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Now the competent agencies are pondering on the transformation of this artificial water network, to evaluate if a water-management system based mostly on ecological standards can give better results also in terms of a reduction of hydraulic risk, considering that so far the problem of floods is far from being resolved; on the contrary, in many cases it has worsened, and the frequency and intensity of floods increased in Europe and Italy. Besides, the project is meant to set up and apply a "soft" management of the aquatic and riparian vegetation of the canals, comparing different cutting methods, in relation to ecological, hydraulic and economic effects (in term of costs of maintenance). The substantially innovative feature of the project "LIFE RINASCE" is not only given by the different intervention typologies created to resolve hydraulic and environmental problems, but also by the whole planning course, which involve a multidisciplinary working group and local actors, involved through a "participatory process". Particular attention will be given to the possibility of spreading the tested techniques with the "LIFE RINASCE" project, and for this purpose, training courses for technicians as well as demonstrative days at the sites object to intervention, will be organized.

The detailed description of the Project
can be found at:
<http://ambiente.regione.emilia-romagna.it/life-rinasce>

PROJECT LIFE13 ENV/IT/000169 "RINASCE"

NATURALISTIC RESTORATION FOR THE
INTEGRATED HYDRAULIC-ENVIRONMENTAL
SUSTAINABILITY OF THE EMILIAN CANALS



The project "LIFE RINASCERE" has been approved by the European commission on July 2014, and it proposes to realize for demonstrative purposes the hydraulic-environmental restoration of some drainage canals in the Emilia-Romagna region, in Northern Italy.

The "Consorzio di Bonifica dell' Emilia Centrale (the local land reclamation authority of central Emilia) is the promoter of the project, in cooperation with Emilia Romagna administrative Region. The total value of the project is about € 2,000,000.

The project aims to show that the key concepts of the "floods" (2007/60/EC) and "water framework" 2000/60/EC directives, concerning the need to reduce flood risk, at the same time improving the ecological status of the water courses, can also be applied to the artificial water network. In this sense, new typologies of interventions will be experimented, in order to



ILL. 1 The canal called "Collettore Alfieri (photo by Consorzio di Bonifica dell'Emilia Centrale)

apply these concepts to the specific state of drainage canals.

The Emilian Plain is crossed by a dense network of artificial canals, built by man in the course of centuries, for the hydraulic drainage: in the artificial network, waters flow not only because of gravity, but also thanks to pumping stations which drain the territories situated sometimes below the level of the receiving river beds; therefore malfunctions of a system so distinctly artificial can cause catastrophic damages. Thus is essential to increase the levels of flood safety. At the same time, the ecological restoration of the drainage canals represents an important opportunity for the joining of the ecologic network and the improvement of the quality of the environmental.

The canals selected for the interventions suffer in similar degree of environmental and hydraulic problems. Currently in fact they characterize themselves for a rectilinear course and a geometrical section of trapezoidal shape; there are no floodable areas linked to them, so excess flows are drained by a water scooping system. Besides, floodable areas, if present, are in concession to farmers, for the cutting of the herbaceous vegetation. Presence of aquatic and bank vegetation in anyway periodically controlled by machine-operated recurring maintenance, on behalf of the Consorzio.

It is important not to forget that the development of urban settlements of the last decades, has further increased the flow in outflow, leading to an efficiency crisis of the various hydraulic networks. In the case of the Consorzio di Bonifica dell'Emilia Centrale and the areas of the examined canals, recent hydraulic analysis point out a high risk possibility of flooding situations.

Add to this the problems of the wastes from the purification plants and from the filling channels, which pour into the canals great quantities of polluting substances, thus worsening the quality of the waters.



ILL. 2 Widening of a canal section (drawing Massimo Milandri)

On the whole, the interventions consist of the requalification of about 7 km of canals, by creating 3 hectares of floodable naturalistic areas along the banks ("space to river"), the forestation of 2 km of banks and the creation of an expansion area destined to become a naturalistic humid zone for the accumulation of flood and the phyto-depuration of the water, for an extension of about 3 hectares.