought to require extreme precision in planting in order to achieve a harmonious effect.



Ills. 35 and 36: In the Netherlands roads lined with two rows of trees on either side are common; by contrast this road in Belgium has a single row of plane trees on either side



Ills. 37 and 38: Matching rows of planes in southern France and chestnut trees in Mecklenburg

Regional variations can be seen above all in the choice of species, which varies according to geography, climate and soil type as well as reflecting changing fashions. The choice also varies generally according to the type of feature involved: baroque *allées*, urban avenues, country roads, streets in garden cities, private avenues.

In parks there was a preference for limes and hornbeams, which were more amenable to clipping in highly architectural shapes. Chestnut trees were also very popular, as were some conifers, yews and spruces for example, planted in alternating sequences as at Chantilly or Charlottenburg and prized for their striking shapes and the fact that they remained green all year round.

In Luxembourg the tree species to be planted in each canton were defined in a circular of 1894. Forest trees, which were regarded as more aesthetically satisfying than fruit trees, were reserved for major roads and the outskirts of towns.

In Austria, apple trees, pear trees, cherry trees and service trees were reserved for the Mostviertel and Weinviertel regions, rowans and birches for the Waldviertel region, walnut trees and false acacias for the Pannonian Plain, oaks for Upper Austria, sycamores and planes for the areas around the castles of Lower Austria and limes and chestnuts for prestigious plantations. In Mecklenburg, chestnut trees were traditionally planted along the approach to agricultural estates.

In 1766, Lombardy poplars were introduced to Leipzig, in Germany, from France; the first avenues were planted in Potsdam in 1770 and near Karlsruhe. The plane tree was introduced to Potsdam in 1797.



Ills. 39 and 40: Double row of Swedish whitebeams, fashionable in the south of the country in the early 20th century, and Lombardy poplars in Luxembourg

The resources available to the planters and the availability of the trees also explain the differences between some types of plantation. This can still be clearly seen in Sweden today, where rows of trees along country roads were traditionally planted by local farmers, who generally used a mixture of different species found in the nearby forest. Meanwhile, from the 17th century, wealthy landlords were able to import lime trees from Holland or Germany to create uniform avenues more consistent with the canons of formal beauty.

In Scania (Sweden), only 39% of tree-lined roads are single species. The rows of trees can include as many as nine different tree species. Elsewhere, alternative solutions were found to the problem of the quality of plants sourced in the forest: nurseries were created in France in the 1720s; in Brandenburg a decree of 1814 ordered the creation of nurseries at intervals of 15km along the new Chausseen.



III. 41: In the background, to the left, a very regular avenue of lime trees leads to an estate; on the right a recent and much less homogeneous plantation borders a public road (in Sweden).

III. 42: Limes, elms, chestnuts, ash trees and Norway maples line either side of this road in southwestern Sweden

Local usage has also traditionally been a deciding factor in the choice of species: in the vine-growing region of Burgundy, 18th-century roads were lined with elms and whitebeams used for the presses; elsewhere, mulberries were planted for silk farming. Meanwhile poplar planting expanded significantly in the 19th century because the tree's rapid growth made it popular for domestic and industrial purposes.

Fruit trees have their own separate history. They were already planted in the 18th century, but became more widely adopted in the late 19th and early 20th centuries in particular, because of their advantages from the perspective of agricultural societies: they provided a regular income, unlike forest trees, and were less of a nuisance. Here, too, there is considerable variation from one country to another, however.

In the second half of the 18th century, Empress Maria Theresa of Austria encouraged the planting of avenues of fruit trees in order to boost fiscal revenues, because cider served in public was taxed. In eastern France in the 19th century, the Conseil général of Haute-Marne ordered that all non-fruit trees should be cut down and that cider apple trees should be planted. Even though they represented 50% of trees planted in the region in 1920, they have virtually disappeared today, unlike the avenue of apple trees at Asknäs in Sweden, which was planted in 1887 and was still standing in 1997.



Ill. 43: Fruit tree planting was substantially expanded in Luxembourg in the 1870s. One of the aims was to combat alcoholism by producing cider. **Ill. 44:** Rows of mirabelle plum trees, traditionally identified with the Lorraine region of France

2.3 Architecture of the landscape within the landscape

Tree-lined roads are distinctive features of a landscape. In contrast to contemporary design strategies based on blending infrastructures with the landscape, tree-lined roads elegantly accent these infrastructures, conferring an extra dimension on them both from the road itself and from the outside: the dimension of volume which a winding road on its own cannot possess.

In other words, tree-lined roads structure the space of a landscape. This is true of the countryside, but it is particularly evident in towns, where the volumes created vary according to the shape of the trees selected and the way they are arranged – in the middle of the roadway or to the sides, for example.



Ills. 45, 46 and 47: A distinctive presence in French and Swedish landscapes



III. 48: An arrangement in the spirit of the Dutch Sustainable Safety programme: trees are used to keep pedestrian walkways separate from cars. **III. 49:** A double row on a central reservation in Barcelona

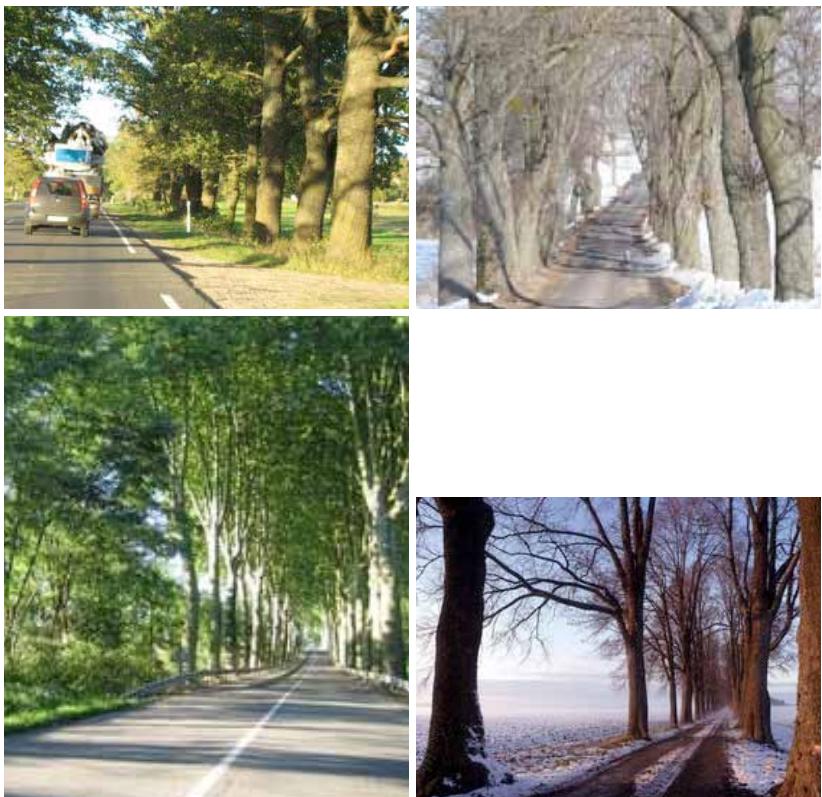
In fact, the road and the rows of trees accompanying it constitute an architectural feature, with a beginning and end, height, width, rhythm, proportions, and an arrangement that is a square or a quincunx. It is a living form of architecture, with the advantage over traditional architecture that it improves over time. Furthermore, the arch formed when the upper branches meet above the road is often described as a “green tunnel” or “archway”; the term “cathedral” is used in this connection as early as 1794. This description is all the more apt because the succession of trunks is naturally reminiscent of a colonnade and where the trees are planted in double rows the classically recommended proportions are the same as those for naves and side aisles. This kind of feature is architectural not only for its shape but also for the way light falls through it, creating a very distinctive ambience which changes with the passing hours and seasons.



III. 50: A very old, majestic avenue of plane trees in Luxembourg. **III. 51:** The iconic allée at Övedskloster in Sweden. In 1776 Count Hans Ramel imported 4 000 lime trees to plant the roads of his estate



Ills. 52 and 53: Tunnel or cathedral? Tree-lined roads in Belgium and Poland (Warmia-Masuria)



Ills. 54, 55, 56 and 57: Light effects in Latvia, Poland, France and Sweden

Tree-lined roads also give shape to the landscape, creating sometimes a rhythmic effect, sometimes a unity. Travellers along a road lined with trees see the landscape as a dynamic succession of images framed by the tree trunks, which function as “windows” (another architectural term). The landscape is neither closed off (as it is by unbroken hedgerows) nor so wide open that the gaze gets lost in it: the space is framed and displayed to best effect.



Ills. 58 and 59: *The landscape is revealed in a succession of images or at the end of the avenue (France and Belgium)*



Ills. 60 and 61: *The landscape is unified by the row of trees. Disparate buildings merge together behind the regular screen formed by the tree trunks; alternatively, the tree trunks stand out against the darker backdrop of the forest, creating a distinctive mellow effect*

Rows of trees also provide a clue to reading the landscape. During the First World War, for example, tree-lined roads were a key feature in the iconography of the battlefields. On a more mundane level, the way trees are arranged and presented effectively signposts an urban environment or the approach to a built-up area: trees are more effective and attractive than other forms of signage.

In 1916, the British writer R. Farrer described the approach to the battlefield of the Somme, to the north of Paris: “Along the voluminous velvety roads one rolls under plumy avenues of trees. And then the road becomes less velvety, and the avenues by degrees less plumy, till at once they are only stark skeletons, gap-toothed and shell-shattered in their rows” (Gough 1998).



III. 62: A double row of trees set in a low clipped hedge signals the approach to a built-up area in Luxembourg. **III. 63:** Alongside the Seine, near Paris, a sequence of clipped lime trees takes the place of free-growing plane trees. The change visually signals an intersection, is aesthetic, and also acts as a safety barrier to stop disease spreading in the event of an outbreak of canker stain

2.4 A cultural landscape

The “macro” history of tree-lined roads within our wider culture is overlaid by the individual “micro” history of each particular road: each one has its own story and memories, enriched by the many myths attached to the trees themselves.

The idea that tree-lined roadways have a memory function, that they are bearers of history, becomes clear, for example, when we consider the tree avenues which survive even though the chateau or manor house they led to has disappeared; the Latvian term for this, “memorial *allée*”, is an expressive one. The idea also surfaces in the proposal made by the English writer A.D. Gillespie, who was an officer in the First World War, that an avenue of trees should be planted connecting the Vosges region to the sea, to commemorate the horrors of the Great War. The idea was warmly received in the press but was not carried out.



III. 64: The beeches of Château de Bertangles (France) bear blurred inscriptions, traces of passing German soldiers in 1941. **III. 65:** The avenue of lime trees at Villers-aux-Erables (France) is all that remains of the first chateau built here in 1680; the chateau was subsequently rebuilt and then completely destroyed in the First World War

Artists have of course been aware of the emotive associations of tree avenues as an inextricable element of their beauty. They have inspired writers such as Theodor Fontane, Hjalmar Söderberg and August Strindberg (his poem *Esplanadsystemet* was published in 1883), painters such as Pissarro, Sisley, Van Gogh, Klimt, Munch and Esther Almqvist, and sculptors, including Christo, who wrapped an avenue of trees in Switzerland in 1998.

2.5 An everyday landscape

Tree-lined roads certainly no longer serve one of their original purposes, timber production, as Europe no longer suffers a shortage in this respect. Yet, they make a more vital contribution than ever to the public well-being: through their beauty and their calming effect, of course, but also for certain very practical functions which were already appreciated in former times.

With climate change and the decline of fossil fuels, trees' role in providing shelter from wind and sun is bound to attract increased interest. The process of evapotranspiration effectively makes them atmospheric air-conditioners, limiting the impact of extreme temperatures, while the Venturi effect operating between the ground and the tree's crown prevents snow drifts building up in the winter. Furthermore, roadside trees help reduce peak run-off flows, a vital factor; this also counters erosion and reduces the risk of landslides.



III. 66: The cooling effect of trees is estimated at 4°C to 10°C in a heatwave while some studies report an energy saving of 10% in the surrounding habitat. The sign in the photograph says "Shade"

Arguments put forward to justify the urban planting policies of the 19th century highlighted trees' contribution to protecting us from dust particles, depolluting the atmosphere and producing oxygen. These arguments are now more pertinent than ever if we consider the significant number of premature deaths linked to traffic pollution in Europe.

Research has shown the impact of trees on dust fall (between 20% and 70%, depending on the study), on reducing concentrations of NO_x , CO_2 , ozone and PCBs, and releasing oxygen. The shade they cast on vehicles' fuel tanks also prevents the evaporation of volatile organic compounds. These effects should be set alongside the number of premature deaths due to dust particles, a form of pollution that is evident in all countries; Europe's CAFE programme estimated the number of deaths in Germany, for example, at 65 000.

2.6 Biodiversity “support system”

In urban environments where stone generally predominates over vegetation it goes without saying that tree-lined roads play a vital role for plant and animal life. Yet, their role is also a crucial one outside towns and cities. The lighting conditions they provide, a subtle mix of light and shade that is different from a forest, make them unique biotopes, even in woodland regions. When the trees remain by the roadside beyond the level of forestry maturity, they can develop their role in the landscape to the full, reaching ages which make them irreplaceable. As a result, they harbour many insects, providing unique hunting grounds for bats and birds and vital ecological corridors in open landscapes. Compared with roadside hedgerows, they have the advantage of encouraging birds and bats to fly higher when their paths cross roads, which stops them colliding with vehicles.



III. 67: Along unsurfaced pathways and roads, such as can be seen in Sweden and Latvia, for example, the dust that is stirred up encourages the formation of lichens which are endangered elsewhere

In Germany, an avenue of oak trees that is nearly 450 years old in the Gustow estate (Schleswig-Holstein) harbours 41 beetles from the red list of endangered species while a 300-year-old avenue of limes at Ascheberg harbours 34.

2.7 Beneficial for road safety

Although some people call for trees to be removed, or placed at a greater distance from the road itself, often in the emotional aftermath of an accident, this is not an

effective road safety measure. In fact, removing trees from the roadside does not eliminate the risk, it simply displaces it.

In France, the département of Meuse, where barely 7 000 trees have escaped the wholesale roadside felling, has a road risk level 20% higher than Meurthe-et-Moselle, which has 10 times more roadside trees. In fact, in France over the past 30 years, as trees have been cut down the number of accident victims colliding with solid objects other than trees has increased two- or three-fold.

A compromise is sometimes proposed, which involves combining tree-felling with replanting beyond the so-called “safety” zone. Whatever the distance involved, whether it is 4 m, 7 m, or more than 10 m, the facts show that unfortunately run-off-the-road accidents are frequently fatal because of factors which may already have taken effect before the impact (vehicle rollover, fatal heart attack, etc.). The idea of planting beyond the ditch does not make any difference: except on a small number of major roads, none of these ditches are designed to mitigate the effect of run-off-the-road accidents. Nor does erecting crash barriers solve the problem: installing them is impossible given the proximity of the trees to the road in most cases, and trees either side of driveway junctions would have to be cut down. Moreover, barriers are unattractive and obstruct roadside maintenance, while they too constitute a roadside obstacle which takes its own toll of crash victims every year.



Ills. 68 and 69: *The ditch exposed after cutting down this double row of plane trees is not designed to mitigate accidents. In France, ditches, along with embankments and rock faces, constitute the solid obstacle accounting for the largest number of serious injuries and the second largest number of road deaths*

Those who call for the removal of roadside trees are in fact overlooking the positive role they play in terms of road safety. Yet, of course, it is always difficult to put a precise figure on the number of accidents which have been avoided due to their presence.

Rows of trees along a road contribute to safety by signalling bends, crossroads and the approach to built-up areas more effectively than road signs. They make it easier for drivers to read the road ahead, a key factor in helping them anticipate and adapt their driving to their environment, both in normal weather and even more so in snow or fog, or at night.



Ills. 70 and 71: *The intersection and the bend in the road are clearly visible from afar*



Ill. 72: *In fog, when there are no road markings, trees provide valuable assistance. Ill. 73: Norway's roads department highlights the vital role played by tree avenues in a country with snowy winters*

The trees lining past help drivers maintain awareness of their speed without looking at their speedometer. By channelling lateral vision they also encourage prudence, whereas an open roadway reduces vigilance and encourages speed. Finally, it should be noted that research has demonstrated a link between the beauty of a road and higher levels of road safety.

An audit of local road safety policies in France revealed that one stretch of a route nationale (A-road equivalent) with high traffic levels and a particularly close-set avenue of trees records fewer accidents than other sections of road because the tunnel effect encourages drivers to slow down.

2.8 Amenities, local development and asset value

The entire tree-related sector – particularly nursery operators, tree surgeons and arboriculturists – stands to benefit from policies promoting tree-lined roads, which also provide employment for low-qualified personnel: collecting dead leaves and fruit, watering, etc., are local jobs that anyone can do. Luxembourg, for example, runs a scheme in which unemployed people assist with the management of roadside trees.

Tourism also benefits. At the other end of the spectrum from “Vision Zero”-style roads, where drivers are interested in nothing except arriving at their destination and getting there within a particular time, with no room for any emotional response, tree-lined roads extend an invitation to explore and discover the countryside they cross: in this respect they enhance the area’s attractiveness.



Ills. 74 and 75: Two philosophies of travel – one mechanistic, the other hedonist

Motorrad Online, a specialist German biker magazine, invites its readers to enjoy Luxembourg’s tree-lined roads because “magnificent allées like this one have become rare on the other side of the border” (Motorrad Online 2007). It is also because of the image created by these roads that tourists choose destinations such as Masuria, known as Poland’s “green lung”, or Brandenburg and Mecklenburg in Germany.

This fact prompted Germany’s automobile association ADAC, the German National Tourist Board and various other partners to collaborate in a unifying tourist initiative around the *Deutsche Alleenstraße*, a 2 900-km route linking tree-lined roads from the island of Rügen in northern Germany to Lake Constance in the south. Every year, some 20 000 holidaymakers looking for ideas download descriptions of the route; its success encouraged Nordrhein-Westfalen to join the scheme in 2008.

Permanent residents benefit, too: trees always have a positive impact on property values, adding an extra 5% to 20%, according to research in America.

Trees of any sort have a positive impact on household consumption: research has demonstrated that holiday homes located in surroundings criss-crossed by trees have occupation rates 30% higher than those in open countryside, while household expenditure is 11% higher in shopping centres with trees.



III. 76: An avenue of plane trees in Milan. **III. 77:** The Deutsche Alleenstraße running through Brandenburg

Even though roadside-trees are no longer needed to supply timber, their economic value is far from negligible. The amenities they provide – landscape enhancement and improved well-being – are assets with a quantifiable value that increases over the years, unlike the depreciating value of other road equipment. Various formulas are used to determine a tree's value, based on the species, its state of health, its size and its aesthetic benefit. Bringing together the various estimates accepted by insurers leads us to a value of around €1 million per km for two complete rows of adult trees in good condition, with the trees spaced at an average distance of 12 m. This significant value should be stated as an asset in the public accounts in just the same way as buildings and other tangible assets. This would make the substantial richness of this heritage visible to everyone, citizens and decision makers, and would provide a useful point of reference for effective budgetary decision making. It should be noted, however, that this value is still an underestimate, because it does not take account of the trees' role in combating pollution and promoting biodiversity.

3. What is to be done?

Tree-lined roads have their origins in the art of painting, with the concept of perspective; created by the great gardeners and engineers of past centuries and accompanying the work of the great architects, they are the living legacy of a multi-faceted culture. It is unthinkable that the trees and the creative genius that inspired tree-lined roads should be allowed to disappear.

In 2005, Denmark's roads department observed that "tree-lined roads constitute ... an important element of our culture and our environment and merit special conservation as elements of our culture and landscape" – an opinion shared by the Swedish roads department.



Ills. 78 and 79: Both country roads and hidden byways deserve to retain the trees that adorn them (Netherlands and Poland)

3.1 Consolidate widespread public support

Tree felling is often justified with reference to "popular support". How accurate is this?

Road accidents understandably arouse grief and anger. Every individual responds in a personal way to the ordeal of bereavement and this must be respected. Some families and relatives call for trees to be cut down after an accident while others do not, because they are aware that the tree did not cause the accident.

In fact, the population in general has a strong attachment to roadside trees, based partly on a natural response to their beauty and partly on the strong sense of familiarity they inspire due to their longevity. This is evident from the protests aroused by tree felling plans when these become known. The public outcry in Germany, for example, was so strong that the German automobile association ADAC responded to pressure from

its members in 1992 by starting its *Rettet die Alleen* (Save Tree Avenues) campaign, launching a telephone hotline the public could use to report tree-felling plans.

The newspaper De Telegraaf reported in 2008 that an 83-year-old Croatian committed suicide after a 100-year-old tree was cut down as part of a road-widening scheme to the north of Zagreb.

The conclusions of the citizens' panel organised in 2006 by the Conseil général of Meurthe-et-Moselle, which manages the roads in this *département* in eastern France, provide a case in point. The panel members, who were selected at random, had to give their view on the value of retaining roadside trees, taking traffic accidents into account. Having questioned various experts (regional planning, road safety, etc.), they had no hesitation in supporting the retention of roadside trees and the expansion of this heritage. The Automobile Club of Lorraine polled its members shortly before this with similar results.

Some 84% of 1 650 German drivers questioned in 2003 stated their support for retaining roadside trees. In 2007, vehement protests by local residents and representatives of the local tourist industry prevented the felling of 1 000 trees and led to the development of a management plan for them on the island of Rügen in the far north-east of Germany.

Rethink road safety

Public support for the tree heritage is no excuse for abandoning road safety initiatives, which can be combined with pro-tree policies. It is just a question of making sure that these initiatives choose the right targets. It is worth repeating, as Gila Altmann, Germany's Secretary of State for the Environment, noted in a speech in 2002, that "the trees are not the cause of the road accidents. The trees are predictable, they stay in the same place; cars can avoid them if they are driven appropriately" (Altmann 2002). Highway codes in all countries stipulate that drivers should be in control of their vehicle and adapt their driving to the circumstances. This requirement of controlling the vehicle stands in stark contrast to "forgiving roadsides" policies which take no account of the fact that driver error can lead to the death of other road users.

For France's Académie des Sciences morales et politiques (Academy of Moral and Political Sciences), "it would be ... absurd to cut down the trees, as some have proposed, in order to improve road safety. ... Incriminating the trees, however, remains typical of a certain perception of the road in France, where external elements are held responsible for disastrous consequences more often than driver behaviour" (Académie des Sciences morales et politiques 2003).



Ills. 80 and 81: Contrasting perceptions of road safety and aesthetics: in France, a sign tells drivers to beware of the trees; in Germany, an image highlighting the beauty of the preserved tree avenue invites drivers to opt for safety and decrease their speed

Conserving tree-lined roads calls for us to rethink road safety programmes in order to aim for individual prudence and responsibility. It means moving from “forgiving roadsides” – which absolve drivers of responsibility – to a concept of “calm driving”.

In an audit of local road safety policies, the French authorities recognised the need for a new approach: “Past policies of systematically cutting down rows of trees lining roads, which are still practised at times in some départements, must make way for genuine safety policies for the road environment, incorporating the new concept of calm driving and a respect for our natural heritage” (Inspection générale de l’Administration, Conseil général des Ponts et Chaussées, Inspection de la Gendarmerie nationale, Inspection de la Police nationale 2007).

Various measures are necessary here: speed reduction over tree-lined sections of road, combined with consciousness-raising campaigns and speed checks; no-overtaking zones; including driving on tree-lined roads as part of learner tuition and testing; plus a range of initiatives to reduce risk exposure (developing alternative transport offers to ensure that young people do not drive home from clubs, etc.).

These measures enabled Mecklenburg, for example, to cut the number of people killed in accidents involving collisions with trees by nearly 75% between 1991 and 2007, while at the same time improving road safety on all other fronts, outperforming some German states with fewer tree-lined roads. These measures are also entirely compatible with sustainable development, leading to a significant reduction in fuel consumption and the associated emissions.

Communicate

Communicating the importance of sustaining and expanding our heritage of tree-lined roads, and also of the fact that preserving this heritage is compatible with road

safety, is all the more important because the reasons for choosing to preserve our tree heritage cannot be explained effectively in the emotional aftermath of an accident.

A directive from Germany's Federal Ministry of Transport states the ministry's objective as follows: "protecting tree-lined roads and as far as possible ensuring that this cultural heritage is sustained into the future" (Bundesministerium für Verkehr 1992). In 2003, Brandenburg's environment minister Birthler confirmed that "results obtained to date in Brandenburg have shown that we can improve road safety on tree-lined roads while preserving this heritage" (Birthler 2003). Bundestag deputy Cornelia Behm made a similar statement in 2004: "Road safety is an issue of fundamental importance for us. It can also be guaranteed on tree-lined roads if all road users behave in a responsible way. Using it as an argument against roadside trees would show powerlessness and a lack of imagination" (Behm 2004).

In order to be effective this communication needs to be consistent. Yet it is not unusual to read in one and the same text that tree-lined roads "are a distinctive and valuable element of our landscape" but that trees must be "cut down and replanted" (Vestsjællands Amt 1999); or else, that accidents involving collision with fixed obstacles or trees are "typically caused by driving too fast" and that "in practice, narrowing a road decreases speed and, as a result, the severity of accidents can be lower", but then straight after this: "In practice though changing the location of trees along the roads seems to be the only reasonable solution in spite of some protests by environmentalists" (Tracz 2006).

In fact what we see is that the roadside tree has come to symbolise a range of negative associations for governments and administrations. It is very often used to illustrate or symbolise road accidents in general or at least accidents involving a single vehicle; this despite the fact that accident victims from collisions with trees are never in the majority. These presentations and images overlook the historic, cultural, landscape, environmental and economic value of tree-lined roads and their positive role in terms of road safety; they convey a false image, incompatible with a policy of sustaining and optimising our heritage and with a policy of promoting driver responsibility. They must be corrected as a matter of urgency.

The symbol used in Belgium to represent single vehicle accidents in the statistics is a tree (Observatoire pour la Sécurité routière 2008). In Luxembourg, the National Road Safety Charter signed by various ministers in 2007 is illustrated by a tree as a roadside shrine. In Denmark, the only accident photo in a guide on roadside obstacles shows a car that has collided with a tree; five out of eight images of obstacles in the document show trees, even though more road deaths are caused by other roadside objects than by trees in Denmark. In Sweden, the flyleaf of a 2004 report on road safety in Scania shows a tree-lined road after an accident, even though there are nine times more road deaths from other road accidents than from collisions with trees (at the same time alcohol-related accidents have been increasing steadily since 1997 and represent one third of all fatal accidents).

3.2 Stop tree felling as a matter of absolute urgency

The most urgent priority is to stop tree felling and to retain existing trees for their own sake, without reference to timber production policies: our current timber supply needs are already largely covered by existing forests. Moreover, the trees' function as a unique biotope makes it important to retain trees of all ages, and ancient trees in particular. These can be regenerated through appropriate treatment (pruning). They must be kept within their rows as long as the overall aesthetic impact is not affected, while ensuring that there is no risk of trees falling onto the road.



Ills. 82 and 83: In Sweden, where tree-lined roads are protected as biotopes, the trees are retained *in situ*, taking care to ensure their stability, or else they are cut and planted in the ground close to younger trees or on nearby surplus land, as here

Aesthetics as the absolute guiding principle

Aesthetic considerations have always governed the destiny of tree-lined paths and roads, in gardens, urban environments and in open countryside. A vital reason for keeping felling to the minimum is that this beauty, which can be easily destroyed in a matter of hours with a chainsaw, takes decades to come into being and much longer still to reach its peak.

In 1909, Auguste Charles Delbeke, Belgium's Minister for Public Works, declared: "I would add that first and foremost I protect the trees for their beauty. ... Am I a timber merchant? No! I'm in charge of the country's roads and as such I must demand that the country's roads retain their ornaments. What? Here is a tree which has survived in its early years all the dangers to which it was exposed, from our vehicles and from the malevolence and brutality of passers-by, and now that it is flourishing in all its majesty, I should kill it? ... No! This is not how I see my role as protector and governor of our roads" (Poncelet et al. 2006).



III. 84: This brochure from Norway's roads department reminds us that it takes 100 years to make a tree but just five minutes to cut it down

Alternative solutions for changing needs

Road infrastructures are evolving and our towns and cities are changing: traffic levels are increasing, soft modes of transport like the bicycle are becoming more popular, as are light rail systems. Yet, this in no way conflicts with the aim of sustaining tree-lined roads in the urban environment or in the countryside. The first question to be asked, as a Prussian edict dating from as far back as 1841 points out, is whether new developments are really necessary: only a small number of routes generally carry large volumes of traffic, so is it necessary to incur significant expense to widen or straighten roads serving local traffic needs? Would it not be better to educate drivers on road-sharing issues, which will improve safety for all road users everywhere?



III. 85: Many country roads can cope with moderate levels of traffic, with features which are already sufficient for the purpose, as here in Sweden. **III. 86:** This photograph from the Dutch Crow guide No. 259, "Plattelandswegen mooi en veilig" [Roads in the open countryside: beautiful and safe], shows that sustaining trees and historic road surfaces is compatible with contemporary government and a policy of "sustainable safety". The use of different coloured paving stones creates the illusion that this is a single traffic lane, making users more vigilant and careful

On the island of Rügen (Germany), the authorities abandoned the concept of standardising roads to conform to typical cross-sections in 2008, in order to conserve roadside trees and, with them, the island's tourist resources.

When traffic levels and the road's function require it, one potential solution is to create a new parallel roadway and to divert onto it all or part of the road's traffic (either traffic flowing in one direction or a particular type of vehicle).



Ill. 87: This historic road in Mecklenburg, retaining its original paving and its trees, is used for local traffic. Through traffic has been diverted onto a new road which runs parallel to the old one (on the left in the photo). **Ill. 88:** On this route nationale (main road) in northern France, heavy goods vehicles travelling uphill use a parallel lane located beyond the avenue of tall beech trees



Ills. 89 and 90: Tracks running alongside the road, sheltered by the trees, can be used by cyclists or agricultural machinery

Transplantation is another option, providing this does not open the door to ill-considered projects which treat trees as objects that can be moved about at will. Making use of modern resources, this technique can be completely successful for some species and for trees with diameters of 40 to 50 cm – or even as much as 100 cm. Success depends on careful preparation and meticulous aftercare (watering in particular). The costs are much lower than the asset value of the trees, which would be negated altogether if the trees were felled.

Already 30 years ago, a technical manual issued by the French Ministry of Transport called for “substantial utilisation of the ... transplantation options facilitated by present-day technical resources” (Direction des Routes et de la Circulation routière 1979). Transplantations were carried out well before this date: it was a standard procedure in Paris around 1855. In 1937, four rows of 302 plane trees on the Avenue de la Grande Armée were transplanted, 235 remaining on the same site. In Sweden, when the road between Kyrkheddinge and Hemmeslöv was widened in 1919 the decision was taken to transplant the roadside trees.



III. 91: Luxembourg has transplanted 1 000 trees in recent years with a long-term success rate of 99%. One of the examples presented in the brochure “Straße und Umwelt in Luxemburg” [Roads and the environment in Luxembourg] shows a road-widening scheme in which one row of trees is transplanted

3.3 Plant

While the first priority is to protect existing trees, planting more trees is also vital to ensure that this heritage survives into the future. This fundamental truth, which was recognised in the past, is all the more important where vandalism is an issue, as countries facing this problem have shown.

In 1756, the Intendant (general administrator) of Etigny in southern France gave the order that “new trees should be planted to replace all those that die, with penalties payable for failing to do so” (Reverdy 1997). In 1802, D. Depradt suggested that two trees should be planted for every one cut down – a requirement already enforced in some countries.

Gap filling

It seems natural to start by filling the gaps between trees resulting from years of neglect. Only an effective policy of “gap-filling” can guarantee the conservation of tree-lined roads. Otherwise, as the trees disappear one by one, whole avenues will

be erased from our memory and so replanting at a later date will require that much more will and effort. A policy of gap-filling also has the advantage of recreating a continuity between trees of different ages, which is necessary in terms of biodiversity. Finally, it avoids the traumatic impact of a sudden bareness in the landscape.

Baudrillart, in 1823, expressed his feelings of distress: “Along the road from Paris to Saint-Denis there was a magnificent avenue of tall trees; apparently their great age prompted the decision to cut them down and replace them with a new plantation. The bareness stunned me; it’s all the more distressing because it will take more than ten years not only to offer a modicum of shade to travellers but also to create the appearance of an avenue” (Baudrillart 1823).



Ills. 92, 93, 94 and 95: The practice of gap-filling is systematic in towns and cities and in parks, where significant effort is expended to maintain a high-quality environment. The variation in size becomes less obvious over time and is less stark in appearance than an avenue punctuated by ever larger gaps. Three examples of gap-filling roadside plantations: North-Brabant, Scania and Brandenburg

Creating long tree avenues

Restoring the heritage to its full glory also involves planting complete roadside avenues, in order to compensate for tree felling where this becomes necessary and also to make up for past destruction which has left entire routes stripped of trees.

An inter-ministerial circular on planting tree-lined roads in Mecklenburg states that “protecting tree avenues includes maintenance and development, for example by planting new tree avenues” (Umweltministerium and Wirtschaftsministerium 2002). Ebnet, in his successive roles as Mecklenburg’s Minister for Economics and then Minister for Transport says the same thing in 2007 as he did in 2005: “We want to have more tree-lined roads” (Ebnet 2007).



III. 96: This double row of wild cherry trees in France is about 20 years old. III. 97: Even though it is still young, this new plantation in Luxembourg already creates a presence in the landscape



III. 98: A young plantation in Sweden. III. 99: This new plantation, extending over nearly 3 km, is made up of hornbeams planted close together and close to the road, already creating a visible “avenue” effect. The German state of Mecklenburg has lined 1 750 km of roads in this way since 1990

Correct spacing

Planting distances are determined by the space available: in an urban environment, facades and utility networks (overground and underground) restrict

the possible locations and crown development; in open countryside, space availability is often determined by the fact that the road operator generally owns only a narrow strip of land, unless costly acquisitions are undertaken.

Planting distances are also linked to aesthetic effect desired: achieving a partial or total “arch” effect over the longer term is impossible when rows of trees are planted too far apart, in particular when planting schemes are designed to apply the so-called “safety” zone (which is in fact not “safe” at all). The regular spacing between the trees in a single row should be appropriate to the avenue as a whole: by their nature, tree-lined roads are not a succession of solitary trees but a structure in which each individual tree contributes to the overall effect.

A French technical manual of 1979 recognised that for tree-lined roads “locating the trees on the verge is the only location which gives them their true character” (Direction des Routes et de la Circulation routière 1979). In 2005, the Danish roads department admitted that replanting trees at a greater distance from the road “will strongly alter the character of the road while also being very expensive due to the land acquisitions required” (Vejdirektoretat 2005a).

A circular from the Ministry of the Environment and the Ministry of Transport in the German state of Mecklenburg specifies planting distances relative to the road edge for regional roads (Landesstraßen) varying from 1.5 m for traffic levels below 2 500 vehicles/day to 3.5 m for traffic levels higher than 5 000 vehicles/day. The upper limit was initially 4.5 m but was reduced to 3.5 m precisely because of the land acquisition problems encountered when the planting distance was too great.



Ills. 100 and 101: Where fields or other restrictions limit the space available there is only one thing to do: plant close to the road edge, particularly when the new tree is filling a gap as in the left-hand photo. In any case, the rows of trees must be kept relatively close to one another in order to achieve an “arch” effect



III. 102: Young pear trees spaced at distances gradually reducing from 15 m to 10 m to signal the approach towards a village

Appropriate species

The choice of species should take account of the tree's environment and biology, its physiognomy (shape, texture, colour), the impacts of climate change, history and specific regional circumstances. It will vary according to whether the location is urban, on the outskirts of a village, in agricultural landscape, or in a key area for environmental protection. To prevent the risk of seeing a mono-species heritage decimated by disease or pests, it is wise to opt for some diversity, without overdoing it. Local species and crops should be preferred – including fruit trees. In Luxembourg, for example, the traditional avenues of fruit trees supplying local distilleries and nut markets are regularly supplemented by new plantations.

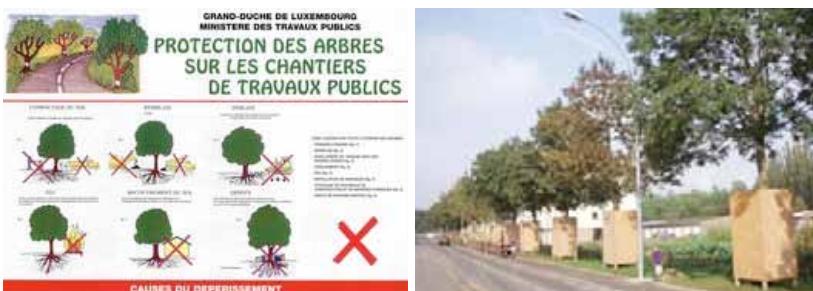
3.4 Respect the tree as a living being

Creating a proper tree-lined road involves more than just planting the trees. Appropriate tree care, conforming to arboricultural best practice, is vital at all stages of the trees' life cycle and must be specified in all contracts. This is vital for sustaining the heritage in an economically efficient way.

Nurseries are the first link in the process of creating a successful plantation. Plants must be selected for quality at the nursery and tagged. Some operators run their own nurseries. When this is not the case, growing contracts can provide for future needs, trees generally being between 5 and 10 or even up to 20 years old when they are planted out. Providing for future needs in this way avoids the need for crisis management and greatly enhances quality; however, it does call for financial commitment over the long term on the part of the road authorities. Other key factors in a successful plantation are transport conditions, planting

pits, soil quality, staking, mulching or hoe-weeding, watering and finally formative pruning to create a balanced structure and gradually raise the crown.

All excessive or over-vigorous pruning and tree topping must be outlawed, in favour of gentle pruning operations only, undertaken by trained arboriculturists who climb the trees. This technique, which is mandatory in some French *départements* and in Wallonia for outstanding tree rows, is the only way arboriculturists can enter the crown to remove dead wood and improve airflow among the upper branches, giving the tree improved transparency and greater stability in high winds. Special types of pruning may be practised if they reflect historic or local traditions, such as willow pollarding in south-east Sweden.



Ills. 103 and 104: In Luxembourg, posters are regularly supplied to companies and distributed on building sites. Specialist forestry officers act as consultants in the planning of roadworks

In order to ensure that the efforts devoted to tree planting and maintenance are not wasted, it is vital to ensure that the tree is protected from all sources of potentially fatal damage. Cleaning tools after working on one tree before moving on to the next is basic plant health good practice to help prevent the spread of disease. Rules to be observed during works programmes must be contractually specified, whether this takes the form of standards or technical manuals as in Germany, or charters as in some towns and regions in France. These must be combined with financial penalties for non-compliance, the level of the penalties reflecting the asset value involved.

The French Ministry of Transport's technical manual of 1979 states that “when existing pipelines obstruct ... the creation of new plantations, before seeking any other solution the licensee or concession holder should be invited to relocate the pipeline” (Direction des Routes et de la Circulation routière 1979). The occupant is liable for the costs of this lawful relocation. Felling is not permitted unless no other solution is possible. The trees should then be replanted at the applicant’s expense.



III. 105: This double row of trees from 1830 (Rathlousdals Allé in Denmark) borders a roadway that is 5.1 m wide, with traffic levels of 5 000 vehicles/day. It has been protected since 1979, and this is supplemented by a prohibition on winter salting, as is also the case in Freiburg in Germany. Elsewhere in Denmark screens are used to protect trees from the salt



III. 106: Posts used to protect trees from damage in France. If the trees had been planted on the verge, between the roadway and the ditch, the risk of impact damage would have been minimised while at the same time restricting root growth in the direction of the cultivated land. **III. 107:** A strip of fallow land – here in Sweden – provides protection against impacts and soil compression

3.5 Manage responsibly

Whether the aim is to defer felling, plant trees or sustain existing trees, a sustainable policy is inconceivable without a management plan for anticipating and scheduling future interventions. Trees are a living heritage and so without a coherent plan, authorities will find themselves having to crisis manage the effects of tree ageing, felling trees unnecessarily to forestall tree fall or branch fall without having the resources to replace them.

An accurate quantitative and qualitative inventory, undertaken by proven experts in the field, and including geographic and plant health data along with environmental and cultural information, is vital as the basis for this plan. It should be supplemented by a management plan defining objectives, the criteria for evaluating these objectives, timings and budgetary provision.

The inventory should be updated on an ongoing basis and all interventions should be recorded; otherwise the inventory will quickly become outdated and it will be impossible to capitalise on information and expertise that can be transmitted to successive management teams throughout the trees' life cycle.

4. Regulatory protection: the key to success

Is it enough to know that trees should not be cut down, and that we need to plant, manage, communicate and promote road safety in order to ensure that this heritage survives? Can the future of tree-lined roads depend solely on the goodwill, cultural sensitivity and commitment of managers or elected officers whose career paths and mandates obey timescales very different to the lifespan of these trees themselves? Should this future be dictated, ad hoc, by changing pressures and requirements even though we know that a tree cannot be "rebuilt" – unlike buildings, which may at times have been saved from disappearing altogether in this way?



III. 108: Tree-lined roads in France do not benefit from general protection. The result is clear: two départements, two different approaches. After the tree felling of the 1990s a tree avenue which once lined the whole road now stops at the "border"

In response to these questions some countries have decided that regulatory tools are necessary (see Appendix 2). Comparing these regulations and setting them side by side with the state of the heritage in the areas they cover demonstrates the positive impact and crucial importance of well-designed protective measures.

In order to achieve its aim this protection must apply to all tree-lined roads – comprising single or double rows of trees, complete or fragmentary, public or private, without restrictive criteria relating to the number of trees, their spacing or their age. It must be based on all the characteristics which make tree-lined

roads important: their historic and cultural value, landscape value, environmental value and their contribution to road safety.

The first consequence of regulatory protection is the sharing of prerogatives between the owner or manager of the tree-lined road and the department in charge of applying the regulation (generally, the department of the environment). A collective decision-making system should be put in place, also involving the public (associations), in the spirit of the European Landscape Convention and similar to the system practised in Mecklenburg.

In Wallonia, even when urgent decisions are required for reasons of mechanical stability and public safety, an official from the department of the environment collaborates with the road operator to verify the necessity of felling.

In the canton of Geneva, pruning and felling operations are subject to a planning permission process which is open to the public – any citizen or group of citizens can lodge an objection.

In Mecklenburg, the environment administration collaborates with approved protection groups in undertaking annual heritage tours during which any necessary consolidation measures or felling are agreed. It is also legally authorised to issue instructions to companies entrusted with tree maintenance and to monitor their work.

The next immediate consequence is a prohibition on tree felling, with dispensation only for reasons relating to the tree's mechanical stability. This prohibition should also encompass all measures which would, over time, endanger the tree's survival or modify its appearance – in short, anything which would impair its value as a heritage asset.

This protection must be combined with an obligation to undertake the maintenance and planting without which this living heritage will eventually disappear.

The avenue of Château d'Arry in northern France, a double row of lime trees protected since 1925, was cut down in 1967 following a car accident. Some 15 years later a new double row of trees was planted: alternating green and purple maples. The effect is unsightly and lacks any historic justification. Moreover, nearly 30 years after being planted the trees are still stunted due to a lack of appropriate care.

Finally, flouting the regulations must result in sanctions, in the form of fines heavy enough to act as a deterrent, particularly in urban environments where major property development schemes are involved. These should be supplemented by compensatory measures, which should also apply in cases of dispensation. They should be sufficient to compensate for the losses incurred and must therefore be based on the asset value of the tree rows.



III. 109: Near Neufchâteau in Belgium, a 750 m double row comprising 247 beech trees with a heritage value of €2 million was cut down without authorisation. The case will be going to court.

III. 110: Opposite stands the matching section of the tree avenue that was destroyed

From around 1920 onwards, the Paris parks and gardens department claimed compensation from the parties responsible for damage to tree-lined roads and public promenades. “This regulation, applied with moderation, does not cause difficulties and by its nature very effectively instils in the public the concept of the trees’ value, which is so often underestimated by our fellow citizens” (Leroy 1953).

Mecklenburg has an interesting compensation scheme: based on the asset value of the trees destroyed, compensation can be set at a ratio of up to 3.5:1, with part allocated to replanting and part paid into a special fund.

5. What resources?

Is regulation alone sufficient to guarantee the survival of our heritage? Here, too, comparing different countries and regions shows, not surprisingly, that human and financial investments are necessary to ensure that the regulations are more than just empty words.

5.1 People

Sustaining and managing tree-lined roads involves a significant number of players: the decision makers (owners, managers and developers), the operators on the ground (nursery operators, arboriculturists, road services departments), third parties concerned (farmers, utility companies, civil engineering companies) and, finally, the public (residents, tourists, associations).

Denmark’s roads department put the lack of new plantations down to the fact that there was “a multitude of more exciting tasks to be undertaken” and to “the low prestige attached to road planting schemes” (Vejdirektoratet 2004). Indeed more or

less everywhere some decision makers have lost interest in this kind of plantation, regarding tree-lined roads as too formal and their homogenous appearance – which is in fact the key to their attraction – as rather dull. Such judgments reveal a deep ignorance of our heritage and a flagrant lack of cultural awareness.

In 1928, the Swedish newspaper Skånska aftonbladet directed particular criticism at the lack of aesthetic awareness in road-widening schemes. “The taste, cultural awareness and aesthetic sensibility of the engineer or developer have a very important role to play in this respect” (Leroy 1953).

Awareness of the heritage is a prerequisite for recreating a culture of tree-lined roads. There is still a shortage of studies in this area and research should be encouraged. There are numerous potential fields of investigation – history, landscape, ecology, etc. – and all of these can be multiplied by the various scales on which they are applied: to particular routes, regions, countries, or the whole of Europe. This research will make everyone aware of the huge value of this heritage, giving it tangible definition and supplying the keys to treating it with sensitivity and respect. In turn, this awareness of the heritage will generate renewed interest among engineers, encouraging them to re-align themselves with this prestigious tradition.

In wider terms, information and training are vital to ensure that elected representatives, owners and managers, as well as developers are aware of the technical aspects of tree conservation and understand the importance of employing specialist personnel and the need to integrate the management of tree-lined roads and streets in a way that preserves them and optimises their value.

The requirement for collective decision making resulting from protective regulations will act as a boost, forging links between players in different specialist fields and paving the way for mutual enrichment in terms of best practice. In Scania, for example, a permanent working group has been in place since 2001. It comprises representatives of the Swedish roads department (manager), of the local authorities (in charge of protecting biotopes), of the regional museum (specialists in the historic/cultural aspects) and arboriculturists. This working group jointly defines and schedules priorities for felling, new plantations and replanting schemes, as well as organising ongoing training in order to develop its expertise.

Working groups are not the only vehicle for sharing and disseminating expertise. Many other options are available and some are already in use: magazines, books, seminars, courses, talks, websites and so on. A diverse range of stakeholders can contribute to these initiatives, including public authorities, universities, associations, landscape and arboriculturists, etc.

Many seminars and conferences have already taken place, mainly in Germany (Friedrich Ebert Stiftung seminars; Verkehrsgerichtstag, 2003, a conference for experts in transport and transport law; Osnabrück, 2006; and Arnsberger Umweltgespräche, 2006), but also in other countries (Riga, Latvia, 2007, with presentations from France and Germany; Pisz, Poland, 2008, with presentations from Germany; and Cernier, Switzerland, 2008, again with presentations from Germany).



III. 111: Research and consciousness-raising work is already under way in some countries. For more information please see the appended bibliography

Trees mutilated by inappropriate pruning, young plantations that are stunted or dying, trees withering after years of damage caused by mowing equipment or falling because their roots have been removed during excavations, etc: all these phenomena point to a lack of awareness, a loss of expertise and a shortage of appropriate

know-how on the part of many workers and third parties on the ground. Caring for trees is a profession in its own right, it is not something you can make up as you go along: all works programmes must be sensitively carried out by personnel with the appropriate training. It is the decision makers' duty to recognise these requirements and act upon them. This sector also represents a major source of skilled employment for the local workforce.



III. 112: In Sweden, training courses covering historical, biological and technical issues have been provided since 1996 for private landowners, many of them farmers, and for the roads department, which invites businesses to take part. **III. 113:** Nursery tour organised for road specialists and public officials in Luxembourg



III. 114: Gentle pruning undertaken by professional climbing arboriculturists has two qualities: it preserves the tree's vitality and it is unobtrusive. It is a good idea to stage consciousness-raising tours for those in charge to ensure that this unobtrusiveness does not lead them to think they have spent money on "nothing"

Finally, raising public awareness is a key priority for the European Landscape Convention. This is a crucial issue for any landscape policy and consciousness-raising initiatives can take on an almost limitless array of forms. Germany and Sweden provide us with many examples.

A few examples of consciousness-raising and information initiatives undertaken by public authorities and also by associations, which have been especially dynamic in this respect:

- dedicated website (Federal Environment Ministry, Germany);
- exhibitions, with tourist organisations and museums (Regionmuseet Kristianstad, Sweden);
- photographic competition (Fonds Suisse pour le paysage (Swiss Landscape Fund); and Federal Environment Ministry, Germany)
- promotion and sponsorship campaigns (Federal Environment Ministry, Germany; Bund Friends of the Earth, Germany; and Fonds Suisse pour le paysage);
- avenue plantations attended by many government representatives (the German President, the Bundestag President, federal ministers) and the media, in particular marking “Tree Day” or what is now designated as “Avenues Day” in Germany, 20 October (Luxembourg has also decided to hold an “Avenues Day” from 2009);
- explanatory signs by newly planted trees (Lyons region, France);
- cycling events (“Tour d’Allée”, Rügen, Germany);
- production of posters, calendars, postcards (Landesgemeinschaft Naturschutz und Umwelt; and Federal Environment Ministry, Germany);
- initiatives to raise awareness among schoolchildren: interactive DVDs, quizzes, planting campaigns (Germany).



III. 115: A new section of the Deutsche Alleenstraße tourist route was planted in 2008, as part of Nordrhein-Westfalen’s Hundert neue Alleen (100 new tree avenues) campaign. Many prominent figures took part, including the state’s Environment Minister, Eckhard Uhlenberg, the President of the Deutsche Alleenstraße consortium, Christoph Rullmann, and its Vice-President, Erwin Pfeiffer, who is also director of the tourism and marketing department of the ADAC (German automobile association)

5.2 Finance

A policy of conservation, that is of sustaining and replanting, necessarily requires a budget. Without a dedicated budget provision, for maintenance and for investment, experience shows that all the available money will be taken up by other road-related requirements (surface repairs, bridges, etc.).

Even where concrete figures are available, direct comparisons are usually difficult to make. Nonetheless, the cost of planting and maintenance is very low compared to the costs of road construction and maintenance. Moreover, tree maintenance is concentrated in the early and late phases of the trees' life cycle.

Financial benefits

The cost of a conservation policy must be set against the ongoing increase in the asset value of the tree rows and the benefits this policy accrues, in particular by enhancing attractiveness in the real estate and tourism sectors and by improving public health.

The important role roadside trees play in capturing dust and pollutants should be set against the cost of mortality and morbidity arising from traffic-related pollution, which is not confined to urban environments. In France, this cost was estimated at nearly €22 billion in 1999.

Rationalising expenditure

Effective cost management is, in one respect, a primary and crucial source of financing. Substantial sources of savings are often underutilised:

- in terms of road safety, "calm driving" and consciousness-raising initiatives are less expensive than removing roadside obstacles, and achieve better results;

In France, official studies state that in 2004 €1 million invested in safety measures focusing primarily on reducing roadside obstacles reportedly save less than one life, whereas €1 million spent on additional communications relating to road safety reportedly help to prevent 14 deaths.

- choosing small-diameter trees is economically effective for two reasons: they are cheaper to buy and they generally have a better chance of recovery; large-diameter trees can be reserved for specific cases, for sites where vandalism is a problem or for highly prestigious projects;
- high-quality plants, planting and aftercare can ensure a high success rate for plantations;
- tensiometric measurements can yield significant water savings by limiting watering to what is strictly necessary;
- high-quality maintenance and protection from damage of all kinds throughout the trees' life cycle maximise their lifespan and optimise the "profit" from the investment;
- not undertaking any stubbing back not only extends the trees' lifespan but represents a direct source of substantial savings in itself;

At the end of a 60-year period, the cost of a tree managed by successive stubbing back prunings is estimated at twice that of a tree managed by minimal pruning. It should be added that stubbing back also entails a loss of value in terms of the tree's appearance and a significant reduction in terms of longevity.

- restructuring a tree by pruning rather than cutting it down extends its lifespan and costs less, as Mecklenburg's experience demonstrates.

Sources of financing

For farmers, the subsidies granted for sustaining and maintaining natural and cultural environments under the European Union's Common Agricultural Policy also apply to rows of trees along private roads.

Building on the European funding programme, Sweden has provided support for the sustenance of private tree avenues since 1996. Some 164 000 trees are covered by these measures, which are linked with compulsory training provision. Similar subsidies are also available in Finland.

Private sources of financing can also be sought, in the form of corporate sponsorship (nursery operators, landscape architects and landscape contractors for the campaign by the Fonds Suisse pour le paysage (Swiss Landscape Fund), for example) and private sponsorship (Germany's Federal Environment Ministry offers sponsorship packages and gift vouchers for tree avenues). The offsetting of greenhouse gas emissions also opens up a new channel of business-sourced financing.

At the start of the millennium, the Deutscher Städte- und Gemeindebund, an association representing 14 000 localities in Germany, and the Bund Deutscher Baumschulen, an association of nursery operators, launched various initiatives relating to tree-lined roads, including planting schemes financed by corporate and private sponsorship. In 2008, companies in Laval (France) financed the planting of trees on a roundabout to offset the greenhouse gas emissions of an event organised in the town.

Compensatory measures and fines for trees that are cut down or damaged during roadworks for example, or through inappropriate pruning, clearly constitute the main source of financing. This is the approach taken by Mecklenburg, which has an array of compensatory measures including both tree planting and payments into a special fund for managing and renewing all the state's roadside trees, private as well as public. Schleswig-Holstein is already planning to follow this model.



III. 116: Roadside trees are not just for small country roads. This avenue is in the Netherlands

Conclusions and recommendations

Following the golden age of tree-lined roads in the 19th and early 20th centuries, a significant proportion of the trees growing alongside Europe's roads and streets – as much as 90% in some regions – has disappeared due to the natural ageing process or as a result of epidemics or pests, but above all because of road schemes and misjudged road safety policies.

Replanting has by no means compensated for these losses, due to the introduction of planting distances which are incompatible with landownership realities, through a loss of interest on the part of the relevant managers and through the lack of dedicated budgetary provision.

Mistreatment and inappropriate practice are accelerating the decline of the remaining trees.

However, tree-lined roads and streets constitute an important shared heritage in the history of Europe. Drawing on a 500-year tradition, they help to define and enhance the specificity and unique identity of each individual region. They give the landscape a noble, living architecture which has been a continual source of inspiration to painters, writers and indeed the general public. They bear witness to local history, they play an important role in terms of climate, pollution and biodiversity and they contribute to road safety. Overall these qualities endow them with a heritage asset value which is recognised by insurance companies but generally disregarded by other players and which is in any case substantially underestimated.

A well thought-out management policy benefits the entire tree-related sector, the tourist industry, real estate, the low-qualified workforce and the health and well-being of the entire population.

Taking these factors into consideration, we make the following recommendations:

- that governments and public authorities should recognise tree-lined roads and streets as a form of cultural identity which is inextricably linked to their inherent environmental and road safety functions and must therefore be safeguarded;
- that the pre-eminence of aesthetic considerations as the guiding principle of past and future planting schemes should be remembered;
- that this recognition should be enshrined in a body of regulations;
- that conservation requires retaining existing trees, restructuring them through pruning as necessary in order to prevent any risk of mechanical failure;
- that conservation also requires restoring the heritage, both by systematic gap filling and by planting complete new avenues to compensate for past felling;
- that this conservation should no longer be based on the use of wood for construction purposes or heating, but on the recognition of shared cultural and environmental values and on tree-lined roads' contribution to the landscape, to road safety and to general well-being;
- that this also includes single rows of trees and all roadside trees, whatever the distance between them and the roadway;
- that this should not include any regulation stipulating minimum planting distances;
- that account should be taken of all operations which damage the asset value of tree avenues (felling, all kinds of mistreatment including earthworks, lowering water tables, etc.);
- that regulations should be introduced to set compensation levels for all tree felling or for damage to the appearance or physical integrity of the trees, these regulations being based on the asset value of the ensemble;
- that these compensation rules should comprise a planting element and a contribution to an ad hoc fund;
- finally, that the conservation should be delivered by a collective organisation bringing together owners and managers, the authority responsible for upholding the protection regulations and other environmental groups.

It is a matter of urgency that state governments and public authorities should:

- engage in policies of communication, consciousness-raising and education for the public and for all professionals involved, in order to re-establish a genuine culture of tree-lined roads and a widespread dissemination of the necessary expertise;
- discontinue all practices stigmatising roadside trees, particularly relating to road safety, instead undertaking measures to encourage responsible behaviour on the part of all road users;

- commit to presenting a positive image of tree-lined roads commensurate with their acknowledged value;
- set up appropriate management systems (inventories, follow-up, etc.);
- explore the possibilities for private and corporate financing;
- stop all tree felling until these recommendations are implemented.

Appendix 1 – A question of vocabulary

Many countries, unlike France itself, currently use the French word *allée* to designate a road lined on either side with trees deliberately planted at regular intervals, whether the road in question is a park avenue, an urban street or a country road. This is the case in Germany with the word *Allee*, in Sweden with *allé*, in Latvia with *aleju* or in Poland with *aleja*. Variations on this word are used to describe particular kinds of avenues: thus we find *parkallé* and *aleja parkowa* in parks in Sweden and Poland, *landsvägsallé* or *aleja przydrożna* used for country roads, while an *aleja dworska* and an *aleja wiejska* will be found near Polish castles and villages respectively.

It is an interesting choice because on the one hand it clearly expresses the fact that all these features are related, as we have highlighted in this chapter, and on the other it connects this heritage with its historic source: the *allée* of baroque gardens. Some countries reserve the term for tree-lined avenues which historically belonged to a castle or manor house, even if they are located in what is today open countryside or, more generally, an urban environment. This is the case with the Danish word *allé* and the Dutch *bomenallee*.

In French-speaking countries there is some variation in usage: we find the word *allée* used in French-speaking Switzerland in a way that reflects the Germanic influence. Belgians use the term *drève*, also attested in northern France, for the historic avenues of aristocratic estates. In some cases, the name is still applied to the roads themselves after the trees have been lost.

In France, the country where the word *allée* came into being and from which it spread throughout Europe, the use of the word to designate a tree-lined road is no longer current, even though it is attested from the 17th century onwards and included in dictionaries as far back as the 18th century. Today, an *allée* is simply a path or a walkway. Even so, the meaning “a wide street lined with trees” is still listed in the *Trésor de la langue française* in 2008.

Allée = “two rows of trees, forming a promenade” (Jean-François Féraud: Dictionnaire critique de la langue française 1787-1788); “a place suitable for walking, which extends lengthways, and is bordered with trees or greenery, without being enclosed by walls” (Dictionnaire de l’Académie française, 1762; 1798; 1832-35; 1932-35); “roadway bordered with greenery (trees, shrubs, lawn), flowers or hedges, which provides passage, serves as a promenade or provides access in a garden, a park, a wood, or a built-up area; by extension, a wide street lined with trees” (Trésor de la langue française informatisé 2008).

The term “avenue”, used by the gardener Claude Mollet in 1615, is initially not clearly differentiated from the word *allée*. In 1680, Richelet defined it as follows: “a large *allée* which leads to a country house and is generally lined on both sides with trees”. In English, John Evelyn is credited with the first use of “avenue” in 1654, designating the tree-lined road leading to an estate, the meaning it has retained today. In general terms the word “avenue”, just like the word “boulevard”, has acquired a more general meaning, designating a wide urban road or street, not necessarily lined with trees.

The question of vocabulary is an important one. Countries like France, Italy and Spain, and also English-speakers, are obliged to use circumlocutions such as “tree-lined roads”. Quite apart from the fact that this expression is unclear (it does not tell us whether the road is lined on one or both sides), it is devoid of all cultural and historic meaning, which is a major handicap in terms of communication. Would Germany’s Environment Minister have been able to launch such a popular website on the subject if he had not been able to call it simply www.alléenfan.de (namely, *allée fan*)? It is evident that we need a simple and rich vocabulary which clearly expresses the concepts involved. In French we propose that the term *allée* and the expression *allée d’arbres*⁹ should be widely adopted.

9. The choice of terminology should not in any case exclude single rows of trees from heritage conservation policies and the text of regulations should specify in all cases that single rows are covered by the protection in just the same way as double-row avenues.

Appendix 2 – Current regulatory protection and its limits

Regulatory protection already exists in some countries. Its beneficial effect is indisputable: it has effectively saved many tree-lined roads from being sacrificed to short-sighted policies. Yet, without a global vision of the value of these roads, the regulations often fail to provide sufficient protection, requiring adjustments as proposed in section 5 of this study.

Regulatory protection varies greatly from country to country. Some countries (France, Luxembourg, Latvia and Belgium, for example) protect double-row avenues, for example, if they are considered to be outstanding. This type of protection is based on classification, carried out on a voluntary basis or even with the landowners' agreement, with the result that the number of avenues protected varies and is limited overall (around 60 in Latvia, for example – but nearly 900 in just the Wallonia region of Belgium, which is one quarter the size).



Ills. 117 and 118: In the background we see the avenue of lime trees which extends over more than 2 km in view of the Château de Commercy (France). It was planted around 1721 or 1750 and has been protected as an outstanding site since 1911. The ensemble, now partly located in an urban area, comprises nearly 500 trees, some of them more than a century old, and is regularly restored

Protection can also be limited to a given area, as with the “Alpilles” directive in France.

Other countries protect their tree-lined roads in a more general way. This is the case with Sweden, for example, which protects tree-lined roads for their biotope status in its Environmental Code. In Belgium, Wallonia not only protects specific outstanding avenues but protects all tree lines under its development, urban planning and heritage law. In Germany, protection for tree-lined roads as elements of the cultural landscape is enshrined in federal law on the protection of nature and

the landscape. The federal states of Brandenburg, Mecklenburg, Schleswig-Holstein and Nordrhein-Westfalen have implemented similar government legislation.



Ills. 119 and 120: Two tree-lined roads which have been designated as outstanding and protected, one in Latvia, the other in Belgium



Ills. 121 and 122: The yellow mark on a tree in Sweden means that it is especially valuable in terms of biodiversity. Here, the trunks have been kept in place but they could have been moved to a nearby location as is done in some cases

The scope of the protection provided is key to assessing the effectiveness of these regulations: for example, while Wallonia, Sweden and Mecklenburg all protect both single- and double-row avenues, single rows are excluded from the protection provided in Brandenburg.

Similarly, protection can be restricted to trees bordering certain types of roads (Brandenburg) or can include all tree-lined roads, private roads included (Wallonia, Sweden, Luxembourg, Mecklenburg).



III. 123: *The 777 lime trees on the road from Neufchâteau to Bertrix, in Belgium, are not protected because they are spaced more than 10 m apart.* **III. 124:** *This remnant of a pine avenue in Sweden is visually very interesting because of the contrast with the colours and shapes of the surrounding forest, but it is not protected and so it is not renewed. Meanwhile, just a few hundred metres away, a whole network of deciduous tree avenues is lovingly maintained*

Another restriction can appear in the way tree-lined roads are defined: the definition is often based on a minimum number of trees (which can vary from 3 to 20), or on a particular length, and sometimes includes criteria relating to spacing (less than 10 m in Wallonia) or diameter or age. Luxembourg's approach is the most reliable in this respect, simply referring to "trees bordering paths and roads".

Finally, the restrictive effect can arise from the very motive behind the protection: this is the case with Sweden's protection, for example, which relates to biotopes and so excludes conifers and avenues where mature trees are not in the majority. By contrast, Brandenburg's protection incorporates the appearance in the landscape, does not exclude any species, and also includes newly replanted double-row avenues as well as trees planted to fill gaps from the moment when the ensemble can be considered as an *Allee*, that is, a double row of trees closely associated with a road.

Protection includes a prohibition on felling. Dispensations may be granted, generally on a case-by-case basis. This requires approval by the administration responsible for applying the law and is restricted to a greater or lesser extent: in Mecklenburg, felling is not permitted except when there is no other way of improving the safety situation (such as restructuring by pruning). In Luxembourg, "permission is refused ... when the applicant's plans are of a nature that will impair the beauty and the character of the landscape" (Grand Duchy of Luxembourg 2004) or where these plans will endanger the country's flora and fauna.

Depending on the reasons for the protection, it may also include a prohibition on alterations to the constitution or appearance of the avenue. Sweden's protection relating to biotopes prohibits damage to the natural environment, which includes felling, excavations and depositing landfill, but does not prohibit stubbing back and tree topping, which can be carried out to stabilise dead or extremely old trees. In Brandenburg and Mecklenburg, anything which causes damage (to the roots in particular) is prohibited. In Wallonia, permission is required only for modification to the silhouette, and even this only applies to "outstanding" tree rows.

Except in Mecklenburg, the protection is not generally combined with an obligation to maintain and plant trees. This limits the impact of the regulations in terms of heritage conservation, all the more so because we are dealing with a living heritage.

The compensatory measures stipulated are not always sufficient to repair the damage caused or to represent an adequate disincentive, particularly when it comes to major property development schemes in an urban environment.

Appendix 3 – Letter from French President Georges Pompidou to his Prime Minister, Jacques Chaban-Delmas, of 17 July 1970

“My dear Prime Minister,

By the most extraordinary coincidence I have received a circular from the Ministry of Infrastructure’s Roads and Traffic Department – of which I am forwarding you a copy.

This circular, presented as an action plan, has indeed already been communicated to many officials entrusted with its application, because it is through one of these officials that I became aware of its existence.

The circular prompted two reflections on my part:

- the first is that while the Council of Ministers is periodically captivated by minor questions such as the increase to an allowance paid to a few civil servants, important decisions are being taken by a ministry’s central departments beyond all governmental control;
- the second is that even though I have several times expressed in the Council of Ministers my intention to safeguard trees “everywhere”, this circular displays the most profound indifference regarding the President of the Republic’s wishes. It reveals, in fact, that felling roadside trees will become the norm, under the pretext of safety. It should be noted by contrast that the displacement of electrical and telegraph poles is envisaged only with the greatest of prudence, and mentioned merely as a possibility. This is because they have departments to defend them. Trees, it would seem, have no one to defend them but myself and it appears that this does not count.

France was not made solely to permit French people to travel by car and whatever the scale of the road safety problems this should not result in the disfigurement of her landscape. Moreover, an enduring reduction in traffic accidents can only come about by educating drivers, and by establishing simple rules which are appropriate to the road network, whereas we seem to be witnessing an infatuation with signs and signals in all their forms. It will also come about through less feeble regulation regarding alcohol levels and in this respect I regret that the government has retreated from its initial position.

Safeguarding the trees planted along our roads – and I am thinking in particular of the magnificent roads lined with plane trees in southern France – is essential for the beauty of our country, to protect nature, and to safeguard a human environment.

I therefore request that you refer this circular to the Ponts et Chaussées, and that you give precise instructions to the Ministry of Infrastructure so as to ensure that whatever the pretext (ageing trees, requests from duped municipal councils oblivious to all aesthetic considerations, financial problems posed by maintaining trees and cutting down dead branches), they do not pursue in practice what they abandon merely in principle and to give me satisfaction in appearance only.

Modern life with its environment of concrete, asphalt and neon will increasingly create in all people a need for escape, for nature and beauty. Motorways will be used for transport where speed is the sole concern. Meanwhile the roads must become again for the late-20th-century driver what country lanes were for pedestrians and riders: a route that is taken without haste, and as an opportunity to see France. Let us beware of systematically destroying what makes France beautiful!"

Photo credits

Alléens Venner: Ill. 105. *CAUE 54*: Ill. 44. *CG 77, Direction des Routes*: Ills. 22, 61, 71, 72, 106. *M. Cléda*: Ills. 5, 109, 110. *A. Colnot*: Ill. 114. *Crow*: Ill. 86. *M. Decker*: Ills. 9, 40, 43, 50, 62, 91, 97, 100, 102, 103, 104, 113. *B. Domżalska*: Ill. 79. *I. Erenpreiss*: Ill. 23. *C. Fauché*: Ills. 24, 80. *F. Ferrini*: Ills. 26, 34, 76, 92. *R. Fischer*: Ill. 115. *V. Galmiche*: Ill. 13. *F. Jay, Musée des Beaux-Arts de Dijon*: Ill. 4. *M. Karlberg, Regionmuseet Kristianstad*: Ill. 10. *W. Knercer*: Ill. 53. *Krigsarkivet, Stockholm, Topografiska kartor Sverige, Skåne XVII B*: 62: Ill. 1. *M. Lechien*: Ill. 118. *I. Liżewska*: Ills. 3, 25. *A. Machul*: Ill. 55. *C. Olsson, Regionmuseet Kristianstad*: Ill. 46. *P. Olsson, Regionmuseet Kristianstad*: Ills. 33, 112. *M. Péché*: Ill. 69. *C. Pradines*: flylea Ills. 2, 7, 8, 11, 14, 18, 19, 20, 21, 27, 28, 29, 30, 31, 32, 35, 36, 37, 38, 41, 42, 45, 47, 48, 49, 51, 52, 54, 56, 58, 59, 60, 63, 66, 67, 68, 70, 74, 75, 77, 78, 81, 82, 83, 85, 87, 89, 90, 93, 94, 95, 96, 98, 99, 101, 107, 108, 111, 116, 119, 120, 121, 122, 123, 124. *Regional Centre for Historical Monument Studies and Documentation in Olsztyn*: Ill. 15. *C. Schrepfer*: Ill. 6. *Statens Vegvesen Norway*: Ills. 73, 84. *E. Thomasson, Regionmuseet Kristianstad*: Ills. 39, 57. *F.-X. Valengin*: Ills. 64, 65, 88. *Ville de Commercy*: Ill. 117. *K.A. Worońiec*: Ill. 12.

English translation: Susan Mackervoy and Ros Schwartz.

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IV. European local landscape circle studies: implementation guide

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Landscape of Rathbarry, near to Clonakilty, West Cork, Ireland
© Terry O'Regan

Summary

The landscape circle template is intended to encourage and assist individuals and groups to undertake an in-depth analytical study of their landscape incorporating a dynamic landscape observatory and resulting in a landscape management action plan.

It involves seven integrated steps and could be completed in six to twelve months. Completing such a study will heighten and inform your awareness of your landscape and place you in a very strong position to participate in the inevitable processes of change taking place in your landscape.

Step 1 – Scoping the study area: using the most readily available map of the area (a scale of 1:50 000 would appear to be appropriate), a landscape circle is selected for the study area (permission to copy or reproduce maps may be required from the relevant agency). The radius of the circle should be at least 1 km for urban studies, 2-3 km for a small town or village plus its hinterland, and up to 5 km for rural landscapes of low complexity.

Step 2 – Research: there are three interrelated sections to researching your study: (1) understanding landscape, (2) understanding the landscape of the state and (3) understanding the landscape of your selected circle. This will involve your own reference book resources, libraries, bookshops, local authority facilities and the Internet. The readily available “European rural heritage observation guide” (Council of Europe Conference of Ministers Responsible for Spatial Planning – CEMAT, 2003) is a recommended study text. The research should result in a written description of the history and evolution of your landscape.

Step 3 – Creating an image observatory: this exercise involves sourcing old images of your landscape and comparing them with photographs of the same landscape today. In addition, a current representative photographic portfolio of the existing landscape must be compiled to be replicated in subsequent years.

Step 4 – Information gathering: the objective of the identification process is to list the elements of the landscape in each circle – separated into the landscape strengths, weaknesses, opportunities and threats. A specific location for each element should be identified on the map, although for dispersed elements it may be adequate to refer to a particular quadrant of a circle.

The identification of landscape elements will range over the built (old and new), the natural and archaeological heritage as well as “non-heritage” elements. It also adds its own important component – an understanding of the composition of the landscape and the interrelationship between existing built and natural heritage, and present-day interventions, for example, construction work or changed land use practices.

The extent by which landscape elements are common, occasional or rare must be recorded and the pattern of their occurrence should be indicated by shading or cross-hatching a map section.

Step 5 – Evaluating your landscape: because the landscape is a composition of many elements and “jigsaw pieces”, an analytical process is required. The LANSWOT analysis (landscape strengths, weaknesses, opportunities and threats) is highly suited to evaluating the diverse elements of our landscape in the context of their role in defining and deciding landscape quality.

It lends itself to everyday use in avoiding the complexity of deep scientific analysis, whilst inviting individuals and communities to adopt a structured, critical approach in their assessment of their landscape. It has the added advantage of enabling communities in different locations to compare and contrast their conclusions in a comparative framework.

Step 6 – Identifying landscape management actions and actors: landscape management involves identifying/recording the actors and the actions needed in response to the prioritised lists produced by the LANSWOT analysis, encouraging best practice. Where possible this should lead to the conservation of landscape elements (or at least a continuity of these elements within the landscape) and determine the character of interventions in order to reinforce the strengths, address the weaknesses, capitalise on the opportunities and avert or mitigate the threats.

This stage is about identifying with the landscape and participating actively, rather than passively, in the landscape management process, in a manner appropriate to the scale involved.

Step 7 – The landscape study report and other outputs: a landscape study report will feature the following:

- an introduction to the study identifying the study area – the selected circle;*
- a description of the landscape of the selected circle, its history and evolution;*
- a landscape observatory of the circle;*
- a prioritised listing of its landscape strengths, weaknesses, opportunities and threats;*

- *an associated listing of the actions and actors involved in the landscape management of the area;*
- *an action plan to publicise and give effect to the conclusions of the study.*

Completing a landscape circle study report will achieve much in informing and alerting you about your landscape. We recommend you to take some further important steps to communicate and validate your work to your immediate and greater community by progressing to one or more measures and thus become a landscape active community and/or individual.

Introduction

The landscape of Europe is everything you can see throughout and around the continent and its offshore islands. It is not a two-dimensional painting or even a three-dimensional model, it is multidimensional, reaching deep into the soil and rocks of the ground, under the water and up into the sky. It embraces all of our shared heritage, the diversity of nature and the diversity of the marks and manifestations of humans. It is experienced through all our senses.

Your piece of the landscape of Europe is not just the land that you may or may not occupy, but the place or places that are important to you, that figure in your memories of the past, your sense of the history of your landscape, your consciousness of well-being and belonging in your present landscape and your vision of its future. You might say that you own your landscape, but it is deeper than mere ownership – you are part of your landscape and it is part of you – a relationship that is very organic and close – almost bionic.

You can, however, be torn from your landscape or it can be torn from you. You never entirely lose your landscape, but you can lose a landscape that is rich and rewarding, that is important to you, only to have it replaced with a landscape that is impoverished, dispiriting and alienating.

In the past in Europe, as a largely agricultural society we depended on our landscape in obvious ways. Today, we still depend on it, but we largely lack the comprehension to see this. The balance has shifted and our landscape is now more dependent on us. If we could understand its language we would hear its call for our help.

Change in our landscape is as inevitable as the seasons (annual cyclical change). It can be naturally slow (the growth of trees and bushes), naturally gradual (changes in agricultural crops and animals). It can also be naturally abrupt (storm damage). Our actions can respond to and contribute to such natural changes (global warming). Man-made landscape change can also be slow (occasional new buildings), gradual (regular new buildings) and abrupt (“overnight” housing developments, wind farms, motorways, shopping centres, etc.).

In the recent past, the ordinary citizen had very little say in landscape interventions by others. Increasingly today, legislation at all levels is providing citizens with a democratic role in the process of landscape change and management. This role is perceived by many citizens as being very limited and they often feel powerless. The processes of landscape change are complex and often far from transparent. Playing a constructive, responsible role in these processes requires a structured, informed, strategic response from ordinary citizens.

Whether you are an “ordinary” citizen, a community group, or second- or third-level student; undertaking a landscape circle study is your opportunity to respond to the call of your landscape. You can make it as simple or as comprehensive as you wish – the choice is yours. You are, however, guaranteed that if you undertake a landscape circle study of your landscape you will at the very least enrich the rest of your life and you will be in a more informed and empowered position to become actively involved in the management of your landscape – the choice is yours.

1. Aims of the landscape circle template

Decisions that profoundly affect the quality of your landscape are invariably taken in offices very far from where you live. The politicians, administrators and business people taking those decisions are more likely to demonstrate sensitivity towards landscape quality in a society that demonstrates an informed knowledge and understanding of their landscape/surroundings. Undertaking a landscape circle study will assist you and your community in being party to those decisions.

We all tend to take our landscape for granted – whether we regard it as good or bad. However, in much of Europe we have been fortunate to inherit a landscape of an exceptionally high quality in parts. As with many things that come easy we have not always appreciated our good fortune. We have not always actively participated in the processes that are impacting on the quality of our landscape. That might have been acceptable in times past when the pace of change was leisurely and the landscape often managed to heal its own wounds. Times have changed dramatically in the past 50 years and problems arise when someone decides that as we put no value on it, they will “take” it from us and replace it with something that may be very inferior.

This methodology is intended to assist all those individuals, groups, communities, organisations, societies, clubs or schools who would wish to exercise responsible ownership over their landscape, in undertaking a landscape circle study of their area. A landscape circle study involves selecting a circle of landscape and studying and recording its history, its evolution, its strengths, weaknesses, opportunities and threats, and the actions and actors who might respond to those characteristics. This chapter offers advice on ways to undertake and complete a successful landscape circle study.

You do not need to be an expert to undertake the study. You will not require specialised terminology and the depth of the study is at your discretion. All that is required is an interest in landscape and a desire to influence the nature and extent of the changes it undergoes in your lifetime and beyond. As with all successful human ventures you should, however, draw on expert knowledge where possible.

The quality of landscape is decided by its different elements, natural and human-made and the extent of their representation, distribution and most importantly their overall composition in the landscape.

It is easy to forget the urban landscape with so many books written about the rural landscape. Yet, as we increasingly live in an urban landscape, the landscape circle works just as well in the city as in the countryside.

It should be possible for anyone to undertake an effective landscape study using this chapter and the Council of Europe publication “The CEMAT European rural heritage observation guide” (www.coe.int/CEMAT).

The key outcome of the study will centre round a report documenting the scoping of the study area, its history and evolution, its landscape elements, an in-depth critical analysis of its characteristics and an action plan for the future management of the landscape being studied.

The study report will provide the basis for many other powerful initiatives such as exhibitions, DVDs, websites, planning submissions, proactive engagement with those intervening in the landscape such as government officials, developers, etc.

All studies are open to the accusation of subjectivity and indeed most if not all studies reflect a degree of subjectivity. The more systematic and thorough the study is the more it will overcome this potential weakness. Testing the conclusions of the study with the residents of the area is useful in defending the report. The fact that everything in the circle, good and bad, must be considered is in itself a defence against subjectivity.

It is expected that studies will vary in scope and depth depending on whether they are individual studies or group studies.

2. The steps

How to undertake a landscape circle is described in detail over the following pages:

Step 1 – Scoping the study area

The use of the circle to scope a landscape study derives from many influences not the least being the many ancient circles that mark the European landscape constructed of timber, earth and stone.

The circle has a simple inescapable logic in the landscape. If you stand in a flat landscape or better still on an isolated hill or high building anywhere in Europe, the limit of your vision is a circle.

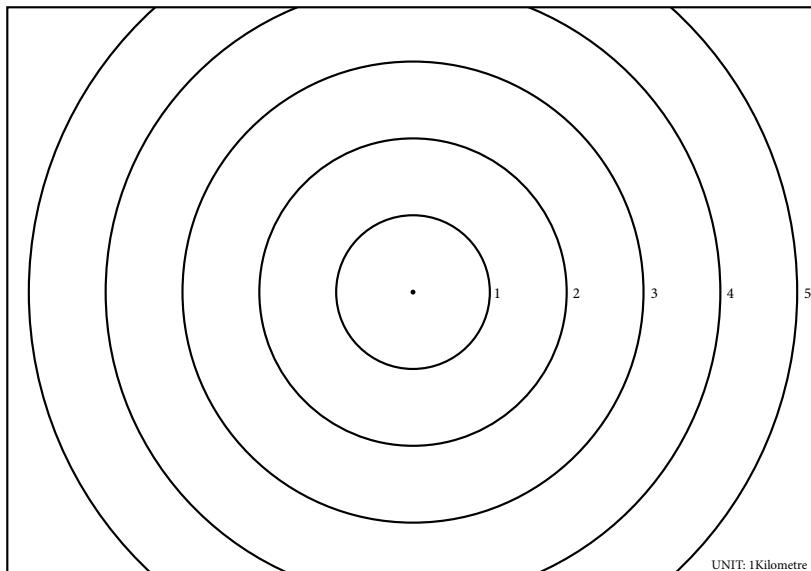
A circle avoids the complexities of requiring communities to take on board potentially contentious decisions regarding the different landscape character areas occurring in their own locality.

Using the most readily available map (a scale of 1:50 000 or similar is recommended), a landscape circle is selected for the study area (permission to copy or reproduce maps may be required). You can choose to work from a chosen centre point, but it is easier to concentrate on the landscape to be enclosed in the circle. A clear plastic template marked with circles of different radii is the simplest and most effective way to carry out this exercise. Draw a number of circles with a compass and a narrow permanent marker on a sheet of clear plastic. You can move the plastic sheet over the map rather than drawing and redrawing circles on the map with a compass.

As well as assisting in selecting a landscape circle to study the plastic template provides an awareness of the greater landscape outside the study area.

Your choice of study area will depend on your objectives – you may simply want to study your home place, or you may wish to study an area that is important to you, whether it is facing threats or not. You should write out your objectives and develop a brief for your study – what do you want to achieve and how do you intend to realise your objectives.

Template to assist selecting study circle



Initial research on landscape circle studies suggests a radius of at least 1 km for urban studies and a typical radius of 2–3 km for a small town or village plus its hinterland. Rural landscapes of low complexity could have significantly higher radii.

The circle should be small enough to be studied taking into account the time and resources available, but must be large enough to encompass a range of landscape diversity – local knowledge will guide the choice. The study itself commences at the centre of the circle and works out in concentric bands and may be enlarged or reduced in response to the progress of the study.

In a sense the circle recognises the scale at which communities work best – the village; it little matters whether it is a village in the accepted sense. It may be a small physical village settlement or a more dispersed settlement that occurs in parts of the European rural landscape or it may be one of the “urban villages” that combine to form the “honeycomb” of our towns and cities.

Urban or rural we recommend that you start small and enlarge the study rather than the reverse – it is a less wasteful strategy. The circle can be given the identity of the settlement or place name located closest to the centre of the circle.

Disciplined scoping is desirable – the study area may have landscape of consistent character and distinctiveness, or there may be a number of centres of intense landscape character and distinctiveness which will wax and wane from area to area.

If the study is undertaken by a group and involves a large, complex area, it may be decided to select a number of overlapping circles, requiring thought and discussion on the different landscapes considered to exist in the study area. We would still recommend that one circle be selected and its study completed before commencing a second or more. Where there are a number of overlapping circles it is recommended that they overlap to ensure full coverage of the study area and they are likely to extend to places outside the targeted study area. In this case each circle can again be given the identity of the settlement or place name located closest to the centre of the circle.

If the area being considered is very large and diverse and a range of interlaced landscapes is involved, spreading into neighbouring areas, separate studies will be required, creating the exciting possibility of neighbouring communities undertaking concurrent studies. This might require the assistance of a project co-ordinator and additional funding.

Neighbouring communities undertaking independent studies should, wherever possible, overlap each other’s circles.

Step 2 – Research

There are three interrelated sections to researching your study:

1. understanding landscape in general;
2. understanding the landscape of the state in question;
3. understanding the landscape of your selected circle.

You can be systematic and work through from 1 to 3, or in reverse from 3 to 1. We believe that the best approach is to engage with all three levels concurrently from the start of the study.

The best way to research landscape is to experience it in a state of alert awareness and then read the books. It would be easy to get bogged down in the research alone and some of the published “expert” material on landscape is not as accessible as it ought to be due to technical terms or “jargon”.

Research guidance may be provided to a study group by a trained and experienced facilitator, but may also be gleaned from many publications.

Your local library, bookshops (new and second-hand) and the Internet will all be invaluable. There are many websites with extensive free material on landscape.

A general understanding of the meaning of landscape will be gained from reading the European Landscape Convention and particularly the explanatory notes. The European Landscape Convention defines landscape as “an area, as perceived by people, whose character is the result of the action and interaction of natural and/or human factors”.

Understanding the practical meaning of landscape in a European context will be provided by the readily available “CEMAT European rural heritage observation guide” – a highly recommended text, speaking clearly of reading the landscape. This guide is available on the Council of Europe website www.coe.int/cemat.

There are many books available on local, national and the European landscape. The authors will enrich your understanding of landscape and cannot fail to enthuse and inform you with their sense of landscape – space, place and time.

It is useful to acquire a working knowledge of the relevant legislation.

You must also research images such as paintings, postcards, drawings and photographs – old and new – to gain a visual understanding of the process of change or evolution in your landscape.

Increasingly, there is useful information to be found in government development plans at a local, district, regional and national level.

Step 3 – Creating an image observatory

An image observatory might be called a landscape photograph album – but it is much more than that.

“One picture is worth ten thousand words.” The word value of appropriate landscape images is beyond measure. Images of the same landscape over time further multiply the value and provide the best understanding of landscape, its evolution and the process of change. The observatory will serve as an invaluable tool to assist communities in understanding, and communicating the concept of landscape quality, and monitoring the process of change taking place in their landscape.

The creation of an observatory involves sourcing old landscape images in different media to provide the basis for a time series of images. Old maps and written descriptions of the landscape will also be useful.

A current photographic portfolio of the existing landscape must also be compiled. Ideally, this should comprise key indicator landscapes within your particular circle experiencing, or likely to experience, active change and, where possible, earlier images should be replicated with present day images.

The study will involve selecting and carefully recording in detail a number of key photographic viewpoints, the combination of the images recorded will capture the cumulative essence of the local landscape and by repeating the photographs from the same locations each year you can record and track the changes taking place, in the process creating a wonderful local planning and landscape heritage resource.

Study areas that enjoy distant panoramic views to landscape features located outside the study area may require an outer “vista ring”.

We must stress that viewpoints and camera positions must be carefully mapped and described for future recording of the landscape on a systematic basis.

Each image selected for inclusion in the report must be accompanied by text explaining why the image was chosen and included.

Step 4 – Information gathering: listing the landscape ingredients in the circle

Landscape identification is about seeing the landscape with fresh, perceptive eyes.

We often move through our landscape blind to our surroundings – it is a blur outside the train window of our busy lives. Identifying and listing the elements of our landscape is a way of drawing back the curtain or cleaning life’s window.

The objective of the identification process is to list the elements of the landscape in each circle. A specific element location should be identified on the map; for dispersed elements it may be adequate to refer to a particular quadrant of a circle.

The identification of landscape elements will range over the built, natural and archaeological heritage as well as “non-heritage” elements. It also adds its own important component – an understanding of the composition of the landscape and the interrelationship between existing built and natural heritage, and present-day interventions, for example, construction work or changed land use practices.

The extent by which landscape elements are common, occasional or rare must be recorded and the pattern of their occurrence must be indicated (by shading or cross-hatching a map section).

In time, reference lists of the landscape elements that might occur in different areas will emerge as a by-product of the process.

A general list is mentioned in Appendix 2, but a locality-specific list might be prepared for each study area as a customised response to match the distinctiveness of each local landscape.

Step 5 – Evaluating your landscape: the LANSWOT analysis and prioritising the lists

Because the landscape is a composition of many elements and “jigsaw pieces”, an analytical process is required. A critical analysis approach to landscape management is essential if a high quality landscape is to be conserved, enhanced or created. The LANSWOT analysis (landscape strengths, weaknesses, opportunities and threats) is highly suited to analysing the diverse elements of our landscape in the context of their role in defining and deciding landscape quality.

It lends itself to community use in avoiding the complexity of scientific jargon-led analysis, whilst inviting communities to adopt a structured, critical approach in their assessment of their landscape. It has the added advantage of enabling communities in different locations to compare and contrast their conclusions in a comparative framework.

Categorising landscape elements into the LANSWOT columns

Landscape assessment involves classifying and ranking the elements in order of their importance. This is about understanding the landscape. The reason why a landscape is distinctive may not always be immediately obvious. Elements will be important

because of the extent to which they shape and define the landscape, for better or worse. They will be very important where they add or remove distinctiveness from the landscape.

A landscape strength adds to or enhances the quality of the landscape.

A landscape weakness needs to be restored/reinvigorated/reinstated.

A landscape opportunity involves a new situation with the potential to create a new landscape strength.

A landscape threat is poised to damage or destroy existing landscape quality by removing existing strengths/weaknesses and not compensating with new strengths.

A keynote element identifies or characterises a landscape on its own and influences our perception of landscape, even when it is not very obvious: it has a presence in the landscape. It may be an old or a new building, a church with spire or tower. It may be an iconic mountain or hill – each state will have its own classic examples. On some “flatter” landscapes less imposing hills and even chimney stacks take centre stage.

A landscape pattern relates to a recurring element such as hedgerows, stone walls, fencing, terracing, etc. Land use activities create their own patterns in the landscape; agriculture is the main influence that we are familiar with in Europe, with distinctive field patterns being associated with different crops and farm animal enterprises.

A particular style of wall construction or an ensemble of buildings may define a landscape – urban or rural – or the design consistency of a particular artefact. A busy craftsman may have influenced the building styles in an area and thereby defined the distinctive landscape character of an area with some particular ornamentation or building style.

Threats might include the homogenising effect of replicated building designs, which are now creating a new characteristic low-diversity landscape in many parts of Europe.

A native or, more commonly, introduced plant species may define the landscape in a positive manner. However, many other introduced plants are visually and ecologically alien in the landscape.

The composition of a landscape is very important. Two different landscapes could have a similar list of elements, but one could be more pleasing than another because, intentionally or otherwise, it is more successfully composed or strategically arranged. New interventions must be assessed in relation to their wider impact on the composition of the greater landscape.

Landscape composition is often defined by the public face of the private realm – a fact not always easily acknowledged. For example, a large private building (a mansion or industrial plant) located on private property, in a prominent location, can influence the landscape character of a large tract of land.

The importance attached to landscape elements may have local, district, county, regional, national, European or international significance.

Step 6 – Identifying actions and actors linked to the prioritised lists

Landscape management involves identifying/recording the actors and the actions needed in response to the LANSWOT analysis, encouraging best practice; where possible leading to the conservation of landscape elements (or at least a continuity of these elements within the landscape); and determining the character of interventions in order to:

- reinforce the strengths;
- address the weaknesses;
- realise the opportunities;
- avert or mitigate the threats.

This stage is about identifying with the landscape and participating actively, rather than passively, in the landscape management process, in a manner appropriate to the scale involved. On the larger scale, the activities of the major forces for change in the greater landscape can give rise to profound and widespread change across a large area. In such cases, the actors may be remote from the landscape concerned, be they experts or government and company officials.

On a smaller scale the immediate local landscape can be dramatically changed by quite small interventions, such as the demolition of a prominent building, the construction of a new prominent building, the felling of a few large trees, the clearing of a large thicket, the clear-felling or conversely the planting of a small area of woodland/forestry. Here, the actors may be very local, even a neighbour.

The cumulative impact of many small actions can also significantly change the overall character and quality of a landscape; for instance, the growing of certain plants by many individual gardeners can change the character of a landscape in quite a short time.

Actions to mitigate impacts on landscape would involve a balanced mix of landscape preservation, protection, planning, design, creation and restoration. Interventions

in the landscape might be guided in such a fashion as to enrich and enhance the landscape, whilst reducing or avoiding ill-considered developments which can take from or homogenise the character of the landscape.

The forces for landscape change must be landscape-sensitised at an early stage: this template provides communities with the foresight, understanding and confidence to engage in that process. Individual and community activists must not only identify the actions and actors, but also the mechanisms and communication channels, legislative and otherwise, available to the local citizen and the community to influence the actors.

The discipline of carrying out an audit on landscape interventions is useful. The balance sheet for proposed change in the landscape may show a loss, gain or a neutral outcome. The landscape circle template provides the database for landscape auditing and is intended to result in a very healthy landscape balance sheet.

Step 7 – Completing the report, publicising/communicating its conclusions and becoming a landscape active community

Completing a landscape circle study report will achieve much in informing and alerting you about your landscape. We recommend you to take some further important steps to communicate and validate your work to your immediate and greater community by progressing to one or more of the following:

Questionnaire: as a survey of the views of other members of the community this might form part of the project and/or subsequent feedback – a representative response from the community would be valuable in reinforcing the credibility of the study findings.

Exhibition: involving posters with outcome of SWOT analysis, images/photographs illustrating the character and distinctiveness of the local landscape, photographic and image sequences over time illustrating landscape change and evolution and photographs if possible of successful interventions in the landscape. Illustrations of unsuccessful or damaging interventions in the landscape need to be presented diplomatically to avoid alienating neighbours or even possible conflict and litigation.

Booklet: a booklet can be costly if printed in large numbers and become dated, but they are a reassuring “product”. Print to order, rather than printing large quantities which may tie up scarce funds.

Video/DVD: more ambitious but versatile and ideal for landscape.

Website: more ambitious again, but great for reaching a wider audience – is likely to require updating. It may be possible to set up a European landscape circle website.

Note: all of the above measures as outputs of the study have a long-term historical landscape value but unless they are reviewed and updated their role in having an ongoing active impact on landscape interventions has a limited “shelf life” of between one and three years. Reviewing and updating would not be an onerous task if undertaken on a regular basis (every three years is suggested).

Further landscape circle outputs

Implementing a landscape circle study enables landscape management actions to be undertaken in an informed and effective manner as follows:

- creating landscape awareness via normal community social contact;
- providing informal advice to prospective actors;
- participating in the processes of development, local area action plans, village design statements;
- intervening in planning applications;
- lobbying politicians;
- the study sets a benchmark for the local landscape;
- a landscape circle archive – the studies could form the basis of a county or city landscape archive – a historical and dynamic landscape management resource.

Appendix 1 – Landscape relevant legislation applicable in the state concerned

The relevant legislation must be identified according to the state concerned.

Appendix 2 – Indicative reference lists of typical landscape ingredients

Topography

Mountains, uplands, moorlands, valleys, hills, ravines, rock faults, exposed rock, lakes, ponds, rivers, streams, wetlands, mudflats, beaches, islands, the sea, coastal features.

Field enclosure

Earthen banks (ditches), stone and earth banks (ditches), hedgerows, tree lines, stone walls, fencing, etc.

Vegetation

Trees, woods, forests, shrub thicket, hedgerows, fields, marsh, fen, bog, sand dunes.

Historical associations

Archaeological sites, ambush sites, battle sites, military campaign routes, pilgrimage routes.

Buildings and their curtilages

Towns, villages, one-off housing, heritage ruins, derelict ruins, civic buildings, heritage buildings, farm buildings, town houses, streetscapes, rural houses, industrial buildings, graveyards, gardens.

Travel infrastructure

Roads, footpaths, bridges, railway lines, stations, signposts, road markings, vehicles.

Productive land uses

Fields for silage, pasture, hay and farm animals, fields for arable use, stud farms, timber production, orchards and soft fruit.

Productive sea uses

Harbours, piers, shellfish farms, fish farms, boats.

Leisure land uses

Gardens, parks, golf courses, racecourses, playing fields, forest parks.

Extractive land uses

Peatlands, quarries, mines, sand and gravel pits.

Waste infrastructure

Landfill sites, civic amenity sites, sewers, storm water pipes, gullies and drains, manhole covers.

Artefacts

Stone walls, stone edging, water pumps, gateposts, gates, weirs, quays, steps, letter-boxes, bus shelters.

Communications and power infrastructure

Letterboxes, telegraph poles, electricity pylons, mobile and telecommunications masts, junction boxes, manhole covers.

Commercial manifestations

Billboards, advertising signs, garish nameplates.

Distant views and prospects

A landscape may enjoy distant views and prospects located outside of the study area; these are also landscape components/ingredients “belonging” to the study area.

Wildlife habitats and designated areas

These may form overlays over combinations of other landscape elements. They are a more complex composition in the landscape that further enrich the landscape quality. They heighten the value of landscape elements that might otherwise be regarded as of a lesser value on a purely two-dimensional assessment.

Appendix 3 – References/reading list

Essential and readily available – downloadable from the Council of Europe website (www.coe.int/europeanlandscapeconvention):

European Landscape Convention (ETS No. 176), – Council of Europe (www.coe.int/europeanlandscapeconvention)

CEMAT European rural heritage observation guide, Council of Europe Conference of Ministers responsible for Spatial Planning – CEMAT, 2003, (www.coe.int/CEMAT)

Appendix 4 – Practical considerations

Undertaking a landscape circle study involves some practical considerations. These are more onerous for a group study than for an individual study, but are equally important for either approach.

The following elements may help the user with this proposed method.

Expenses

A study can be undertaken at minimal cost, but to produce a “professional” report and especially for group studies the following expenses are likely to arise:

- purchase of Ordnance Survey maps and sheets;
- photographic equipment and materials;
- photocopying;
- printing;
- insurance;
- transport;
- miscellaneous: binding, stationery, CDs, etc.

Funding

Before seeking funding prepare a brief outline of the project to accompany your applications for funding.

Grants may be available from a variety of sources

Local businesses may also provide sponsorship or assistance in kind.

Insurance

An individual or a couple of friends undertaking a study are unlikely to encounter insurance problems. Larger groups should consult an insurance agent or company about the possible need for public liability and personal accident insurance.

Maps

Copyright

The issue of copyright only becomes relevant if or when you publish and circulate your report, but sources should always be acknowledged in the report.

Maps: to copy maps permission may be required.

Images: where relevant permission to reproduce images (paintings, photographs, etc.) should be sought from the owners.

Text: it is generally permitted to include short quotations from books provided the source is acknowledged and the details of the publication are included in the report.

Permission should be sought for long extracts and poems.

Other legal concerns

A landscape circle study should largely be based on what can be seen from the public realm and accessible private lands – roads, streets, footpaths, the foreshore, parks, national parks, etc. Private lands should not be trespassed on. In most cases, a reasonable request for access will be successful. It is vital that such permission is respected and acknowledged.

A separate and potentially contentious issue relates to the taking of photographs. There should be no problem with landscape photographs taken of streets, villages, towns and rural scenes. Problems might arise with photographs that highlight private property in a negative context. Permission may have to be obtained in certain circumstances.

In all cases it will be helpful to prepare a short letter explaining your project and requesting permission/co-operation from the landowners concerned.

Safety and health

An interest in landscape can distract one from a sensible regard for one's safety and health. Walking and particularly photographing along roads – urban or rural – today can be extremely dangerous. The bright yellow high visibility vests are a very worthwhile investment. Clambering over ditches, streams and along shores/riverbanks are all hazardous exercises. Always ensure one's stability and safety before taking photographs. Preferably explore your landscape with a companion or "minder". If alone, always let someone know your intended itinerary and time programme and take a (charged) mobile phone with you.

Appendix 5 – Sample record sheets

The sample record sheets are intended for guidance only.

The strengths, weaknesses, opportunities and threats are all shown on the one page; in practice they will have a separate sheet or more each.

The landscape observatory sheet only provides for one image. If you are illustrating landscape change over time with a series of images, you might use one sheet for images and carry the explanatory text on the opposite page.

Examples of study record sheets

Landscape circle study record sheet	Date:
Recorder:	Survey area:

Landscape strengths	Location	Photo ref.
Landscape weaknesses	Location	Photo ref.
Landscape opportunities	Location	Photo ref.
Landscape threats	Location	Photo ref.

Landscape facets

Landscape circle study record sheet Date:

Recorder: Survey area:

Landscape strengths	Location	Ranking	Action response	Actors
Landscape weaknesses	Location	Ranking	Action response	Actors
Landscape opportunities	Location	Ranking	Action response	Actors
Landscape threats	Location	Ranking	Action response	Actors

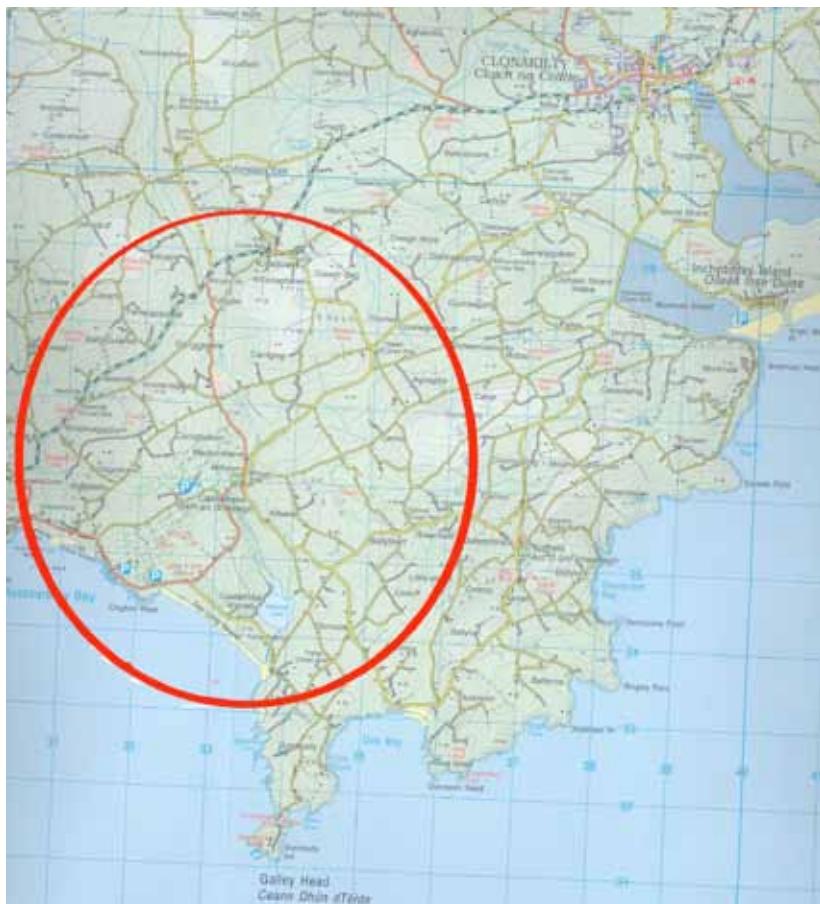
Landscape circle study photographic
observatory sheet Date:

Recorder: Survey area:

Image:

Location	Date of image.....
Viewpoint	Sketch map

Comments and observations



Example of a landscape circle in Ireland using an OSi Discovery Map © OSi "The Rathbarry/Castlefreke Landscape Circle"

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V. Education on landscape for children

Benedetta Castiglioni, Council of Europe expert



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Summary

In the framework of the European Landscape Convention, the present report aims to present requirements, objectives and methodologies concerning education on landscape, in its general aspects and in particular in its application in primary and secondary schools, at the European level.

The first part of the report contains the main reference points which relate education on landscape to the European Landscape Convention, finding in the concept of the convention itself the basis for the implementation of the specific educational targets. These targets are further developed as specific aspects of education for sustainable development, particularly important in the United Nations Decade of Education for Sustainable Development 2005-2014 in a wider pedagogical perspective. Considering landscape as heritage, the dissemination of greater knowledge of landscapes and of the processes of landscape change, as well as improving landscape reading abilities, represents some of the necessary requirements in order to make people more aware about the value of the places in which they live, more open towards other places and other cultures, and more responsible towards landscape management.

In the second part of this report more practical and operational aspects are developed. Nevertheless, in order to avoid confusion arising from the polysemic meanings of “landscape”, the definition of the term and its implications need to be presented first. A general grid for landscape reading is then proposed, not as a didactic tool in itself, but as the starting point to put into practice school activities, since it contains all the “ingredients” that education on landscape should have: landscape elements identification and description; non-material features of landscape (emotions, significances, symbols, etc.); natural and human factors that are “building” the landscape; and landscape change from the past to the future.

In the following section, specific aspects of education on landscape are presented, both in a general and in a practical way: first, the focus is on landscape in all its facets, then on the different roles of the people involved. Each methodological issue has its roots in a theoretical framework and in a pedagogical target, and at the same time is presented along with practical provisions. Examples of activities concerning education on landscape implemented in the European panorama are then offered.

1. Education on landscape and education for sustainable development

1.1 The European Landscape Convention and education on landscape

People and landscape

The general aim of the European Landscape Convention is to “provide a new instrument devoted exclusively to the protection, management and planning of all landscapes in Europe”, in order to gain two wider main objectives: “individual and social well-being” and “sustainable development based on a balanced and harmonious relationship between social needs, economic activity and the environment”. Landscape issues are presented here in a wide perspective and action on landscape as well as landscape policies find a more extensive dimension than just a technical one for planners and politicians.

The first article of the convention proposes a definition of landscape that helps in understanding these statements: “Landscape means an area, as perceived by people, whose character is the result of the action and interaction of natural and/or human factors”. Namely, landscape is not only conceived from an ecological point of view, but it involves human (historical, cultural, economic, social, etc.) aspects as well as non-material characteristics arising from perception. It is at the same time a tangible matter and a source of feelings and emotions and, when dealing with it, both dimensions have to be considered. Since landscape reflects the interaction of nature and humans through time, it becomes part of our heritage, a resource we inherited from our past and we must care about, for our future. Moreover, due to personal and social values assigned when perceived, landscape contributes in determining people’s well-being and consolidating territorial identities.

Therefore, a strong relationship between people and landscape lies at the base of the European Landscape Convention. This relationship takes two directions: in fact, one of the most important assumptions proposed in the preamble is that landscape “protection, management and planning entail rights and responsibilities for everyone”. On the one hand, the convention stresses the fact that each action towards landscape has to take into consideration people’s aspirations towards their well-being, with effective participation processes: in this sense it entails rights. On the other hand, participation is not an option but a duty, and being involved in it requires tasks for everybody, all people being responsible for landscape policies definition and implementation. Actually, the idea is that “landscape is something

which needs care and which, if seen only as a commodity good, will inevitably lose its value and also its attraction”¹⁰

This “democratic” approach, in which “people are given an active role in decision-making on landscape”,¹¹ is applied also to the spatial dimension: all landscapes (throughout the territory of each state party) are considered by the European Landscape Convention, all of them have to be considered as heritage and are important for local identities and for a more general well-being as well as in the perspective of territorial sustainable development.

Education on landscape as a specific measure: aims and objectives

The first specific measures provided by the European Landscape Convention that states have to undertake are devoted “to increase awareness among the civil society, private organisations, and public authorities of the value of landscapes, their role and changes to them” and “to promote training for specialists …, multidisciplinary training programmes … for professionals in the private and public sectors and for associations concerned, and school and university courses which, in the relevant subject areas, address the values attaching to landscapes and the issues raised by their protection, management and planning” (Article 6, A and B).

If the object of the convention is “landscape”, the importance that is given to people (even more than landscape itself) highlights the relevance of the link between people and landscape, and underlines the importance of an effective participation.

“Education and training with special reference to the landscape issue are crucial to whatever improvement of the landscape management we want to achieve. Many activities can be imagined to promote the proper approach in awareness-raising, education and training”.¹² In the second part of this chapter, methodologies and examples are provided, concerning education in schools.

These kinds of activities have therefore to deal with both “personal connection with the landscape, and personal commitment to the landscape. Only personal

10. Pedroli, B. and Van Mansvelt, J. D., “Awareness-raising, training and education, Theme 3”, in *Proceedings of the Second Council of Europe Conference of the Contracting and Signatory States to the European Landscape Convention*, Council of Europe, Strasbourg, 28-29 November 2002. In: Council of Europe, *Landscape and sustainable development: challenges of the European Landscape Convention*, Council of Europe Publishing, 2006, p. 117-140.

11. “Explanatory report of the European Landscape Convention”, paragraph 24.

12. Pedroli, B. and Van Mansvelt, J. D., op. cit., p. 121.

connection with the landscape can allow people to know their landscape in depth, including its opportunities and threats, and base their actions and activities on knowledge of the landscape in all its complex relationships. Personal commitment or engagement with a specific landscape can guarantee the sustainable development” of landscapes.¹³

Taking into specific consideration school courses and, in general, didactic activities in primary and secondary schools, the European Landscape Convention expresses explicit remarks, concerning the commitment of the countries. Activities have to deal with the promotion of “values attaching to landscape”, not in an abstract way, but also dealing with and taking care of actual aspects like protection, management and planning. Actually, value awareness increases the connection with the landscape and the acknowledgement of the rights, while the concrete approach increases personal commitment and acquisition of responsibility.

At the same time, landscape value belongs to a very wide field, among which some categories can be identified:

- ecological values (like biodiversity or ecological functions);
- economic values and functions (land use values, tourist values of some characteristic landscapes);
- historical and cultural values, heritage values;
- emotional values linked to the place of life, identity values, social values;
- aesthetic values;
- the values of the knowledge of the landscape developing processes;
- etc.

In this context, education on landscape emerges not as a specific education on a defined subject, but much more as a general upbringing process, through which children increase their knowledge, awareness and responsiveness. It is not simply a bottom-up process in which children get to know certain information regarding landscape, but it is more of an experience involving the person in his/her entirety. Education on landscape therefore assumes an important meaning: through it, landscape really becomes a key element of individual and social well-being. At the same time, it assumes a specific role within the framework of education for sustainable development.

13. Ibid.

1.2 Education on landscape in the framework of education for sustainable development

United Nations Decade of Education for Sustainable Development 2005-2014

As the general aim of the European Landscape Convention is to achieve sustainable development, education on landscape promoted by the convention can be considered as one of the possible ways of implementing education for sustainable development.

The United Nations proclaimed the years between 2005 and 2014 the Decade of Education for Sustainable Development (DESD), promoting education as one of the main targets for sustainability. In fact, education is considered a cornerstone and the first required measure (as well as education on landscape): “education is a driving force for the change needed”.¹⁴

The points in common between the sustainability approach and the landscape approach have been strengthened since the Johannesburg Summit, considering not only the environmental issues but enhancing the aspects concerning the social ones; in this sense, the approach of the European Landscape Convention, with its focus on involving people, suits the goals of sustainability very well. Environmental education broadens to education for sustainable development, including education on landscape.

Actually, analysing the basic document of the DESD, many points suit the features and the goals of education on landscape. First, the fundamental values of education for sustainable development take their place within a “new vision of education, a vision that helps people of all ages better understand the world in which they live”. Second, most of the indicated features of the DESD are very similar to the ones of education on landscape that will be presented in detail below:

- Interdisciplinary and holistic: learning for sustainable development embedded in the whole curriculum, not as a separate subject;
- Values-driven: it is critical that the assumed norms – the shared values and principles underpinning sustainable development – are made explicit so that that can be examined, debated, tested and applied;
- Critical thinking and problem solving: leading to confidence in addressing the dilemmas and challenges of sustainable development;

14. For all the documents concerning the United Nations Decade of Education for Sustainable Development see the website www.unesco.org/education/desd.

- Multi-method: word, art, drama, debate, experience, ... different pedagogies which model the processes. Teaching that is geared simply to passing on knowledge should be recast into an approach in which teachers and learners work together to acquire knowledge and play a role in shaping the environment of their educational institutions;
- Participatory decision-making: learners participate in decisions on how they are to learn;
- Applicability: the learning experiences offered are integrated in day to day personal and professional life;
- Locally relevant: addressing local as well as global issues.

Moreover, the seven strategies indicated in the documents concerning the DESD to implement education for sustainable development can also be effectively and consistently used in implementing education on landscape: “vision-building and advocacy; consultation and ownership; partnership and networks; capacity-building and training; research and innovation; use of information and communication technologies (ICTs); monitoring and evaluation”.

In addition, education on landscape shares the same general concepts as education for sustainable development and can be considered, as it is mentioned in the documents of the DESD: “fundamentally about values, with respect at the centre: respect for others, including those of present and future generations, for difference and diversity, for the environment, for the resources of the planet we inhabit. Education enables us to understand ourselves and others and our links with the wider natural and social environment, and this understanding serves as a durable basis for building respect. Along with a sense of justice, responsibility, exploration and dialogue, education ... aims to move us to adopting behaviours and practices which enable all to live a full life without being deprived of basics.”

Finally, it is also mentioned that, “everyone is a stakeholder in education for sustainable development” and in education on landscape, with different roles and partnerships that will be presented later.

Pedagogical aspects

In an educational context, some important pedagogical focus points concerning landscape can be found: the attempt is to understand better what contributions education on landscape can offer for individual development, not only when

a child learns to act better in given circumstances, but also to improve his/her general upbringing process.¹⁵

An important point deals with the dialogical function of landscape, in the developing of the dialectic between identity and otherness. When approaching a landscape, on the one hand, we discover our roles as inhabitants of a place, keepers of a heritage, witnesses of a culture and people responsible for its future. On the other hand, we experience our wish to take possession of new places, even for the brief period of a journey or an excursion.

From a pedagogical point of view, identity is defined in terms of subjectivity, intimacy and inter-subjectivity; all three are associated with the landscape approach. Moreover, the identity/otherness dyad is not separable, just as landscape is not separable, since the desire for rootedness goes together with the wish to “discover”.

Education on landscape therefore means to learn to observe with new eyes what is around us: sometimes what we see is too familiar so it no longer communicates with us any more and does not activate our ability to contemplate. We need to reactivate the ability of listening to what is unexpected and unforeseen, leaving enough space for surprise and emotions.

In addition, three different, more detailed functions of landscape in a pedagogical context have to be underlined:

- hermeneutical function, because we can learn to “read” inside the landscape and through its signs; landscape implies two different ways of reading: the sensorial way, as it can be considered as an “education of the sight and of the senses”; and the cognitive way, for its “explorative” character, towards a better comprehension of natural as well as human aspects and factors;
- pragmatic function, for its practical and designing nature, referring to responsible management of landscape change; this can be also considered an ethical dimension;
- social function, as landscape belongs both to the single person and to the communities that live in it and that perceive it; moreover, it involves and it promotes the development of local identities as well as opening to otherness (both time-otherness, concerning landscapes of the past, and place-otherness, concerning landscapes of faraway places).

15. The following contents come mostly from Zanato Orlandini, O., 2007: “Lo sguardo sul paesaggio da una prospettiva pedagogico-ambientale”, in Castiglioni, B., Celi, M. and Gamberoni, E. (eds), *Il paesaggio vicino a noi. Educazione, consapevolezza, responsabilità*. Proceedings of a conference on 24 March 2006, at the Museo Civico di Storia Naturale e Archeologia, Montebelluna, Italy.

In the following chart (Table 1) we see a schematised representation of possible routes into education on landscape, depending on different purposes and methodologies. The third column presents the broadest approach, coherently with the pedagogical and educational remarks proposed before. It is not in opposition to the first two; on the contrary, it includes and goes beyond them.

Table 1 – Educational methods concerning landscape

	1	2	3
	Education about landscape	Education in landscape	Education for landscape
Purposes	Knowledge of landscape and of landscape change dynamics and processes	<ul style="list-style-type: none"> - learning to see - learning to learn - acquiring empiric research ability - acquiring and/or applying transversal knowledge 	<ul style="list-style-type: none"> - knowledge - motivations - ethical awareness - identity building - possibility of new significance attributions - social, designing and transforming skills - supporting processes of assuming responsibility
Prevailing approach	Instructive	Cognitive, although not excluding aesthetic and social dimensions	<p>Integrated model, on several axes:</p> <ul style="list-style-type: none"> - cognitive - emotional- motivational - ethical - aesthetic - participative-community
Didactic highlighting	On contents: to make children acquire correct information (to know)	<p>Landscape as didactic intermediary, towards:</p> <ul style="list-style-type: none"> - in-the-field research - subject knowledge 	To build knowledge, skills, values (to know, to know how to be, to know how to do)
Preferred context	School and age of development	School and age of development	Everywhere and lifelong
Remarks	To know is not enough in knowing how to be and how to do	Exploitable use of landscape, starting point for acquiring transversal knowledge	<p>Landscape as elective context towards reorientating:</p> <ul style="list-style-type: none"> - knowledge - emotions - will - behaviours

Source: Zanato Orlandini 2007.

According to the third approach, education on landscape should be a process “more like lighting a fire than filling buckets, meaning that learning should be more a way of finding, sharing and evaluating ways to solve problems, practical ones as well as theoretical ones”. Education on landscape is therefore a process of “human resource development in its true sense” as it follows the three following criteria to be implemented with the steps proposed in the chart below (Table 2):¹⁶

- intellectual education (knowledge oriented: cognition);
- emotional education (finding out about the feelings and values: affection);
- relational education (knowing about doing, how to practice: conation).

Education on landscape is therefore summarised as “teaching both theory and practice in a way that includes the training of the affective domain”.

Table 2 – Steps and criteria valorising human resources

	Cognitive domain	Affective domain	Conative domain
Pre-emancipatory levels	Knowledge	Receiving	Imitation
	Comprehension	Responding	Handling
	Application	Valuation	Mastering
Increasing internalisation of learning	Analyses	Organising	Engagement
	Synthesis		
	Evaluation	Characterisation	Dedication

Source: Pedroli, B. and Van Mansvelt, J. D., op. cit.

Education on landscape for “active citizenship”

Such arguments demonstrate how comprehensive the values concerned with landscape education ultimately are. Education on landscape shows its importance not only towards safeguarding landscape and improving landscape quality, but also in itself, as an important step in a child’s upbringing. Landscape is not only an object to take care of, but becomes a source of inputs to reach children and aid their growth as complete human beings. It is not only an object to be taught, but also a teaching tool, a sort of “teacher” in itself.

16. Pedroli B. and Van Mansvelt J. D., op. cit.

Different peculiarities and methodologies for education on landscape will be presented below, with special attention to educational activities and courses for schools (mostly primary and secondary). However, it is important to note that its general aims and potentialities need to be put into effect not only in formal contexts, but also in informal and non-formal ones, as well as in permanent education processes, exactly like in education for sustainable development. It can be assumed that education on landscape, to some extent, belongs also to the first specific measure provided by the European Landscape Convention (Article 6, A): awareness-raising of civil society.

Actually, all the characteristics of education on landscape represent essential elements which contribute towards a positive and responsible relationship between each person and his/her environmental context and place of life; they are basics contributing to the unity of the person, with his/her different ways of approaching and knowing the world, and towards an active and constructive participation in the life of one's own community.

2. Discovering education on landscape

2.1 From “landscape” definition to a method for landscape reading

Different approaches to landscape

The word “landscape” is as “fascinating” as it is difficult to be “pinned down”, because of the variety of meanings that are assigned to it. It can be used either as a common language term (synonym of panorama) or to express a concept, such as an object of study or something to be planned and safeguarded. The meaning changes – with smaller or larger shifts – from one disciplinary field to another, from one language and cultural context to another and, evidently, it has also changed over time.

Nevertheless, when exploring this variety of meanings and of points of view concerning landscape, it is possible to find some common features.

In most cases, landscape does not deal with a single object, but with a synthesis of different elements, related to one another. Landscape is a “unity”.

The elements belong both to the natural and to the human sphere. Thus, landscape forms a sort of bridge between natural sciences and humanities and it is considered both environmental and cultural.

In fact, another landscape feature is the dimension of change, evolution and transformation. It is a “diachronic construction”, never equal to itself. Landscapes of the past were necessarily different from the present landscapes, and cannot be rebuilt with exactly the same features. However, landscape keeps signs of the past and of the change processes it faced or is facing within.

Another important feature is that landscape is simultaneously “the representation” and “what is represented”, the non-material sight and what is being seen, in its materiality. Both the subjectivity of senses, feelings and emotions, on the one hand, and the objectivity of reason and rationality, on the other, are needed to “meet” the landscape.

At any rate, it is important to underline the difference that exists between landscape and “space”, or between landscape and “territory”. Landscape is “what is seen”, the “sensible datum”, the “empirical evidence of territoriality”, but not the space in itself. Spatial systems form the support of landscape, while landscape has its own individuality, never becoming a synonym for environment, space or region.

Using the metaphor of landscape as theatre,¹⁷ the human being is in a twofold relationship with the landscape: he is the actor, in the sense that he acts and builds the landscape, in all the different ways a person can interact with their environment; and at the same time, he is the audience, for he looks at what he makes, in order to understand the sense of his action, in a circular relationship. Landscape is in this sense the “the medium between making and looking at what we made”, implying that, when speaking about this topic, perception, knowledge and practice are all involved.

Concerning practice, it is known how many different approaches we can have and how many different forms of regulation according to law now exist: from strictly considering the total protection of small areas with very special features (natural as well as cultural), to large-scale landscape planning integrated within regional and spatial planning, in order to manage changes at every level.

The definition of landscape provided by the European Landscape Convention

Aware of the polysemic nature of landscape and of the variety of approaches, Article 1 of the European Landscape Convention presents some basic definitions. First landscape is defined as “an area, as perceived by people, whose features are the result of the action and interaction of natural and/or human factors”. In this definition, most of the aforementioned remarks can be found:

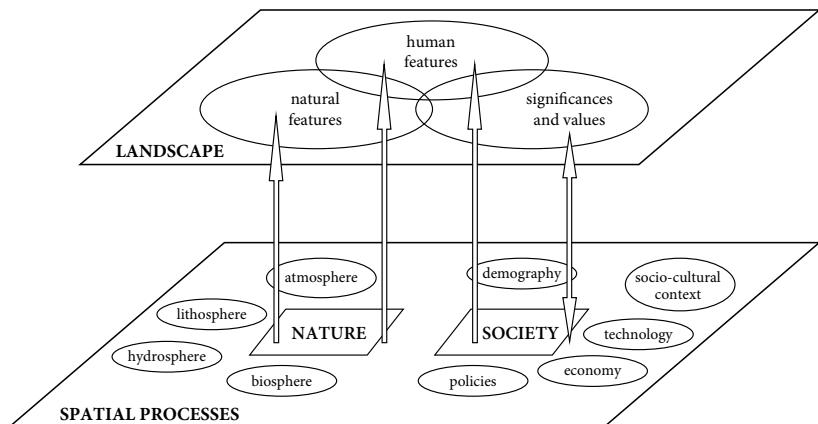
17. The metaphor of landscape as theatre is proposed in Turri, E., 1998, *Il paesaggio come teatro*, Marsilio Editore, Venice, Italy.

- the presence of both nature and culture, going beyond the division between physical, natural landscape and cultural, human landscape;
- the dimension of “relation” implied in landscape, characterised by a synthesis of interrelated elements;
- the uniqueness of each landscape, as “natural and/or human factors” “act and interact” in a unique way in each specific “area”;
- the importance of landscape perception as fundamental in defining landscape itself: landscape is “what is seen and perceived” and therefore it is different from space, it is instead a concept with its own individuality. Moreover, subjectivity of perceptions (both of individual and of society) is recognised as something to be taken into consideration, when dealing with landscape.

Among the basic definitions, Article 1 of the convention also presents the meanings of the three actions landscape requires: protection, management and planning. They are listed from the least to the most responsible for landscape change.

The other important point, proposed in Article 2 of the European Landscape Convention is that the concept of landscape must not be applied only to small restricted special areas, but to each and every part of the region/country/world.

A conceptual model for landscape



A conceptual model for landscape (modified, from Castiglioni 2002)

The model presented in this diagram is an attempt to show in a more direct way the basic concepts mentioned above. It clarifies them and it shows how to move within this complex, both with research and educational aims. It helps as a reference

framework in order to give the landscape concept its individuality, without overlapping it with space; as explained later it helps in “finding a way” for reading landscapes, too.¹⁸

Considering the two parallel planes, the bottom one represents the space, the territory, the geographical reality, while the top one represents the landscape itself, precisely what is seen and perceived of the complex territorial dynamics, the processes and factors of which are often hidden and invisible.

If both planes are composed in a systemic pattern, the bottom one is structured in two subsystems: nature and society, involved in a close and complex reciprocal relationship.

In the top one, on the other hand, three subsystems are related to each other. The first one contains the natural features of landscape (that is, relief forms, vegetation). All the signs of human presence that have modified natural features (that is, buildings, villages and towns, or land cover and land use forms or infrastructures) are in the second one (human or cultural features). Both these features are related to material, tangible components of landscape. The third subsystem instead includes all the non-material, non-tangible landscape features: namely, the significance and the values assigned to the landscape, either in the aesthetic sphere, or in the affective one (landscape as a part of our own identity), or in the symbolic one (when certain landscape elements can provide specific significance to people perceiving them). As regards values, we can also consider functional values such as ecological or economic ones. Significance is therefore divided into three groups:

- *functional significance*: what-is-it-used-for functions (material), including both economic and ecological functions;
- *symbolic significance*: what-does-it-transmit functions (non-material), related to aesthetic, cultural values and those preserving the memory and the local identity of the community;
- *anticipatory significance*: ideas, and explicit (planning) or implicit projects that are going to change the landscape.

Of course, if landscape elements belonging to the first two categories are considered and analysed objectively, the category of significance involves perception and subjective representations: different kinds of “perceived” or “lived landscape” can correspond to the same “observed landscape”.

18. See Castiglioni, B., 2002, *Percorsi nel paesaggio*, Giappichelli Editore, Turin, Italy.

Anyway, a landscape is made up of the interrelation of the three subsystems; it is not only the “sum” of the different parts, but the “product” of their relationships.

Which are the links between the two planes? The arrows simply show how the spatial dynamics of natural and human factors “produce” the landscape. Actually, it is not possible to consider the landscape without considering at the same time the processes – often invisible – that are at the base of the forms we perceive; here, landscape has its “roots” and its uniqueness, together with the driving forces for its change.

Paths for landscape reading

All the different proposals which are possible in any educational activity on landscape start from a first approach to a specific landscape (or several specific landscapes), in order to read it, according mostly to its hermeneutical function.

The conceptual model for landscape proposed in the diagram above suggests three different but complementary reading landscape paths, in order to get a reference framework for each landscape study and analysis, or, as in this case, for educational activities concerning landscape. In the latter case, the application of the conceptual model helps identify more clearly the topic and the content as well as didactic objectives and methodologies. In Box 1 a general pattern is presented, following the paths explained here.

Referring to the model, the first path moves in a horizontal dimension, in the upper plane of landscape elements and features. Along this path, attention has to be paid first to the characterisation and description of elements (eventually gathered in categories) and then to the specification of their relationships – mostly spatial relationships – among elements (that is, between landforms and vegetation, or between settlements and water resources). The non-material landscape features must be identified, too, giving space to the observer’s feelings and emotions, as well as to his/her different perceptions and assigned values. The uniqueness and the specificity of each landscape emerge through these procedures, achievable in different ways and at different levels; it is the first basic step towards further investigation. The horizontal paths answer the question “What is the landscape like?”

The second path goes deep “inside” the landscape, in order to explore – in a vertical dimension – the causal relationships between landscape factors and

landscape features. In order to answer the questions “Why this element? Why this landscape?”, both natural and human processes need to be considered. In this sense, landscape is a sort of indicator of spatial dynamics, the very first point of contact with factors and processes that cannot be seen directly. Careful research work is surely needed to explore the links between landscape features and factors.

The third path moves in a temporal dimension, trying to understand the landscape change, a result of different driving forces acting today as well as in the past. It is a sort of landscape “tale”, in which the timescale can be chosen depending on which landscape features are considered or analysed: it is either the tale of geological processes and landform change, or the tale of recent and rapid change due to industrialisation and urbanisation. Also, seasonal or daily change can be considered, especially in educational activities, in order to understand that landscape is a diachronic construct. An understanding of landscape change processes is essential in order to understand to what extent human action is responsible for landscape change and to look towards the future of landscape, for example with planning.

The three paths often cross each other: in fact, landscape is more of a hypertext (needing non-linear reading) than a linear text.

Below (Table 3) we find the main phases characterising each educational activity aiming to increase specific landscape knowledge as well as a general ability at landscape reading. Phases 1 and 2 are mostly related to the horizontal reading path, phase 3 to the vertical, and phase 4 to the temporal one. These phases can be applied in many different ways and in each educational context, according to the age of children, and how much time and how many instruments, etc., are available. They become didactic targets, with various activities and tools; verification of assets will be necessary at the end of activities, to move to the following phase.

Table 3 – Steps of educational activities

	Phases (didactic target)	Examples of tools	Verification
1	Recognising different landscape elements and their relationships that characterise each landscape uniqueness	Excursions, drawing, sketching, storytelling (oral or written), picture making, puzzle composing or undoing, discussion groups, maps, simple geographical information system (GIS).	Care and accuracy in descriptions (with different techniques). Ability of identifying and rejecting non-pertinent elements and relations.
2	Recognising the power of landscape to stimulate sensations and excite emotions in oneself and in other people	Excursions, texts (prose and poetry), discussion groups, interviews with different people, different drawing techniques.	Expression of feelings through texts, drawings, drama, etc.
3	Looking for an explanation of landscape features, in connection with natural and human factors	Research activity through different sources such as bibliographic references, present and past maps, aerial photos, statistical data, economic data, archive research, simple GIS, Internet research, interviews with experts.	Understanding the link hypothesis/control and some causal chains. Acquisition of some contents.
4	Understanding landscape change, and “telling its story”; imagining and planning future landscape change	Old pictures and maps, old descriptions, interviews with old people (namely, grandparents), discussion groups, design of “landscape plans”, photomontages, storytelling about the past and the future.	Putting on a timeline certain events in landscape change. Comprehension of the issues that drive the question: what is the right thing to do?

Box 1 – Exercise for reading and understanding landscape

The exercise presented here displays a general logical pattern and is more an example rather than an activity that is possible to implement directly in class. Each step needs to be adapted according to the ages of the children and depending on the specific educational targets.

General didactic target

Acquisition of a methodology for the observation and analysis of the landscape, to be further applied to each landscape encountered, as a first step in a deeper understanding of spatial processes, both in the nearby and in the distant world.

Remarks

- this exercise can be performed observing different types of landscape, through a picture or, even better, by visiting the location in person;
- attention must not be paid to putting the “exact” answer in each box of the chart (very often an exact answer does not exist), but on following and applying the logical pattern;
- see below for references and broader explanations.

First step: drawing

Drawing, much more than picture taking, is a tool that allows an individual to make careful observation. Children have to know that the graphic (or aesthetic) result is not important, their drawing could also be as simple as a sketch. Note that children of different ages have a different attitude towards drawing.

Activity: after carefully looking at the landscape, sketch and/or draw it.

Second step: landscape elements (horizontal reading)

Landscape is a complex of different elements related to each other and it is important, firstly, to break down the landscape into them. Elements have to be identified and described according to their shape, type, location and distribution. Reciprocal relationships among elements also have great importance, as they make a landscape different from all other landscapes.

Activity 1: insert in the following chart some elements that you find in the landscape you are observing (you drew in the previous step) and that, in your opinion, are the most important in characterising this landscape. You can consider single objects as well as homogeneous sets of objects (landforms, trees, fields, similar buildings, etc.). Then, describe them mentioning their features (What kind of thing is it? What are the dimension, shape and colour of it?), their location and distribution (Where is it?), their reciprocal relationships (Are they far/close? Are they related to each other in any way?).

	Element	Description
1		
2		
3		
...		

Activity 2 (advanced): choose some categories of elements. Describe them with care, using also data collected in the field and/or from the maps (how steep are the mountain/hill slopes? How much of the area is covered by forest? How many residential/industrial buildings are there? etc.).

Third step: landscape sense and value (horizontal reading)

Landscape is not only a collection of material objects, it also has a non-material dimension, due to the significance and values that people assign to it. It stirs up different feelings and emotions in the observer. The significance is different and depends on the observer; a main difference is often between insiders (who live and know the landscape from inside) and outsiders (knowing the landscape only from outside, that is, tourists).

Activity 1: look at the landscape and write in the following chart what you feel: which emotions does it inspire?

My feeling and emotions

Activity 2 (advanced): interview a few people and write in the following chart what they feel when looking at the landscape. You can also divide the results according to the different categories of the people interviewed (age, job, insider/outsider, etc.).

Categories	Feeling and emotions

Fourth step: landscape factors (vertical reading)

Landscape is the result of action and interaction of natural and/or human factors, acting in the spatial system, differently in each area. It is important to ask “why”, to inquire “below” the landscape, to question causes and processes. In this perspective, landscape assumes value not only as a surface film, but because it links with spatial dynamics.

Activity 1: complete the first column of the chart with the elements identified in the second step; draw some arrows to link each of them to the factors in the second column, answering the questions: Why is this element here? Which factors are responsible for its presence, its features and its distribution?

	Element	Factors
1		Climatic
2		Geological
3		Biological
...		Hydrological
		Economic
		Political
		Technical
		Sociocultural
		Demographic

Activity 2 (advanced): consider some elements (the same you chose in the second step, Activity 2) and the arrows you drew in the previous activity. Research how these factors act on the landscape, using different sources like bibliographic references, present and past maps, aerial photos, statistical data, economic data, archive research, simple geographical information systems, the Internet, interviews with experts, etc.

Fifth step: landscape change (temporal reading)

Landscape always changes, thanks to many factors, on different timescales; sometimes change is sudden and abrupt, sometimes very slow and continuous. How can we analyse landscape change? And how can we evaluate it? Was the past landscape more or less valuable than the present one? To answer this question past and present landscapes have to be compared, in terms of their structure and their significance. Both the lost elements and significance, and the new ones have to be considered. Various sources are often available for this analysis: pictures, aerial photos, maps. Our present view of landscape can also suggest some of the changes. Finally, landscape changed in the past as it will change in the future. To imagine future landscapes, it is important to know the processes and driving forces acting today. But it is also important to be able to express personal wishes and aspirations.

Activity 1: fill in the chart by observing the present landscape and making hypotheses of possible landscape changes. Choose a time interval (for example, related to the date of the document used for activity 2): What do you think has changed in the last ... years? Which elements were present then and appear today only as remains and as a witness to the past? Which one of them changed their features and/or their function? Which are the new elements?

Elements	lost	
	modified	
	new	

Activity 2 (advanced): using a document (a picture, an aerial photo, etc.), fill in the chart comparing the present landscape with the past landscape. Make hypotheses concerning functions and values, using your observations, your previous knowledge or ad hoc research. In the end, you should be able to give a general evaluation of how much this landscape has changed.

Elements	lost	
	modified	
	new	
Functions	lost	
	modified	
	new	
Values	lost	
	modified	
	new	
Landscape change – General evaluation		

Activity 3: make a copy of the drawing in the first step. Transform it according to what you want this landscape to look like in 20 years: rub out some elements, modify or add some others. Then, make another copy of the same drawing. Transform it according to what you think will really change in the next 20 years: rub out some elements, modify or add some others. Compare your drawings and discuss with your classmates..

Activity 4 (advanced): try to think about the future landscape (that is, in 20 years), starting from your knowledge of the processes and the driving forces that are in action today. Write in the chart which elements, functions and values you will find modified or inserted as new in the landscape. Discuss the results within your group and give a general evaluation of this future change, pointing out what kind of choices should be implemented in order to achieve the best “desirable” landscape.

Elements	modified	
	new	
Functions	modified	
	new	
Values	modified	
	new	
Future landscape – General evaluation		

2.2 Educational and pedagogical aspects

Landscape education and cognitive development of children

Can the didactic targets presented above be proposed at every school level? Are there specific targets for different ages?

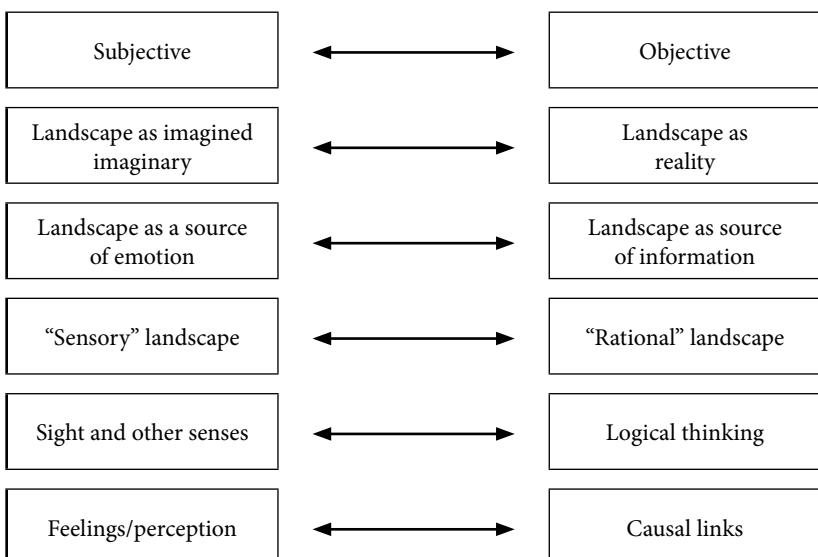
Certainly, the way children approach landscape varies depending on their cognitive development. Small children (4-7 years old) have a very instinctive non-conceptual approach: they use all of their body and all of their senses, not sight only. Children from 7 to 12 begin to rationalise, but their approach is rather egocentric. From the age of 12 onwards, a larger perspective on space and time opens up and the ability to deal with complex causal systems develops, although, at the same time, teenagers can have more difficulties in putting into effect school activities directly involving the emotional sphere.

On the other hand, the importance of proposing landscape “as a whole” in all its aspects, has to be acknowledged: it would not do any good – for example – to propose only the “emotional approach” in the first years of primary school and only the research of causal factors at secondary level; splitting landscape into parts leads to a loss of the added values obtained by the juxtaposition of characteristics and approaches.

At the same time, didactic activities on landscape give better results if they are proposed intensively over short time periods. Probably the best way for an effective education on landscape is to propose complete activities two or three times during the school curriculum. At different ages, some targets will have more importance than others, and different aspects will be gone into in more depth than others, but each time “landscape as a whole” must be proposed. There is no risk of boring repetition, because children spontaneously use different approaches. This structure does not exclude the possibility for short forays into landscape issues when implementing different didactic activities, thanks to the multiperspectiveness and interdisciplinarity of landscape itself.

Education of the senses and scientific education

Knowledge of landscape always involves both reason and the senses since the landscape always has a double nature: reality and the image of it. Therefore, education on landscape assumes at the same time two dimensions: on the one hand, it is education of sight and of the other senses, and, on the other hand, it is education of logical thinking.



The “sight” dimension of education on landscape first involves the sensitiveness of children: confronted with a landscape, feelings arise, in different, subjective ways of perception. They can be positive or negative emotions, linked to

aesthetic values as well as symbolic ones. Also, they can either emanate from a sense of place transmitted by the landscape in which they live or a sense of being lost in an unfamiliar landscape. They can be similar for children with the same age and background, or different because of their own personal attitude. This sensory approach is designed to involve not only sight but the other senses too. To express these feelings various tools can be used: drawings, texts, poetry, etc.

Children's perceptions can be compared to those of other people: young or old, insider or outsider, etc. Subjective points of view are compared, each of them with its place, its importance. At the same time, different ways of expressing feelings on landscape can be taken into consideration: pictures, paintings, literary texts, poetry, etc.

The visual dimension also includes a definition of the landscape structure, through identification and characterisation of elements, as proposed in the first steps of the landscape reading exercise in Box 1.

But landscape is also a matter of complex relationships: education must include rationality as the other important medium for understanding. An interpretation of the links among elements themselves and between elements and factors requires a scientific approach, with rational processes of analysis and synthesis: landscape must be divided into its essential components (natural as well as human), for example collecting data and building thematic maps, and then recomposed in its unity putting data into logical connections. Some of the complex causal relationships among factors and elements need to be defined and understood through research work, using different sources like bibliographic references, present and past maps, aerial photos, statistical data, economic data, archive research, simple geographical information systems, the Internet, interviews with experts, etc.

Depending on the age of the children, a further step is possible, moving from an analysis of local and directly perceived landscapes to different landscapes further away and this might favour the appropriation of general conceptualisations and mental schemes.

It is important to note the complementarity existing between these two dimensions of education on landscape. Emotional and rational approaches are often presented in separate, or even alternative terms: putting them together in educational activities on landscape helps in the integration of the two approaches, towards valorisation of the wholeness of each person and all of his/her potentialities.

Interdisciplinarity of education on landscape

Is education on landscape a sort of a “new subject” in school activities? Are there specific school subjects for education on landscape? In which curricula does it have to be included?

Probably, education on landscape is one of the best ways for implementing interdisciplinary activities, since the topic itself asks for the involvement of different subjects. It should not be considered as a subject in itself, even if it has its own specific approach and didactic targets.

Geographical education is traditionally closely concerned with landscape; although the approach (for example, in some national curricula) has not always been updated to the wide one provided by the European Landscape Convention. Landscape risks in such cases becoming a general description of places, although geography maintains its special role concerning landscape. The spatial dimension and a synthesis approach, on the one hand, and tools, like maps and fieldwork, on the other, are just some of the properties that characterises geography education and that are also essential for education on landscape. Moreover, most of the education for sustainable development targets are shared by both geography education and education on landscape.

Looking at other school subjects, many of them do link with education on landscape (Table 4); in most cases their contribution is crucial for an effective educational project. The habit of working in teams among teachers definitely helps in putting into practice activities where each subject maintains its peculiarity and, at the same time, provides important elements to reach the general targets.

Table 4 – Links between scholarly disciplines and education on landscape

Subject	Connection with the landscape issue and examples of activities
Geography	Knowledge of features of places; territorial approach; synthesis approach; geographical tools; fieldwork; education on sustainable development.
Natural sciences	Natural features and factors in landscapes (earth sciences, botany, etc.); scientific approach.
History	Landscapes of the past (how did people live and use resources?); historical factors for landscape change.
Language/ literature	Personal descriptions of landscape (including the emotional approach); analysis of literary descriptions of landscapes; setting of literary works.

Foreign languages	Foreign landscapes and cultures; international activities (on distant landscapes) through exchanges (via the Internet) with other children.
Arts	Personal production of landscape representations with different techniques; analysis of artistic representations of landscapes.
Mathematics	Quantitative analysis of some landscape features.
Technology	Tools for landscape analysis (GIS, ICT, etc.); tools for landscape reproduction (that is, 3D models); technological evolution as a factor in landscape change.
Economics	Economic factors in landscape change.
Social sciences	Social and cultural factors in landscape change; cultural values of landscape.
Physical education	Whole approach to landscape; excursion.

2.3 Which landscapes?

Nearby landscapes and faraway landscapes

As already mentioned, education on landscape considers the way children perceive and locate themselves on Earth.

Educational activities on landscape usually take into consideration the landscape of “an area”: Where is this area? How big is it? Different possibilities are available.

To approach landscape as a familiar issue, it is probably useful to implement activities starting from the neighbouring landscape, the one that children are assumed to know better. If activities are presented as a sort of “discovery route”, children should learn a methodology allowing them to discover any other place in the world.

Exploring their nearby landscape, children should find out that what they thought they knew presents in reality many unknown aspects. This experience might really be fascinating for them. They are invited to take their previous knowledge (increasing its value) and build a shared knowledge of local landscape, together with the amount of knowledge and information that comes from school activities. They could play an active role by interacting with other people (parents, friends, etc.) to gather information, and present their results to the class or, for example, in an exhibition of everybody’s works.

As already noted, a better knowledge of local landscape (in its different forms) contributes to enhancing our personal link with it, our local identity and our own sense of place. A positive attitude towards where we live is developed, together with a greater sense of responsibility and awareness of the need to protect local values and the consequences of human actions on the environment. Children feel this is “their own landscape” and they have to care for it.

But education on landscape should not only deal with neighbouring landscape. It is just as important to deal with foreign and faraway landscapes. The ability to read landscape gained by looking at one nearby can be easily used to analyse and get to know landscapes of other regions, countries or continents. Of course, it is much more difficult to interact with distant landscapes (even if some short excursion in a nearby region should not be so difficult to organise), but children can easily get to know them through pictures, aerial photos (easily available on the Internet), an atlas, reports, etc. Educational activities make it possible to understand that, under an almost mute image of a far landscape, elements and features can talk to us about factors and processes (similar or different from our local ones). Children therefore understand how the presence of other people and of other cultures builds their own landscape in different ways, just as their society has always done through the centuries.

This double role – insider in neighbouring landscapes and outsider in foreign landscapes – is a very important exercise, for a better knowledge of other parts of the world, for a better understanding of different cultural contexts, for enhancing a more open approach to the global world. In this frame, the achievement of a strong local identity through educational activities on nearby landscapes does not lead to narrow-mindedness; instead, it contributes to a better awareness of one's place in the world.

The information and communication technologies provide very powerful instruments to approach faraway landscapes and to bring them near. An excellent way is the international projects aimed at building networks of schools around the world: children have the possibility to present their local landscape on web pages and to know other landscapes presented by other children. A web forum can provide the possibility of a direct exchange among children: they can communicate their point of view on distant landscapes and receive others' opinions about their own.

Landscapes of the past and landscapes of the future

Faraway landscapes belong to the dimensions of both space and time. In other words, distant landscapes are also landscapes of the past, as well as landscapes of the future. A consideration of the time dimension in educational activities presents very interesting aspects and leads to the achievement of important goals.

Past landscapes can be analysed in co-operation with history courses using tools like old photographs and maps, interviews with old people (if the time period is recent enough), literary descriptions, old objects that remind us of the context in which they were used, etc. On a large timescale, archaeological studies can also help us to better discover landscapes of the past. Understanding the way people used to live, used resources and dealt with the environment, that is, our past civilisation and culture, has great educational importance. Much care has to be taken not to approach the past nostalgically and not to transmit to children the fruitless idea that “the best of all possible worlds is not the present one, but the one we inherited”.

At the same time, educational activities that deal with the future of landscape present broad educational possibilities. If landscape is always in the process of changing, as it changed from the past to the present, so it will change from the present to the future. The challenge is to manage this change towards the “most desirable” landscape. When dealing with the future landscape in relation to educational aims, children experience the possibility of expressing their own aspirations and listening to the aspirations of other people (in accordance with the European Landscape Convention approach). They are even stimulated to assume their own responsibility in landscape change. To deal with future change with a positive and non-nostalgic attitude, the activities have to consider, on the one hand, actual driving forces and processes and, on the other hand, present landscape functions and values (and also emotional and local identity values), in order to identify which landscape features demand conservation or very careful transformation, and which others can safely change, in the framework of a “creative conservation”.

Exceptional or unattractive landscapes? Landscape conflicts as a learning environment

A common approach to landscape is to consider only exceptional places, with a very singular and special combination of natural and human input: it can be a mountain landscape where wilderness still prevails, or a wide panorama open to the horizon, or a landscape characterised by a particular monument or by a well preserved pattern of land use and settlements that transport us back to the past.

The approach of the European Landscape Convention is different, as we know. Landscape is everywhere, wherever people and environment interact and build the “face of the Earth”, depending on natural and cultural factors. The importance of the landscape issue does not come from the beauty of some landscapes, but from its values in a much wider sense. Landscape belongs to cultural heritage as it records the phases and the different types of cultural transformations of places (every one of them).

In this perspective, education on landscape does not deal only with certain landscapes, chosen among the best preserved or the exceptional ones. Every landscape can be read, interpreted and studied; every landscape arouses emotions when looked at (even if not necessarily positive ones); in every landscape, change can be reconstructed and understood (see Box 2, for example).

Many children do not live in “nice” landscapes, but in towns, in suburbs, in urban sprawl with very banal characteristics. These are the places they consider their homes, even, of course, with their negative aspects and problems. Although it can be useful to get to know other landscapes, with different features as well (for example, rural landscapes for children that are used to living in towns), in order to make comparisons, not-so-nice (critical) landscapes should not be excluded from school activities.

Dealing mostly with well-preserved and nice landscapes could lead to idealising landscapes, and approaching them without being able to face real processes and problems.

On the other hand, approaching landscapes that are full of contrasts and conflicts, which are far from idyllic but normal instead, will help achieve two complementary targets:

- children can start by observing what they do not like in the landscape (because it emerges from its negative aspect), in order to begin to observe it with greater care;
- children are encouraged to deal with reality, to approach – by questioning landscape – other issues concerning environment and society.

In this sense, conflicts on landscape become a good learning environment. The contrasts arising in landscape forms can help in facing other problems and in widening our questions: Why is this contrast there? What are the factors? What will change? Which values should be safeguarded? Which different actors are playing with contrasting aims?

If this kind of question seems more suitable for activities in secondary schools, younger children can still benefit from them when approaching “normal” landscapes. When negative emotions emerge, it could be an opportunity to improve their ability to ask “why?” and consequently to see matters in a wider perspective.

**Box 2 – Education on landscape in Catalonia (Spain):
“City, territory and landscape”**

The Landscape Act 8/2005 is the basic regulation and reference upon which the landscape policies of the Government of Catalonia are founded. Among many other issues, in agreement with the purposes of the European Landscape Convention, it contains special commitments concerning aims and instruments for sensitisation and education (Article 15).

At present, the General Directorate of Architecture and Landscape of the Ministry of Town and Country Planning and Public Works, and the General Directorate of Educational Innovation of the Ministry of Education of the Government of Catalonia are co-operating with the Landscape Observatory of Catalonia (an advisory body of the Government of Catalonia and Catalan society in general matters of landscape) in the project called *Ciutat, territori i paisatge* (City, territory and landscape), designing innovative teaching materials to be disseminated to pupils in compulsory secondary education.

The teaching materials, prepared by people of recognised prestige in these matters and destined mostly for children in secondary school, are made up of:

- 12 illustrative prints in a provisional format, allowing the pupils to work in teams on the interpretation of these landscapes in Catalonia;
- 12 sets of teaching activities;
- a teaching guide for the academic staff;
- a web page on the project, which was started in 2007.

The materials were trialled in secondary schools.

From 2007-08, along with the printed materials for classrooms, the Landscape Observatory web page (www.catpaisatge.net) has become a fundamental tool to deepen and extend activities about the 12 illustrative prints referred to, so that pupils can also use new information technology in the learning processes.

For each of the 12 landscapes presented the web page provides a set of activities containing special exercises, in five main steps (here is an example on the activity on the fluvial landscape of the Ebro River):

Discovering the landscape. Children should look at the panoramic picture displayed and “find” the six elements that more than others characterise the landscape; to proceed to the next step they will have to write in the proper window some of these features. Through this very first approach, children are stimulated to observe with care.

What is the landscape like? After identifying the elements, children should divide them into natural and human and indicate them on the map and on the orthophoto available on the page; the “pass question” consists in rewriting two natural and two human elements. The exercise aims at approaching the landscape more rationally, using the specific tools of spatial analysis (maps and aerial photos).

How does landscape change? Comparing an aerial photo of 1986 with one from 2006, children should identify four main changes, with the help of some notes giving details about the change. To go further they have to choose the most important changes and explain the reason for their choice. Children are encouraged to think about the different kinds of landscape change and about the factors that triggered them.

The opinion of the people involved. Some virtual interviews occur in this phase, with hypothetical people living and working in the landscape in question, showing different attitudes concerning their landscape due to their diverse jobs; they give answers to five questions evaluating the landscape changes and the perspectives for the future. The “pass question” is rather demanding: children have to answer some questions by commenting upon the opinion given by the people interviewed. Through this activity, children experience the existence of diverse points of view, each of which starts from an explicit statement.

The final phase is to sketch different future landscape changes, depending on the choices children make among diverse possible statements about present landscape processes. When choosing, children have to consider all the information they obtained with the previous activities, including people's opinions. This final synthesis helps students to see all the links among the previous phases and understand the landscape as a whole. Moreover, children understand that the various hypotheses concerning future landscape do not come only from fantasy and aspirations, but also from different factors and the personal choices of people.

These activities propose, in a rather simple (but never simplistic) approach, landscape as a complex matter, with its natural aspects, its human change, the roles played by different people, and, finally, the planning issue. The proposed landscapes are never “idyllic” ones; on the contrary, they show local critical situations and conflicts concerning landscape choices. Such environmental conflicts become indeed a “learning environment” for an effective education.

Landscapes of foreign children: occasion for cultural integration of young immigrants

Over the last decades, large numbers of people have moved from their countries of origin to Europe, or within Europe itself. Migration is an important issue today, and European classes and schools are becoming more and more multi-ethnic and multicultural. Facilitation of integration processes is often needed.

In this context, education on landscape plays a relevant role. It helps immigrants to know the “new” landscapes around them better and, through it, the new geographical, historical, social and cultural spatial context. At the same time, the outsider's point of view of the foreign children helps native children to observe their local landscape more carefully.

Activities can also be carried out on foreign children's native landscapes, comparing them with the local one; this represents a good way for widening geographical knowledge and involving all children in school activities directly: if each child can show to the others his/her native landscape, and the dynamics that built it, all landscapes receive the same attention, and at the same time we have a very effective process of cultural integration.

In-the-field education: the role of the excursion

If landscape is "an area as it is perceived", it is important to stress the fact that a picture is not enough to get to know it! A picture is just a tool; it is very limited. The best way to know a landscape is to perceive it in a very wide sense, probably going "inside" it and experiencing it in all its aspects. A good starting point to perceive an area is to look at it from a high viewpoint; but that is still not enough. Much more effective experiences can be gained by walking through it, touching it with your hands, listening to it and smelling it, and looking at different objects while standing close to them.

In this sense, whenever possible, education on landscape should be carried out through field activities, in direct contact with it.

So, when an excursion is chosen as a tool of education on landscape, special care should be taken to avoid reducing activities to a simple "guided tour" for tourists. If different parts of the study area are to be visited (not only the most outstanding), involving the children directly in preparing the route would probably be very useful; in the same way, each stop should provide special activities.

Among the educational activities that can be organised during an excursion, we suggest:

- sketches and drawings are the first tool in observing with care; they can be panoramic sketches as well as drawings of some nearby objects and characteristics; it is also possible to help children to make their sketches, with guided schemes such as grids;
- making pictures and video-recording: often cameras and video-cameras are quite readily available and children generally like to use them; these instruments should never substitute for the personal effort of observing and reproducing landscape (for example, by drawing), but are very useful for further activities, once back in the classroom, to relive the landscape perceived and its peculiarities;
- collection of some "pieces of landscape", leaves or flowers or small stones, etc., frequently evidence of the natural aspect of the landscape, help children to get personally involved in its perception, and can be used in further activities in the classroom as well as at the final presentation of the educational project results;

- explanation (by teachers or by experts) of some peculiarities of the landscape: this is always much more effective if proposed outdoors and right in front of the feature explained;
- walking through the landscape: apart from the length and the difficulty of the route, the personal experience of different parts, of their shapes (for example, landforms) and of the environment in its “physicality” is essential at all ages.

An excursion is often proposed as the starting point of the didactic activities regarding landscape. In fact, it helps in getting the children immediately personally involved and it represents a common experience to which further activities make reference.

Preparing the excursion through a short activity will make sure the excursion itself is effective; preparation should not present contents in advance, but help children to be more aware both of the location and of the activities that will be performed.

Good educational effectiveness can be achieved by repeating the excursion in different phases of the didactic activities on landscape: children have therefore the possibility of directly verifying hypotheses, of deepening some aspects that emerged en route and, most of all, of heightening their personal link (also in emotional terms) with the landscape. The repetition of excursions in different seasons highlights the many differences in the same landscape and therefore supports our perception of landscape change.

Young children derive great advantage from direct knowledge of landscape through excursions; in this case such experiences – performed in physical terms, with all their body – are complete didactic activities for education on landscape.

Sound-scapes, smell-scapes, touch-scapes

Landscape perception – in its widest sense – includes not only visual perception but everything that is transmitted by the five senses. Human beings have the possibility to distinguish sound-scapes as well as smell-scapes and touch-scapes; these are the many different ways through which the environment around us communicates.

Like visual landscape, they can be “read”, by dividing them into elements and classifying elements into categories; they can be valued according to the feeling they inspire, they can be interpreted according to different factors and we can understand the changes that have shaped them.

The possibility of using different kinds of perception in educational activities on landscape enlarges the field of didactic proposals and increases their effectiveness by

deepening the children's involvement. In fact, the event becomes more intense, and children get to experience a real twofold interrelation with landscape.

Especially for young children, having direct experiences of landscape and of using different means of communication would be very advantageous. As for teenagers, they are often very attracted by music and sounds; sound-scapes could ignite real enthusiasm and could be followed with great interest.

Moreover, in this contemporary world of ours where the body is ever growing in importance, using a wide physical approach in educational activities will achieve much more.

Literature, art and photography

Landscape recurs frequently as the subject or background matter of artistic representations, photographs or literary works. In various cases, these reproductions contribute to give cultural values to real landscapes. Taking them into consideration during educational activities could be highly relevant.

As already stated, interdisciplinary work is a fundamental requirement for education on landscape: in this case the disciplines involved are literature and arts as well as artistic education.

The interesting part comes with the possibility of comparing real and experienced landscape with the one described by a writer or a poet, portrayed by a painter, or shot by a photographer. Teachers usually find this kind of material concerning local landscapes quite easily; landscape represented by artists is often available in local museums and libraries.

These representations give us the possibility of acquiring more information (mostly historical) on the chosen landscape. In performing this activity, we need to proceed with extra care, as these special media rely heavily on subjectivity: they are not direct and faithful presentations, but they communicate the personal vision and interpretation of the artist. Actually, this is not a limitation, instead it can be used to our great advantage. Analysing these materials, children get to know very special points of view and they can compare them with one another and with their own.

Starting from these readings of artists' work, children can then make their attempt to perform as artists: they can write poems or subjective descriptions, paint with different techniques or take pictures in order to communicate their own feelings and emotions about landscape.

Hypertext, information and communication technologies and virtual landscapes

As underlined before, an intricate net of relationships among elements and links between elements and factors constitutes the structure of the landscape. Some reading paths have been proposed in order to move through this network; the paths avoid the risk of “getting lost” and, at the same time, they maintain and appreciate the richness offered by this complex structure.

Broadening these remarks, landscape can be considered hypertext, with non-linear passages and reading steps, while the close network of links suggests the possibility of choosing different routes. Some links connect the inner structure of the landscape-hypertext with external references, with regard to all the issues associated with the “area as it is perceived”, for example the interdisciplinary links proposed above.

The way of reading landscape and its own real structure are both well represented by the metaphor of the hypertext. In many cases confused and incoherent landscapes, as well as non-hierarchical spatial organisation, are difficult to read in a traditional way; similarly, the hypertext metaphor fits the structure of contemporary “global” landscapes even better than a mosaic metaphor, where the links are not based on spatial contiguity but are rather open to the whole world.

A very effective exercise in analysing and proposing landscapes in educational activities consists of drawing hypertextual maps of landscapes, to represent the links among elements and factors more than the features of elements (see Box 3). They are conceived as conceptual non-spatial maps: the names of elements and factors are linked with lines and arrows in a reticular structure. Many different maps will come from different children, each one presenting and highlighting different peculiarities and details, according to their personal attitude. So we will witness a very interesting discussion opportunity within the class, not to correct wrong opinions (there is no right or wrong), but to compare individual works and to build “shared maps”. Alternatively, conceptual maps can be drawn at the beginning by groups of children: an example is to make different groups of children work on different topics (for example, natural features, cultural features, the change, etc.) in a first phase, then join all the parts and build the whole map, finding new links in a sort of jigsaw puzzle.

Box 3 – Panoramic hyper-landscapes

The Eco-Pedagogic Institute and the Laboratory of Methodologies of Geography of the University of Liege (Belgium) elaborated, from 1999 to 2002, a method for an original pedagogic utilisation of multimedia tools and of the Internet (www.geoeco.ulg.ac.be/lmg/hyperpaysages) in education on landscape. The project developed both into the preparation of two “hyper-landscapes” (“*Les hyperpaysages pour sensibiliser à la nature et à l'environnement*” and “*Les hyperpaysages pour sensibiliser à l'aménagement du territoire*”) and into a pedagogic investigation into the use of such tools in schools. This led to the making of a guide for teachers, containing indications for different uses of hypermedia in schools (mainly, secondary schools).

School activity with hyper-landscapes can be simply navigating ready-made ones or actually producing them starting from a panoramic (360°) photo. In this case, the work proceeds through the following different stages:

- from landscape observation (in the field), children should ask themselves some questions, identifying at least 10 elements which will become the “active” part of the picture; when clicking on such elements, windows with further information will open;
- children should find answers to their questions, and prepare the content of the opening windows, through research work; they should find the right way to summarise contents and good titles for the labels indicating opening windows;
- to work out such a complex structure like that of the hyper-landscape, children will make a “hard copy” of it first, working with tangible materials: the “active” parts of the printed 360° picture will have strings connecting them with pieces of paper, representing the computer windows; the structure could be very simple or indeed very complex (with many multicoloured strings indicating different kinds of links), if children reach a deeper knowledge of the landscape in question;
- the production of the hyper-landscape will be completed by reproducing it on the computer with the adequate software. Then, it will be possible to put it online.

The pedagogic interest increases when going from the simple navigation of a hyper-landscape to the active construction of it. Navigation is only intended, for the most part, as a tool for general sensitisation, even if it also contains some interesting exercises. However, being involved actively in the production, facilitates children's achievement of the following targets:

- working with 360° panoramas allows the children to perceive the environment in its entirety, and to “immerse” themselves completely in it, both physically and cognitively;
- identifying the landscape elements to be activated in the hypermedia stimulates the ability of “decyphering” the landscape; we can ask direct questions to it, as we would to an interlocutor;

- selecting the spot to take the panoramic photographs helps in perceiving the complexity of the landscape and discovering its multiple aspects;
- defining multiple links among the “information knots” which form the structure contributes to achieving a complex scheme of thinking;
- the group work involved in building the hyper-landscape increases our negotiation ability and encourages the comparison of our own values and representations;
- uploading the product enriches the social value of the activity;
- finally, it helps in acquiring a holistic and systemic approach to the landscape issue, as well as a cultural one, which is open to different subjectivities.

Moreover, when using information and communication technologies, children have the possibility of reproducing these maps, building simple hypertext made of single pages or windows (knots) and links opening them. Probably, when using the computer, we no longer have hypertext but hypermedia, since we deal not only with written language, but with a large amount of images, too.

It is already possible to use some products that are available online or on a CD-Rom (produced by research groups, NGOs, editors, administrations, etc.), either for educational purposes or for other purposes, like regional promotion. Exploring them might provide more information and offer a new tool for didactic activities; this exercise has great potentiality in directing attention to the links that structure the landscape and in favouring the approach to faraway landscapes. However, this approach should not take the place of knowing the landscape directly; visiting it in person is always preferable.

Directly building hypertext with simple available software is surely a very effective exercise. Children will get a very clear idea of landscape structure, and will have to choose the most important features to represent it. Since their aim will most probably be showing their work to other people (as often happens with educational projects), they should be able to build a net, however simple, and choose meaningful links with great care to move around in it.

The ability to observe can greatly benefit from the use of information and communication technologies, because of the possibility of dealing with images, of modifying them (to understand changes), of zooming in (to look at certain landscape components), etc. Here is an example: we start from a general picture. Some parts of it, corresponding to certain landscape elements, can be activated when moving over them with the pointer. Windows or pages will open up and more information will be offered or even asked of the student. We can proceed with the exercise only when every element has been identified. In this way, children are stimulated to look at all of the parts of the landscape, in order to discover it more fully.

The use of information and communication technologies offers more interesting educational potential. With adequate technical support, it is possible to build an interactive learning environment, where children can create their landscapes together virtually: either the reproduction of a real landscape (similar in a way to the production of the hypertextual map) or the production of “new” or future landscapes.

Dealing with landscape change using “virtual reality” becomes a very appealing activity. Certain programs already provide examples of how different choices generate different transformations (for example, Simcity is a video game that presents similar possibilities). These programs can make children reflect upon the causal links and people responsibility in making these choices. Besides, starting from their imaginary landscape, filled with the children’s wishes about the place where they live, their activities can be directed towards imagining and planning the landscape of their future, proposing changes and sharing knowledge and aspirations.

Information and communication technologies present another very important educational potential: connecting people living in different places. For education on landscape it represents a very important tool, helping children working on one landscape (for example, a nearby one) and at the same time taking into consideration faraway landscapes where other children are living and studying. Regional, national or international projects involving children of different backgrounds, using information and communication technologies, should always be planned and then put into effect, since their educational significance is very high.

2.4 The roles

Teachers’ education

Education on landscape does not require a particular expertise in one subject or another. The team of teachers (that will put into effect this activity), possibly co-ordinated by the geography teacher, will be enriched by the presence of different competences, as regards the approach, the methodology and the contents.

But, if a specific branch of learning is not to be favoured above the others, what is really important is that all the teachers develop a good understanding of landscape, both as a concept and for its educational value. To some extent, every teacher will have to be sensitised, in order to be made aware of the broad educational values associated with landscape and presented here in detail. In the education of teachers, both in general terms and when implementing a project, a lot of care must therefore be taken to clarify the European Landscape Convention approach to landscape, in order to avoid the confusion that often comes from the multiplicity of meanings assigned to it. The next phase will be presenting and analysing in detail educational targets and methodologies.

The education of teachers can greatly benefit from direct experiences with landscape since they will be personally involved. More than specific information, teachers should achieve a good understanding of the main general questions, the knowledge that landscape interpretation demands. They should visit a landscape and face it, read it through guided steps and hypertextual maps, listening to their own emotions while in front of it, so as to tackle the conceptual and methodological issues from the start.

In order to profitably run interdisciplinary activities, teachers should improve their ability to work in teams. It is recommended to keep as open-minded an attitude as possible towards all the various personal approaches. Children in fact often develop didactic activities in unexpected ways.

The active role of pupils

As noted above, education on landscape is much more of a personal route of discovery involving children directly, than a series of lessons conveying certain contents. Of course, contents are proposed anyway, but they are achieved with active methodologies. For example, anytime a teacher or expert is directly intervening, it is always in response to questions posed by children, and only after children have looked carefully at the landscape and have begun to interpret it.

In many cases, projects for education on landscape use materials produced ad hoc by landscape experts. Panels for an exhibition, books, leaflets, web pages and so on often show different pictures of landscapes, with special explanations, so that children can comprehend the main feature of a place or region. Public administrations or other institutions will often be the ones in charge of these projects since their aim is to develop the children's knowledge about the local territorial values. This is certainly a very important target and this methodology allows one to reach a large number of children of different ages, coming from different places.

Generally, different kinds of activities follow the presentation of landscape pictures and explanation: from the exercises that just test the level of attention in looking at the landscape and in analysing the materials supplied, to the personal reproduction of the landscape through drawings or texts, and to excursions for a more direct involvement with the landscape. In these kinds of projects (see Boxes 4, 5 and 6), children of different schools could participate for prizes, as an incentive, with their own productions.

After all, the more active the role of the children engaged in the didactic project, the more effective the results of education on landscape will be. As presented above, many kinds of experiences can deeply involve children: excursions, sketching the

landscape, taking pictures, interviewing people, expressing their own emotions, and later answering questions that arise along the way are just some examples. Landscape – in this sense – becomes an important part of these children's life, something they get used to dealing with.

This important target will be met with greater success if children are directly involved not only in knowing the landscape, but also in presenting the results of their discovery to other people. If they have the possibility of preparing exhibitions or web pages and thus popularising landscape features, they might indeed take more responsibility for landscape and its change.

Education on landscape activities, moreover, provide a possibility to develop and improve abilities often left aside in more traditional didactic approaches and school activities. This fact allows the children to mix and swap the roles they usually take inside the class group, so that every child has space to express him/herself.

Partnerships

Education activities and projects about landscape can be developed on different scales and – as already mentioned – in many different ways. The single teacher with his/her class can perform interesting and successful activities. At the opposite end of the spectrum, national governments or regional administrations can propose big projects for many schools at a time.

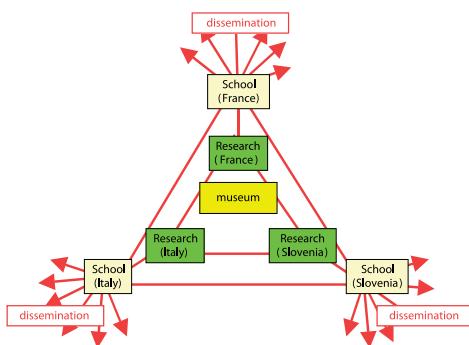
How big a didactic project is, however, is less important than how much care needs to be put into the precise definition of the targets, the organisation of the activities, the support to be given, the time schedule and the final output.

In many cases, schools develop their activities together with other partners, in the framework of either formal, informal or non-formal education. These partners are often local public administrations – as mentioned above – that share the general targets of education on landscape and aim to promote their regional or local territorial context.

Other cultural institutions might participate in such activities too. Museums, libraries or eco-museums can play the role of cultural mediator and help put in contact schools and local territorial organisations. They naturally possess a wide knowledge of them, they are the keepers of large amounts of material concerning them and are already in contact with experts of different branches or with research teams and institutions (namely, universities). At the same time, they are used to working with schools for cultural promotion and, last but not least, they definitely share the general targets of education on landscape.

Box 4 – The Cultura 2000 European project 3KCL – Karstic cultural landscapes

Supported by the Cultura 2000 European programme in 2004-05, the project was led by the Museum of Natural History and Archaeology of Montebelluna (in north-east Italy) and involved research centres and schools in Italy, France and Slovenia. As the title suggests, the project concerned the peculiarities of three karst study areas analysed by three research teams, “discovered” by local school pupils and then disseminated to the wider public by the pupils themselves. The project involved approximately 40 researchers, 50 schoolteachers and mentors, and 600 pupils of different ages.



The network and partnerships of the 3KCL project were quite complex. The Montebelluna Museum co-ordinated the whole activity and research partners (Geography Department of the University of Padova, Italy, Geography Department of the University of Nice-Sophia-Antipolis, France, and Karst Research Institute of Postojna, Slovenia) were constantly in contact in order to exchange methodologies

and research results. School partners had the role of “popularisers”: as soon as they received specific contents from their research partners, they built the materials for the exhibition and the website pages (www.3kcl.net). All the partners were in contact through the website itself.

The project represented both a challenge and a chance to develop and implement educational strategies on discovering landscape, in the framework of education for sustainable development.

The general aims of the project were stated in the proposal document:

1. to provide innovative contents, both from the scientific and the educational fields, in studying and interpreting the evolution of the karst ecosystem and of its relationship with human settlements, in order to highlight the value of this cultural heritage;



2. to promote a widely spread cultural dialogue at international level about the karst phenomenon, with its unique morphological structures and landscapes;
3. to raise children's awareness about the delicate balance of karst landscapes;
4. to exchange experiences and good practices;
5. to give the schools and the museum the active role of putting into practice a friendlier approach to knowledge for children.

To attain these goals, the project proceeded along two main paths: the first concerned research on natural and human aspects of karst landscapes and their relationship; the second focused on education and popularisation. The knowledge achieved through the research was directly shared with schoolchildren, aiming to reach a larger public.

The second path can be subdivided into three different steps.

The first one consisted of a sort of introduction to school activities, a general view of landscape, required to introduce the following phases of studying specific landscape features in depth. Specific educational targets were set in this phase too, using specific educational tools: learning to look at landscape with attention; recognising different landscape elements characterising the uniqueness of each landscape; acknowledging the fact that landscape produces sensations and excites emotions in the viewer and in everybody around him/her; looking at natural and human factors to explain certain landscape features; and understanding landscape change.



In the second step, the researchers and the pupils met; they went for excursions together and had lessons to communicate the results of the research with the correct language.

In the third step, the pupils themselves prepared posters, web pages and other materials to present what they had learnt to a wider public.

The direct contact between the research world and the school world and the active role played by pupils in disseminating the newly acquired knowledge make this project a very special, innovative and important one.

In Montebelluna (Italy), in Postojna (Slovenia) and in Annot (France), a travelling exhibition held in 2005 of 30 posters showed the final products of the educational phase. The exhibition was completed in each country with more original material. The posters' content coincides with the main content of the website pages. The Internet has had great importance for disseminating the results far and wide, reaching not only people living in the karst areas, but, potentially, the world over. Moreover, through the website pupils of three countries could keep in contact, feel the international dimension of the project and, to some extent, "exchange their landscapes". They learnt about other karst areas and – most of all – they were encouraged to find the way (and the language) to present their "own" karst landscape to pupils in other countries.

Karst landscapes are not so uncommon but are well known only where large caves exist. Their uniqueness represents a very interesting "experimental field" to devote action to better know, compare and popularise landscape, as well as improve the assumption of responsibilities towards landscape matters. Moreover, reading remote and recent changes through time led to rediscovering near but often unknown worlds. Landscape played the pivotal function of a "knot" between different cultures and between different generations. Thus, the activities and the results of the 3KCL project matched very well the goals of the European Landscape Convention.

The final verification of assets, with researchers and teachers, showed that knowledge about the territory, awareness of landscape values and care for its conservation and protection all increased, thanks to the good partnership among different groups and the cultural mediation of the museum.

Professional associations (for example, landscape architects, as in Slovenia) and NGOs (at different levels, from international to national to local NGOs) can also be involved by the schools in educational activities on landscape. This kind of partnership is rather special because it allows sharing the targets through voluntary co-operation within our society. Many environmental or cultural NGOs are used to supporting schools, with their special competences and with the enthusiasm that often marks them. In such cases, teachers and didactic managers, bearing in mind their educational purposes, should pay attention to the fact that professional associations and NGOs are often more specialised in certain landscape features, and/or not completely neutral with respect to landscape issues, due to their own particular aims.

Box 5 – The Slovenian project “We are Making our Landscape”

The project was carried out from October 2004 to May 2005 by the Slovenian Association of Landscape Architects (SALA – www.dkas.si) in co-operation with the Department of Landscape Architecture, Biotechnical Faculty of the University of Ljubljana, with the financial support of the Ministry of the Environment and Spatial Planning, and other sponsors.

The purpose was to propagate knowledge about the landscape, and especially to better present Slovenian landscapes to the general public. The project aimed at stimulating children and adults to observe the landscape in their everyday surroundings and recognise the landscape qualities in order to raise their awareness of the environment, space and landscape, starting from the earliest age possible. The project focused on educating pedagogues, mentor teachers, as well as children and their parents, together with the general public. It pointed out that all of us living in a certain environment, with our attitude and our way of living, can influence the state of our landscape and our space, and thus take part in the creation of our everyday environment. In accordance with the objectives of the European Landscape Convention, being aware of the important value of landscape should become a commonplace and, consequently, should become also a criterion for interventions in the physical space.

The project was put into effect with a series of activities and events:

- publication of a series of five posters entitled “Slovenian landscapes”. The concept of the five posters was based on a previous research project: Regional Distribution of Landscape Types in Slovenia (1998). Each poster presents one of the landscape regions, with some photographs and short descriptions. It also contains an explanation of the terms related to landscape in general, and Slovenian cultural landscapes and outstanding landscapes in particular. The posters were distributed in Slovenian schools everywhere.



- a seminar and an accompanying workshop, to inform teachers about the project. It was mainly attended by primary schoolteachers. It focused on the creation of a notion of landscape, on the role of the landscape architect in society, and on the perception, the analysis and the shaping of the landscape. The participants actively took part in the discussion, and gave several interesting suggestions on additional methods of knowledge dissemination.
- publication of a teaching tool kit containing the general presentation of the project, a definition of the term "landscape", an introduction to the European Landscape Convention, the presentation of the project Regional Distribution of Landscape Types in Slovenia, and other notions about landscape, its perception, analysis and representation. It was designed for the general public, with special regard for mentors and teachers of primary schools and kindergartens.
- a competition for art and photographic works. The competition was held in schools throughout the country in order to involve children (from 4 to 15 years old) directly. Children were asked to capture special situations in the landscape, or the individual character of landscape elements. The competition was based on the observation of the landscape we live in, and on the representation of its characteristic images through art and photography. It was widely attended (more than 1000 works), and the subjects of the works received were natural and cultural landscapes, city and urban landscapes, landscape patterns presented also in an abstract manner, or individual landscape elements. A panel of experts selected the winning works, basing their decision on creativity, innovation, readability, message conveyed and composition.



- an exhibition of the best works and an awards ceremony. The exhibition was opened in the Technical Museum of Slovenia at Bistra; during the ceremony 95 children received prizes.

The project, presented during the 4th meeting of the Council of Europe Workshops for the Implementation of the European Landscape Convention (Ljubljana, May 2006), aimed at strengthening the idea that we have to face the changes in the landscape consciously and creatively, and we should increase familiarity with it. The visual character of the landscape depends on what images society holds of it, also influencing the way we deal with it. The quality of the space and the living environment depends to a great extent on the development process, but also on every individual and his/her willingness to make decisions about future development and the destiny of our landscape heritage. That is why the project intended to encourage children and adults alike to observe their everyday environment and therefore to establish a positive relationship with the Slovenian landscape.

Box 6 – The Armenian project “Settlements, nature and the landscape through the children’s eyes”



A children's paintings competition was organised by the Urban Development Ministry of the Republic of Armenia together with the National Museum-Institute of Architecture of Armenia (NMIA), in order to promote a better awareness of the importance of the landscape as a background to the quality of life, as mentioned in the European Landscape Convention.

The preparation work for the exhibition began in March 2003. An invitation was sent to art education schools, centres of study, secondary schools, NGOs and youth centres. In the following months the ministry organised some visits to classes, schools and centres where explanatory training work with teachers and children was held, aimed to align children's works with the competition theme.



The members of the commission that chose the best paintings were painters, sculptors and art pedagogues. The commission was directed by the academician Gh. Chubaryan. The project concept had its roots in some basic ideas of the European Landscape Convention. These include:

- the aim of creating a harmonious life context for the present and for future generations; involving children directly in the landscape issue through the competition represents a way of looking directly towards a positive future;
- the importance of the promotion of a conception of the world as rich in human values, mostly at an early age, as is underlined by psychologists.

The exhibition of the best 134 works (more or less half of the total works presented) was co-organised by the Council of Europe and the Republic of Armenia in the framework of the “Spatial planning and landscape” seminar. It was opened in Yerevan on 23 October 2003, in the hall of the National Institute-Museum of Architecture. The Armenian Urban Development Minister and other officials from the Armenian Government and the Council of Europe and other international organisations, numerous guests from the regions and the authors of the exhibited works (pictures), together with their parents and teachers, took part in the opening of the exhibition. The exhibition was presented by the Armenian mass media.



A part of the exhibition (51 works) moved later to Strasbourg and was opened in the hall of the Palais de l'Europe during the 2nd meeting of the Council of Europe Workshops for the Implementation of the European Landscape Convention, at the end of November 2003.

Conclusions and recommendations: promotion of education on landscape

1. European landscapes are the result of a long history of interrelations between humanity and nature, expressing the stratification of different cultures that built them through the centuries. European landscapes have great value as natural and cultural heritage, and need to be safeguarded and valued in order for further sustainable development.

2. The European Landscape Convention gives great importance to the relationship between people and landscape. On the one hand landscape is part of people's well-being, consolidating territorial identities; on the other hand landscape requires a certain awareness, knowledge, wise behaviour and a willingness to assume responsibility in taking direct or indirect actions.
3. "Education is a driving force for the change needed". This is one of the basic statements of the United Nations Decade for Education on Sustainable Development (UNDESD) 2005-2014, promoting education as one of the main targets to achieve sustainability. In this frame, the European Landscape Convention proposes education on landscape as one of the first necessary specific measures (Article 6.B.c). Due to the strong connections existing between landscape and sustainability issues, education on landscape is one of the best possible ways for implementing education for sustainable development.
4. Landscape is not only the visual aspect of places, in a strictly aesthetic approach. It is the "surface" of a spatial entity, where many different factors, both natural and human, act and interact. Landscape should be considered a tool for understanding spatial processes in depth and discovering different cultures and different environmental contexts. All landscapes should be investigated, not only the exceptional ones, in order to find out what is below the "surface".
5. The ability to read landscape is therefore an important means for a better knowledge of both the nearby and the distant world. Being a means available to all people, it can be implemented to some extent simply by making careful observations, without special research instruments. It is the way, for example, of widening and enriching the relationship between the tourist and visited places, if people become used to reading "through" the landscape.
6. Since landscape possesses a high value, culture and identity-wise, education on landscape can play a relevant role in facilitating cultural integration processes in multi-ethnic and multicultural contexts, nowadays so common throughout Europe. Hence landscape represents a way for a better knowledge of different places and cultures.
7. People generally behave with greater care towards landscape after they have got used to reading it and recognising the effects human actions have on it. Namely, learning to act responsibly first requires learning to see.
8. Education on landscape is education at all levels: intellectual, emotional and practical. It deals with knowledge, feelings and hands-on activities. Therefore it is a very good tool for helping with the upbringing process of children, enhancing all their potentialities and their wholeness as people.

9. In consequence, the Conference of the Council of Europe on the European Landscape Convention and then the Steering Committee for Cultural Heritage and Landscape (CDPATEP) are invited to examine a possible request to the Committee of Ministers to recommend to the member states to:
 - 9.1 include education on landscape programmes in primary and secondary school curricula, within the programmes devoted to education for sustainable development or, more generally, as part of "citizen's education";
 - 9.2 encourage special training in education on landscape for teachers; teacher's training is important not only to gather information on local landscapes but mainly for sharing didactic objectives and acquiring methodology; such training should always have an interdisciplinary character and help in improving the habit of working in teams;
 - 9.3 provide schools with materials for the implementation of activities on education on landscape. The material should cover both content and methodology and should be specially oriented to different school levels. Exceptional or beautiful landscapes should never be the only landscapes addressed; everyday-life landscapes should be mainly addressed, even when they show contradictions and provoke questions;
 - 9.4 support projects concerning education on landscape at national and international level in order to encourage exchanges among children coming from different places; such projects should be carefully designed to make children aware of the specificity and identity values of both their local landscapes and faraway landscapes;
 - 9.5 promote the use of information and communication technologies in education on landscape projects, since this technique presents high potential for this kind of activity. It is useful for understanding landscape as an entity consisting of a net of relationships, a "hyper-landscape"; it is also useful because it allows the use of different kinds of media (texts, pictures, drawings, videos, sounds, etc.), because it allows children from different places, working on similar projects, to contact each other, and finally because it can disseminate the results of education on landscape projects to a wider public;
 - 9.6 support all the possible ways and occasions for sharing best practices on education on landscape. This will encourage teachers and school managers to implement such activities more and more, applying the most effective approaches and methodologies, in accordance with their school level and local context;
 - 9.7 promote the involvement of different partners and sponsors in education on landscape projects. This will create useful networks especially among partners directly interested in culture dissemination and the promotion of landscape values;

- 9.8 establish a commission on education on landscape at national and/or regional level with the co-operation of those departments of the national/regional administration that are concerned with the landscape (spatial planning, environment, sustainable development, cultural heritage, etc.) and the co-ordination of the education department. The commission should become a reference point for education on landscape and its main commitment should be diffusing education on landscape issues. This could be done by providing the necessary support in terms of materials and methodologies, as well as by directly starting activities and projects, or helping local administrations or single schools in organising them.

VI. Training of landscape architects

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With the collaboration of the European Council of Landscape
Architecture Schools (ECLAS)



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Summary

The aim of this report is to provide an assessment of the current state of education and training of landscape architects in Council of Europe member states and to provide broad recommendations on curricula and educational structures, with reference to Article 6.B of the European Landscape Convention. This report has been produced with the collaboration of the members of the Executive Committee of the European Council of Landscape Architecture Schools (ECLAS). Situated at the meeting point between natural sciences, social sciences and humanities, combined with skills in planning and design of landscapes, European landscape architecture education is closely related to the aims and ideas of the European Landscape Convention. Landscape architects can facilitate an interdisciplinary perspective and a bridging between sectors. For decades, landscape architecture education in Europe has provided multidisciplinary education in landscape protection, management and planning. Landscape architects are specialised to act as generalists and to propose spatial solutions that involve integrated landscape thinking. Landscape architect education encompasses all types of landscapes, just like the European Landscape Convention, from urban through suburban to natural and rural.

Some of the recommendations brought up in this report are:

- accredited and professionally recognised higher education programmes in landscape architecture should be established by all contracting states (Article 6.B.c). In countries where it may not be possible to establish a full degree programme, arrangements should be made with existing accredited degree programmes in other countries; landscape architecture programmes should conform to the recommendations set out in the Tuning project report, “Tuning landscape architecture education in Europe”, prepared by ECLAS, and to the recommendations on landscape architecture education published by the International Federation of Landscape Architects (IFLA);
- in contracting states to the convention where landscape architecture degree programmes already exist, it is important that their content is regularly reviewed to ensure that it meets the needs of the convention. This will involve:
 - a good understanding of the legal status of landscapes (Article 5.a);
 - being familiar with the role and importance of landscape policies for protection, management and planning (Article 5.b);

- *understanding of the role and application of public participation in the landscape planning, design and management process (Article 5.c);*
- *knowledge of how landscape legislation and policies relate to relevant neighbouring fields and disciplines (Article 5.d);*
- *good theoretical knowledge and practical skills in landscape analysis and assessment (Article 6.C.a and b);*
- *understanding processes of landscape change and how to monitor them (Article 6).*
- *the accreditation process for degree programmes should have an appropriate international dimension (Article 8). A formal part of the statutory accreditation process of landscape architecture degree programmes should be concerned with the degree to which the programme meets the needs of the convention;*
- *there should be a formalised relationship between the professional body in a country and the education programme in order to ensure that degree programmes continue to meet the needs of practice with regard to the competences of graduates relating to the implementation of the convention;*
- *landscape architecture programmes should develop and offer in-service training programmes to officials involved in both policy making and the day-to-day implementation of national legislation and policies relating to the convention;*
- *there is a need to develop a European approach to upgrading and improving pedagogic strategies, advanced teaching skills and research capabilities within the context of existing landscape architecture programmes. A European-level institution for advanced studies in landscape architecture should be established.*

Introduction

The aim of this report is to provide an assessment of the current situation of the education and training of landscape architects in Council of Europe member states and to provide recommendations on curricula and educational structures, with reference to Article 6.B of the convention. Article 6.B states that each party to the convention undertakes to promote “multidisciplinary training programmes in landscape policy, protection, management and planning, for professionals in the private and public sectors and for associations concerned”. The education of landscape architects in Europe is an example of a field of education with a strong interdisciplinary focus looking at all aspects of these topics. This report has been produced with the collaboration of the members of the Executive Committee of the European non-governmental organisation ECLAS (European Council of Landscape Architecture Schools). The goals of ECLAS are to: “foster and develop scholarship in landscape architecture throughout Europe by strengthening contacts and enriching the dialogue between members of Europe’s landscape academic community, representing these interests within the wider European social and institutional context and furthering the discussion of landscape architectural issues at the European level” (ECLAS Statutes).

ECLAS is also the initiating organisation behind LE:NOTRE (Landscape Education: New Opportunities for Teaching and Research in Europe), a European Union funded Thematic Network in Landscape Architecture. Since the start of the project in October 2002 the number of European member universities in LE:NOTRE has increased from 72 to more than 100. A wide range of professional and other stakeholder organisations are also part of the LE:NOTRE network.

Furthering international co-operation on landscape issues is one of the central goals of the European Landscape Convention, and ECLAS is an international organisation which has supporting co-operation between European academics as its core objective. It is important to note that the work undertaken by ECLAS within the context of the LE:NOTRE Thematic Network Project on the development of an interactive website (www.le-notre.org) has resulted in the creation of an effective and innovative platform for communication and the exchange of information between academics across Europe. By means of this initiative, the rather diffuse goal of promoting international co-operation has been operationalised in a way that facilitates exchange between European landscape architecture academics on a day-to-day basis. The recommendations presented in this report are based on the work carried out by ECLAS members within the LE:NOTRE network over the past seven years.

1. What is landscape architecture?

Landscape architecture as a field of professional activity and an academic discipline is concerned with the conscious shaping of the outdoor space at various levels. It

involves planning, design and management of the landscape to create, maintain, protect and enhance places so as to be functional, beautiful and sustainable and appropriate to diverse human and ecological needs.

The multifaceted nature of the landscape and mankind's interaction with it means that the subject area is one of unusual breadth, drawing on and integrating concepts and approaches, not just from the two sides of the traditional divide between the creative arts and the natural sciences, but incorporating many aspects of the humanities and technology as well. This complexity is closely reflected by the diversity of approaches to the discipline which have developed throughout Europe. In some countries, for example, contemporary landscape architecture can trace its roots back to horticulture, while in others it has grown out of architecture, planning or environmental science, and elsewhere out of agriculture, forestry or ecology and nature conservation.

From a historical perspective landscape architecture has unusually far-reaching European roots. Its post-mediaeval history can be said to have started with the Renaissance gardens of Italian villas; during the 17th century the great Baroque gardens of André Le Nôtre came to dominate European taste, while in the 18th century the English landscape garden became the focus of interest across the continent. With the Industrial Revolution and the rise of towns and cities, the provision of parks and green spaces for the urban population came to be viewed as a municipal responsibility, with some of the first parks departments being established in cities in northern European countries.

Twentieth-century modernism saw the development of a more consistent international approach across much of northern Europe. During the 1920s and 1930s the focus of concern was on the provision of green spaces for physical recreation, sport and leisure activities. In the 1950s and early 1960s, landscape architecture became centrally involved in the post-war rebuilding programme and in the planning of new towns and residential areas. Over recent decades, the discipline has expanded to encompass wider environmental concerns, by combining approaches from the natural sciences and the planning disciplines, developing strategies, methods and techniques for the assessment and amelioration of environmental impacts and also for the treatment of issues associated with sustainability and the conservation of the cultural landscape heritage.

In landscape design, recent trends have involved a concentration on the formal design of urban spaces, on ways in which the historic layers of the landscape can be woven into contemporary proposals for creating new places and on the symbolic importance of landscapes and open spaces in people's lives.

Contemporary landscape architecture can range from carrying out large-scale landscape planning or design projects, such as developing landscape proposals for the

future of whole regions or integrating significant infrastructure projects into the landscape and ameliorating their impacts on the environment, through the formulation of strategies for the provision of green space structures and urban nature conservation, to the detailed design of new housing or commercial areas, individual parks, urban public spaces and gardens. Equally, landscape architects may be involved in the development of concepts for the long-term management of historic gardens and landscapes, recreation areas in the urban fringe or of national parks and protected landscapes.

In all cases, the focus of the professional activity is the development and formulation of planning and design solutions for spatial problems of landscape conservation and development, involving the integration of specialist knowledge from a wide range of disciplines and the interests of society as a whole, as well as a large number of sectoral and institutional actors. This frequently takes place in interdisciplinary teams involving other environmental professions, such as architecture, urban and regional planning, and civil engineering.

2. Why is landscape architecture education important for the European Landscape Convention?

According to Article 3, the convention aims: “to promote landscape protection, management and planning, and to organise European co-operation on landscape issues.” The convention defines the activities of landscape protection, management and planning respectively in terms of “action”, “actions” and “strong forward-looking action”.

While many academic disciplines have an interest in the study of a wide range of different aspects of landscapes, as is clear from the above outline of the nature of the discipline, the central focus of landscape architecture is on active intervention in the landscape through means of planning, design and management. The goals of intervention can be located anywhere on a scale starting with the protection or conservation of landscape resources and their associated meanings and values, through to creating entirely new landscapes through development projects.

Landscape architects are thus educated to undertake the planning, design and management of projects concerned with spatial and temporal interventions in the landscape as their central or core competence. Such interventions may be on a larger territorial scale (landscape planning), on a smaller scale on a site of limited size (landscape design) or involving variable timescales (landscape management).

Landscape architecture students are educated to conceive and implement planning, design and management interventions which follow on from a detailed investigation of the characteristics of the planning area or design site, both in terms of its ecological and social conditions as well as its functional needs and cultural meanings and values. To be successful, planning and design processes always need to reflect the interests and respond to the concerns of those affected by the projects concerned, such as members of a community or other stakeholders. Because landscape architects cannot be experts in all of the specialist disciplines which are necessary to understand the landscape in all its facets, they are taught to work with colleagues from related disciplines and professions in preparing their plans and to synthesise complex information from a wide range of sources. These include the natural and social sciences as well as the arts and humanities, and also how to involve local people and other interest groups in the planning and design process.

Landscape architecture as a discipline is situated at the meeting point between natural sciences, social sciences and humanities. This also contributes to a strong link to the European Landscape Convention. Landscape architecture schools and universities in Europe have many years of experience in interdisciplinary education focusing on landscape protection, management and planning, and hence a key role for the implementation of the European Landscape Convention. Landscape architecture education mirrors the concerns of the convention in its scope, which also ranges from urban to rural landscapes and from everyday landscapes to outstanding landscapes. It also embodies the aims and ideas of the European Landscape Convention about the necessity of a dynamic, forward-looking, human-oriented, action-oriented, integrated, inter- and transdisciplinary approach to landscapes.

Taught courses offered within European landscape architecture programmes relate closely to both the general and specific measures that are defined by the European Landscape Convention. The term “landscape design” is not specifically mentioned in the convention even though the definition of landscape planning as “strong forward-looking action to enhance, restore or create landscapes” is certainly also appropriate to landscape design too. The term “landscape architecture” is used as a generic term covering the discipline and profession as a whole, which is often broken down into the sub-fields of “landscape design”, “landscape planning” and “landscape management”, although of course different national and linguistic traditions may result in variations of this terminology. The action-oriented and forward-looking approach of the European Landscape Convention is welcomed by landscape architecture schools as an important counterbalance to the preservation-focused and static ideas about landscape conservation and protection that were earlier often predominant in international and national landscape policies.

Other fields of teaching which have developed more recently are connected to the requirement of the European Landscape Convention “to establish procedures for the

participation of the general public and other parties with an interest in the definition and implementation of landscape policies". The professional role of landscape architects requires a high level of skill in communication, both with the general public and other stakeholders. This development is expected to be reinforced by the increasing number of countries ratifying the European Landscape Convention. Several universities in Europe have also developed new teaching areas focusing specifically on landscape analysis and landscape assessment, and this number is also expected to increase as more countries ratify the convention, in order more closely to fulfil its specific requirement for the "identification and assessment" of landscapes.

Further examples are provided by course units in landscape architecture dealing with the design of outdoor space in urban and suburban areas, the design of playgrounds and environments for children, courses with an environmental psychology approach dealing with landscape's restorative effects for human health, well-being and rehabilitation, and courses dealing with the conservation and management of cultural landscapes, historical landscapes, gardens and parks and designated areas. Landscape architecture education hence encompasses teaching dealing with landscapes from the urban and suburban; from everyday landscapes to outstanding landscape of high-preservation values; from derelict suburbs to World Heritage sites.

3. Evolution of landscape architecture education in Europe

Landscape architecture as an academic discipline is relatively new in comparison to many other fields. Although a school for landscape gardeners was established by the German landscape architect Peter Joseph Lenné near Berlin in 1824, it was not until nearly a century later that the first European university degree programme was set up, in the, then, relatively young country of Norway in 1919. In this respect the "New World" was in advance of Europe, with the first American landscape architecture degree programme being established at Harvard University in 1899.

Until the early 20th century, the education of professionals working in the field of landscape architecture had been a varied affair. Either they trained as gardener's apprentices or in gardeners/horticulture higher schools. Alternatively, architects or engineers, who had obtained some knowledge about growing plants by working with gardeners, developed the field in practice. In some European countries, lectures in design and maintenance of gardens, parks and landscapes, with an emphasis on plants, were offered at universities within various other disciplines, in particular horticulture or forestry, but also in architecture schools. The growing scale and complexity and perceived social importance of the planning and design of green space and landscapes in the late 19th and early 20th centuries, together

with their increasing loss to expanding urbanisation, industrialisation and changes in agricultural and forestry practices, led to growing pressures to establish formal programmes of education in landscape architecture.

Four main stages can be identified in the development of landscape architecture education in Europe:

1. There was a pioneering phase from 1919 to 1949. In this period the first courses were set up in a number of northern European countries. However, in Hungary, already in 1908 a course in garden design had been set up in the framework of horticultural education.
2. A period of significant growth in new degree programmes took place from 1950 until the early 1970s, driven by the social needs of post-war reconstruction, together with a growing environmental concern. Here, a clear gradient in the establishment of landscape architecture programmes was visible between the north-west of Europe, where the discipline developed strongly, and the east and particularly the south of Europe, where the discipline was, and still is, far less developed.
3. This was followed by a phase of consolidation during which interest in the discipline increased significantly and student numbers grew on the courses established during the post-war expansion of the discipline, as did the scope and scale of the landscape issues which they dealt with, although there was little further growth in the number of degree programmes.
4. The fall of the Iron Curtain in 1989, and the resulting (re)establishment of several independent nation states during the following decade, led to a further phase of founding new degree programmes. While most of these were located in east and South-East European countries, including the Baltic states, former Yugoslavia and Poland, some western European countries also set up programmes for the first time, including in Austria, Italy, Spain and Iceland.
5. The development of a growing profession and an expanding number of students and professionals in Europe has been accompanied by an increasing amount of landscape research and a large and increasing number of academic, professional and technical publications. This has been complemented by a growing number of conferences and international exchange opportunities at the professional level.

The period in the run-up to the establishment of the Single European Market in 1993 also saw the setting up of European organisations representing both the profession (EFLA – the European Foundation for Landscape Architecture in 1989) and the academic discipline of landscape architecture (ECLAS – the European Council of Landscape Architecture Schools in 1991).

While the developments outlined above describe the evolution of landscape architecture education across most of Europe during the past 90 years, there is one region where this development has not taken place to anything like the same degree, namely in the Mediterranean countries, in particular Greece, Italy and Spain, and to a lesser extent France. Interestingly, it was from some of these countries that the first initiative for the establishment of the European Landscape Convention came.

4. Current state of education in landscape architecture in Europe

In 2008 there were approximately 95 university departments offering either bachelor, or master (or both) programmes in landscape architecture (including programmes in landscape planning, design and management) in European countries and over 25 university departments which offer courses in the discipline as part of other degree programmes. Universities in the following Council of Europe member states are offering one or more programmes in landscape architecture: Austria, Belgium, Bulgaria, Croatia, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Netherlands, Norway, Poland, Portugal, Romania, Russian Federation, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

Council of Europe member countries in which no full degree programmes currently exist are: Albania, Andorra, Armenia, Azerbaijan, Bosnia and Herzegovina, Cyprus, Georgia, Liechtenstein, Luxembourg, Malta, Moldova, Monaco, Montenegro, San Marino, “the former Yugoslav Republic of Macedonia” and Ukraine. The scope of this report does not make it possible to go into more detail about the exact situation in each of the different countries. Furthermore, the situation is complicated by the changes set in motion as a result of the higher education reform process, which is currently taking place across the continent under the umbrella title of the Bologna Process.

The diversity of intellectual provenance outlined above is also clearly illustrated by the range of different types of higher education institutions across the continent in which landscape architecture teaching and research has become established. These range from universities specialising in the fine arts to those dedicated to agriculture and forestry, and encompass technical universities as well as the more broadly-based “general” universities.

Not surprisingly, the geographical distribution of landscape architecture degree programmes broadly reflects the geography of the continent, although there are important exceptions to this which will be referred to below. Generally, though, the largest countries in terms of population tend also to have the largest number

of programmes and the greatest diversity, while in smaller countries there is often only one programme. Thus, there are a high number of programmes in large countries such as Germany (some 16 programmes) and Turkey (some 18 programmes), while only one currently exists in smaller nations, such as Latvia or Slovenia. Also, not surprisingly, in those countries which have a longer history of landscape architecture education as well as a larger number of programmes, the discipline has tended to develop further and diversify more internally. In most cases, however, these differences tend to be exhibited in the shape of a wider range of opportunities for students to specialise within a particular degree programme, and in a correspondingly wider range of job opportunities within a more mature market. They tend not to be reflected in the development of separate degree programmes each having their own particular specialisation.

While the types of university in which landscape architecture programmes are located and the conditions of their historical development do differ considerably, despite some local variations, the broad approaches to landscape architecture education are perhaps less different than this varied intellectual provenance might suggest. Most universities therefore aim to offer a broad education in landscape architecture which addresses landscape intervention at different scales of time and space, and thus the requirement to undertake courses in both large-scale planning and smaller scale design issues.

A consistent and defining characteristic of all landscape architecture programmes is their central focus on studio teaching focused around planning and design projects, in which students, in some cases individually and in others in teams, are required to develop planning and design proposals to respond to a wide range of possible landscape conservation and development scenarios. The project-based studio forms the main teaching method in landscape architecture programmes, and it is normally expected that such projects will account for at least 50% of student time during the course of their studies.

In particular in the more advanced years of degree programmes – during the last year of the first cycle and for the whole of the second cycle – efforts are made to ensure that student projects have as high a degree of reality as possible. This is frequently achieved by working together with local or regional planning authorities or other “live” client organisations. As a part of such projects, students are expected to interact with “clients” and other “stakeholders”, as far as the conditions of an educational project operating on a limited timescale will allow. They are also increasingly required to present their proposals in a public context as their studies progress. While the detailed subject areas of such projects may vary in response to the social and cultural context of practice in any country, the approaches taught to addressing the spatial, environmental and social challenges involved tend to be largely similar.

More traditional forms of teaching, including lectures and seminars, generally have the main purpose of providing the necessary knowledge and understanding to ensure that the physical, ecological, sociological and institutional setting of the landscape context of planning and design projects can be appropriately analysed and evaluated to ensure that proposals are both technically and ecologically feasible as well as being socially compatible. Practical exercises and workshops are often used to mediate between lecture and seminar teaching and large-scale projects, in order to learn and practise particular skills and techniques, such as applying various aspects of information technology, or carrying out social or ecological surveys.

The multidisciplinary nature of landscape architecture means that subject matter from a large number of neighbouring disciplines has to be integrated into degree programmes, both to provide basic understanding in fields such as ecology and soil science, urban design and regional planning, sociology and environmental psychology and the fine arts, but also to be sure that graduates are in a position to be able to work together with specialists from these disciplines in their future professional life.

Depending on the nature of the degree programme on which a student is studying and their own particular interests and aptitudes, there may be an opportunity for them to focus on different aspects of the discipline. Some universities offer the opportunity, for example, for students to focus more on the ecological aspects of planning on a larger scale, while others choose to direct their attention more closely to the design of smaller open spaces, but in almost all cases students will be educated in both planning and design scales as well as in understanding the long-term issues of landscape maintenance and management during the scope of the degree programme as a whole.

Although it is possible to paint the relatively clear picture of landscape architecture degree programmes which is outlined above, their form and content is also subject to a process of continual change and updating in response to the changing social, political, cultural, economic and institutional context within which both universities and professional practice operates. The nature of these changes is both general, but also very specific. General social and cultural developments over recent years have, for example, begun to shift the balance between environmental sciences based approaches, which were very characteristic of the 1970s and 1980s, towards an increasing role for social sciences and humanities-based approaches, although the environmental sciences retain an important role.

Driving forces at the level of European higher education and environment policy have also had an important role to play over recent years, in particular the so-called Bologna Process, which has sought to further more compatibility and comparability between higher education systems within Europe, as well as new environmental

legislation and international conventions, including the European Landscape Convention. Another example of policy developments affecting landscape architecture education over the past decade is the renewed interest in and growing awareness of the public health benefits of parks and green spaces in urban areas.

There are two main mechanisms whereby the changing social context of landscape architecture education has its impact on degree programmes: one is endogenous and takes the form of the process of continuous internal review of programme content undertaken by staff and students, while the second is an exogenous one involving the input of the profession into education.

Some countries where no landscape architecture education is offered are too small to develop full programmes. This is the case in Andorra, Cyprus, Liechtenstein, Luxembourg, Malta and Monaco. In these cases, collaboration with schools in other countries is advisable and in some cases already taking place.

5. Analysis and discussion

The main structural changes currently being brought about within degree programmes are the result of the Bologna Process. In most countries, these have resulted in the restructuring of degree programmes to create integrated landscape architecture degree programmes with a duration of five or six years, taking the form of two separate cycles. The first of these (mostly bachelor programmes) is of 180 or occasionally 240 ECTS units in length.¹⁹ In most cases, the second cycle programmes have a length of 120 ECTS units, while very few have only 60 ECTS units, as a result of specific national conditions. These mostly follow on from 240 ECTS bachelor programmes to give the same overall length of the whole degree programme. Only a few institutions have preserved an integrated master programme of 300 or 360 ECTS.

The Bologna Process is, however, also acting as a stimulus to influence programme content in an indirect manner. The reason for this is that in the process of restructuring courses, the opportunity has been used in many cases to reconsider content too with the aim of increasing the correspondence with other European programmes. One mechanism for this has been the work undertaken on “Tuning” landscape architecture education within the context of the LE:NOTRE Thematic Network Project.

19. Credits referring to the European Credit Transfer and Accumulation System (ECTS). 60 ECTS are equivalent to one academic year of full-time studies.

Universities which are organised within ECLAS have also been participating in a European Union funded thematic network project, the LE:NOTRE project (Landscape Education: New Opportunities for Teaching and Research in Europe). Within this they are one of the disciplines taking part in the European Union's Tuning project (<http://tuning.unideusto.org/tuningeu/>), which aims to co-ordinate the contents of higher education by defining competences for graduates in terms of the necessary knowledge, skills and understanding which they should acquire as a result of their studies.

The outcome of this project, which is intended to evolve into an ongoing process of reviewing course structure and content, is likely to involve a greater convergence between the content of degree programmes, even though this is not its expressed aim. The intention of the project is merely to seek agreement on the competences of graduates rather than to in any way harmonise the structure and means of teaching within the degree programmes. The approach taken aims at increased transparency and clarity regarding the nature and the differences between programmes rather than trying to force them into the same mould.

A further factor leading to convergence are the education recommendations published by the European Foundation for Landscape Architecture (EFLA, www.efla.org) This European professional organisation is the European wing of the International Federation of Landscape Architects (IFLA). Both these organisations are involved in making recommendations with regard to landscape architecture education, and EFLA has developed a system for the recognition of degree programmes. The role of EFLA, which is also mirrored in many European countries by systems of academic accreditation and professional recognition, ensures that there is a mechanism for feedback from the profession into the education system. This formal system is usually reinforced by the fact that in most degree programmes a number of further links to practice take the form of visiting lecturers and studio teachers as well as the involvement of practitioners in the membership of accreditation boards. It is important to note that it is generally accepted that a full qualification in landscape architecture, which will allow graduates to enter the profession, can only be acquired on completion of programmes which are part of the second Bologna cycle.

Therefore, while the philosophy of encouraging European diversity fostered by the Tuning project is very much to be welcomed, and is seen as providing a means of safeguarding regional differences and academic freedom, it must be set against the recommendations that are behind the EFLA recognition process, which are likely to have the opposite effect. But it is highly likely that even the simple process of comparison of different approaches, which lies behind the Tuning project, will itself tend to result in the emulation of good practice and thereby a de facto convergence between degree programmes, even though this is not the main intention.

This process of convergence, which is likely to be the inevitable outcome of the Tuning project, will also be furthered by the very existence of the European Landscape Convention, as this becomes an increasing focus of teaching.

Where differences between programmes exist, these tend to reflect:

- the roots of the institution, such as a horticultural school, a university for agriculture and forestry, a school of fine arts and architecture or a technical university;
- the background of the academic staff giving a specific focus to the subjects taught and research programmes;
- the development of related disciplines (for example, landscape ecology, vegetation science, cultural history, environmental psychology, water management); and, finally
- the demands and development of professional practice within the countries concerned.

There are therefore distinct differences in landscape architecture programmes between European countries and regions, but as a result of the driving forces outlined above, these tend to be differences in emphasis or of maturity and differentiation rather than of fundamental approach. There is, however, one major exception, which is to be found in the Mediterranean countries of Greece, Italy and Spain. Here, the processes of the establishment of landscape architecture degree programmes, which have taken place throughout the rest of Europe, are being challenged to varying degrees by the architecture profession.

The extent to which this is happening is clearly illustrated by a simple comparison between the situation of landscape architecture education in Spain and its much smaller neighbour Portugal, where the discipline was established much earlier and which has more programmes, or between Italy and its neighbour Slovenia where the former has proportionately far fewer programmes. Greece, too, has only a single programme at master level but none at undergraduate level.

This state of affairs means that in the south of Europe there is a shortage of suitably trained professionals able to take an integrated approach to the planning, design and management of landscapes to protect and enhance them. While a number of disciplines exist in these countries which are able to deal with individual aspects of landscape protection, management and planning, none has the unique combination of ecological and sociological knowledge together with the necessary planning and design skills to develop appropriate solutions to complex landscape challenges that are provided by landscape architecture programmes.

Conclusions and recommendations

Establishing new landscape architecture programmes (recommendation to universities and governmental bodies responsible for higher education):

1. The key role which the discipline of landscape architecture should play in the implementation of the convention makes it important that corresponding accredited and professionally recognised higher education programmes are established by all contracting states (Article 6.B.c).
2. In those countries where it may not be feasible to establish a full degree programme, due to the size of the country, arrangements should be made with existing accredited degree programmes in other countries to provide the necessary specialist inputs to existing related degree programmes (professional or academic).
3. Landscape architecture programmes should conform to the recommendations set out in the Tuning project report “Tuning landscape architecture education in Europe”, prepared by ECLAS, and to the recommendations on landscape architecture education published by the International Federation of Landscape Architects. This means that there needs to be a good balance between theoretical knowledge and understanding of factors affecting landscapes and their perception, as well as practical skills in project development and implementation. It is important that landscape architecture education equips graduates to work across a wide range of scales and to understand the interaction between local action at the site level and its implications for landscape character on a wider scale.

Adapting existing landscape architecture programmes (recommendation on existing programmes at universities):

4. In contracting states to the convention, where landscape architecture degree programmes already exist, it is important that their content is regularly reviewed to ensure that it is optimised with regard to the needs of the convention. In particular this will involve:
 - having a good understanding of the legal status of landscapes (Article 5.a);
 - being conversant with the role and importance of landscape policies for protection, management and planning (Article 5.b);
 - understanding of the role and application of public participation in the landscape planning, design and management process (Article 5.c);

- knowledge of how landscape legislation and policies relate to relevant neighbouring fields and disciplines (Article 5.d);
- good theoretical knowledge and practical skills in landscape analysis and assessment (Article 6.C.a and b);
- understanding processes of landscape change and how to monitor them (Article 6).

In reviewing the content and structure of existing degree programmes, it is important that the role and contribution of other disciplines is actively reviewed.

5. The accreditation process for degree programmes should have an appropriate international dimension (Article 8).

**Accreditation of landscape architecture programmes
(recommendation to accreditation agencies):**

6. A formal part of the statutory accreditation process of landscape architecture degree programmes should be concerned with the degree to which the programme meets the needs of the convention (see Recommendation 4 above).

Relationship between the profession and education:

7. There should be a formalised relationship between the professional body in a country and the education programme in order to ensure that degree programmes continue to meet the needs of practice with regard to the competences of graduates in terms of their knowledge, skills and understanding relating to the implementation of the convention.

Provision of specialist training programmes for professionals:

8. Landscape architecture programmes should take the initiative in developing and offering in-service training programmes to officials involved in both policy making and the day-to-day implementation of national legislation and policies relating to the convention.

Continuing professional development:

9. The requirements concerning the implementation of the convention should be integrated into the required training programmes for professionals in practice.

Dialogues with neighbouring disciplines:

10. Landscape architecture teaching in the degree programmes of neighbouring disciplines is needed to improve co-operation between landscape architecture and these disciplines.

Research-led teaching – the link between teaching and research:

11. Teaching needs to be linked to research, especially but not only, at the level of the second Bologna cycle.

Research training and advanced teaching to build capacity on landscape architecture programmes:

12. With the needs of the European Landscape Convention in mind, there is a need to develop a European approach to upgrading and improving pedagogic strategies, advanced teaching skills and research capabilities within the context of existing landscape architecture programmes. A European-level institution for advanced studies in landscape architecture should be established to pursue this goal.

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VII. Landscape and ethics

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Summary

Nowadays major transformations of the landscape are human induced. By applying the ethics concept, certain ethical principles and their application to practical behaviour are examined. The fundamental ethical provisions in any society are fixed in legislation, tradition and religion. In practice, legislation does not regulate either the existing or emerging diversity of all civic rights in relation to landscape use and development: first, it is a rather rigid instrument derived from formal logic; second, it usually serves individual or corporate interests rather than communal or social requirements; and, finally, the generalised conceptual structure of the law is not flexible enough. Ethics is a much finer instrument for regulation of social relations. Operational use of this resource along with legal capacity-building is an important means for the protection of individual and collective rights in landscape preservation and management.

Common law based on traditions is enforced and accepted as formal legislation in traditional societies. During the modernisation period, the group using landscape for its subsistence usually suffers first. All urban and rural dwellers, when they express a wish to continue their traditional lifestyle and resist the principal modernisation of their conservative environment, experience a real shock when construction development or land privatisation processes intrude and destroy their habitual landscapes. This major conflict is not resolved because the economy as a sphere of human activity dominates in the decision-making and political processes. Acceptance of the ethical norms of customary law being on a par with governmental legal acts is a key element in the progress of human society towards harmonised spatial development and recognition of landscape values in the globalisation process.

Preservation of landscape values for present or future generations is viewed as one of the most important ethical norms. If the national system of heritage sites includes proper representation of landscape phenomena this is clear evidence of the respect and ethically developed understanding of landscape values in national governance.

Landscape values are revealed and appreciated through studies of local community history, resulting also in a comprehensive ethical policy for future landscape management. Through them, ethics becomes an extra-legal and non-political instrument for landscape preservation.

A partnership between civil society and the authorities in the elaboration and implementation of landscape policy is evidence of the proper consideration and high respect of different social interests and public views, and reflection of the maturity of democratic and ethical procedures in state and public interrelations. However, there exists a conflict between the perceptions of values and utility, reflecting contradictions in human development, when one part of the society offers an intellectual assessment and endorsement of the historical qualities, in opposition to the landscape transformation, while the other part seeks new development models based on space and resource use, supporting in this way total landscape conversion.

Economic considerations and needs are to be continuously ethically tested and assessed: taking into account social and ecological imperatives as a primary objective. Ethics is a safeguard against conflict in the adoption of landscape development models, so ethical and environmental constraints shall be recognised as an inalienable part of the landscape development process.

New stereotypes of living and technological innovations, emerging in post-modern civilisation, may lead to the considerable enhancement of landscape values. Creative environment, nature as a source of technological progress, everything that is connected to human involvement and existence in the landscape makes it more treasured and, therefore, ethical assessments are more in demand.

Introduction

Landscapes are spatially dynamic natural units that constantly undergo various upheavals. In the post-modern era the main changes to them have been the result of human activity. Humankind has been forever developing, reworking and adapting the near and distant environment to create an *oikos* (home) in its own inhabited space (*Oecumena*). Natural systems adjust to this impact either through continuous structural changes or through local ecological crises if the rate and scale of transformation overcome the resilience of the ecosystem. Like natural systems, social systems might gradually develop, change and replenish their structure and properties or agonise in revolutionary transitions and generate new, more viable, social structures.

This process usually triggers a redistribution of both individual and collective rights and status of the population and ethnic strata. Some groups or entire ethnic communities survive despite a lack of essential resources or loss of traditional life-style, develop tolerance to the new values and eventually revive with a new world view. Consequently, any environmental change or active social and cultural transformation is intertwined with the ethical problems and/or moral aspects of landscape management.

When we try to understand the term “morality”, we must note first of all that the morality concept combines two ideas of civilisation – an ideal and reality, and reality makes the ideal attainable through multiple moral choices and actions. The problems of morality are studied via ethics. In this chapter, “ethics” is used to refer to a part of philosophy which scientifically studies the basis of right and wrong, whereas “morality” refers to practical values and beliefs about what is right or wrong, and good or bad. Ethics is a science, whereas morality operates in day-to-day life. These concepts are often used as synonyms and the subsequent terms are used interchangeably. By applying the ethics concept, we can emphasise that we are examining certain ethical principles and their application to practical behaviour. However, ethics should not be understood in a very limited sense. Ethics involves principles but also their interpretation, choice and action.

Ethics as a system of moral norms effectively controls social relations. It is the crucial indicator of social and ecological development and might have a significant impact on economic and commercial imperatives. Moral norms are partially fixed in legislation; in particular, they are reflected in the constitutional basis of societal life. Ethics largely subsists in customary law and in the order of mainstream religious faiths. Customary law in landscape management, our primary concern, is particularly well developed in traditional communities and societies but is also frequently referred to in relation to professional, corporate or other types of ethics in civic life. In this way, legislation, tradition and religion usually form the fundamental ethical provisions in any society.

1. Legislation, common law and beliefs

Social relations and conflict resolution are formally regulated through various legal norms fixed in legislation. Accordingly, many legal norms reflect ethical norms of society, in particular, civil norms. For example, the Russian Federation's Constitution sets forth the obligation of every civilian to protect the historical and cultural heritage (Article 44), while cultural heritage (according to Federal Law No. 73, Article 3) might incorporate cultural and natural landscapes along with other sites. This means that the state's citizens are under an obligation to take care of rural landscapes, which reflects an accepted system of values and might be considered as a legally binding ethical norm. However, legislation does not regulate either existing or the emerging diversity of all civic rights in relation to landscape use and development. Legislation is a rather sketchy instrument built up through the application of the formal logic technique. It is frequently appropriated by commercial projects where it serves individual or corporate interests rather than communal or social ones. Finally, legislation is formed by professional lawyers aiming to minimise objective tools and has a generalised conceptual structure for broader application of the adopted legal acts, as these arrangements protect legislation from systematic revisions. This forms a vicious circle of legal procedure, when the aim serves the means, as a caste of professional jurists defines the essence of legal rights and approves elitist decision making. Such absurdity can be eliminated by the use of ethical norms of customary law for conflict resolution in the social or spiritual sphere, where legal regulations are lacking or not applicable. Ethics is a much finer instrument for regulating social relations. The updating of this resource, together with legal capacity-building, might be an important means of protecting individual and collective rights in the area of landscape preservation and management.

Customary law is established by the customs of any community and in traditional societies it is enforced and accepted as formal legislation. Customary law is sufficiently constant and conservative, and a lack of understanding of how it works might lead to inadequacy or collapse of the governing regulations. Ethical norms of the various communities reflected in customary law might clash, leading to dangerous conflicts. In this situation, the party which usually uses the landscape for its subsistence suffers from rapid upheaval and either lacks access to the land or is deprived of its resources. All indigenous peoples and their communities are included in this group as their ethnic identity is rooted in the landscape conditions. But urban and rural dwellers of any nation may find themselves to be a wronged party when they express a wish to continue their traditional lifestyle and resist sweeping modernisation of their conservative habits. In fact, these people experience a real drama when rapid transformations of the territory related to building development or the land privatisation process intrude and destroy the landscape that habitually surrounds them. The values of corporations, companies and holdings in the modern economy with unrestricted capital

growth and economic development, are considered more “important” than the values of communities and their traditional landscapes. Landscape values are partially recognised in use as a recreational resource, as cultural landscapes or pristine natural areas are becoming increasingly attractive and valuable in monetary terms. But this major conflict is unresolved because the economy as a sphere of human activity dominates decision making and eventually destroys the most valuable landscapes. Acceptance of the fact that the ethical norms of customary law are on a par with governmental legal acts is a key element in the progress of human society towards harmonised spatial development and recognition of landscape values in the globalisation process.

Religious ethics primarily define the interrelation of the society and the landscape, man and the landscape, community and the environment, and their principles are fairly influential, with humankind discovering and perceiving the divine world through landscape beauty and diversity. Different religions have their own specific claims as to the roles and interrelations of people and the environment in human life and this is to be taken into consideration when developing landscape management strategies in various countries. Christian ethics postulate human responsibility and care for developed land in order to beautify and transform it into nourishing and flourishing landscape. Christian ethics focus on the idea of transfiguration and Christian countries’ landscapes include primarily hand-made elements and intense creative fieldwork. Buddhist ethics focus more on perception and observation as their basis, acknowledge the natural order with all living forms and consequently seek to support the natural assets of the landscape and a caring attitude towards the entire natural world and all living creatures. Shamanism or beliefs of pagan peoples populate landscapes with a whole system of spirits and attribute personal qualities to landscape elements or components, postulating the sacrosanct nature of the landscape and calling for careful treatment of its resources, seen as gifts. Each religion or faith has its particular values fixed in ethical norms, and these are inevitably reflected in the landscapes and their management.

2. Ethics and landscape preservation

Preservation of landscape values for present or future generations might be viewed as one of the most important ethical norms. This aspect refers directly to the policy of cultural and natural heritage preservation. If the national system of heritage sites includes proper representation of landscape phenomena it is clear evidence of respect for and ethically developed understanding of the landscape’s importance in national governance, and consequently high esteem of the landscape’s heirs and guardians. Landscape as a heritage site is inextricably linked to history, creative work and the creator. Cultural heritage is formed in the *locales* (places) where history has been enriched by people’s activities and/or human creative potential has

been thoroughly applied in exploring the space. Natural heritage is particularly well exposed in sacred sites, and sacral natural landscapes are often placed within the sphere of higher religious establishments according to specific ethical, aesthetic or ecological considerations and criteria.

Landscape values and key components are revealed and appreciated through studies of the landscape and local community history, which are also the source of a comprehensive ethical policy for future landscape management. At the same time, it is important to prevent manipulation through the use of specific historical facts aimed at achieving corporate goals, which are generally in contradiction to social norms, ethical considerations and accepted public behaviour. Public polls and surveys on how landscape is to be developed and what lifestyle and environment are desired are important tools for establishing ethically and socially approved decisions. At the same time, we should be aware that ethical discussion is easily transformed into moralistic discussion, and as such used as a device of power politics.

Landscape, subsistence and language as well as culture are very easily destroyed or deformed but they cannot be constructed or projected. They emerge in the process of self-evolution which may be influenced by different factors including ethical considerations. Ideologies per se are indifferent to the landscape, while landscape-oriented ideologies might convey xenophobic ideas. The same danger exists where culture becomes an operative component of ideology. In connection to this, we should mention political landscapes in the context of international affairs.

3. International politics and ethics

It is traditionally thought that international relations and ethics have little in common. Ethics is thought to be mainly part of individual behaviour, which could hardly apply to sovereign states. In the international realm it is mainly national interest that makes states act, not any norms of morality. Indeed, there are no universal moral norms. Each state follows its own norms of behaviour. Furthermore, all recognised universal norms are generally idealistic constructions that in practice may be controlled only by influential international organisations (though the fact that they are established is an acknowledgement that norms are very frequently violated in national and international practice).

Political regions, such as the wealthy North or poor South, post-communist East or Eurasia, as they are referred to in international affairs, are not only geopolitical units, they are also landscapes configured by specific cultural and ethical assumptions. Globalisation has a deeper impact on individual and collective behaviour. The media have shortened the distances between different parts of the globe, giving

people more information about what used to be such distant events and problems. In the global environment, the dividing line between domestic and foreign affairs is gradually disappearing, giving rise to stronger interdependency of states. Ethical behaviour is no longer limited to national or state borders but reaches worldwide. While international morality does not comprise a complete ethical system, it could offer at least some widely accepted moral norms. When common moral language is found and some principles set, there is a basis for ethical assessment of actions in the arena of international affairs. Traditions of international relations are based on the idea of human beings as autonomous, rational moral agents. In their mutual dealings, human beings respect each other's equal rights. The relationship with others is always morally situated.

The players at international level include not only a nation state's government but also governmental or non-governmental organisations and individuals. Nowadays, the number of non-governmental and multinational players in international affairs has increased significantly. Even local communities or small ethnic groups in some cases have built up their capacity to take part in the international decision-making process. The role of non-governmental organisations is rapidly expanding, particularly in ethical matters. These developments have affected our vision of the players in global and regional political landscapes.

4. The Council of Europe European Landscape Convention

International agreements and conventions are major tools for ethically co-ordinated decisions. The European Landscape Convention, targeting the preservation and harmonious development of landscapes in Europe, is of direct relevance for resolving the ethical problems emerging as a result of the rapid spatial transformation of national territories. Proactive treatment of the landscape and the subsequent legal formulas adequately fix contemporary understanding of the landscape and its common values. This perception reflects a system of motivations – what are the needs of society in relation to the landscape? Finally, society agrees to common actions regarding the landscape. All these stages are ethically tested and approved. The convention preamble states that landscape is “a resource favourable to economic activity”, “a basic component of the European natural and cultural heritage”, “an important part of the quality of life for people”, “a key element of individual and social well-being” – all these predicates are programming the attitude of society towards the landscape and identifying the ethical basis of their interaction, basing their arguments on recognition of the relevant landscape qualities. Further in the convention preamble, it is stated that the public wishes “to enjoy high quality landscapes and to play an active role in the development of landscapes”, that

landscape protection and management can “contribute to job creation”, that landscape contributes to “formation of local cultures … human well-being and consolidation of European identity”. These positions reflect a number of public claims, expectations and requirements in relation to landscape and they are articulated on the basis of social ethical norms. Finally, an argument that landscape “protection, management and planning entail rights and responsibilities for everyone” is to be recognised as the fundamental ethical norm in the convention.

In Article 5 of the convention the following actions are prescribed as legally binding undertakings of the signatory parties:

- a. to recognise landscapes in law as an essential component of people's surroundings, an expression of the diversity of their shared cultural and natural heritage, and a foundation of their identity;
- b. to establish and implement landscape policies aimed at landscape protection, management and planning through the adoption of the specific measures set out in Article 6 [which include informing the public on the values of the landscape, training the relevant specialists, school and university education and landscape identification and assessment];
- c. to establish procedures for the participation of the general public, local and regional authorities, and other parties with an interest in the definition and implementation of the landscape policies mentioned in paragraph b above;
- d. to integrate landscape into its regional and town planning policies and in its cultural, environmental, agricultural, social and economic policies, as well as in any other policies with possible direct or indirect impact on landscape.

Accepting these public responsibilities is an ethical procedure. The obligations in the convention assign to the state, as party to the convention, the task of protecting landscapes through a special law and specific policies. Compulsory participation of civil society and authorities in the framing and implementation of landscape policy is evidence of the due consideration and high degree of respect for different social interests and public views, and reflects the maturity of democratic and ethical procedures in state and public interrelations.

5. The United Nations Convention on Biological Diversity

The Russian Federation has not yet signed the European Landscape Convention, but it carries the responsibilities of a signatory party for implementing the Convention on Biological Diversity, adopted at Rio de Janeiro in 1992 at the United Nations Conference on Environment and Sustainable Development. In

this convention, Article 8.j stipulates that the parties are to “respect, preserve and maintain knowledge, innovations and practices of indigenous and local communities embodying traditional lifestyles relevant for the conservation and sustainable use of biological diversity and promote their wider application with the approval and involvement of the holders of such knowledge, innovations and practices and encourage the equitable sharing of the benefits arising from the utilisation of such knowledge, innovations and practices”. A number of activities have been carried out to implement this article around the world, including setting up various ethical codes or rules of conduct for industrial companies or different development projects linked to local communities.

Under this United Nations convention, two documents of major international importance were debated and agreed in 2001 at the Russian Forum on Nature Conservation, namely the National Strategy and National Plan of Action on Russia’s Biodiversity Protection. These documents were primarily geared to conserving biological diversity in the different types of protected natural areas. However, the National Strategy singles out landscapes among the components of the system of protected natural areas, including forms such as “cultural landscape, natural-cultural spatial complex and/or historic-cultural territory”. Biodiversity conservation cannot be achieved without preserving cultural landscapes as key habitats for species, communities and ecosystems. These documents are of major conceptual importance, as until recently culture was interpreted solely as a negative factor in the impact on nature and biodiversity.

However, the Russian term *zapovednik*, the category of strictly protected natural area, originates from the word *zapoved* meaning testament in the biblical sense. *Zapoved* is an oral message from ancestors to the present and future generations imposing a supreme moral responsibility on people in their communal life. The term is a clear demonstration of the moral roots of nature protection in society and cultural tradition. Natural ecosystems, having evolved under the impact of human activity over many centuries, are placed in the rare state classification category governed by the *zapovednik* regime. Strict protection excludes any human interference thus launching a new type of ecosystem, a phenomenon that previously did not exist. Nevertheless, it is very important to preserve not an artificial “natural” ecosystem or quasi-natural landscape but a historically evolved cultural landscape with a clearly expressed natural basis. Therefore, it is highly desirable to establish a new category of protected area existing alongside natural landscapes, where traditional land use systems are to be preserved in their continuity. This new category may represent territories where ethnic traditional subsistence is based on nature-conserving land use and oriented towards environment-friendly techniques of traditional hunting, livestock breeding, fishing and gathering.

6. Professional ethics for territories

In his innovative environmental approach to culture, Russian academic Dmitry Likhachev coined a definition stating that the most important feature of culture is a “spiritual settlement” of the individual. Through this a settlement landscape becomes a person’s habitat when their spiritual energy and creative power is vividly expressed. Cultural landscapes are created over centuries; in their different transformations in the evolutionary process, they are shared by multiple players. As a rule, the society places emphasis on the landscape qualities inherited from the previous generations, frequently ignoring emerging new qualities, as the former are relicts and vulnerable, while the latter are introduced by progressive and aggressive players. At the same time, there exists a conflict between the perceptions of values and utility. This conflict reflects the contradictions in human development, when one part of society offers an intellectual assessment and endorsement of the historical qualities, simultaneously opposing landscape transformation, while the other part looks for the new development models based on space and resource use, supporting active landscape conversion.

Conservationists are always on the defensive against aggressive innovators. The former, as a rule, are the historical heirs of those who shaped the landscape, while the latter are predominantly newcomers in the residential population. Conservationists protect landscape on the basis of law with the emphasis on the heritage issues and/or ecological imperatives. Innovators “overcome” legal restrictions due to their “great passion”, concentration of efforts and target-oriented visions. Environmental change and landscape transformation are objective and essential processes; political institutions declaring environmental improvement as a means of human development gradually interchange the objective and means, as they strive to use the vehicle (environment and landscape) to arrive at the goal (human well-being) via detrimental alterations and clashes in the ecosystems and eventually in the biosphere. Sustainable development, understood as a process of harmonious interaction of spiritual, cultural, social, economic, environmental and political development spheres, in fact contains a conceptual conflict as a cultural or biological evolution is a relatively slow integrated process, while capital growth is linked to accelerated and unrestricted market activity.

The economy conflicts with the environment both in time and space: capital growth requires speedy transformation of the landscape because of the constant need for natural resources, and as a result the chemical, visual, noise and physical pollution of the environment, climate change, biodiversity and cultural diversity losses, disjointed infrastructure and artificial sites negatively affect the human body and psyche, and eventually pose a threat to human nature and well-being. An important ethical problem lies at the base of this conflict: who has the right to the future of the landscape (or environment in the wider sense) – the capital owners, who are

able to “buy” the landscape elements or fragments as property, the elites, who have the decision-making and legal powers obtained through economic support, or the historical heirs dwelling on the landscape, protecting its values and status quo but lacking sufficient means to protect their land rights? What does the well-being of society mean? Is it luxury, comfort, health, money, financial and social status, technical facilities and private property? Or is it a modest lifestyle, no hunger, disease or psychological stress, security and access to tangible and intangible heritage, a healthy environment, spiritual values, education and mutual respect?

Members of society are not equal, so their rights will not be equal, and subsequently their rights (ethical principles) may not have equal values. On the basis of ethical considerations, the ancestors were tolerant to settlers on their landscapes, so their heirs should be tolerant to newcomers, but those newcomers, in turn, should respect the values of the indigenous landscape and not put it at risk of irreversible transition. The bearers of nomadic or traditional cultures that depend on cyclical use of the biotic resources in spacious geographical areas have a vital need for nature preservation and make every possible effort to protect landscape through intense sacralisation. Ethical norms require aboriginal peoples to be tolerant of the industrial companies that intrude and transform the vast spaces by infrastructure and resource extraction. But the companies should establish norms of ethical conduct towards the aboriginal communities and their environment; otherwise their industrial practices, with the destruction of the landscapes that provide livelihoods, are tantamount to a policy of genocide. In the same way, timber forestry or the building of industrial installations adjacent to rural settlements are depriving local communities of their traditional natural environment and their local cultural space, a part of their spiritual, cultural and social life that comes under threat from economic development.

Conclusions: a harmonious development

Society has the task of choosing and deciding on landscape policy – which areas are to be placed under protection and which landscapes are to be transformed or allowed to evolve in the traditional way of life. Economic considerations and needs have to be continuously ethically tested and assessed, and taking social and ecological imperatives into account is a primary objective. Landscape “development” is not necessarily synonymous with the multiplication of its functions or diverse transformations with resource extraction and processing, house-building and communication network expansion. Harmonious landscape development is about protecting and enhancing landscape assets, providing balanced solutions to existing problems and stimulating its historical preservation in the process of biological evolution. Ethics is a safeguard against conflict in the adoption of landscape development models, ensuring that ethical and environmental constraints are recognised as an inalienable part of the landscape development process.

New stereotypes of lifestyles and technological innovations emerging in post-modern civilisation, which are generally neutral in terms of landscape development, may result in considerable enhancement of landscape assets. These include, for example, the “domestication” of workplaces and teleworking, introduction of flexible technological systems based on the specific local environment, attaching prestige to healthy living and environmentally friendly production technologies, non-utilitarian, ecologically sustainable land use, computerised engineering of spatial images and a creative human environment – everything that is connected to human involvement and existence in the landscape. Landscape is becoming more valuable and, consequently, ethical assessments are more necessary than ever in all spheres – social, economic, personal and communicative.

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