

SELF-SUSTAINABILITY FOR THE MANAGEMENT OF WATER CYCLES AT THE LOCAL LEVEL

Erich Roberto Trevisiol

Environmental Planner, IUAV-DP-LABSLA, Venezia, Italia

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Summary

Water planning, within the context of overall landscape planning, should not be defined

only within the Plan's strategy, but also via the identification and definition of specific sectoral issues such as a new approach to protection of the surfaces associated with water utilisation; collection and non-conventional treatment of wastewater; the possibilities for water conservation during distribution and use; protection and valuation of water bodies and related territories, taking account of landscape characteristics and the growing awareness of the local population. All the above are being translated into concrete action in the illustrated case studies: Savonarola Neighborhood, "Caduti della Resistenza-ATER" District, Padua, and RIGENA Programme, Selvazzano D., Italy.

1. Introduction

1.1. Scientific Background

The first aim of this paper is to explain our concept of sustainability. Since the concept of sustainable development has been worked out first of all in the Brundtland report and recently in the U.N. Conference on Human Settlements (Habitat II) and disseminated through international documents and conventions, the emphasis on its local basis and the need for self-community based planning have grown more and more. In fact the attainment of sustainability is reliant on the shift from short to long-run perspective in policy making and on changing attitudes of socio-economic actors. The roots of the new outlook on development and the principles for the construction of sustainable settlements that go along with it can be traced back to the Stockholm Conference on the urban environment, where the idea was originally introduced. More progress was made during the Habitat I Conference in Vancouver, the Earth Summit of Rio de Janeiro and during the last conference of the great cycle, Habitat II in Istanbul. Our work takes a sustainable approach to urban and regional planning, focusing on environmentally sound, locally manageable solutions.

Sustainable development, therefore, is a general program of action for global reform, a program that has yet to be fully defined: however there is a growing consensus that it must be accomplished at the local level. It is what we call the need for a SSLD. In brief, the concept of local development is based on the rediscovery of the local patrimony; the concept of self-sustainability is based on the assumption that only a new, mutually responsive relationship between residents/producers and territory can provide long-lasting equilibrium between human settlements and the environment. Self-sustaining projects integrate new ideas and technology with knowledge of environmental history.

The index useable for the evaluation of this process is the SSLDI. The Italian Territorial School led by the Italian planner, Alberto Magnaghi, developed this methodology.

Briefly, the principles lying beneath the SSLD vision are:

1. Planning is still an essential instrument in developing sustainable human settlements in an urbanising world; the output of territorial quality is an essential indicator of sustainability. The most direct way of tackling the transition towards sustainability is of proposing long-term strategies: that are very difficult to implement and come into collision with the culture of immediacy of our contemporary society. Therefore in planning we can adopt another short-term attitude based on paths that might be

- called “leapfrog strategies” or “best practices strategy”;
2. Confirmation of the importance of those modifications introduced into the discipline of human settlements planning from the group of sciences that go under the name of “sciences of complexity” (i.e. new thermodynamics, epistemology, ecology, landscape ecology, ecology of settlements, ecological economics, social partnership sociology, bioarchitecture and bioplanning or environmental planning or environmentally sound land-use planning);
 3. Redefinition of the figure of the planner (urban and regional planner) and of the forms of planning production is crucial. It is necessary to retrieve those approaches to sustainability that underline the importance of the “self” and of “local”, accompanied by the principle of active subsidiarity;
 4. Returning to the original referents (stakeholders) of sustainable development is essential, that is, local societies (with which new partnerships need to be built that also include the intended planners and traditional plan);
 5. Inclusion of a set of indicators for sustainable development that satisfies basic needs, but also includes efficacy indicators that balance cultural sufficiency with technical efficiency and the perceptive and aesthetic indicators that lead to a new biogenic aesthetic. In this way, a certain tradition of the sustainability indicators based on the assessment of the environmental impact only can be improved;
 6. Recovery of a world dimension of sustainable development must indeed include the necessities, the voices, and the projects of the Southern Hemisphere (which means both urban projects in the North that take into consideration the relapses in the South in terms of globalization of the development effects, as well as international funds for developing countries of the South, based above all on the growth of endogenous capacity and on institutional building).

1.2. Framework and Methodology

The roots of the present work can be traced back to the activities of National Network Research (eight University Centers in various Italian Faculties) named STI. The aims of our research are: a) first of all to continue the conceptual level and the methodologies developed by the STI; b) second, to open a new path of research through the establishment of Best Practices Archives (that include the Savonarola and RIGENA case studies), whose practices were selected using the Self-sustainability Criteria set. These Archives will use the existing LABSLA database. Since 1995 the Laboratory’s research has concentrated on the integrated management of the water cycle in settlements, through the use of ecologically sound technologies (the reuse, recycling, restoration and purification of water within a city or settlements).

The LABSLA is a research-oriented branch of the DAEST at the IUAV in Venice, Italy. Initiated in 1994, the Laboratory is coordinated by Erich Roberto Trevisiol and brings together research assistants, recent graduates, thesis candidates, and others to participate in discussion groups and to carry out team projects. The Laboratory conducts research for Italian Research Institutions (such as CNR and MURST), hosts international research conferences and panel discussions, and organises training activities and workshops for graduates. The Laboratory is also an active participant in external regional research efforts (such as ANAB and INBAR; the Scientific Committee of Legambiente) and provides scientific and technical consulting services for city and

regional environmental groups. The LABSLA has produced several scientific publications officially submitted to national and international conferences, papers, special collections of publications, and a web site linked with the other National Network Research Unities.

2. Findings of the Research

2.1. Main findings of the LABSLA research

The LABSLA research increasingly focused upon the following fundamental issues that arose:

As regards content

-- Locally based reconfiguration of urban sprawl must be characterised by a cultural dimension within the built-landscape ecology and local sustainable development themes.

-- New municipalism, as an opportunity for re-establishing society, must confront the awkward issue of citizen participation. Few clear conclusions can be drawn from our research findings. The main one is that, as this new century opens, co-planning (or interactive or collaborative planning) activities need to return to their original inspiration, in the 1970s. This means establish a “locally based virtuous circle for planning” connecting planners, residents and administrators. The Venice branch has named this circuit, in the case of the water cycle, “federalism of water and waste water”. Only at a general level is attention given to the results of the various local referenda on urban planning issues (most recently in Padua in November 2000 regarding urban transportation), which never exceeded a third of eligible voter representation.

As regards methodology

-- Representation methodologies adopted, albeit via experimentation with the use of various consolidated techniques for graphical representation, were tied to a language which fulfilled reproducibility, replicability, ease of understanding, immediate communicability of criteria along with procedures adopted by the local administrations.

As regards revision of the planning discipline

-- Revision of the plans, not only of their analytical framework, is now no longer just a theoretical problem but an operational one, too. (One example of this would be when considering the ecological content of Padua’s Town Master Plan amendments or Construction Calls for tender—private residential as well as public—characterised by rules based on bio-architecture and ecological urban planning. Another would be when considering theme-based, evaluative and concerted planning as seen in the so-called “new town planning instruments” of the Neighbourhood Contracts (in Italian “Contratti di Quartiere”) exemplified by Savonarola Contract.)

2.2. Methodology: Selection Process

We briefly illustrate below the criteria and selection methodology adopted for the Case

Studies, and further developed at LABSLA. Collection and classification of the practices was carried out using the following instruments:

1. LABSLA database of cases. It contains over 100 cases in Italy and other parts of Europe;
2. Research on the Internet amongst the main sites concerning ecologically compatible planning and the water cycle;
3. Identification charts for a limited number of cases compiled with information collected on-site and data collected from specialist publications belonging to LABSLA. A novelty is the fact that principal data for compilation of the charts was provided and inserted by the same *actors* as those involved in the process of developing the cases. This constitutes, in practice, a *guided self-evaluation*, based on a thematic grid supplied by LABSLA. The charts were integrated with archive material of individual planners and the results of internet-based searches.
4. Evaluation grids (matrices) on sustainable use of the water resource cycle (with technological, landscape, socio-economic, management indicators), derived from an evaluation matrix based on SIC which were developed within the Best Practices of Habitat II and subsequently (1996-2000) by the Best Practices Data Base.

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Bibliography

ATER -Pd, ESU, Comune di Padova -Sett. Ed. Resid. (1999), *Programma Sperimentale di Recupero Urbano denominato Contratto di Quartiere Savonarola. Recupero Immobili Edilizia Residenziale ATER Provincia di Padova*, Cd- Rom, ATER della Provincia di Padova, Padova (The whole documentation about the Urban Renewal Programme known as the “Contratto di Quartiere Savonarola”).

Bortone G. (1999), *Il Progetto Aquasave*, 30 pp., ENEA, Bologna (This publication presents the ENEA (an Italian Research Body) project, in order to save the water in the urban settlements)

Dreiseitl H., Geiger W. (1995), *Neue Wege für das Regenwasser*, 293 pp., R. Oldenbourg Verlag GmbH, München (A complete manual on water-cycle non-conventional technologies).

Lironi S., Ranzato L., (1999), *Progetti per una città sostenibile*, 135 pp, Comune di Padova-Ass.Politiche Abitative, Padova (This book introduces a complete documentation on sustainable projects, based on bioarchitecture principles, realized by the Public Housing Department of Padua Municipality, Italy).

Magnaghi A. (editor) (1998), *Il territorio degli abitanti. Società locali e autosostenibilità*, 224 pp, Masson-DUNOD, Milano. (A complete review of the Self-Sustainable Local Development methodology with a collection of papers of the Italian Territorial School).

Messe Frankfurt GmbH, Hessisches Umweltministerium (1999), *Water Technology in the Year 2010*, 25 pp., Wiesbadener G.B., Wiesbaden (International Report on the development of technologies of water supply for the next ten to fifteen years).

Rakodi Carole (2000) *Technical decisions or interactive processes? Towards collaborative planning and decision making in towns and cities*, 15 pp (Paper presented to “Urban Futures 2000”, University of the

Witwatersrand, Johannesburg, 10-14 July, 2000)

Trevisiol E. R. (1999), *Water Planning*, Cd-Rom, Ncc Group Net, Padova (History, self-sustainable technologies, practices in a Cd-Rom or in a free available version on EDILITALY web-site)

Vitruvio (ed. P.Gross) (1997) *De Architectura*, vol VIII, pp.1100-1190.Einaudi, Torino (A classic book of the Roman first B.C. century author. The 8th book highlights the architect as a *curator aquarum*)

Web sites list:

LABSLA

<http://www.iuav.it/labsla/labsla.html>

(Chapter Novità , NEWS-ATLANTE)

PADOVANET

<http://www.padovanet.it/comune/edilres/contratt/pagine/index.html>

(for the Savonarola Contract English summary)

<http://www.padovanet.it/comune/edilres/contratt/pagine/11ciclo.htm>

(for the Water Cycle Project and Tables)

Biographical Sketch

Erich R. Trevisiol, Architect and Environmental Planner, has been a researcher at the Department of Economic and Social Regional Analysis (DAEST, now renominated DP, Planning Department) at the University of Architecture in Venice, Italy since 1976. Since 1989 he has taught Environmental Planning at the Post-Graduate Program in Urban and Regional Planning for Developing Countries (PVS). He has worked on projects involving urban environmental management in countries in Europe and in the developing world. He has conducted extensive research in the field of environmental planning, specifically in the fields of landscape design, protected areas, and water resources. He is the Coordinator of the Laboratory for the Self Sustainable Development-Urban Waters (www.iuav.it/labsla/labsla.html).