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WATER IN YECLA (MURCIA): PAST AND FUTURE OF AN ESSENTIAL RESOURCE FOR LOCAL DEVELOPMENT

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I. INTRODUCTION

Water is upon us, below us, beside us, even we could say that we ourselves are water as our body is constituted by at least 65 % water. The existence of this element means the presence of life and this motivates the intervention of human action that had ability to create a new configuration and transformation of the landscape.

Natural factors that give character to the territory and to determine the form of expansion and localities, generate expectations able to support or hinder the opportunities for economic growth and social development, specifically the use of water is one of the main elements that transcendence has had in the past, present and future of this essentially geographical space, since failure to ensure adequate supplies are put into question the expectations of development and welfare as demanded by our society.

Harmonize water consumption and socio-economic development of societies going to move towards a near- maligned «sustainable development» a term applied to economic and social development that allows to address the needs of the present without compromising the ability of future generations to meet their needs in this case water . Given this simple definition of the future estimates that the initiatives related to the use of scarce water resources in the area under study, should contain various actions to collaborate towards rational water use and maximum performance effectively contributing to the wealth creation and human consumption current support and implemented various economic activities in the city such as industrial and agricultural work and leisure increasingly efficient and with a uncontested future projection in a globalized, competitive where overall thrust of what can´t override the potential endogenous development and local levels.

II. CONTRAST A PHYSICAL SPACE

II.1. A relief immersed in the Betic Cordilleras

From the geological point of view the space under study is located in the external areas of the Andalusian ranges and these two domains are represented tecto- sedimentary different external Prebético internal Prebético. The mountain ranges have a SW- NE direction, which favors the formation of natural corridors feature or depressions intramontane very well used since time immemorial for conducting land roads and communication are the main lines of communication between the west-east lands of Castilla La Mancha and Valencia, as well as between the latter and the neighboring community of Andalusia in the north-south orientation. The average height has an average of between 400-600 meters above sea level, appearing altitude mountain ranges of not more than 1.300 meters.

Another physical characteristic is the formation of glacis, usually found fossilized intact. They timely reclamation after the grapes are grown, forming steep generally moderate, eg: The Decarada, Serral, Salinas, etc. Regarding lithological aspects are secondary materials from time geological ages as are the materials from the Jurassic era, the largest tracts of land the set dressing quaternary materials, the diffuse arroyada mantles alluvial fans are located at the foot of the hills and elevated areas many miles with gentle slopes and uniforms (3rd- 5th).

II.2. A transitional climate between the Mediterranean coast and the plateau Mancha

The altitude and continentality traits have been unchanged over the centuries in this space under study. These factors, along with atmospheric dynamics, have conditioned the existence of an atmosphere containing low annual rainfall, which in turn are time intensive and therefore torrential marking. Proof of this is the translation in the morphology of the territory of large alluvial fans, ravines and gullies. The torrential waters together with the existence of a easily erodible rocky and the absence of a dense vegetation cover, have allowed the formation of large drainage canals or water disposal, a fact that has developed into more than one occasion bad real landscapes-lands.

Throughout the municipality there is no permanent watercourse, the infiltration capacity of the limestone, has affected the water storage in the basement. Since time immemorial, humans have had to adapt to the rigors of this adverse environment, before the great drought stress, the landscape is littered with tanks, wells, pipelines, etc., all infrastructure, used to store, capture or drive the meager water flows from the subsoil.

II.3. Low rainfall and torrential

The average annual rainfall in Yecla is in about 320 mm/m^2, very low for the real needs of this geographical area, the average rainy days per year is about twenty. As for temperatures, we observe a large annual temperature range (19.7°). Also decisively affect frost and strong winds from the north. All these factors set unflattering environment for human life, at least in the past.

An essential feature, as we mentioned above is the dry, fact which has led to development of techniques for provisioning of water by the inhabitants of this land since time immemorial through varied techniques and amazing collection, distribution and storage as would be: sores in the wadis, reservoirs, aqueducts, wells, cisterns, etc.

III. PROPOSALS TO ENSURE SUSTAINABLE DEVELOPMENT YECLA REGARDING THE EXISTING WATER

III.1. Need for adequate citizen awareness regarding water consumption

The Spanish East suffers from a chronic and natural deep water shortages motivated by factors of climate, hydrological and hydrogeological (Rico Amorós, 2002). Water deficit is compensated by water only on extracted as not register any external input whatsoever. In relation to the space under consideration in 2000, the company Enviros - Cuantisci, conducted on behalf of the city of Yecla a study on water resources of the town of Yecla. In his presentation to the media, Jordi Guimerá geologist, technical editor of the study indicated in the conclusions regarding the state of our aquifers that the situation was «alarming» but worrying.

He pointed out that in the municipality high (Montealegre-Fuenteálamo road), the groundwater level decline was less than in the lower (Sierra de Salinas - Raspay). After studying the evolution of the natural recharge of our aquifers from 1968 to 1998, based on precipitation and temperature data, Guimerá indicated that annually produced an average recharge of 18 cubic hectometers these aquifers. It is appreciated that each year an average consumption was realized estimated 0.3 hm^3 for industrial, 2 hm^3 in urban consumption and about 24 hm^3 years for agriculture.

The main cause of this excessive agricultural consumption seems to be that in recent years there has been a remarkable introduction of irrigated farms in traditional upland areas or extensive irrigation and of course the drought, which has resulted in increased need for water and overexploitation of aquifers. Jordi Guimerá concluded by noting that the annual water deficit in the town was about 10 hm^3. Based on these data, existing in the five years to the completion of this study (2001-2006), was not serious for him. But longer term, considered agricultural consumption lead to compromise industrial and urban consumption.

We extracted data from the town of Yecla, watching the cultivated lands experienced their highest rate in 1972, a total of 54.859 hectares were cultivated this year, which meant of 60,774 hectares of which has the total municipal area, what would be the 90.26 %. In the eighties land abandonment was evident, the main factor was the entrance of Spain in 1986 in the then European Economic Community, the restructuring of vineyards and cereal fees affected the abandonment of poor soils, in 1989 the percentage of cultivated land had fallen to 76.44 %. Current data indicate a slight rise phase, 79.77 %, but the most important data would not increase arable land, rather, would talk of interest in converting irrigated drylands, with a consequent increase in the production, arrival of new crops and May thus generating wealth.

Of course the adoption of other measures such as drip drip irrigation are essential and will slowly extend the high cost of installation as well as the construction of large irrigation ponds that not being roofed lose huge amounts of water by evaporation from the summer, which continues unresolved issue .

It is therefore necessary reflection, you can´t keep growing on irrigated land with existing water today, as not only endangers the agricultural wealth, also providing population and industrial areas are fortunately consumers of water.

Education for eating well and not fall into consumerism is difficult in a society like ours to be fully on the impact psych involved excessive consumption, as well as steps to be lean and that this is internalized in the population, it is estimated that the city of Yecla has about 1840 m^3/hab/year, much lower for both 2829 m^3/hab/year average 3100 Spanish and European Union (Lopez, 2000), although this water scarcity price is low, this helps the filling / emptying in summer hundreds of pools spread throughout the municipality is in the most extreme cases biweekly, as it is more economical to change the water you use products that kept longer, although admittedly that is growing the number of homeowners who increasingly care more water with products and even spend two or three years with the same water, also in the normative sanctions are provided for emptying the pools without having completed the prescribed period .

Another issue is the improvement in the management and use of water resources, remember that the cost of water down a lot when the irrigation system is adequate, even if it requires major input in equipment investment, the risks are still used to blanket, although is worth recognizing that the effort of farmers has been very commendable in the entire municipality with the installation of drip and sprinkler irrigation. Also the illegal irrigation control or the possible creation thereof. Finally another remarkable aspect that can affect land use is the use of pesticides that may damage underground, a possible alternative is to increase organic farming, some extended time in the town.

III.2. Improved sanitation supply network and water quality

Is required by public authorities continued to plan improvements in urban grid, since the grid is aged in various parts of the city, presenting continuing losses and damages in the circulation by disruption of works, in fact the constant leaks have caused the street periodically suffers patched cracks in the asphalt constant.

Given the conditions of the urban, in the foothills of the Cerro del Castillo, the waste water through sewerage network does not have any impact as there is a large gap which benefits the evacuation of rainwater quickly. Nor are detected in the city lights of odor or delays, with the recovery plan of the old town are correcting these problems (Vine streets, Olivo, Granada, Rose, etc.)

III.3. Effective wastewater management and recycling to increase future demands

The huge increase in water that is being made in farming with new season crops planted in the city in the last two decades, the result of course of a rural economy export voracious extratempranos very welcome and paid in countries EU The question arises between economic development and depletion of aquifers. The solution as indicated by either municipal representative went through the implementation of the repealed National Hydrological Plan (2004) and the arrival of the Ebro water transfer since in the region of Yecla no other water intake than those generated by water rain to infiltrate and recharge aquifers.

Regarding wastewater treatment municipal plant installed in the Place of the Way of Sax (Cañada Morcillo) about 2 kms from Yecla has sufficient capacity under normal conditions to achieve a degree of purification of 95 % which means a water discharge 1.5 Hm^3 refined. The day holds about 5000 m^3 debug through the system of lagoons. This purification is reinvested in water for irrigation through Community Santiago Pozo, also devotes a part of debugging the manufacture of fertilizers. The question is given by the production of odors, a problem difficult to solve due to the characteristics of work done, have been many performances of the various corporations to fill this gap ; turbine installations, centrifuge sludge, etc., and it is clear «It is understandable that always generates some smell».

III.4. Possibilities in attracting external water resources: transfers and desalination

The arrival of water from the Ebro to the region of Yecla, would have enabled the start of the recharge and change and increased focus on export crops in the European market, which for certain consumer products is extratempranos. So it would have contributed to the generation of wealth, creating more jobs and the maintenance of the agricultural sector in the city, as relegated to the great flowering of the furniture industry implanted in it. The implementation of the National Water Plan, and as timely made the arrival of water from the mouth of the Ebro, was a possibility, not unique to this area of the SE Spanish in terms of economic development will continue to grow due to the expansion of crops irrigation and stay assured supply own cities, another question would be very different water use for a development model based on the construction of housing estates where their sustainability was questionable not only with regard to water supply, also own appeal to the same location with respect to their second homes.

Policy disputes have made the sense of solidarity among the ACs have been blurred, and has even served as a pretext for confrontation, when it should have been reversed, finding that no territory complementarity is harmed should have been the thread of water policy, taking into account that saving some reason could not be wasted by the other and vice versa.

The application of PHN was not just a law of transfers made affecting only 1% of national hydraulic balance and resulted illogical that this 1% has primacy over the remaining 99% of the surface resources. The occasion should have been used to promote National Comprehensive Plan and interaction irrigation water use for different uses; (urban supply, energy production, recreation, industry or environmental issues such as lake recharge areas, aquifers, etc.). Neither should have weighed all necessary water demands in the Southern Levant and Spanish on the River Ebro, although it was the most important hydrological capacity as proposed by Professor Gil Morales (2000).

Another solution to the flow contribution towards Yecla was the contribution of the Júcar-Vinalopó, bearing in mind that it is a river Júcar deficit, there were the contribution of the Tajo and Ebro basin for this provision, this proposal has not clearly been accepted as the Jucar deficit is indeed historically aquifer Benejama-Yecla-Villena has supplied in part to the Mediterranean coast tourist resorts such as Benidorm and Alicante are the biggest beneficiaries.

IV. FINAL CONSIDERATIONS

In the studied area, water use has had a distinctly from the first settlers to the present day, both the urban and the rural areas are full of items that testify to this, also in the street and within the home country, well as plots and agricultural plots . The water was a highly appreciated by our ancestors to the difficulties of collection. Fortunately, today these past difficulties have been overcome by the application of new technologies that promote deposits in places previously unthinkable, that fact, doomed to a consumer society has resulted in abuse of aquifers, the only way, for now, supply in all sectors of agricultural and industrial activity and population .

The presence of water has made the urban morphology, the city could have had another configuration not for the presence of gullies and ravines that have defined their growth especially in the north, economically and even founded fear the runoff waters for many centuries, these natural steps were respected by the inhabitants of the city, from industrial flowering generated in the city in the 60s of last century, the «limits « of water have been removed, erased so that resulting almost unrecognizable at first glance, hundreds of buildings and warehouses are located in areas drainage, has done little historical memory of past floods and municipal ordinances latest Urban Plan that require to increase the height of buildings to at least 90 inches.

On the other side of the future, the city should move towards sustainable growth can harmonize agricultural and industrial development with the real possibilities of consumption, external aids as were outlined in the implementation of the NHP and have been nullified . The implementation of the Water Plan, which proposed the Altiplano arrival of water through channels and desalination Taibilla not yet come true. These expectations will reach more viable if there are specific projects, not a statement of principles that has not been materialized in any proceedings at least until today. Also the awareness of citizens in the rational use of water and improved agricultural techniques will be critical in the production of a well-developed and harmonious, sustainable ultimately face the challenges of the future.

The water issue has unfortunately often highly political in nature, making it difficult or slowed the arrival of real and consistent solutions. The existence of water means wealth creation, which results in business growth, increased jobs and probably also the arrival of speculation, allowing immediate enrichment of a few and mortgage the future of many or at least outlines a very uncertain future for the majority of citizens. For this you need the calm, dialogue, understanding and willingness lot of technical work to assess situations and propose effective solutions that promote the common good, with the necessary respect to landscape, sustainability and appropriate land use planning that opens the door to a brighter future and serene.