

WATER UTILISATION AND LAND USE IN THE CLIMATE CHANGE SCENARIO: COORDINATION BETWEEN WATER AND URBAN PLANNING.

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This paper tries to provide some answers to the second question raised in Track 1 of this Conference, namely, what policies are being introduced to tackle climate change in modern cities?

Climate change is posing problems to cities' water supply. These problems could be amongst the most serious ones that modern cities may face in the near future. Madrid, as a Southern Europe city, must certainly be aware to the water supply issue.

We will focus our research on the link between the policies regarding Water Utilization and those related to Land Use; more specifically, we will deal on policies concerning the problems of articulation between the River Basin Management Plans and Land and Urban Planning. These problems must be studied within the framework of both the European Territorial Strategy and the Water Framework Directive.

KEYWORDS: water supply, hydrological planning of a basin, city-planning, coordination between water and urban planning, report about water resources

1. Introduction: the need to guarantee water supply in new urban developments

This paper deals primarily with the problems of articulation, in Spanish Law, between hydrologic and city & territory planning, always bearing in mind the requirements of Directive 2000/60/EC, that establishes a frame of action in the field of water policies within the EU.

In later years, the inordinate urban development in many Spanish municipalities, for the most part located in the coast or in the outskirts of big cities (particularly Madrid), has given rise to a two-sided worry about the availability of water resources: on one hand,- a good part of that urban developments did not seem to have a guaranteed water supply-, and on the other, to provide them with an adequate water supply, could mean to detract it from other important goals.

The foreseeable shortening of the availability of water resources in Spain as a consequence of the climate change should led to a deep reflection about the unavoidable necessity of coordinating hydrologic and city & territory planning in order to guarantee an adequate supply of water for human consumption, both from a quantity and a quality perspectives. The current real estate crisis, due in

no small measure to the excesses of previous years, offers a good opportunity to tackle this coordination problem with some degree of tranquillity, thus laying the foundations for a system devised to avoid re-occurring situations in the future.

The new *Ley estatal de suelo* (*Ley 8/2007*, State Land Use Act, later replaced by the 2008 *Texto Refundido*¹, Adaptation Act, that puts together all the regulation about this matter) makes issue of the aforementioned worries as it includes, amongst the basic criteria for land use, a guarantee of water supply (art. 10.c). The existence of the water resources required to cater for the new demands must be checked during the consulting phase of the city- planning procedure. (art. 115.3.a). That is the purpose of the report the River Basin Authority must produce during that phase. The report is more or less mandatory as per the content of the environmental dossier, which can only disagree with the report if the reasons are clearly stated. This regulation should be connected with the one contained in the water legislation about the reports on the city- plans that the river basin authorities have to issue concerning water supply (art. 25 *Ley de aguas*, Water Act, *Texto Refundido 1/2001* Adaptation Act, that puts together all the regulation about this matter). This is a complex issue that will not be dealt with in this paper.

The concern for guaranteeing the efficient management of water resources, thus avoiding that any urban development lacks an adequate water supply, is also clear in the *Ley del desarrollo sostenible del medio rural*² (2007, Sustainable Development of Country Environment Act) and in some Autonomic Acts passed before the State Land and Use Act of 2007³ *Ley del Suelo estatal de 2007*. What is not clearly solved in any case is, who has the ultimate power of decision. Formally, it seems to be clear that the River Basin Authority has no power to

¹ Real Decreto Legislativo 2/2008, June 20, that passed the Texto Refundido of the Ley de Suelo (BOE nr. 154, June 26, 2008).

² 45/2007 Act, Dec 13. Its article 25, with the headline “water”, states that “in order to encourage the efficiency, the saving and the best use of water resources in the country milieu, , within the frame of the corresponding water planning, the Program (of Sustainable Country Development) can contain measures devised for the following purposes: a) set up and carry out of the total management plans of water resources in rural areas or groups of municipalities; these plans should contemplate the joint management of the full water cycle, the necessary measures in case of drought or shortage and the protection actions against eventual floods. **These plan will set up the limits for urban development in the rural milieu** and should be borne in mind in the programs for improvement and updating of irrigated lands. (bold letters not in the original text)

³ In this way, the current City- planning Act of Valencia (Ley 1672005) makes it mandatory to include in the city- planning plans the resolutions related to the efficient use of water resources and the protection of its quality, establishing the potential limits of water supply in the municipality, the amount of flow necessary to cater for the new demands and the criteria that should be required to city planning activities to achieve the maximum re-utilisation of residual waters (art. 45.2)

block (by means of a negative report on water supply) the decision to carry on with new developments on city planning. But the real question is, is it fair or reasonable to give the go ahead to those developments in the case the water supply is not guaranteed by the River Basin Authority? Common sense demands for a negative response even if legislation should not have explicitly stated it, which it actually does, as we shall see later.

2. Forecasts for city planning & quality of water for human consumption legislation

This is not a new problem, as much as it seems to be if we take into account the Acts we have mentioned. Actually it has been solved more than 30 years ago, at least from a purely regulatory point of view. A quick overview of city- planning and healthcare (re water for human consumption) legislations accounts for that. The *Reglamento de Planeamiento Urbanístico*, City-planning Decree, passed in 1978, states those services networks which are mandatory in the *Planes Parciales*, Partial Plans (which are the tools for detailed city- planning in the new urban developments).

Those networks should include one for water supply and the plan must specify its sources, the disposable amount of water and, when necessary, the protection area of the aforementioned sources (art. 53.4). This norm, which has been passed onto the autonomic legislation with minor changes that do not alter it, can still be applied when necessary in many Autonomous Communities. It contains an obvious requirement: that any urban development cannot be (legally) carried out if the water supply is not guaranteed. Having in mind that water supply is one of the basic elements of any urban development, the aforementioned statement is as essentially true as to say that no urban development can be carried out without land.

The same requirement was included in the healthcare legislation at the time. Namely, the Real Decreto 928/1979, about the sanitary guarantees of water supply for human consumption stated that “local authorities are not allowed to handle licenses for house building, commercial or touristic activities or, generally speaking, for any human settlement, before the water supply that is required for the activity is guaranteed either through the local supply system, or through any other, and that the water destined for human consumption has a sanitary guarantee”. Current legislation on this matter (Real Decreto 140/2003, February 7) even points out a precise target: a supply of 100 litres per inhabitant/day. This legislation establishes the sanitary criteria that applies to human consumption water and also states that local authorities must guarantee

the water is fit for human consumption at the point of use. It should be remembered that water supply is a mandatory service for local authorities.⁴

3. New forecasts on water legislation

Spanish Water Law says that the *Planes Hidrológicos de Cuenca* (PHC, Hydrological River Basin Plans) have to include in their contents the inventory of current resources and current and foreseeable demands. The new *Reglamento de Planificación Hidrológica* (RPH) Regulation about Hydrological Planning, passed in 2007⁵ and the 2008 *Instrucción*⁶ (IPH), Instruction, that develops it, have regulated the contents of these plans in extremely ambitious terms; so much so that the plans have been transformed into a *Code* of data, programs and measures that are so difficult to collect that it can be a hurdle for carrying out the plan. According to the IPH, the PHC will evaluate the eventual effect of climate change on the natural water resources of the River Basin Districts⁷.

At the moments of putting up the inventory of demands, the PHC has to define the *units of demand*. These are made up of the demands pertaining to the same use of those who share the source of supply and whose returns go back basically to the same area or subarea.

These units are significant concerning the assignment of resources and setting up of reserves (art. 13 RPH). The “city units of demand” will be determined by the collection of urban areas that share the same source of supply (sub-basin, pool of subterranean water, drinkable water processing station or desalting plant) and whose remnants are poured basically in the same area or subarea.

Amongst the criteria used for estimating the supply demand of the population are, obviously, the forecasts of city planning (art. 14.1^a RPH). These forecasts will bear in mind both the permanent and temporary population, along with the quantity of main and secondary households (3.1.2.2. IPH)⁸.

⁴ Article 7, second paragraph: “The water allowance should be enough to cater for the hygiene & healthcare necessities of the population, and for the development of activities in the supply area, as minimum target should have 100 litres per inhabitant/ day

⁵ Real Decreto 907/2007, July 6, (BOE, nr. 162, July 7)

⁶ Orden ARM/2656/2008, September 10, that approves the hydrologic planning instruction.(BOE, nr. 229, September 22)

⁷To that purpose, it will estimate, through the use of hydrologic simulation models, the resources that should be assigned to the climate change scenarios devised by the Ministerio del Medio Ambiente, y Medio Rural y Marino In case the evaluations corresponding to these scenarios are not available, the percentages of general reduction of referential natural contributions (specified in the following table) will be applied. In the case of the Tajo basin, the estimated percentage of reduction of the natural contributions is 7.

⁸ . The amount of permanent population will be estimated, on a municipal scale, from both the historical data of population and households census and the population forecast per provinces. The seasonal populations will be

At the moment of setting up the future trends scenario, the forecast of the evolution of factors that could have an effect on the use of water until 2015 and 2027 will be borne in mind. Amongst those factors are the population, the households, the production, the employment and income levels and the effects of public policies. The Hydrologic Plan will contemplate different hypothesis on the evolution of these factors. (3.1.1.2.1. IPH).

The balances between resources and demand will be carried out for every water supply system (art. 21.1 RPH). All the available resources of every partial water supply system (be it surface waters, subterranean waters, desalted water and the transfers of water resources between different territorial limits of river basin planning) will be specified (art. 19.4. a) RPH) Everyone of those systems has a certain amount of demand units assigned to it. The PHC will set up the assignments and the amount of reserves for the available resources bearing in mind the foreseeable demand until 2015. It will also specify the demands that the available resources will not be able to cater for (art. 21.3)

Concerning the assignment of the supply and the amount of water reserves, the urban demand will be taken as satisfied when: a) The deficit in a month is not over 10% of the corresponding monthly demand. b) The aggregate of the deficit during ten consecutive years is not over 8% of the yearly demand (3.1.2.2.4).

Amongst the basic measures that a measures program has to include are the ones related to water protection (particularly water for human consumption) and to the promotion of the efficient and sustainable use of water (art. 44.a. y c. RPH). Amongst the latter there will be a set of measures about urban supply in order to achieve a rational and sustainable management of water, including the ones that are mentioned here. (art. 47.4 RPH).

In the end, the PHC must point out, for any water supply system, the available supply of water, the existing demands, the supply provided for each of the different uses, the reserves for foreseeable demands and the necessary basic infrastructures.

Bearing in mind that the forecasts about the water and soil reserves, and their protection systems, must be taken into account by the city & territory planning, there is a foregone conclusion: Urban Planning should not contain growth forecasts that are above the available water resources for new demands. The guarantee of water supply destined for new urban developments is a requirement that derives both from Water Law and the State and Autonomic City- planning legislations..

made equivalent to permanent population. . In order to that, the available information about the evolution of the number of secondary households, hotel rooms and camping spaces (and their occupation levels) must be accounted for. Information about nights spent and other significant will be also borne in mind.

