



**LANDFILL**  
IT'S NOT ABOUT COMPROMISES.

#ITSABOUT  
**STABILITY.**



#ITSABOUT

# MAXIMUM SAVETY.

The world became a little bit better in 1970 – at least in the Cologne region. It was the year when countless dumps around the city were finally consolidated into one large landfill at the former Vereinigte Ville opencast lignite mining.

**THIS ALLOWED FOR COMPLETE CONTROL OVER WASTE THAT WAS NOT SUITABLE FOR RECYCLING OR INCINERATING.**

Thanks to a 30-metre-thick, waterproof layer of clay and leachate treatment, we are firmly in charge of the water levels at the landfill site. Using a cogeneration system, we produce climate-neutral heat and energy from the landfill gas.



**489,000 T**  
INORGANIC SUBSTANCES



**1.4 MN M<sup>3</sup>**  
REMAINING  
CAPACITY



**10 MN M<sup>3</sup>**  
GAS  
COLLECTION



**1 MN M<sup>2</sup>**  
AREA



**200,000 M<sup>3</sup>**  
LEACHATE  
TREATMENT

KEY FIGURES 2023

## USING LANDFILL TO

SECURE RESIDUAL SUBSTANCES AND EXTRACT ENERGY.

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# **ESTABLISH- MENTS.**



## **PRESERVING THE ENVIRONMENT.**

**LIGNITE MINES CAN BE GOOD FOR SOMETHING: THEY ARE  
OUTSTANDING SITES FOR ESTABLISHING SAFE LANDFILL.**

We have been filling an enormous mine at this site near the city of Cologne since 1970. Its bottom consists of a 30-metre-thick layer of clay which acts as a naturally waterproof barrier. The landfill's sides consist of 80-centimetre-thick walls of bentonite.



## **IMPLEMENTING NEW LAWS.**

**LANDFILLS CAUSE EMISSIONS BECAUSE OF THE UNCON-  
TROLLED REACTIONS OF ORGANIC SUBSTANCES. THIS LEADS  
TO THE FORMATION OF GAS AND CONTAMINATED LEACHATE.**

Therefore the only waste allowed to be stored permanently in landfill since June 2005 is pretreated waste called inert – which is usually ash, excavated soil, stones and industrial residues.



## **MONITORING EXISTING WASTE.**

**WASTE FROM THE PAST STILL REMAINS IN LANDFILLS.**

This is unproblematic as bacteria causes organic remains and even paints, lacquers and plastics to decompose. Today, evolving gases such as methane – 28 times more harmful to the climate than CO<sub>2</sub>! – are used as fuels in combined heat and power to generate electricity.

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# LONG-TERM PROSPECTS.



## **PURIFYING LEACHATE.**

**RAIN IS GOOD, ALTHOUGH IT CAN BE TROUBLESOME FOR LANDFILL BECAUSE THE WATER LEACHES THROUGH THE DECOMPOSING MATERIALS.**

This water is collected, pumped away and constantly examined for harmful substances before it can cause any environmental damage. Lastly, the water is purified and then forwarded to a treatment plant.



## **EXTRACTING ENERGY.**

**THE GASES CREATED IN LANDFILL, SUCH AS METHANE AND CARBON DIOXIDE, ARE CAPTURED.**

They are considered renewable energies. This means that only the energy stored in the landfill site is used when converting it into power and heat. This creates electricity for about 7,000 dwellings without burning any coal.



## **BRINGING BACK NATURE.**

**A NEW LANDFILL WILL SOON SIT ATOP THE OLD ONE.**

The resulting hill will consist of non-organic waste, ash and minerals that neither sequester gases nor contaminate water. When this aggregation of waste no longer has any impacts on the environment or climate, the landfill will be turned back into a landscape and recultivated with soil and compost. A beautiful view.

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**bvdm.**

**NATURAL, DOWN TO EARTH AND HONEST:** 'Jupp ech öko' is a genuine Cologne product made sustainably from 100% recycled paper. It has Blue Angel certification.

A photograph of several people climbing a red rope structure against a clear blue sky. The ropes are thick and red, with red plastic connectors. The people are wearing white clothing and red-and-white checkered socks. The text '#ITSABOUT' is overlaid in large white letters.

**#ITSABOUT**

# THE BIGGER PICTURE.

## REGAINING RESOURCES STEP BY STEP.

### 02 ASH TREATMENT.

Waste incineration ashes contain valuable metals. Before being dumped, these are separated.

### 01 CONTROLLED INPUT.

Each incoming lorry is inspected thoroughly and any load and certificates must meet the requirements. Only the things that belong in a landfill end up in it.

### 03 WATERPROOF FILM.

Rainwater should not seep into the landfill body. Thus, once nothing is deposited on the surface, it is covered with foil. Rainwater then flows off to the side via gravel bed filters and drainage ditches.

### 07 A VAST FUTURE.

Over one million square metres are earmarked for the storage of inert substances. They do not have any organic or chemical reactions that would cause emissions.

### 05 CLIMATE-NEUTRAL ENERGY.

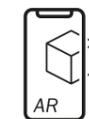
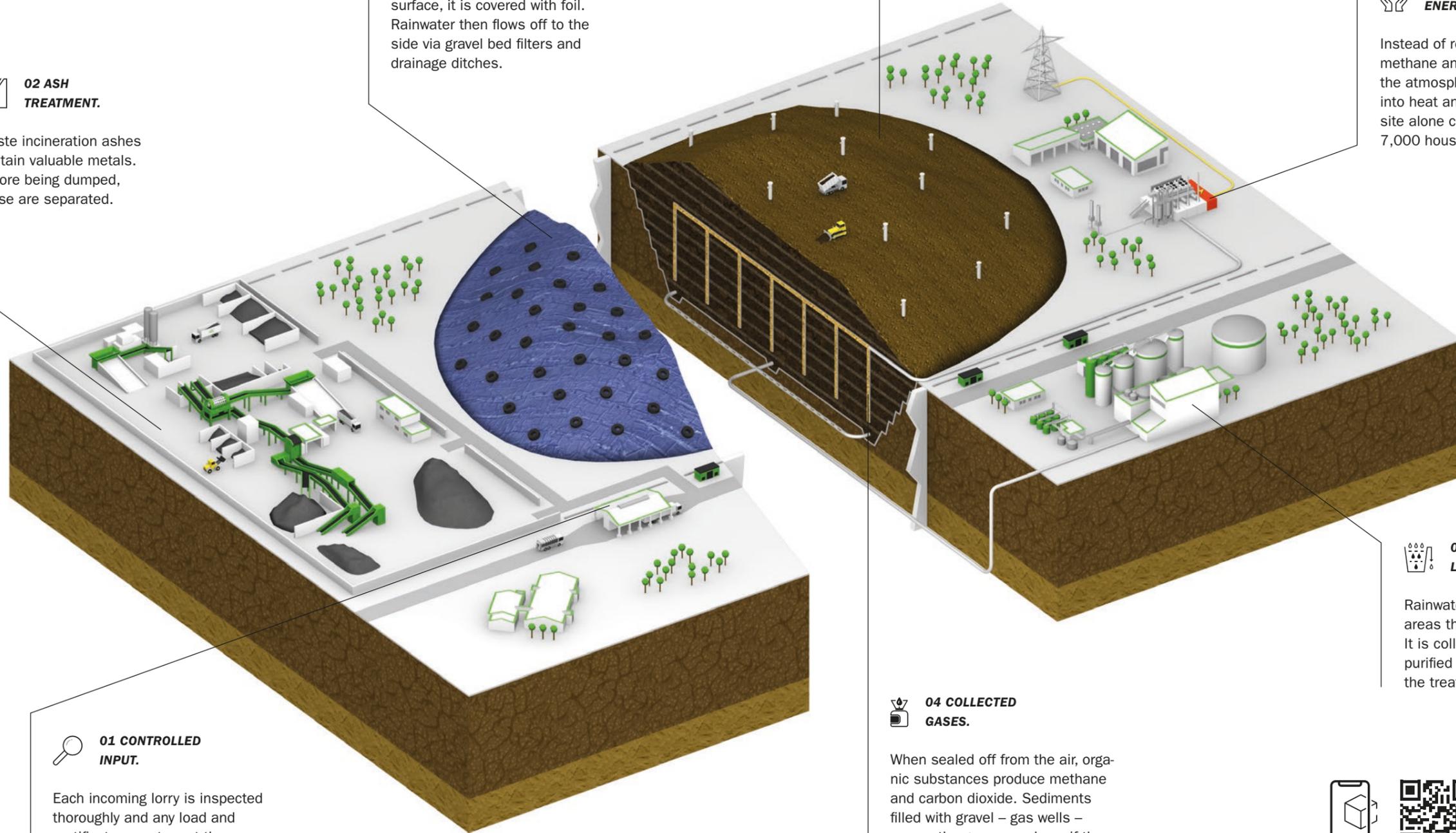
Instead of releasing the collected methane and carbon dioxide into the atmosphere, it is converted into heat and power. This landfill site alone can generate power for 7,000 households.

### 06 PURIFIED LEACHATE.

Rainwater penetrates the landfill areas that are not covered up. It is collected at the bottom, purified twice and conveyed to the treatment facility.

### 04 COLLECTED GASES.

When sealed off from the air, organic substances produce methane and carbon dioxide. Sediments filled with gravel – gas wells – convey the gas upwards as if they were chimneys, where the gas is then collected and flows to the combined heat and power plant.



**SCAN THE QR CODE AND EXPLORE THE DETAILS OF THE PLANT, USING THE AUGMENTED-REALITY APP *RENEE*.)**