FREQUENTLY ASKED QUESTIONS

CONTENTS

MPI CONCEPT & TECHNOLOGY

Q1. MPI sanitises landfills using existing and individually proven technologies, but claims to be capable of launching a unique sanitation process.
How do these relate to each other?

A1. By creating a unique link between existing subtechnologies, MPI develops a highly efficient chain structure.
The resulting chain works according to the so-called 'building block principle'. This means that the required installations are customised to the specific composition of the landfill and are linked together per component.
The principle of operation is that the output from block 1 (installation 1) becomes the input for block 2, and then the output from block 2 becomes the input for block 3, and so on. The standard design for the plant, which is called a Multi Purpose Unit (MPU), is made up of 22 installations. Up to 30 different blocks can be added to the standard design depending on the requirements of the specific composition of a landfill.
The building block principle can also be used for small-scale operations. Thus, the concept creates optimal flexibility and controllability, which makes it possible to reach a recycle quota of 500,000 tons of waste per year.
The visualization of an MPU plant is available on:
http://www.mpi-group.eu/index.php?pid=254

Q2. According to the MPI concept, a recycling quota of about 95% per landfill can be achieved. How come this percentage is higher than that for the current treatment technologies?

A2. This is partly due to the small-scale design of the MPI concept and the smaller flexible installations that can be added to it, which makes the process easy to control and capable of running efficiently. In addition, optimising the link between the installations leads to a higher return compared to what can be achieved by the current treatment technologies. Finally, a special method for preparing the input for each installation allows us to achieve a better recycling quota.
During these processes, approximately 65-70% of the landfill can be reclaimed in the form of raw materials and other materials such as wood, metals, glass, building materials etc.
About 21 MW of energy can be produced out of the remaining 25-30% consisting of residual material (such as biomass) and through the recovery of heat. This energy will be used by the plant and the surplus can be delivered to the electricity grid, the gas mains and/or local buyers. Synthetic natural gas and diesel oil can also be produced.
Toxic non-usable materials (about 0-5%) are destroyed on the spot.

Q3. MPI claims to be capable of sanitising a landfill without releasing emissions and odours during the process. How can MPI implement this especially since the composition and structure of a landfill are known to change in the course of time and little or nothing is known about this?

A3. Potential emissions and the present (hazardous) waste flows will be recorded as accurately as possible beforehand, using all available landfill data, information from the Central Bureau of Statistics, municipal administrations etc.
In addition, the composition of the landfill will be recorded by means of sampling. While digging, the MPI will use modern technologies to directly monitor and measure the emissions online. This means that sensors, measurement units and/or detection standards for specific materials will be installed on the site of the digging installations. The technologies will directly and continuously report the emission values measured, such as the CO measurement, chlorine measurement, methane detection, asbestos and radioactive detection.
In addition, gas extraction and suction systems will be installed on and around the digging installations. These systems will suck up the gasses, vapours and/or odours from the waste mass that has been taken out. Via the standard suction systems that collectively form an closed air system, these will be transported to the different treatment installations in an MPU. Finally, the (hazardous) emissions and odours will be destroyed in the MPU in an environmentally responsible way.
Supplementary measures, such as the use of (temporary) covers to prevent emissions, will be taken if necessary.

Q4. How can MPI guarantee a project developer, for instance, that the sanitised land is and will continue to be 'clean'?

A4. The clean soil will be delivered together with a so-called clean soil declaration issued by an independent and certified laboratory.

Q5. How will you prevent any emissions during the digging and treatment processes from coming into contact with groundwater and the air?

A5. A hydrological rinsing system will be installed and used to drain off and clean up any leakage from the waste body or downstream seepage.
Some landfill sites in Europe already feature such a rinsing system, in which case MPI will simply make use of it.
Residual material can be prevented from spreading to the environment by using the digging technologies mentioned in Question 3 and by taking other measures such as temporary covers and wind barriers.

Q6. What measures does MPI take against any existing soil and/or groundwater contamination?

A6. Any existing land and soil contamination will be sanitised first by digging up the soil and then by washing it using a hydrological system. The purified soil will be delivered as clean soil or as raw material, for instance, to the industry.
Groundwater contamination can also be washed away using a similar type of hydrological washing system.

Q7. How is the entire logistics system structured and to what extent does it put a strain on the regional residents?

A7. Because the sanitation and treatment process takes place on site, the need for external logistical transportation of waste material is removed.
However, regional residents do have to put up with the logistical burden of transporting reclaimed materials and raw materials to buyers. Extra logistical supply is also needed in exceptional cases requiring additional biomass if the landfill has insufficient energetic material. (See also Question 11.)

Q8. How long does it take to sanitise a landfill?

A8. Cleaning up a landfill site with one million tons of waste, including the construction of the installations and their removal after the sanitation process, takes about 1.5 to 2.5 years. A standard MPU can treat 500,000 tons/year (or about 280,000 m3) at full capacity, unless one opts for a smaller capacity.
Any unforeseen circumstances, such as pre-existing soil and groundwater contamination, must also be taken into account. However, this can not be included in the calculation of the actual sanitation time beforehand.
It is possible that after cleaning up a contaminated landfill, it will still need to be washed for a number of years in order to fully sanitise the contaminants that have permeated into the deeper subsoil.

Q9. Will the implementation of the MPI concept require subsidies and government support?

A9. For the utilisation of the MPI concept, only the regular subsidies for job creation have been taken into account.

Q10. In general, how will you arrange financing for the first pilot project?

A10. A limited partnership (*CV - commanditaire vennootschap*) or a private limited company (*BV - besloten vennootschap*), in which interested parties can participate, will be established for this purpose. As a potential method of financial participation, MPI and its suppliers may finance a large portion through banks. The remaining 33% of the necessary finance can be provided by the participating parties, e.g. a landfill owner, the local government, an energy company, project developer or (private) investor.

Q11. How does MPU obtain sufficient biomass so as to guarantee continuity in the production and delivery of renewable energy?

A11. Biomass is usually sufficiently available in the average landfill composition. Should there be insufficient energetic material available and/or if the usable materials in the landfill are 'depleted', the required amount of biomass can be derived from local peripheral streams, such as manure, aquatic green waste, silt deposits, grass clippings on the roadside/ditches, pruning waste, and residues from local food industries or hotel and catering industries.

LEGAL MATTERS

Q12. Under the environmental legislation, there seems to be a policy vacuum with regard to integrated landfill after-care. Since the MPI concept is an example of such an approach, why will it still try to carry out a pilot project?

A12. In April 2005, the Ministry of Housing, Spatial Planning and the Environment (VROM), Association of Provinces (IPO), Association of Netherlands Municipalities (VNG) and the Ministry of Waterways and Public Works (*Rijkswaterstaat*) have concluded in the well-known NAVOS rapport (http://www.mpi-group.eu/index.php?pid=254) that the integrated after-care of landfills is the most preferred option.

In the same report, the representatives of these organisations have proposed amending the Environmental Management Act and including the integrated approach in national legislation.
Within such a framework, it is encouraging that the province of Brabant has already adapted its provincial environmental regulations and is thus at the forefront of the development of the integrated approach to sanitising landfills. Other provinces are in the process of decision-making.
These progressive insights and developments have convinced MPI to start a pilot project in 2007.

Q13. The current approach to landfill management, namely, covering and monitoring measurements, is effective from a legal point of view and seems to be economically, environmentally and technologically sound. Why then is there a need to adopt a method of landfill after-care which, according to the said NAVOS report, is not cost-effective?

A13. The current stabilisation and monitoring procedures are sufficient for 90% of the old landfills. However, the rest of the landfills have given rise to either environmental/technological or planning problems. These are the landfills that need to be cleaned up. The MPI concept can provide a budget-neutral solution to these problems.
The NAVOS report was published in April 2005 and used figures from 2003 and 2004. Since then, the technologies have improved considerably while the prices of raw materials, energy and fuels have more than doubled.
These changes have led to a new situation, in which MPI can at least use its innovative concept to sanitise landfills in a budget-neutral way.
Additionally, the sanitised landfills can be turned into land ready for building, e.g. for project development. Such a possibility exists, for instance, on landfill sites which are considered obstructions by existing zoning plans.
Another fact to consider in response to this question is that it costs the government approximately 800 million euros annually just to monitor former landfills, for instance. This is equivalent to a waste charge of about 200 euros/year per average family, which could be turned into savings.

Q14. How will MPI obtain the necessary licences, especially for sanitising landfills containing chemical waste or high levels of asbestos, for example?

A14. MPI will apply for the required licences from the regular government institutions, usually from the municipal and/or provincial offices. The normal procedures will be followed.

Q15. How will MPUs meet the requirements of the Decree on Air Emissions from Waste Incinerators (*Besluit Luchtemissies Afvalverbranding*)?

A15. Zero-emission operation is one of the basic principles of the MPI concept. Open outlets and/or chimneys are thus not included in the design. In other words, the MPUs use a closed air system. This means that streams containing emissions are processed in a sort of continuous cycle using various technologies. (See also Question 3.)
Should processed air be emitted, the so-called final step will be carried out via a specially-designed exhaust gas scrubber, a carbon filter unit and a bio-bed filter.

Q16. The transfer, removal or rearrangement of landfill soil is often considered redumping for which no licence will probably be issued. Does this jeopardise the success of MPI?

A16. No, because an integrated approach in line with the MPI concept can not be considered redumping. The only material that will be brought back is fully sanitised soil which meets the applicable environmental requirements.

WORKING CONDITIONS

Q17. How does MPI protect its employees against hazardous substances such as toxic materials and asbestos?

A17. MPI meets the applicable legal and technical licensing standards and requirements for the treatment of toxic materials and hazardous substances. From the point of view of health and safety, this implies, for instance, that the current measures for protecting both the personnel and the local residents, e.g. protective clothing and railings respectively, will be implemented.
Furthermore, MPI complies with the requirement for protecting both the personnel and the local residents through the principle of 'close-to-zero emission' which is the basis for its operations.

Q18. The treatment of hazardous substances requires specialised skills. Where will the right employees possessing these skills come from?

A18. The future personnel, i.e. about 75 FTEs per sanitation project, will be carefully selected via the labour market specialising in the field and via a collaboration with various colleges and academic institutions (e.g. Saxion Polytechnic University, Twente Technological University, Delft Technological University and Eindhoven Technological University).
In addition, internal education and training for specific tasks within the MPI organisation is an integral part of our personnel policy.