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LANDSCAPE CULTURE: TRAINING

Taking account of the landscape dimension in the training of civil engineers

Council of Europe
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Summary

The European Landscape Convention and the Recommendation CM/Rec(2008)3 of the Committee of Ministers to member States on the guidelines for the implementation of the European Landscape Convention states:

European Landscape Convention

“ B. Training ...

Each Party undertakes to promote:

- a. training for specialists in landscape appraisal and operations;*
- b. multidisciplinary training programmes in landscape policy, protection, management and planning, for professionals in the private and public sectors and for associations concerned;” (Article 6 of the European Landscape Convention – Specific measures)*

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

“C. Training

Many states now have training for specialists in landscape appraisal and operations. Such training should be encouraged and developed. Courses should be geared to a view of landscape linked to sustainable development, that is, they should train people in the relationship between landscape and economic development, between landscape and the renewal of natural resources and between landscape and social justice.

Courses of this nature are aimed at training designers, managers, engineers and technicians specialising in landscape protection, management and planning. They cover both the commissioning and management of projects. They lead to a state-recognised diploma and are now part of a European educational programme under which university exchanges between states are possible.

Training meets the needs of all involved for specialist and refresher education:

- national and local institutions and bodies responsible for landscape and training should promote the setting up of specialist courses aimed at training, on a multi-disciplinary basis, landscape appraisal and operations specialists and offering landscape research training;*
- non-specialist university courses should allow for the introduction of landscape themes into the training of technicians whose activities influence a territory’s landscape characteristics;*
- special information and in-service training programmes should be provided for elected representatives, the technical staff of public authorities of all levels and sectors, professionals in the private and public sectors whose activities affect the landscape (agriculture, cultivation, etc., in such a way as to increase the inclusion of landscape in sectoral policies) and the associations concerned;*
- theoretical and applied research programmes on landscape should be developed on a multidisciplinary basis and promoted by states and the other administrative levels in a context of international co-operation. The anticipated contributions of landscape research concern theoretical knowledge, relations between landscape and sustainable development, public policies and their evaluation, links between landscape research and education, landscape economics, the history of landscape and its representations, the relationship between landscape appraisal approaches and public action, the integration of sectoral disciplinary viewpoints in order to appraise places from the landscape perspective, participation of the relevant stakeholders in drawing up and implementing landscape policies and the definition of policy implementation instruments. On the whole, research should be directed more specifically at “action research” whereby there is a close relationship between fundamental research and public action. This link between the two can bring about valuable results for landscape protection, management and planning on the theoretical, methodological and operational levels.”*

The Conference is invited to:

- examine the report prepared in the framework of the Council of Europe Work Programme of the European Landscape Convention and in particular its conclusions, and to decide on possible follow-up to be given.

Taking account of the landscape dimension in the training of civil engineers

Ms Zsófia PECSI

Expert of the Council of Europe, Landscape Architect, Hungary

“Landscape architecture teaching in disciplines [other than landscape architecture itself] is needed to improve co-operation between landscape architecture and these disciplines.”

Ingrid Sarlöv-Herlin¹

Introduction

Civil engineering and landscape architecture are neighbouring disciplines. Industrial and water infrastructure projects and, ultimately, most large-scale construction projects are planned and implemented by civil engineers. These structures are an integral part of and shape the landscape, so they have to meet landscape quality objectives to ensure the protection, management and planning of a “given landscape”. They accordingly need to be **integrated into the landscape** from the ecological, aesthetic and spatial points of view.

Integration into the landscape is the main point at which landscape architecture and civil engineering converge. As the European Landscape Convention states: “Landscape” means an area, as perceived by people, whose character is the result of the action and interaction of natural and/or human factors”.

The question of integration into the landscape remains difficult to define. The aim is as far as possible to avoid a specific methodology applied outside the landscape context. On the other hand, the important thing is to involve multiple solutions. The question of integration into the landscape is quite problematic, either because established regulations come up against situations for which they are ill-suited or because of the absence of such regulations. This applies in particular to the aesthetic dimension, which remains subjective and is hard to address by regulatory means.

Integration into the landscape is not a subject that can only be dealt with by applying specific rules. For each project, account must be taken of the context into which the project is integrated. Making the various players aware of the landscape issues involved introduces an alternative approach that proves very effective.

This awareness-raising process makes it necessary to establish a dialogue between the civil engineering and landscape architecture professions, which should lead to the introduction of a landscape awareness component into civil engineering courses. This approach should enable the concept of landscape to be taken into account from project conception to completion.

It therefore seems important to consider the extent to which landscape issues are included in civil engineering courses. A knowledge of programmes that have produced positive results may help to formulate objectives, prepare suitable educational tools and propose their integration into other

¹ Council of Europe, Training of landscape architects, *Landscape facets – Reflections and proposals for the implementation of the European Landscape Convention*, 2012, p. 287

training systems, with the aim of improving the application of the European Landscape Convention, which provides as follows:

“Each Party undertakes to promote:

- a. training for specialists in landscape appraisal and operations;
- b. multidisciplinary training programmes in landscape policy, protection, management and planning, for professionals in the private and public sectors and for associations concerned;
- c. 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.”²

1. Emphasis placed on the landscape dimension in civil engineering courses

The comparative table below lists civil engineering degree courses (BSc or MSc) that are available in various Council of Europe member states and incorporate landscape-related themes. Although the word “landscape” is not mentioned as such, civil engineers study landscape in the neighbouring disciplines of spatial planning, town planning, environmental impact studies and geology.

Czech Republic	Environmental engineering (<i>MSc</i>)
Hungary	Environmental impact and spatial planning studies (<i>MSc</i>)
Ireland	Geology and water and environmental engineering (<i>MSc</i>)
Italy	Town planning and urban renewal, environmental impact studies, environmental engineering (<i>MSc</i>)
Lithuania	Regulation of town planning and construction, environmental impact studies, urban ecology (<i>MSc</i>)
Netherlands	City planning, spatial planning and transport network, philosophy, assessment of the technology and ethics of civil engineering (<i>MSc</i>)
Norway	Industrial ecology, sustainable infrastructure (<i>PhD</i>)
Poland	Architecture and town planning (<i>BSc</i>)
Portugal	Social and environmental assessment (land use, municipal plans, cultural environment) (<i>MSc</i>)
Russia	Urban planning, architectural and construction principles of designing an accessible environment, urban engineering and ecological security (<i>MSc</i>)
Sweden	Sustainable buildings: conception, design and implementation (<i>Master</i>)

² Article 6 (Specific measures / B. Training and education) of the European Landscape Convention.

Switzerland	Environment and civil engineering, sustainable construction, impact studies, construction and environmental geology (<i>MSc</i>)
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*Source: European Council of Civil Engineers*³

It appears, however, that particular attention is paid to environmental impact studies, which are compulsory over two or three semesters of a civil engineering course. However, landscape is only mentioned in these courses as one element to be dealt with and is not considered holistically in all its complexity.

Advanced impact studies are often perceived as an obstacle to the progress of certain projects as their only purpose is to check whether the project complies with numerous regulations. The aim of these regulations is to determine that the project meets mandatory criteria, but this does not encourage the designers to consider the landscape as a main focus of their work and it is necessary for them to be able to express themselves by means of a creative and responsible approach to both society and the environment.

Civil engineering and landscape architecture complement one another in that civil engineering works on objects and landscape architecture on the landscape as such, so there needs to be mutual co-operation to bring about knowledge convergence and ensure that greater focus is placed on the landscape in order to promote better integration of the landscape dimension. That co-operation requires the structure built to be put into perspective by taking a holistic view, which can only be brought about through a comprehensive inter-professional dialogue.

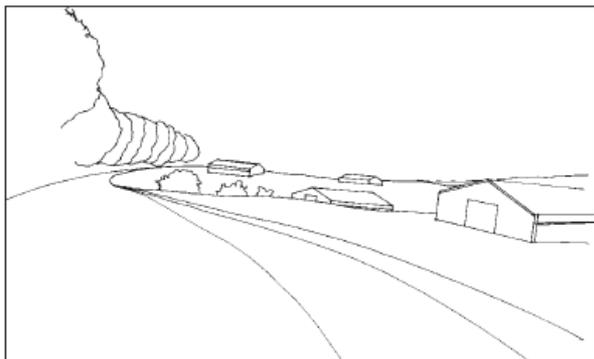
2. Practical experiments

Some examples of good practices (non-exhaustive, so the list may be extended later) with regard to industrial, agricultural, road, water and other infrastructure work are provided below.

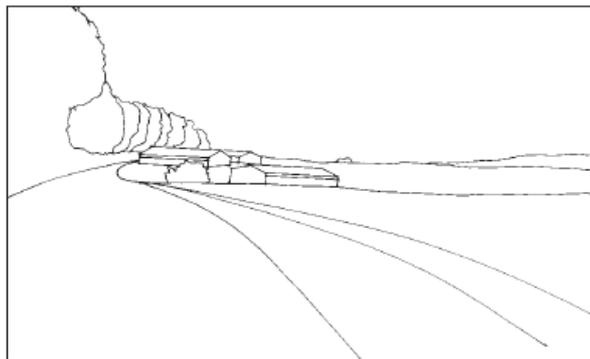
Belgium: “Guide to the integration of farm buildings into the landscape”

A “Guide to the integration of farm buildings into the landscape”, a practical guide containing advice on how to take the landscape into consideration in the construction of farm buildings, has been published by the Ministry of the Walloon Region’s Directorate General of Agriculture and Directorate General of Spatial Planning, Housing and Heritage. Intended for project designers, builders and farmers, it provides advice on improving the integration of sheds and barns into the landscape and describes simple and easily understandable examples.

³ <http://www.eceengineers.eu/members/index.php?id=39>



la dissémination des constructions d'une exploitation dans la zone agricole



le regroupement des constructions de l'exploitation dans la zone agricole

Source: Advice on the integration of farm buildings⁴

Left: scattered farm buildings

Right: farm buildings clustered together

France

The national "1% landscape and development" policy

"1% landscape and development" is an innovative incentive policy launched by the French government, based on a partnership with all socio-economic players and local authorities concerned. The aim is to finance local landscape planning and development projects along new motorway routes.

The approach is as follows: the "1% landscape and development" policy consists in the state devoting 1% of the investment required to build this infrastructure to measures eligible under the policy, subject to an equivalent contribution being made by the local authorities concerned, which commit themselves to a coherent set of measures accompanying its construction. These undertakings are officialised in landscape planning and enhancement charters.

The approach adopted helps to boost the landscape quality of the area concerned and is also based on the idea that motorways should be a means of discovering the areas through which they pass. The aim of the policy is also to inform, educate and welcome users and tourists who travel through these areas. Two schemes have been launched, "Itinéraires de Découverte" ("Discovery Routes") and "Villages-Etapes" ("Stop-off villages"). These have their own specific signs on the motorway, thus contributing to the policy of encouraging users to stop and, in the process, helping to improve road safety.⁵

An example of collaborative and participatory projects initiated by professionals

A number of collaborative and participatory projects initiated by professionals are in progress. One example that may be mentioned is the work of the association "Collectif etc."⁶, which places the landscape at the heart of the architectural project and refers to the European Landscape Convention since it encourages public participation in all stages of the project, from design to implementation.

The association raises the awareness of the public and professionals by organising events and workshops and collective creative workshops based on sharing knowledge and know-how. Made up of

⁴ Document available online at:

http://www.vd.ch/fileadmin/user_upload/themes/territoire/amenagement/Hors_zone_%C3%A0_b%C3%A2tir/Wallonie_batiments_agricoles_integrations_paysagere.pdf

⁵ <http://www.auvergne.developpement-durable.gouv.fr/la-politique-1-paysage-et-r424.html>

⁶ <http://www.collectifetc.com/qui-sommes-nous/>

architects, it bases its work on a multidisciplinary approach and encourages public participation. Its distinctive feature is that it operates in the public space by involving the local population in the creative process. It organises cross-disciplinary workshops for students of town planning, landscape design and architecture.

The participation of civil engineers in projects is one exemplary practice which should help to raise awareness more widely among students.



Footbridge built by the participatory workshop of “Collectif etc.”

Norway: the National Tourist Routes policy

Norway’s National Tourist Routes project⁷ is a state initiative aimed at highlighting the landscape and, in particular, promoting its attractiveness from the tourism point of view. Eighteen extremely beautiful routes have been created with the collaboration of 50 architects, landscape architects, designers and artists, and this collaboration has fostered the emergence of an exceptional awareness of landscape in the projects carried out.

The projects are the responsibility of the Norwegian Department of Transport, especially the sub-department in charge of the National Tourist Routes. The department is responsible for the design, creation and maintenance of the routes and its installations (parking areas, scenic viewpoints, visitor centres, etc.) and of their promotion as tourist attractions. This broad range of responsibilities enables the investments made to be monitored and guarantees their sustainability.

Three councils made up of outside consultants supervise the design and planning of the work carried out: a Quality Council, an Architecture Council and an Art Council, each of which presents a professional view of the project.

In addition, Norway’s “Beautiful Roads Award” initiative⁸ promotes the need to take account of the following aspects when planning roads: aesthetic value, residential environment and respect for biodiversity and cultural monuments. The award was created in 1989 and encourages designers and engineers to create exceptionally beautiful, architecturally high-quality roads in accordance with a multidisciplinary approach based on the project’s integration into the landscape. Reference is made to the implementation of the European Landscape Convention.

⁷ <http://www.nasjonaleturistveger.no/>

⁸ <http://www.vegvesen.no/en/Professional/Environment/Visual+environment/Beautiful+roads>



*Trollstigen National Tourist Route, RRA Reiulf Ramstad Architects*⁹

An example outside Europe

In Japan, the disciplines relating to landscape in the civil engineering syllabus of the Tokyo Institute of Technology are as follows:

- engineering and environment;
- analysis of environmental issues;
- environmental assessment;
- landscape design;
- town planning.

There is also another field of engineering, called “social engineering”¹⁰. Highly innovative and multidisciplinary, it is based on taking account of the needs of society and on respect for the landscape. The course description states that social engineering focuses on society as a whole as comprising for-profit and not-for-profit organisations, associations, companies and governments. The environment, with its natural and spatial component, is also studied.

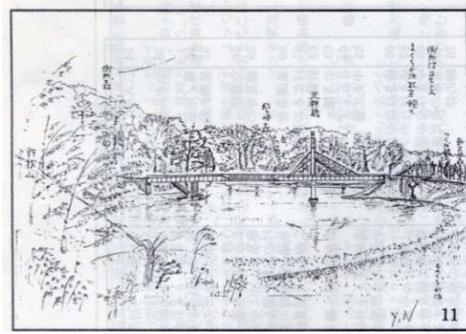
The University of Tokyo offers various MA courses in the field of social engineering, one of them on environmental design. The latter appears to embody the landscape idea and the very spirit of the European Landscape Convention¹¹.

The syllabus consists of the following subjects: urban and community design, urban land-use planning, civic design, socio-space, historical landscapes, community design, regional information planning and land and regional planning.

⁹ Source of photograph: <http://www.reiulfamstadarchitects.com/expertise>

¹⁰ http://www.soc.titech.ac.jp/info/english/general_information/detail_60.html

¹¹ See in particular the work of the civil engineer Yoshio Nakamura, of the Department of Social Engineering, Tokyo Institute of Technology, who advocates a particularly landscape-friendly approach (see his doctorate thesis *Theoretical Approach to Perspective Image of Highway Alignment* (Paris, 1972). He designed the Koga Park, which in 2003 was awarded UNESCO’s Melina Mercouri Prize, the purpose of which is “to reward outstanding examples of action to safeguard and enhance the world’s major cultural landscapes”.



Koga Park (drawing by Yoshio Nakamura)

3. Challenges and tools

Challenges

The European Landscape Convention states that 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”¹²:

A civil engineering course should provide for the project design and implementation processes to be accompanied by the following elements:

- landscape awareness;
- instilling a sense of responsibility for landscape values;
- adaptation to the character of the landscape;
- inclusion of geological aspects of landscape;
- inclusion of ecological aspects of landscape (nature, biodiversity, etc.);
- inclusion of aesthetic aspects of landscape (shapes, materials, etc.);
- inclusion of spatial aspects of landscape (forms, volumes, dimensions, choice of site, location);

Tools

Various tools could contribute to the inclusion of landscape in civil engineering courses:

- the establishment of joint working groups made up of civil engineers and landscape architects when designing and implementing certain projects;
- the establishment of workshops promoting the sharing of knowledge and know-how between civil engineers and landscape architects;
- the holding of multidisciplinary conferences, invitations to which would be issued to national, regional and/local elected representatives, representatives of local players and the population and representatives of the main disciplines involved: geographers, town planners, ecologists, geologists, agronomists, architects, sociologists, ethnologists, lawyers, artists, etc., the aim of the discussions being to ensure better understanding and the establishment of a dialogue between neighbouring disciplines;

¹² Article 5 of the European Landscape Convention (General measures).

- a landscape glossary made available to civil engineers and describing such concepts as integration into the landscape, landscape character, landscape unity, landscape identity, etc.;
- handbooks, which could be the fruit of dialogue between the civil engineering and landscape architecture disciplines (and mainly concern the integration of infrastructure into the landscape);
- surveys conducted in collaboration with engineers, enabling common values to be identified (for example, with regard to the industrial heritage, works of art, etc.);
- collaboration platforms bringing together professional information and fostering an awareness of the most recent developments (internet site, quality label, centre, etc.).

Conclusions and proposals

In view of the issues involved in taking account of the landscape dimension in civil engineering courses pursuant to the European Landscape Convention, it might be worthwhile considering to what extent these courses, when they relate to the construction of civil engineering works (transport, industrial, communications, energy and water infrastructure, etc.), are based on the following elements in order to foster their integration into the landscape.

Landscape awareness:

- landscape observation: visits to sites with issues as to the values and character of a given landscape and the risks concerning it;

Responsibility with regard to landscape values:

- taking account of the different levels of landscape values according to the criteria of rarity, uniqueness and distinctiveness;
- estimate of economic potential;
- taking account of the opinion of local inhabitants: what aspects in their opinion have landscape value or are components of a local identity?

Adaptation to the character of the landscape:

- identifying the components of the landscape;
- establishing the relations that exist between the structures built in civil engineering projects and the landscapes in which these projects are carried out (the project context);
- examination of the quality of the materials and techniques used, based on a prior analysis of local and/or traditional practices;

Geological integration into the landscape:

- consideration of the natural risks;
- integration of the work having regard to the geological structure of the landscape concerned;

Ecological integration into the landscape:

- analysis of sites from the point of view of nature and biodiversity;
- choice of routes with the least possible ecological impact;
- incorporation of wildlife crossings (underpasses and overpasses), fostering ecological continuity;

- minimisation of ecological fragmentation;
- provision for the landscaping of roadsides, railway lines or other transport corridors;
- provision for the restoration and repair of disrupted spaces.

Aesthetic integration into the landscape:

- discussion on the shapes and materials used for the work as such;
- discussion on the colours, shapes and technical solutions employed for the integration of the work into a given landscape;

Spatial integration into the landscape:

- taking into consideration structures, shapes, volumes, dimensions and choice of site and location.

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