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Hydrogeological stability, water protection, territorial and urban planning

Federica Legnani

Water and territory represent two inseparable elements in physical space. Their combination in fact marks out natural environment and ecosystems and defines landscapes modified by men. Yet water and territory have not been planned and managed with a unitary logic policy for a long time. As we read in the *European Declaration for a New Water Culture*, water is the essence of life. Thus nobody is allowed to ignore present and future issues concerning water management and its consequences nor to forget the context in which we live and the ecological balance of our planet. Since it has been acknowledged that the great works' policy is unsuitable for and inadequate to water resources management compared to structural intervention management, our role of planner is no longer secondary. It is clear that a sectorial approach is not inadequate and that we must consider water cycle as a whole without forgetting its link with the territory. A common and shared public interest is the groundwork for positive experiences.

Soil protection planning

In Italy a few legislative measures have stressed in the last decades the importance of the relationship between water and soil. It has been set that watersheds, with regard to hydrogeological stability of rivers and slopes, surface and underground water quality, use of water resources, have to be planned using only one tool. Frequent environmental emergencies have remarkably speeded up the hydrogeological stability

planning. Indications from Hydrogeological Stability Plans (named Pai) have been reported in the territorial planning. It has been a hard work that required effort and commitment, but it has led (through agreements, protocols, etc.) to an interesting subsidiary coordination programme between different administrations, in order to avoid a mere transposition from scale to scale. Thus water and soil have been put back together in the map plans establishing preconditions for use compatibility development, considering also structural elements and soil fragility.

Water protection planning

With the legislative decree no. 152/99 the Water Protection Regional Plan (named PTA) has been set up. The assignment of PTA competence to regions has been seen by many as a silly step backwards in comparison to basin planning prospects. Such competence assignment has cleared problems of a procedural or administrative nature, while it has instead worsened and slackened ecosystem logic and planning effectiveness itself. The following year the *Water Framework Directive* was issued by the European Union. It introduced the Hydrographic Districts, the main units in watershed management, that account for reference of all actions affecting water resource overall conditions. In fact, water is not a commercial product, but rather a common heritage to be preserved for its protection must be ensured by high goals and polluting emission controls. Hence a sustainable use of water resources has to be implemented through effective public participation. *Water Framework Directive* ethical, technical and social themes are pretty much the same as those on which the town planning discipline is

based. Yet the main goal is ensuring that everyone has access to safe drinking water. No other particular interests can be compared to such primary needs. The first PTA's are bodied technical papers dealing as well with the relationship with territorial planning. They are strategic plans, organized in goals, actions and deadlines aiming at both preventing and reducing pollution in vulnerable and sensitive areas, and at preserving, saving and recycling water resources, according to Region Valle d'Aosta's suggestion. To Region Piedmont PTA "is mainly a project with general and specific goals to achieve, operational criteria and adequate intervention measures". Basic conceptual differences may appear slight, but they actually are not when we face a delicate subject such as territorial planning. To Region Tuscany PTA "is mainly a support activity, that is to say an activity supporting territorial planning, sectorial planning and, in general, all sectorial policies". To Region Emilia-Romagna PTA system needs to be improved by provinces through Territorial Provincial Plans (named PTCP). To Region Sardinia PTA is meant as a different version of PTCP containing useful directions and addresses to be used in PTCP problem solving, according to the founding idea that "only through adequate intervention measures working on quantity (retrieval, availability and use) as well as on quality (dumping limits, soil exploitation control), a sustainable use of water resources can be guaranteed. Region Liguria insists on PTA's twofold goal, that is to say an important planning function and an in-depth analysis of all national and regional regulations and of all the tools in force concerning

water. The Region Lombardy, as we read in the document's title, is an exception. The Region has worked out a special of water use and protection Programme. Such Programme "is the reference tool for bodies, authorities, public and private individuals who commit themselves to achieve good water quality standards and to start a governance action in a sector with many competences". Many Provinces are currently checking PTCP's contents as to PTA directions. Several issues, such as spotting wells' and springs' special protection zones, aquifers' vulnerability in relation to their actual condition and to their possible recovery prospects, environmental burden prevention and reduction in relation to future settlements of residential or productive activities and the correspondent assessment of water requirements reduction, are already contained in many PTCPs. PTCPs deal with the element of water also as far as landscape protection is concerned. In fact the relationship between man and water has caused many changes in natural landscape and represents a heritage made of memories and symbols, with which settled communities of a certain area identify themselves. Hence the widely spread arising sense of belonging, can be a decisive factor to overcome the reasons of many environmental policy failures, lacking in cultural and behavioral models, which require instead a strong ecologic sensitivity. PTA prove to be effective only if they establish a good relationship with both territorial and urban plans. In territorial and urban plans drawing up it is even more important to take into consideration that there is a close link between use of

resources and environmental protection. Thus water requirements are to be considered as changeable elements and not as requirements to be met depending on town planning and development choices

Water resources management in urban environment

The best outcome resulting from an effective management of our cities and towns is the structure improvement of waterworks and sewers. It is reckoned that water wastes in urban nets are about 30%. Taking the net issue in the foreground means, in a sense, going back to the very origin of town planning, thus to hydraulic engineers' technique, used in most city water systems in a time when the highest priority was ensuring clean, pure water to citizens.

Many city plans already contain normative devices to subordinate new settlements' projects to the realization of waste water purification plants and of sewer systems that separate white water from black water. First rain water treatment is remarkably important in highly populated areas.

As for PTA directions, Region Sardinia kindly invites municipalities to acknowledge PTAs as reference for urban uses and changes. Region Tuscany demands that municipalities do not increase population size in underprivileged areas and that sewer systems and purification plants are built in new residential and productive settlements. Region Lombardy suggests that building regulations should contain directions for drinking water saving, while Region Piedmont's PTA contains a regulation to control city plans' hydrogeological and environmental influence.