

The use of Analytic Network Process within the Strategic Environmental Assessment. The case of the river Po

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From some years to this part, the Authority of Basin of the river Po is moving for to support the attainment of determined objectives; such objectives are contained in the document: *Special Strategic Project "Valley of the river Po" (PSS)* in phase of formulation and adoption, with which the Authority tries to give start to politics integrated between the various fields of intervention.

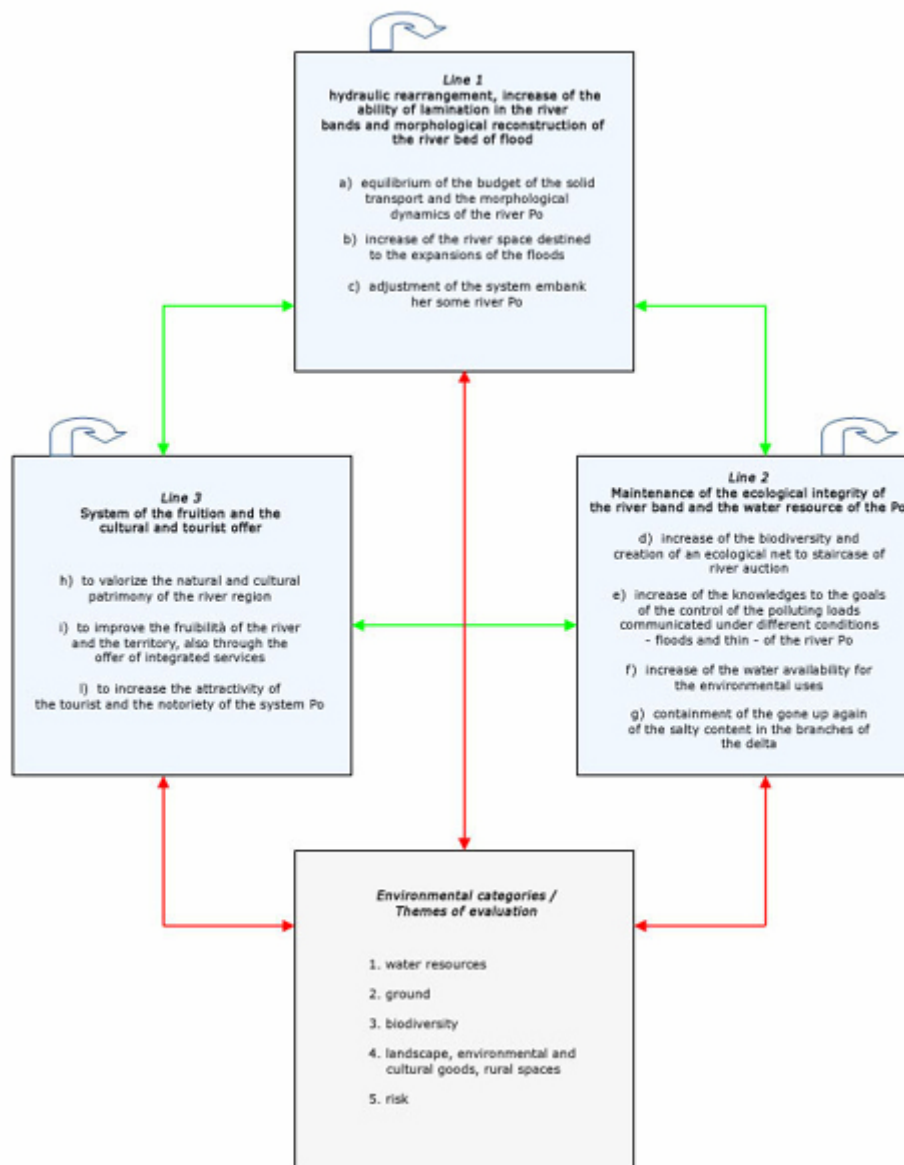
The process of Strategic Environmental Assessment become part inside the process of formation of the *PSS*, and it is finalized to define methodologies apt to guarantee the effective implementation of the Directive 2001/42/CE pertaining to the evaluation of the effects of determined plans and programs on the environment, and to guarantee the full correspondence to the criterions of sustainability to the light of the recent corrective and integrative dispositions of "D.lgs. 152/2006" bringing norms in environmental subject.

The present job of thesis treats the application of a multicriteria analysis, the *Analytic Network Process (ANP)*, used experimentally and for the first time towards the thematic one regarding the resources water and re-entering in the process of Strategic Environmental Assessment related to the *PSS*.

The choice of this technique must to the fact that the ANP is in a position to holding account at the same time of a variety of aspects own of the problem that is being faced, or qualitative that quantitative, making to emerge the various points of view of the been involved actors. Moreover, the ANP turns out a more favorable technique in order to face complex decisional problems, difficultly representative with a hierarchical outline.

Following the realization of the valid decisional model, the real evaluation and therefore the application of the multicriteria analysis has been effected through the organization of a *focus group* developed him to Parma, on May 21 st 2008, in which the technicians of the Authority of Basin have participated with the purpose to reach real and usable results from the Authority to take future decisions.

The first step for the application of the Analytic Network Process is represented by the structuring of the decisional problem, that it has happened through a careful reading of the documents written up by the Authority. After having individualized the nodes of the problem, it is been able to proceed with the creation of the network, that is have been structured the relations of influence inside of the net.



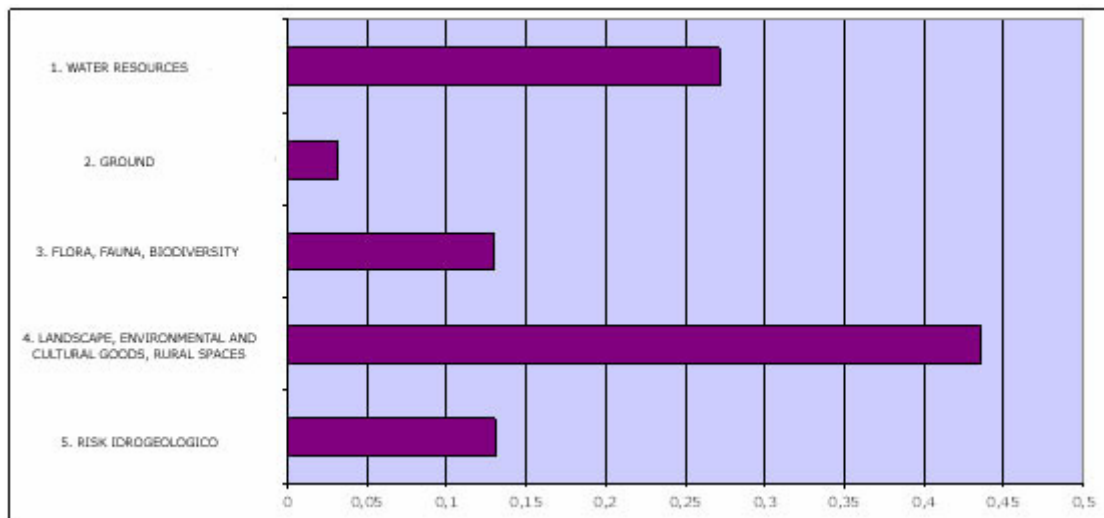
The network composed from the four clusters and from the relationships of influence among the various knots

During the focus group developed to Parma, they have been placed to the Group the questions of comparison to couples, produced following the construction of the model. The answers to such questions are been translated in numerical values thanks to the fundamental scale of Saaty.

Intensity	Definition	Explanation
1	Same importance	The two elements contribute in equal way to the attainment of the objective
3	Moderated importance	The judgment is slightly for an element in comparison to the other
5	Strongly importance	The judgment is decidedly for an element in comparison to the other
7	Very strong importance	The predominance of the element is broadly shown
9	Extreme importance	The evidence for an element is of the tallest order
2,4,6,8	Intermediary values among the two adjacent judgments	When a compromise is necessary
Rational numbers	The relationships derive from the staircases	You must to force the coherence to get the values.

Fundamental staircase of Saaty

Such answers have allowed to come to a final ordering in terms of importance, of all the elements that compose the network and, in particular, of the environmental (you order in terms of priority of intervention) categories.



Final priority of the cluster of the environmental categories

The application of the ANP results functional and it has had positive comparisons. In the first place, the results have satisfied the technicians of the Authority, as they represent an other confirmation of the new direction of the planning undertaken by the Authority, and it has allowed to address the future choices of the Authority. Moreover, as it previews the Directive 2001/42/CE, the evaluation it must be intended as a trial by to conduct in parallel to the elaboration of the plan; and indeed, such application of ANP constitutes a real example of use of the evaluation inside the procedure, really because it is inserted inside an evaluation environmental agreement as "trial" that it accompanies the construction of the sceneries of environmental sustainability.

The effected experimentation has also represented also a kind of "address" for the future applications of the ANP inside the SEA tied to the water resources, in how much, as it is already mentioned, at the present moment other applications of ANP that place inside the procedure of SEA reported to the water resources don't exist to which to be able to make reference.

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