

Present and future of Spanish landfills

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ABSTRACT: Landfills in Spain are characterized for being old plants, but nowadays they are legalized. They do abound, but most of them do not follow the requirements established by the new law. Spain does not have any fixed legislation for Landfills, but we will have one. We can foresee a continuous use of Landfills in Spain even though new technology will appear. On the other hand, geosynthetics elements will be more used each and every day in order to observe the new spanish reglamentation.

Undoubtedly, Spain is one of the european's countries which has been using landfills for quite long, and it sees them as an environmental solution for waste. Landfills can be seen practically allthrough the spanish geography, but, almost none of them, follow the new requirements established by the Landfill's and Security Deposit's new law. In our country, such fact appears to be really relevant nowadays, because the use for landfills seem to be practically the only way of managing wastes, enclosing it an almost insignificant energetic valorization rates.

Talking about Urban Waste, for many years there have been hundreds of uncontrolled plants where small and medium towns dumped their wastes. In the beginning of the 80's, a movement took place; most of the spanish town councils, gave industrial retraining to these uncontrolled plants, transforming these landfills into sanitary controlled

sites, following its own legal recognition. It is, those places where wastes were being dumped with a limited knowledge of the fact from the authorities, were being changed into legal sites with a simple administrative process. Although, this fact was not accompanied by the technical requirements which warrantied the landfill control. These landfills were merely known and were not sanitary controlled. This fact only has lead into series of environmental incidents, and it is only then, when a certain technical adecuation of these sites has been done.

In this way, in the beginnings of the 90's, uncontrolled plants have been closed up or sealed up (even though they appeared as legally controlled landfills), bearing this many environmental problems. Furthermore, in most of these landfills, the maximum level of stockage has been reached, and it is because there are not any other solution for the problem.

These old landfills, were originally placed whenever their first owners wanted to, it is, in sites where it have not been done any kind of studies, neither morfologic, nor geologic, topographic or hydrographic. Only in the past ten years, new Industrial Waste Landfills and Urban Waste Landfills designs have been appearing following all of them the exposed guidelines by the law. In fact, every Industrial Waste disposal follows at least, some legal requirements, which provide them with a legal sense towards the law; (adequacy to the soil, impermeability, use of clays, geotextils and synthetic membranes, lining drainage of leachates etc.), and , in some way, part of the newest landfills created for big cities, during the past five years, may also respect such requirements.

Nowadays, Spain does not have any legislation which force promoters to work under fixed standars. It is only required an Environmental Impact study, in order to be able to implement the project. This Environmental Impact got to be approved by a prefixed authority.

In 1989, the Ministry in charge of environmental matters, gave the guidelines to create landfills (types A and B), but this technical instruction was not legally approved by the spanish government, so, right now, this instruction only serves as a work of reference in this field.

This lead us to know, that there is not a legislation which fixed the requirements for Industrial Waste Landfills; so, Spain will need to adapt the european's law to its own legislation, in order to fulfil with the european's obligations. In general terms, Industrial Waste Landfills in Spain (both, the already established an the one's planned), will properly follow the requirements, whereas the Urban Waste disposals will need to be closed up, or adapted to the requirements.

An additional big problem is the treatment cost. Most of the spanish city councils with more of 25.000 inhabitants, pay less than 1.000 pesetas (40 FF) per Tm of treated waste. Estimating costs made in order to observe the recent law related to new landfills, do multiply between 7 and 9 times this price. Municipal governments have not forseen this fact, and are against to adapte themselves to this required adaptation. In Spain, the price obtained with a Kw/h from alternative energy and cogeneration processes goes around 11 pesetas (almost 0,5 FF), so energetic valorization costs are going to be really competitive. None the less, nowadays the "nimby" phenomen still strong for the incineration plants, although landfills do also have big problems.

In Spain, most landfill sites are public properties, but run by private managers. Increasingly, these managers are being implicated into the landfill construction, although the Municipal governments and Communities do run with the inversion. They are utter private enterprise, more than public managers, although they are some public businesses running the installations.

Spanish available soil is big, got good quality and also we rely on advantageous factors such as a limited rain gauge and good evapotranspiration. Even so, every existing modern plant in Spain, has been using solutions which combine the soil's natural quality with the use of clays, geotextiles and synthetics membranes, which complement the soil's quality and efficiency.

Finally, in a near future, the use of geosynthetics elements in the numerous spanish's Urban Waste Landfills, will be coming more and more common each and every day, to respect the new spanish reglamentation and its requirements. On the other hand, due to the spanish climatic conditions and

to the available soil, we can not foresee a strong cut in the development of new landfills, as it happens in other european countries, but anyway, it will suffer a withdrawal for the benefit of other environmental solutions (energetic valorization, etc).