A recovered landfill in the construction of a metropolis: Valdemingomez Forest Park, over time

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01
2018
SECONDA SERIE

Abstract
The project for the recovery and transformation of the Valdemingomez landfill in Madrid required the application of complex environmental engineering processes, as well as new architectural strategies. Today, it is a place which can be incorporated, with full guarantees, into the city structure, as long as it is viewed as a 'monumental' public space. It is recovered ground which is capable of becoming a new, free metropolitan space that can respond to the current and future needs of society, especially if it remains as such over time. The architectural project which was undertaken involved the proposal of new strategies for creating an area which will be open, flexible and dynamic throughout time, in a search for equilibrium between city and nature.
The Valdemingomez landfill constitutes an example of a proposed model of continuity between the forest and the surrounding area; a pseudo botanical garden with indigenous species seeking integration into the Parque Regional del Sureste (Southeast Regional Park). It was transformed into a free, public area with pedestrian paths and bicycle lanes, along with woods and wetlands which have helped to create small, localized ecosystems. Within it, one can observe the life of both nature and the city.

Keywords
Landfill, Recovery, Landscape, Territory Planning, Community

Received: April 2018 / Accepted: June 2018

DOI: 10.13128/RV-22989 - www.fupress.net/index.php/ri-vista/

Contextualization

The analysis of the recovery and transformation of the Valdemingomez waste landfill permits to study the development in the treatment and management of waste caused by the rapid growth in population that the city of Madrid has experienced since the second half of the 20th century. The amount and composition of the waste deposited in the landfill have changed substantially in a few decades, and as a result and at the same time, in the last third of the century the implement of a spatial-temporal plan with this purpose will begin. A new conscience too.

The first urban waste landfill of the 20th century in Madrid, opened in 1950, was called *La China*, located in the south and next to the Manzanares River. The unstoppable growth of the city in the second half of the century, forces to close down the landfill and move it to marginal lands outside the city. As a result, the Valdemingomez landfill materializes.

The city of Madrid fails to locate landfills in places distant enough from the center, so that they do not disrupt the health of its inhabitants avoiding, at the same time, long itineraries not to make the service more expensive.

The Valdemingomez landfill, Madrid. 1978-2000

The entry of the seventies in the 20th century was marked, in relation to the municipality of Madrid, by an increasing cycle of waste production that put the necessity to enlarge the capacity of landfills.

In 1972, *Fomento de Obras y Construcciones*, S.A. (FOCSA), the successful bidder company of the competition organized by the Madrid City Council to renew the collection for the central area of the capital, includes the temporary transfer to the municipality of certain lands located in Madrid, in the area called Valdemingomez, at kilometer 14 of the III National Highway (Madrid-Valencia), and at a distance of 3 kilometers from it and 15 kilometers from the city center. It is the southeastern limit of the municipality of Madrid and the limit of the Vallecas District.

These are gypsiferous, arid and deteriorated lands. Their little or non-existent landscape or agricultural value, their distance from the city (on the boundary of the municipal area) and the topography were the reasons for which they were chosen as the future landfill for Madrid.

The Valdemingomez landfill area was inaugurated in 1978, and formed the access gateway and connection point between the city (fig. 1) and one of the largest metropolitan projects of the Community of Madrid: the Southeast Regional Park, a pocket of protected land on which the city was irreversibly encroaching and which will eventually be incorporated into its infrastructure.

Fig. 1 – Madrid, aerial photograph. Relationship between the Valdemingomez landfill site and the city. (Photo: GoogleEarth 2014).

In its 22 years of activity (fig. 2), the Valdemingomez landfill accumulated more than 21 million tons of waste. This rose to a maximum height of 652m above sea level (Ayuntamiento de Madrid, 2003, p.10), around 40 meters higher than its original level and that of the surrounding terrain. The record year for waste deposition was in 1991, when 1,301,336 metric tons were dumped there, the equivalent of 98.6% of the refuse generated in Madrid for that year. This percentage shows that, at the time, only a small amount of waste was sent for recovery or composting. The everyday use of the landfill was planned according to techniques which had been in use in Europe for years, especially in England. This planned system consisted of three stages: shredding of the waste in a plant; transport to the discharge platform, known as a landfill; and finally, the spreading and compacting of the waste (fig. 3). Every two days, this process was supplemented by the spreading of various layers of inert material of a thickness of about 20cm. These layers served to prevent the presence of rodents and bad odors, to avoid the dispersion of material by wind and to prevent fires.

Valdemingomez quickly became the nucleus around which successive environmental infrastructures began to grow: Madrid's most important plants for the treatment and elimination of solid urban waste, which now form the so-called *Parque Tecnológico de Valdemingomez* (Valdemingomez Technological Park – fig. 4).

In 1993, an important event occurred in the history of the Valdemingomez landfill: the renewal of the waste collection contract for the Peripheral Sector of the capital, a contract which was awarded to FOCSA in 1968. The offer submitted by this company included, as an improvement, the definitive assignment of the ownership of the land to Madrid Council. From that point forward, the Valdemingomez

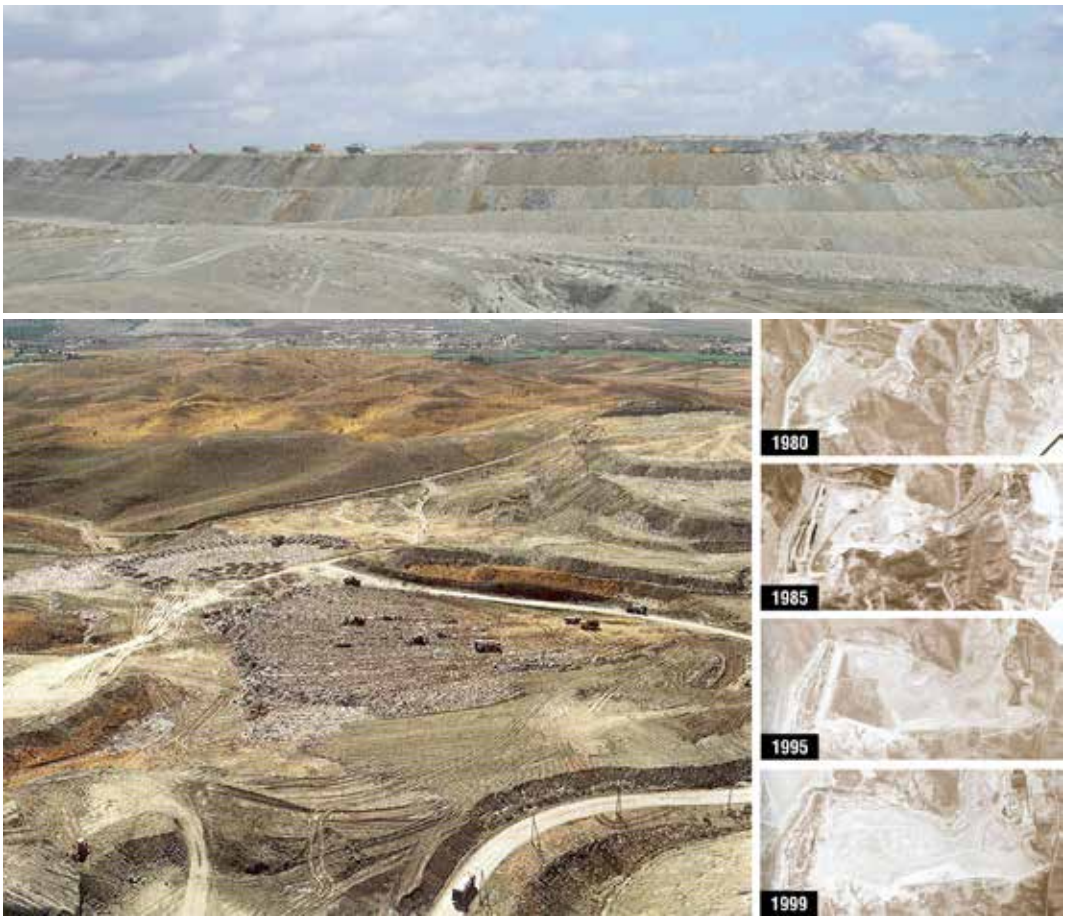

Fig. 2 – Trucks unloading waste into the Valdemingomez landfill, Madrid. (Photo: Madrid Council, in the 90s of the 20th century).
Fig. 3 – Valdemingomez landfill, before the recovery. Formation process, aerial photographs: 1980-1985-1995-1999. (Photo: Madrid Council).

landfill became a land which was owned in full by the city, or in other words, a public place. In 1995, the first research took place into the potential harvesting of biogas from the landfill, to harness its energy. The end of the landfill's useful life was in sight and therefore the Council started to look for alternative uses, ones which were more suited to the new demands of current environmental legislation.
On March 2nd of 2000, the Valdemingomez landfill closed its doors for good, after a 22 year existence.

Landscape recovery and transformation. 2000-2003

The project for the landscape recovery and transformation of the Valdemingomez landfill involved, from a technical standpoint, four basic operations: the sealing of the entire surface; the installation of a degassing network to extract the biogas accumulated within the mass; the construction of a power station which uses said gas to produce electricity; and lastly, the transformation of the surface into more than 110 hectares of Forest Park (fig. 5). A waste research center was built alongside said area, the *Centro Tecnológico Medioambiental* (Environmental Technological Center, using the recovery and transformation of the aforementioned waste

VALDEMINGÓMEZ TECHNOLOGICAL PARK

1. Valdemingómez Forest Park, degassing and forest surface maintenance
2. Environmental Technological Center
3. Bicycle paths
4. Wetlands and bird-watching refuges
5. Meadow areas
6. Biogas energy recovery
7. Biogas purification and concentration
8. Classification and separation of recyclable materials, energy recovery
9. Classification and separation of recyclable materials, composting, processing of plastics, incineration of dead animals
10. Maintenance of the sealant layer of the inert waste landfill
11. Biomethanation
12. Classification and separation of recyclable materials and composting
13. New landfill with cells

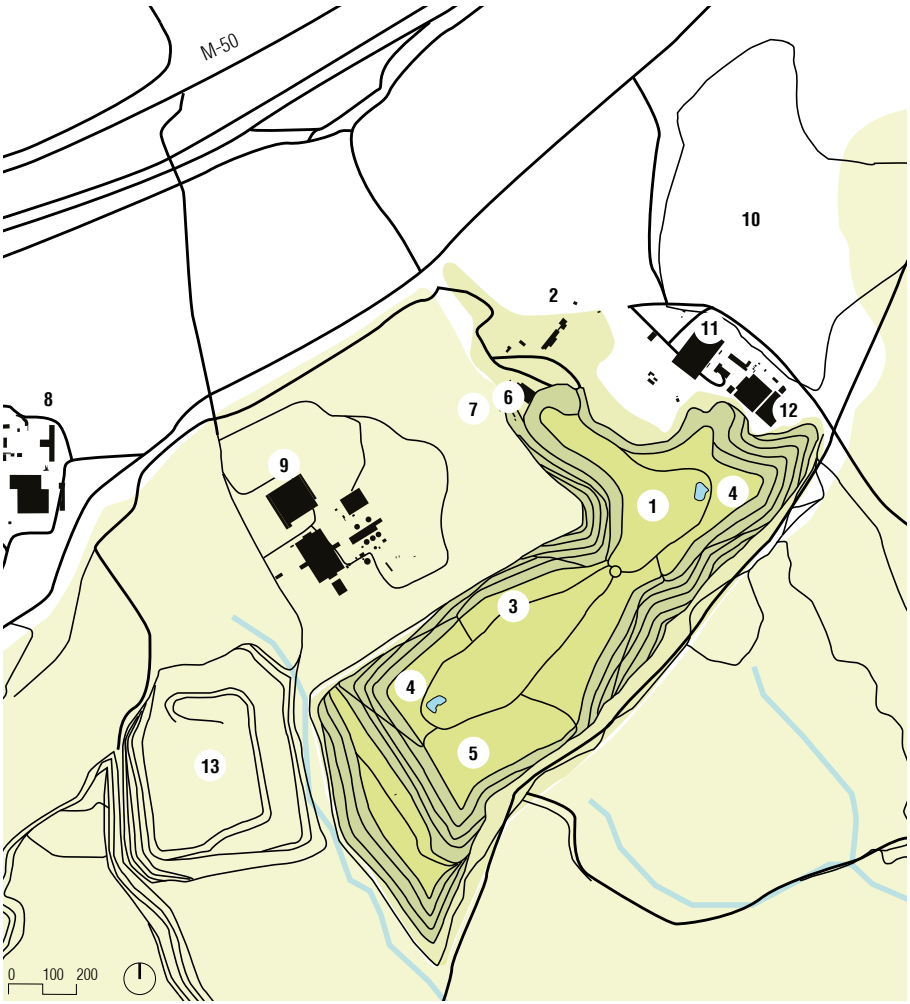

Fig. 5 – Valdemingomez Forest Park, aerial photograph. (Photo: Madrid City Council 2003).

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Fig. 4 – Valdemingomez Technological Park. (Photo: Israel Alba 2015).

shredding plant which was built in Valdemingomez. The project includes environmental monitoring of the landfill for a period of over 30 years.

After 22 years of uninterrupted delivery of solid urban waste, there were two fundamental objectives for the Valdemingomez landfill. The first was to ensure the general confinement of the mass of waste deposited on the site, particularly the methane gas produced by the decomposition of organic material. The second objective was to provide adequate support for the installation of the structures designed for the degassing and subsequent revegetation.

To achieve this, a succession of layers of different materials was spread over the surface and one of the most significant of these layers was a double sheet of polyethylene: impermeable to the gases from the interior and to water from the exterior. The most suitable solution was applied to each zone of the landfill, based on the most advanced technical and environmental criteria of the time, in order to produce the maximum safety and stability in the mass of waste. The covering layer was supplemented by rainwater drainage systems which prevent water from accumulating on the landfill surface, anti-leachate systems[1] which avoid contamination, and supervision and surveillance systems throughout the entire landfill.

A multi-layer coverage system was employed and it was formed of the following basic components: 1. A layer for the leveling of the landfill surface; 2. A gas drainage layer; 3. An impermeable layer; 4. A layer for the drainage of rainwater from percolation; 5. An upper layer of soil and support for vegetation. The formulation of each of the layers individually and as a whole was adapted to two types of surface: sloped areas and the crowning area or plateau (fig. 6).

To protect the topsoil against the effects of water erosion on the sloped surfaces, the plan was to use a synthetic sealant and therefore an anti-erosion mesh of jute fiber was installed. A large quantity of bushes were then planted and lastly, the entire slope was hydro-seeded to create a carpet of vegetation which would protect the surface from any initial rainfall as well as giving it a natural look right from the beginning, integrating it into the surrounding landscape.

Neither jute mesh nor hydro-seeding were used on the plateau, although a universal sealant was applied. The operations were instead limited to the planting of trees, bushes and seeds. These activities were supplemented by the construction of two areas of water measuring 1500m^2 each and these served as small areas of wetland around which two bird-watching refuges were built.

The main component of the biogas inside the mass of waste is methane and its expulsion to the exteri-

or would have negative repercussions on the environment, seeing as said gas is an active generator of the greenhouse effect. Therefore, a network of 280 gas collection wells covering the entire landfill surface was constructed (with each well having an area of influence of about 25m and a depth of 20m) along with 42.5km of transport pipes which take the gas to one of the 10 Regulation and Measurement Stations (RMS) with 14 entry points each, prior to its arrival at the waste-to-energy facilities.

One of the main objectives of the landscape transformation consisted of returning the area to as natural a state as possible and therefore it was vital to carry out a suitable planning of the activities. This required, in turn, a profound knowledge of the components of the existing ecosystem and its behavior, particularly its natural development. It was very important to cover the landfill with topsoil and to instigate the primary colonization by the pioneer plants, which, by contributing to the formation of the soil with their organic material, prepared the medium to sustain more advanced species. In this way, an inert medium such as a landfill was able to be transformed, via the development of a biologically productive soil, into a complete and self-sustaining ecosystem. All the possible plant formations in the area were taken into consideration and the recommendations of the Master Plan for the Southeast Regional Park were followed. The planted plants form an arboretum that is truly representative of the vegetation of the Community of Madrid and they were provided with an automatic irrigation system which uses water obtained from the nearby *Estación Regeneradora de Aguas Residuales Sur* (Southern Waste Water Regeneration Station). Due to the large size of the former landfill, it was deemed necessary to divide the surface to be vegetated into zones (fig. 7). The two basic factors which characterize said zones are their slope and their orientation. Orientation only affects the sloped areas (fig. 8) and these are divided into shaded slopes and sunny slopes. The shaded slopes are more at risk from freezing, they undergo less evapotranspiration and therefore the planted vegetation is less xerophilous than in the sunny areas. In the latter were planted species which require greater humidity: maples and Portuguese oaks. The south-facing slopes are more similar to the typical terrain of the Regional Park. On the plateau (fig. 9), the choice was made to plant natural-looking woodland, very similar to that of the nearby (indigenous) areas, using species such as Portuguese oaks, olive trees, pine trees, almond trees, holm oaks and cork oaks.

The plan was to establish small colonies which would grow over time, expanding and becoming more complex, responding to local conditions, and this has indeed occurred (fig. 10).

CROSS-SECTION OF THE SLOPE-BERM-PLATEAU

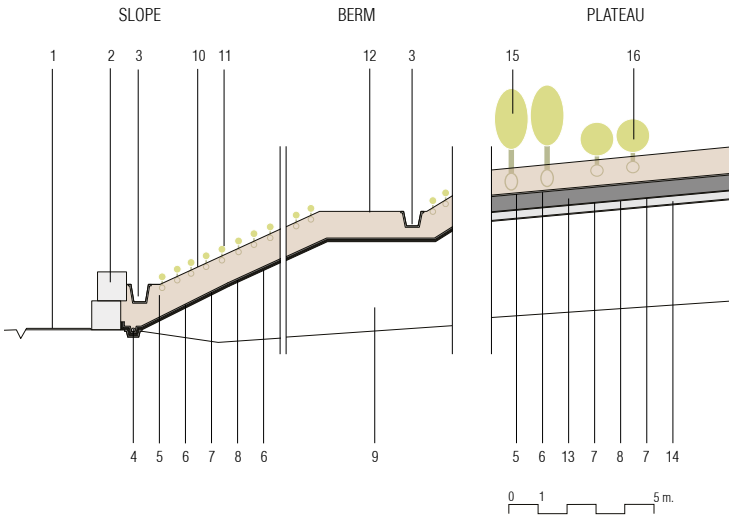

Fig. 8 – Valdemingómez Forest Park, aerial photograph (source: Madrid Council).
Fig. 9 – Cross-section of the slope-berm-crowning plateau of the Valdemingómez Forest Park (photo: Israel Alba).

1. Environmental inspection road
2. Gabion used as a contention wall
3. Runoff water drainage ditch
4. Ø200 Grooved pipe for collection of rainwater from percolation
5. Min. 1m soil
6. Synthetic Geodren
7. Polypropylene geotextile
8. Polyethylene sheet
9. Mass of waste
10. Jute mesh
11. Kermes oaks
12. Protection berm
13. Drainage layer of 0.50m of gravel
14. 0.25m gas drainage layer
15. Portuguese oaks, Pyrenean oaks, holm oaks...
16. Riparian vegetation

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Fig. 6 – Former Valdemingómez waste treatment plant, before the recovery, interior view. Source: Israel Alba (2000).
Fig. 7 – Valdemingómez Environmental Technological Center (information, publication and education), after the recovery, interior view (photo: Eduardo Sánchez).

Integration and use of the transformed landfill. 2003-2030

The project was developed by a multi-disciplinary team (engineers, biologists and architects) and its starting point was the planting of the landfill surface with species of trees typical of the area, so as to integrate it into the Southeast Regional Park, converting it into a new, green lung of the city. A series of public facilities were added to the recovery project after the reforestation: trails, paths, a bike lane connected to the rest of the city (fig. 11), small woods, picnic areas and two wetland lagoons with areas for observing both the newly developed ecosystems and the city, into which this new area will soon be incorporated. The public-use spaces will assuredly be redefined after the 30 years needed for environmental monitoring.

In the spring of 2003, the landfill, having been transformed into a great Forest Park of almost 110 hectares and with dimensions similar to those of *El Retiro* Park in the center of Madrid, began its life as a free area of leisure and enjoyment, with guided visits, courses, conferences and exhibitions organized in the Environmental Technological Centre. This center, used as a welcoming element and the connection point between the city and the Forest Park, has become the most 'public' representation of the recovery process and it has in some ways become the icon or symbol of the project.

As frequently occurs, the content of projects reflects desires which in practice are materialized quite differently and, as previously mentioned, time is a key factor in the complete recovery and transformation of these areas. As yet, it is still not possi-

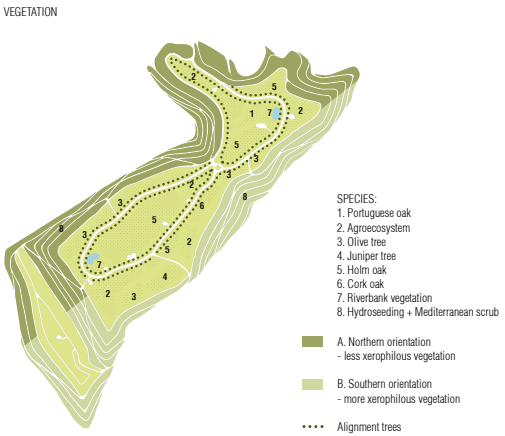

Fig. 10 – Slope with an anti-erosion mesh of jute fiber in the Valdemingómez Forest Park, after the recovery (source: Madrid Council).
Fig. 11 – Vegetation layer, organization of surfaces based on orientation and slope (source: Israel Alba).

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Fig. 12 – Valdemingómez Forest park, topography and vegetation of the slopes (photo: Miguel de Guzmán).

ble to open the park to the public for a free and continuous use of the space, mainly due to the fact that the extraction process for the biogas stored in the landfill causes constant subsidence in the terrain (fig. 12). In some cases this can be dangerous, seeing as it can cause the possible release of methane gas and because instantaneous subsidence can sometimes exceed two meters. For this reason it will be partially closed until the surface has stabilized, once all the biogas has been extracted. The situation also occurred in the Fresh Kills landfill of New York and in *El Garraf* of Barcelona. This may lead us to think that methods and processes other than the current ones should be used, seeing as it will take more time to make the land suitable for park use, due to having to wait for the degassing process to conclude, than it took for the landfill to be formed by the daily dumping of thousands of tons of waste. New strategies must be devised, ones which allow more immediate and different uses, even if they are merely partial, thus making more sense of these interventions, both in the short and medium term.

The strategies used in Valdemingomez bring it closer to the new models of free, metropolitan areas; making visible what was once hidden and forming a relationship between the metropolis and the surrounding land, via a recovered and transformed landscape which is based on a natural topography brought about by an artificial process. Thus, the Valdemingomez Forest Park supposes new type of public space that combines the derivation of energy from accumulated waste and continuity between the landscape and the immediate surroundings, with its connection to the Southeast Regional Park. Valdemingomez witnessed the construction of a top quality, free, metropolitan space (fig. 13) for citizens' leisure and enjoyment, although at present, visits are limited to guided tours so as to guarantee that the landfill surface is not overloaded, which might cause additional subsidence or accelerate the processes which have to occur in a controlled manner. The plan is for the park to be opened to the public in 2030. This however, has not stopped the planted tree species from taking root and nor has it stopped the wetlands from accommodating small ecosystems which are integrated into the natural

cycle of their environment. The use of water is not just an aesthetic artifice, it is a response to new environmental problems and it has led to the creation of new, water-based ecosystems (fig. 14).

Today, the work carried out in Valdemingomez could be seen as a possible way of approaching the construction process of an area, using artificial processes (the accumulation of refuse) to create natural topography for new metropolitan uses. This is a deeper and more evolved approach, based on the vision provided by the North American artist Robert Smithson in the second half of the 20th century, with the starting point being his entropic landscapes and his definition of the 'monumental vacancies' of Passaic, New Jersey. However, it could also be linked more contemporarily to the *terra fluxus*[2] of the landscape architect James Corner. But this project, which is not just an aesthetic matter, has also made it clear that traditional architectural instruments by themselves are incapable of fully resolving situations such as that in Valdemingomez (fig. 15).

The recovery of this space provides us with a new, continuous artificial landscape system, formed of layers in which the incorporation of energy-producing systems is merged with other, infrastructural el-

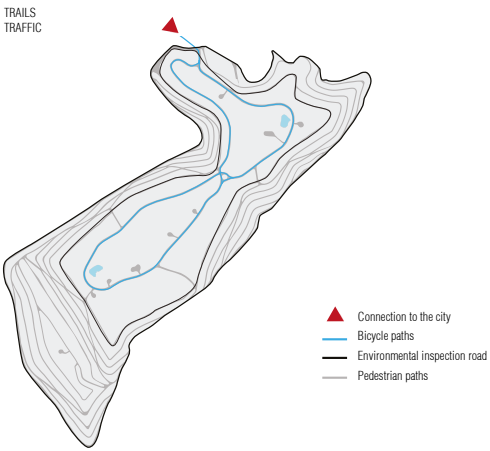

Fig. 13 – Valdemingómez Forest Park, woods on the plateau. Growth of the landscape over time (photo: Miguel de Guzmán).
Fig. 14 – Valdemingómez Forest Park, small initial colonies (photo: Miguel de Guzmán).
Fig. 15 – Layer of trails and paths (photo: Israel Alba).
Fig. 17 – Former Valdemingómez waste treatment plant, before the recovery, exterior view (photo: Israel Alba).

Fig. 16 – Valdemingómez Environmental Technological Centre, after the recovery, exterior view (photo: Eduardo Sánchez).

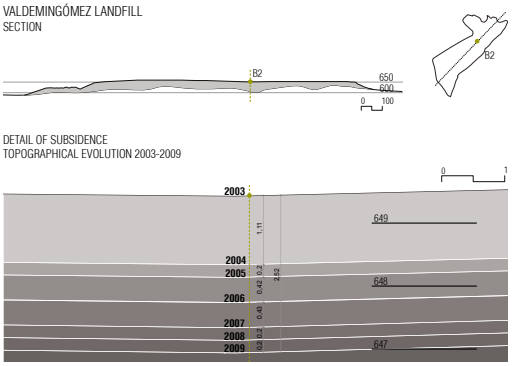

Fig. 18 – Valdemingómez landfill, detail of subsidence, topographical evolution 2003-2009 (source: Madrid Council).

ements as well as with architectural transformation itself and the time-dependent growth of a landscape. It is a contemporary landscape model.

Unlike other waste landfills which existed in Madrid in the 20th century, Valdemingomez, having been transformed into a great Forest Park, avoided becoming a dark memory of the city's past. Instead, it is part of the city's present and, above all, part of its optimistic future. It is a sign that a new declaration can be written regarding man's conscience, his attitude towards the landscape and his relationship with the physical world.

As the architects Iñaki Ábalos and Juan Herreros affirmed when they referred to Madrid, the project for the recovery and transformation of the former Valdemingomez landfill has allowed us to verify that: «The periphery is no longer a far away and picturesque ideal which might charm us with its aesthetics, rather it is a real laboratory used for experimentation with universal ideas» (Ábalos I., Herreros, J., 2000, p.25).

Conclusions: from continuity to utility

This project is not a picturesque work which follows that well-trodden path in the search for a capricious, eccentric landscape, nor is it a spontaneous inspirer of feelings, nor is it an example of *Landart*[3]. This is because it is not a pure mix of architecture and landscape. Instead, it garners influences from the course marked out by both disciplines. We are in a new age; we face new problems which demand the use of new technology in addition to the application of the cultural heritage which has preceded us.

We must also acknowledge the technical difficulties which arise in the handling of enormous piles of garbage, within which millions of aerobic and anaerobic bacteria work ceaselessly and sequentially in biological processes, decomposing all organic waste and producing gases such as methane, carbon dioxide and nitrogen. The elimination of this methane involves various subsidiary objectives such as eliminating foul odors, preventing the formation of pockets of flammable gas, avoiding the gas's contribution to the greenhouse effect and harvesting it for energy.

Its existence obliges the use of new gas confinement techniques and these must be combined with those developed for combating the loss of the mass's internal volume and with those used in the formation of a topsoil layer at the surface. The creation of this topsoil layer was a new technological challenge be-

Fig. 19 – Valdemingómez Forest Park, biogas extraction well next to wetlands (photo: Israel Alba).
Fig. 20 – Relationship between the Valdemingómez Forest Park and the Southeast Regional Park, in the background (photo: Israel Alba).
Fig. 21 – Valdemingómez Forest Park and Madrid. The city rises over the new free space. Meadow area and lookout point (photo: Miguel de Guzmán).
Fig. 22 – Lagoon or wetlands of the Valdemingómez Forest Park, where one can see the established flora and fauna. Growth of the landscape over time (photo: Miguel de Guzmán).

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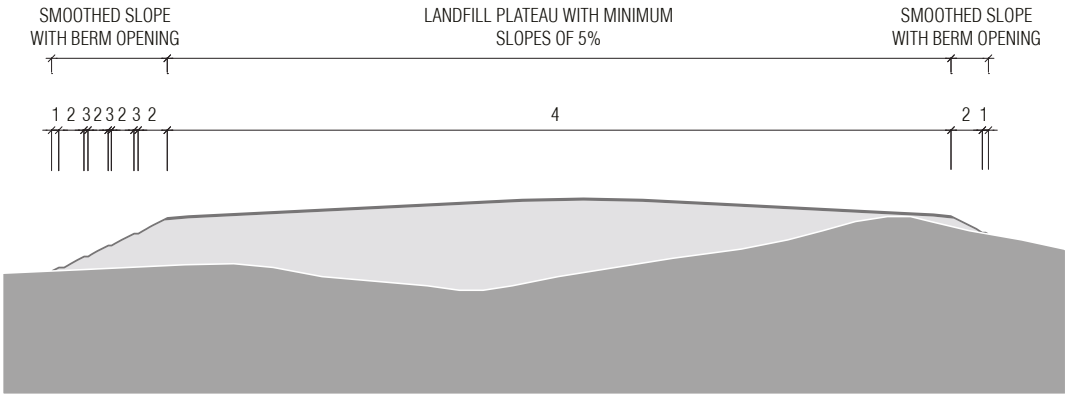
Fig. 23 – Footprint and topography of the Valdemingómez Forest Park, shown with the soil plan (photo: Israel Alba).

VALDEMINGÓMEZ LANDFILL
Cross section. E. 1/5.000



1. Environmental inspection road
2. Slope
3. Protection berm
4. Plateau

cause topsoil is a component which acquires its morphology and properties after a long, slow period of evolution. Our new environmental sensitivity has introduced and improved our perception of the role of soil, whose structure, which is not constant over time, is fortified by farming, repeated tilling and the use of irrigation. When, as is the case here, the soil is newly created, its formation can be accelerated with induced changes. Biologically active soil supports life and continues to evolve from the moment of its formation and this occurs via processes affected by biological, climatic, geological and topographical influences. Despite the crucial role it plays in the recovery of landfills, the actual perception of the role of soil has generally played second fiddle to other components of the project and the traditional techniques applied in agriculture were trusted for the most part. The soil and vegetation formation processes, the gas collection and conversion systems, and the evolution of the employed techniques led us to introduce time as a fundamental variable in landfill recovery projects, seeing as they have become 'living' projects. The introduction of the time variable and the need to apply techniques from other disciplines, instead of being a limitation in an architectural transformation project, should serve as stimuli to the acceptance of new proposals and new challenges. This is the only way by which we can advance the discipline - working at the fringes, at the limits. In Spain, as in most countries, politics is key in these types of operations, but the interests (time) and visions of the agents involved do not always coincide. Landfills are immense natural topographical areas produced by artificial processes, watchtowers from which to discern a new horizon, a new world, a new future in which it will be possible to reverse our acts of deterioration.

By assigning a new value to waste, the recovery and transformation of a landfill provides a new topography which is capable of being useful and productive for contemporary society, for leisure or for agriculture, revealing itself as a free space of the new city.

The chronological analysis of this project makes it primarily clear that the expansion of the metropolis has literally engulfed the first landfills from the second half of the last century and incorporated them into the urban infrastructure (fig. 16). It also

Fig. 24 – Valdemingómez Forest Park, aerial photograph, slopes and vegetation (photo: Miguel de Guzmán).

makes it obvious that there has been a clear evolution, within a short period of time, in the unfurling of a new outlook on these spaces and in architects' attitudes towards the project; they are now more sensitive to the physical and natural world. We are on our way to a new paradigm. The recovery and transformation of the Valdemingomez landfill has given us a chance to verify that every common space has now become understood as a landscape and, as such, an object of interest and the focus of attention of the architect. Landscape has lost its disinclination to change and has grown into a subject that allows many transformations and one which can harbor new, metropolitan uses.

The operation which was carried out was artificial but it seeks naturalness and the attainment of another level of evolution in its relationship with the medium and in its ability to support a new, free space (fig. 17). The recovery of this space, via forestation concepts, involves thought and planning, first about the soil and then about the plants, calculating the time required to develop them. Only after the process has progressed sufficiently should the construction of the rest begin. In the words of Claude Guinaudeau, we should: «Plant today, build tomorrow» (Batlle, 2007, p.69). In this way, we incorporate the value of time into the project and in the construction of public spaces in the metropolis, giving vegetation the chance to develop properly in a soil which is kept 'alive' and in a state of constant evolution. As noted by James Corner, we should aspire to build landscapes which are more active not only in biological terms (productivity) but also in ecological terms (usefulness): «And if we were to understand

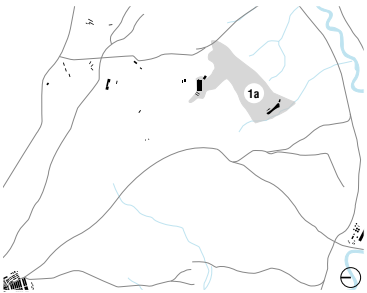
Fig. 25 – Valdemingómez Forest Park, aerial photograph, pedestrian and bicycle trails and meadow areas on the plateau. Construction of a new place (photo: Miguel de Guzmán).

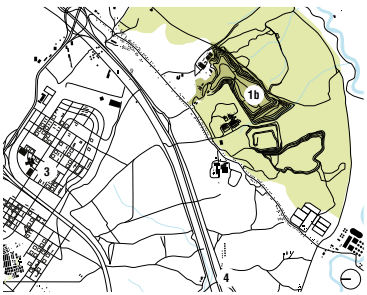
this desire for a more active landscape, not only in biological terms but also in terms of programming, culture, imagination and experience [...] we could finally escape from the limitations of naturalism and scenography» (Corner, 2007, p.158).

Having analyzed the results of the completed works and their evolution through time, we should ask ourselves the same question that was posed by Marc Treib: «Should a project which is based on an ecological concept look natural? And if so, why?» (Treib, 2007, p.159).

In contemporary projects, it is vital to incorporate the idea of change over time, unpredictable and programmatic indeterminacy. Only by doing this will we manage to design the landscape and establish links with the natural environment, with the understanding that, as the same author affirms: «Landscapes grow and die. Change is inherent in all living systems and, in turn, it becomes a key element in landscaping, unlike that which occurs in architecture. Projects rarely address growth or change» (Treib, 2007, p. 161).

According to the work carried out by the multi-disciplinary agency IaN+, formed by Carmelo Baglivo and Luca Galofaro, we are now witnessing a new definition of the term 'ecology' and this should be adapted to the work of the architect. To do this, they have defined the term 'new ecology' as the idea of urban ecology linked to time and to the relations which develop in the territory. In this way, architecture assumes a fundamental role by being an integral part of the project process which orientates the evolution of the territory. At the same time, it contributes to the renovation of traditional urban planning, incorporating variables and concepts which suggest





1a. Valdemingómez landfill (closed 2000)
1b. Valdemingómez Forest Park (opening 2003)
2. Historical city Vallecas
3. New developments
4. Infrastructures

Fig. 28 – Integration into the new landscape of the energy extraction systems for the biogas accumulated in the landfill (photo: Miguel de Guzmán).
Fig. 29 – New plan of the biologically active soil of the Valdemingómez Forest Park (photo: Israel Alba).

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Fig. 26 – Valdemingómez Forest Park, aerial photograph, slopes and plateau (photo: Miguel de Guzmán).
Fig. 27 – Relationship between the Valdemingómez landfill and Madrid: 1978-2000-2013. The maps show the urban growth in the surrounding area. After its first years of use as a decentralized landfill, it has become a free space close to the expanding city (photo: Israel Alba).

subtler interrelations between human settlements, nature and urban components.

This is to confirm that contemporary architecture meets equally and at the same time architecture and landscape, addresses the matter of time or, what is the same, the matter of life. Life cycles incorporated to the architectural project cannot separate from the matter of time, as it indeed happens in the construction of the city. Life span, with its inevitable change associated to itself, is another variable in the architectural project.

If globalization implies the anonymity of a city and its disassociation from physical reality, then new, free metropolitan spaces can actually return to that city part of its identity (fig. 18) and specificity. This

Fig. 31 – Valdemingómez Forest Park, aerial photograph, pedestrian and bicycle trails alongside wetlands and meadow areas (photo: Miguel de Guzmán).
Fig. 32 – Valdemingómez Forest Park. Source (photo: Israel Alba).
Fig. 33 – Valdemingómez Forest Park, aerial photograph, pedestrian and bicycle trails alongside wetlands and meadow areas (photo: Miguel de Guzmán).

is especially so when the spaces are the fruit of the recovery of landfills and when they are very close to unique places (from a landscape and environmental standpoint) such as the Southeast Regional Park of Madrid.

In any case, this project's relevance stems from its attainment of the three main objectives that this type of intervention required: resolving a complex technical problem, producing a new, free public space and constructing a new landscape via the creation of soil and the manipulation of the topography. It could be affirmed that it is not a full recovery *per se*, because the natural state which was lost can never be recovered. Rather, it is a 'reinvention' whose value lies in changing the attitude of man towards landscapes and areas of deterioration.

This project has confirmed that the limits have been diffused and that we are operating on a metropolitan scale in the territory. It has confirmed that we are mindful about everything and that everything requires mindfulness, both the city and the landscape; that is if the two are not already one and the same. We need and inhabit the planet as a whole, not only the cities, and therefore this case reveals a clear and rapid evolution. It also reflects the commitment of contemporary architects, of man and of our society to the addressing of the problem of waste generation and the contamination of our environment.

It is, in any case, a positive example of the recovery and transformation of a landfill and it imbues us with an optimistic spirit, one that is full of challenges and possibilities, and with a new ecological conscience which is moving us towards a new paradigm. And even though there is still much to do, we must believe in a possible future that can be better.

To paraphrase the Spanish philosopher José Luis Pardo, we could say that waste was never so useful[4].

«Every territory is unique, thus creating the need to 'recycle', to scratch away once more (but with the greatest possible care) at the old text which man has recorded on that irreplaceable material which is the terrain, in order to leave a new text which responds to current needs before it, in turn, is erased» (Marot, 2007).

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Fig. 34 – Wetlands in the Valdemingómez Forest Park, a new ecosystem. Growth of the landscape over time (photo: Israel Alba).

Endnotes

[1] A leachate is any liquid that, in the course of passing through matter, extracts soluble or suspended solids or any other component of the material through which it has passed.

[2] The landscape, more than the buildings, is the generating force behind a metropolis and therefore it is appropriate to make it the central aspect of urbanism.

[3] A term used to define the artistic movement which came about in the United States in the second half of the 20th century and which uses the landscape as the base for an artistic intervention in which the work of art and the landscape are inseparably joined.

[4] Alluding to his essay *Nunca fue tan hermosa la basura (Waste was never so beautiful)*.

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