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Milano-Pavia-Varzi: a regional greenway in northern Italy: from planning to implementation

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Introduction

"Milano-Pavia-Varzi" is a regional scale greenway situated in Northern Italy, in the Milan area of Lombardy. This paper will deal with three planning and design levels of the greenway and briefly describe their main features: 1) the master plan for the entire 110 km greenway; 2) the implementation plan for a 20 km portion of the greenway; 3) the implementation of a 2 km section.

General information

The research, planning and design of this greenway have been done with the support of the European School of Advanced Studies in Integrated Environmental Management, of the University of Pavia. "The Milano-Pavia-Varzi" is a triennial project, to provide a master plan for the entire greenway and an implementation plan for its most scenic and recreational part. The project is fully financed by the "Monte di Lombardia" Bank Foundation.

The master plan has already been completed, the implementation plan is nearing completion, and a tiny portion of the greenway trail has been built.

Unlike most of the bicycle trails in Italy casually referred to as "greenways" this plan was based on a larger, multifunctional greenway concept involving the study and the integration of natural, cultural and recreational resources. The general objectives of the plan included: ecology and nature protection, reconstruction of historical sites and elements, design for recreation purposes, enhancement of tourism (agri-tourism and eco-tourism). The project furthermore, aimed at providing and diffusing extensive and detailed information on the entire area.

The work was based on the "classical" landscape planning methodology including the use of GIS for an overlay system of analysis and evaluation. This process was applied on two initially separate, but subsequently united, levels of planning: 1) "The Trail", concerned with the feasibility of the

physical layout of the main greenway path; 2) "The Greenway System" which dealt with the integration of resources and the formation of a trail network (Fig.1).
The final purpose was to create an integrated system of connections, activities and information.
An interdisciplinary research and planning group was assembled and composed of experts in natural sciences, history, environmental legislation, economics and landscape planning. The planning methodology also included consultation with numerous local experts whose knowledge and experience were widely relied upon particularly during the preliminary phases of field trips and on-site research.

From the beginning, the plan took into account the actual implementation of the greenway and therefore the planning strategy focused on the establishment of contacts with various public institutions and private associations that potentially could be involved with the greenway and helpful in its implementation.
The work includes both large scale and local scale planning and design.

The master plan
The "Milano-Pavia-Varzi" greenway aims to provide a southward link between Milan and the Appenine mountains. Its major objective is to create a continuous connection between Milan (the region's capital), Pavia (provincial capital) and Varzi (the Appenine mountain district capital). The greenway is 110 km long and it involves several public administrations at different hierarchic levels: two regional administrations (Lombardy and Piedmont), 3 provincial ones (Milan, Pavia, Alessandria) and 32 municipal governments (Fig.2).

The principal planning and design criteria were based on three main issues: following water courses, making the trail continuous and separating it rigorously from motorized traffic.
Throughout its entire route, the greenway follows a number of natural and artificial water courses: first the historic canal (Naviglio Pavese) within the urban and suburban areas of Milan, then; minor water courses (Borromeo, Carona, Vernavola) which are parts of an ancient irrigation network of the Milan/Pavia agricultural hinterland; then the two major rivers Ticino and Po that cross the plain in an west/east direction; and finally the Staffora torrent that flows south/north from the Appenines to the Po valley plain.
The greenway trail crosses urban, suburban, rural and natural areas and landscapes and it provides a corridor through aesthetically pleasant and ecologically protected environments.

The greenway study area was subdivided into five sections according to distinct geographical units and different general characteristics for research purposes and in order to facilitate implementation: 1) the general terraced plain characterized by its irrigation network system, rice fields and poplar plantations and historic sites related to the city of Pavia; 2) and 3) respectively, the Ticino and the Po valleys characterized by their fluvial landscape and river related activities, the Po/Ticino confluence with the historic bridge, willow formations, sand mines, maize and poplar fields; 4) the pre-Appenine plain characterized by wetlands, historic farm complexes and sand and gravel mines; 5) the hilly Staffora Valley section characterized by the richness of geomorphologic forms, the variety of natural and cultivated environments and mediaeval hill towns and castles.

"The Trail" constitutes the first level of the master plan and it deals with the functional aspects of the major greenway path. The approach to tracing the path was based on the previously stated design criteria (continuity and separation from motorized traffic), on feasibility studies (dealing with logistic and technical aspects), and on consultations with local experts. In order to achieve trail continuity, close on-site research has been pursued dealing with both man-made and natural obstacles such as artificial barriers, erosion and land slides. Finally solutions to these problems were proposed and elaborated. Wherever possible, old dirt tracks were used, otherwise new sections were added in order to create a continuous and legible trail and guarantee its "independence" and full separation from motor-vehicles.

"The Greenway System" constitutes the second level of the master plan and it consists of the integration of all the study area resources into the greenway system. Three major categories of resources were considered: 1) historical resources: a) ancient circulation pattern and land use; b) archaeology; c) historic sites and artistic monuments; 2) natural resources: a) vegetation, b) geomorphology, c) animal ecology, d) ecological networks; 3) landscape resources: a) land use, b) access circulation, connections; c) trail feasibility; d) functional and visual aspects. The planning process included data analysis, evaluation and formulation of proposals concerning function, restoration and protection.

The study finally focused on the connections between the various resource themes and the greenway, planning links and thematic itineraries, connecting interpretive points, sites and elements and finally a systemic path network.

The landscape resources evaluation process identified critical, strategic and focal points, special interest areas and connections to other trails. Proposals were made regarding functional aspects and

landscape and environmental quality improvement. The historical resource studies identified ancient roman land use patterns and historic sites. The evaluation of these resources identified the cluster zones and proposals were made to provide information and create connections to the greenway. The natural resources were composed of complex elements. Geomorphologic data included ancient meandering waterways, springs and wetlands in the plain, various types of formations such as paleo-surfaces, ancient river terraces, faults and land slides. Connections were indicated between these formations and human settlements and critical observation points with indications and explanations of the geomorphologic phenomena.

The vegetation and the ecological resources were dealt with in a coordinated fashion, indicating the typologies of fauna and flora, the areas and types of biodiversity and connecting corridors and a general ecological network. Information points on the greenway were connected and proposals were made to improve the continuity between high quality areas. Flag, umbrella and focal species were identified and included in the greenway symbol and sign collection.

Discussion

Some issues and problems emerged during the drawing up of the master plan that were common to all sections in spite of their basic differences. These underlying problems regarded the degradation of water courses and the conflicting relationship between agriculture, environmental quality and tourism (for example monoculture, lack of buffer zones and of riparian vegetation, use of pesticides, obstructions of rights of way, sewer and industrial emissions, garbage disposals). The plan elaborated proposals and indicated solutions to such problems.

The planners furthermore became convinced that by exposing previously hidden areas and giving them visibility, the greenway would constitute a good control mechanism to prevent abuse. This hypothesis has been confirmed by the experience of the implemented greenway section.

The project had to deal both with planning on large scale regional level and with planning on small scale local level; it aimed therefore at preserving a unifying vision of the whole plan and simultaneously at safeguarding an intimate and detailed picture of the local plan. In order to achieve this aim, the planning team involved local administrations and local experts in the various phases of the planning process.

The implementation plan for the Staffora Valley

The Staffora valley is a sparsely populated hilly area of small scale natural and cultural landscapes. It constitutes a well defined geographic unit and urgently needs incentives to trigger social and

economic development. Although the valley is known for its rich history and traditions (farming, gastronomy and wines), it suffers from progressive abandonment and neglect. The local municipalities are united under the Mountain Community administration whose major task is to enhance and stimulate activities within the realm of sustainable development. The greenway is considered a great opportunity in this endeavour and is fully supported by the Community which intends to apply for European Community funding to implement the greenway.
The type of implementation plan that is requested has to follow very precise regulations. Due to strict deadlines, priority has been given to the functional part of the plan, "The Trail" which was elaborated according to the relevant norms. The cultural part of the plan, "The Greenway System" is also nearing completion; it deals with research and information and aims to provide the particular, culturally enriching character and purpose to the greenway.

The trail follows the river banks of the fluvial terrace closely; the valley is at times very narrow and the terrain conditions often difficult. Passages may be obstructed by landslides or interrupted by erosion. Some parts of the land are publicly owned, but most of it belongs to private owners, usually small farmers, and the parcels are extremely fractionized. The trail passes through a large variety of situations from closed wooded spaces to open fields. The path keeps to the edge of the torrent so as not to interfere with cultivations, to ensure a gradual sloping of the trail and to overcome physical obstacles in the best way possible.

Generally, the same planning strategy and methodology were applied: any variations were due to the transition from the general to the local scale of planning and design. This implied focusing in detail on all the previously outlined and studied research elements.
For example, concerning the trail, accurate verifications of its exact layout were carried out using sophisticated GBS instruments. As for the greenway system, all resources were studied in greater detail, focusing on nationally less important, but locally more significant elements.
Some technical aspects specific to this area had to be dealt with such as erosion of the river banks, land slides and land ownership. In the case of eroded areas the trail followed the new outline closely, though leaving space for river bank restoration by means of naturalistic engineering techniques and planting, which were also used in the case of land slides.
The procedures regarding land ownership are very complicated and are dealt with by team members who are particularly competent in this matter. Research has been done on property registers that have shown the intricate ownership patterns and abuses such as expropriation of public land and rights of way. Various aspects of the environmental legislation are being studied in order to find the

optimal strategy for handling the land related issues; for example, conventions with farmers are being considered which would be preferable to public expropriation or to purchase.

The implementation plan deals with construction details, landscape restoration and cost estimates. Landscape plans concern the restoration of degraded areas and their reintegration into the surrounding landscape, providing shade for the trail and activity areas; construction details such as trail surface, river bank stabilization, retaining walls, bridges, board walks, furnishings and signs.

The implemented section

A small, 2 km section of the greenway has already been completed. This section is located in the central part of the trail, within the municipal area of Pavia (provincial capital, population 100,000) and it connects the city to the nearby satellite town. The greenway trail follows a minor water course, the Vernavola stream and it crosses a particularly important historic site.

This first implementation experience has been most significant since it helped in understanding several important features of the political, social and design aspects of the planning process. For example, the planner of the greenway (the author of this paper) has been excluded from supervising construction, which led to misinterpretations of the plan and to technical mistakes; the communication with the land owners has been poor, leading to speculation and inflated prices for land purchase. In order to save on purchase costs, the municipality acquired a much too narrow, 4 m wide strip of land, which left just 2 m for the actual path (1m free on either side).

The implemented trail includes rest and picnic areas and interpretive points.

The greenway immediately became popular and its dimensions proved inadequate from the very beginning. There are already requests to double the path and to include a horse trail.

Conclusion

The master plan for the entire 100 km greenway was completed in 2003; the implementation project of the 20 km Staffora Valley section is nearing completion for the June 2004 deadline. This project will be submitted for EU financial support within the year 2004 after which implementation should follow. It is the hope and belief of the planning team, that the construction of this section would trigger further interest and support from the institutions and from the Bank Foundation.

In view of future developments, this project intends to remain an "open project"; it will keep adding new information and monitor changes at the local level. The intention is to stimulate public participation and involvement of residents, farmers and local volunteer groups in the upkeep and the maintenance of the greenway and its network.

The planning team has already involved several local groups in research and in the planning process, and has been particularly successful in working with schools.
Spontaneous use by the public of the future greenway trail may prove to be the best stimulus to its official implementation.

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Illustrations

Fig. 1. Methodology

Fig. 2. Map of the Milano-Pavia-Varzi Greenway

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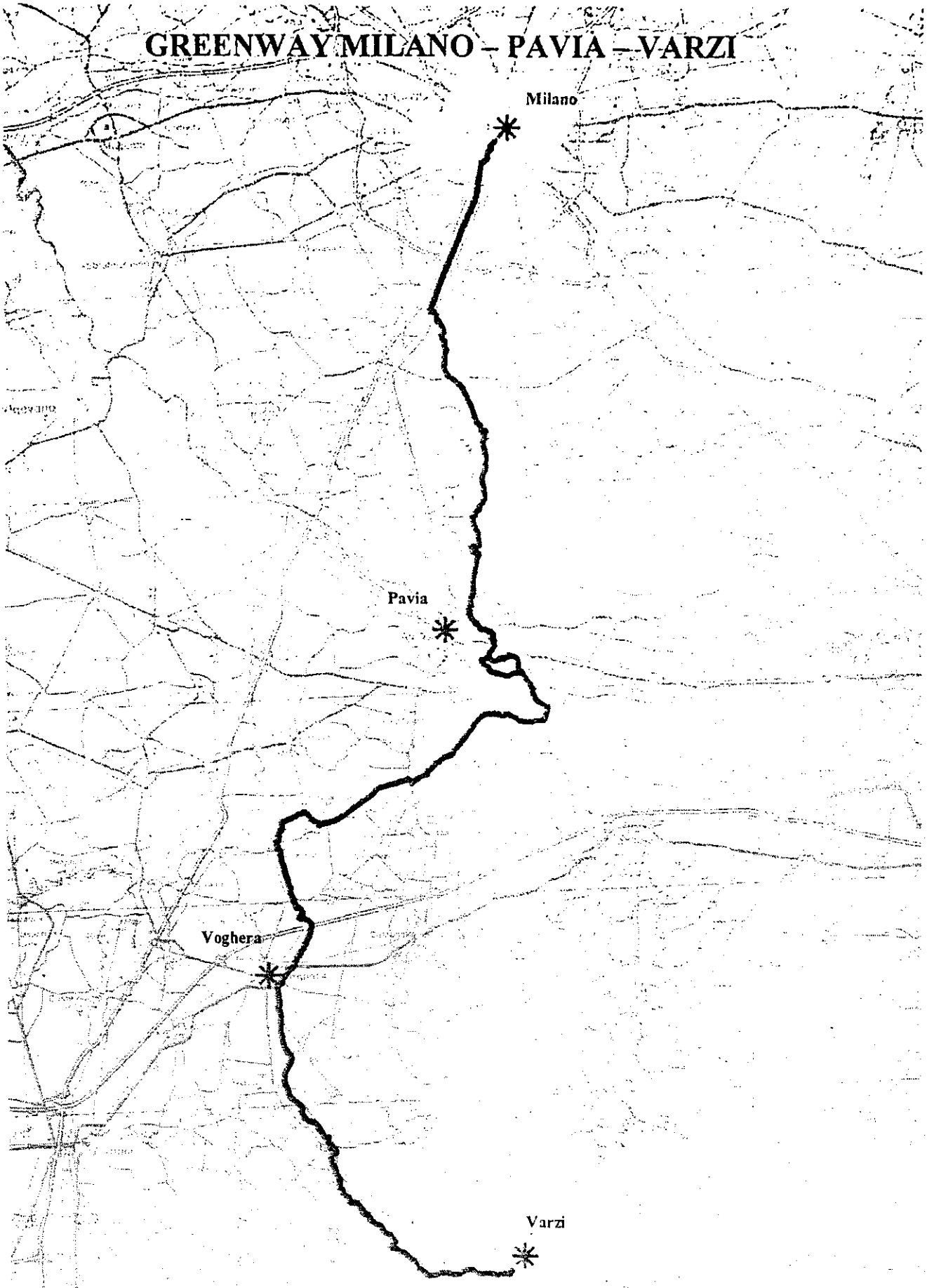
GREENWAY MILANO – PAVIA – VARZI



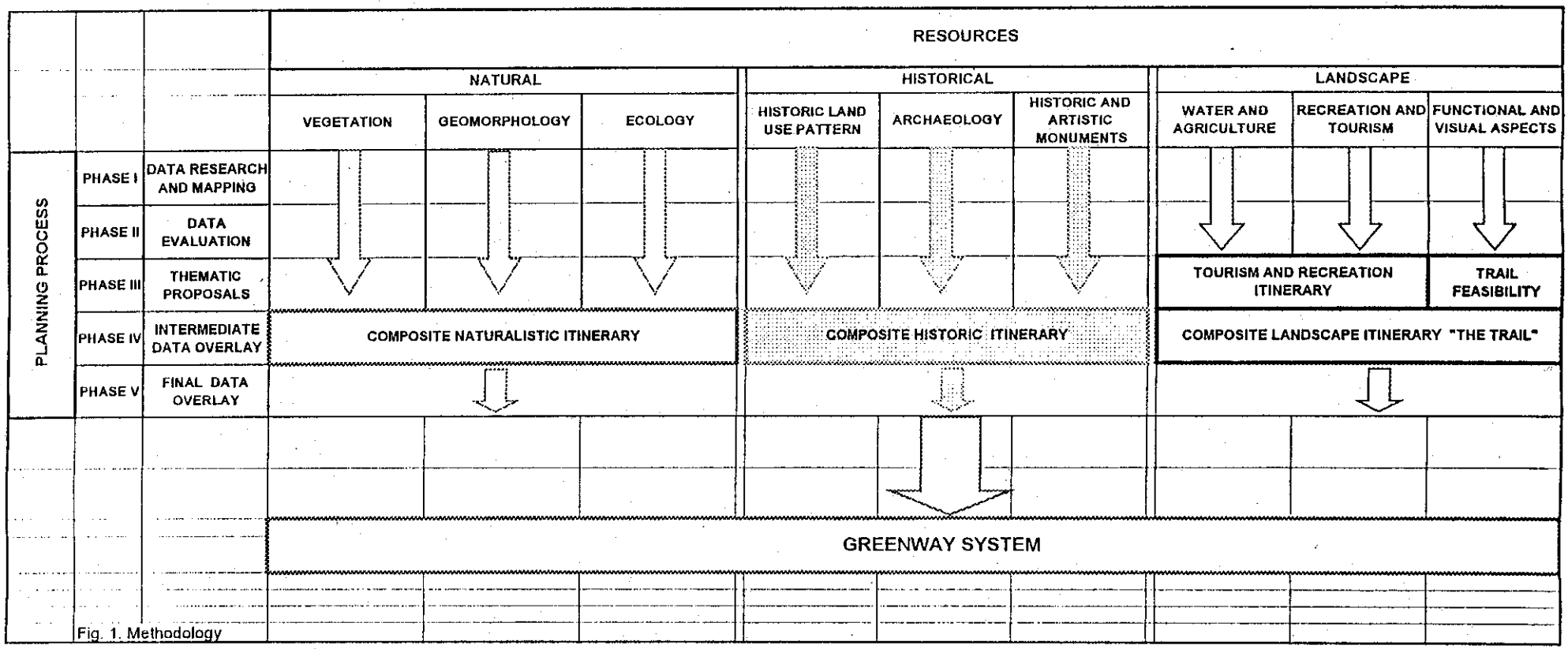


Fig. 1. Methodology