



EBS MANNHEIM –
WASTEWATER
DEPARTMENT
CITY OF MANNHEIM

TABLE OF CONTENTS

Key dates

Locations und employees

Organisation

Distribution of staff

Wastewater charges and expenses

Expense distribution

Sewage disposal

Age structure of sewers

Sewerage system inspection

Sewer database

Renovation and construction of sewer

Wastewater treatment plant

Environmental performance

Material balance

Activated carbon plant

Renewable energies

KEY DATES

Foundation 1997-01-01

Employees 260

Fixed assets 348 Mio. €

Investment 11,7 Mio. €

Quality and Environmental Management System

Certified according to EN ISO 9001 / EN ISO 14001 since 2003-01

KEY DATES

Sewage treatment plant	725.000 population equivalents (design size) approx. 89.000 m ³ flow of wastewater per day
Sewage system	838 km (without house connection sewers) combined discharge 39 pumping stations 32 lifting equipments
Rain-/storm water treatment	8 overflow basins 8 storm water retention tanks 12 storage capacities of sewer 2 rainwater infiltration facilities
Retention volume in total	approx. 170.000 m ³

LOCATIONS AND EMPLOYEES

Wastewater treatment

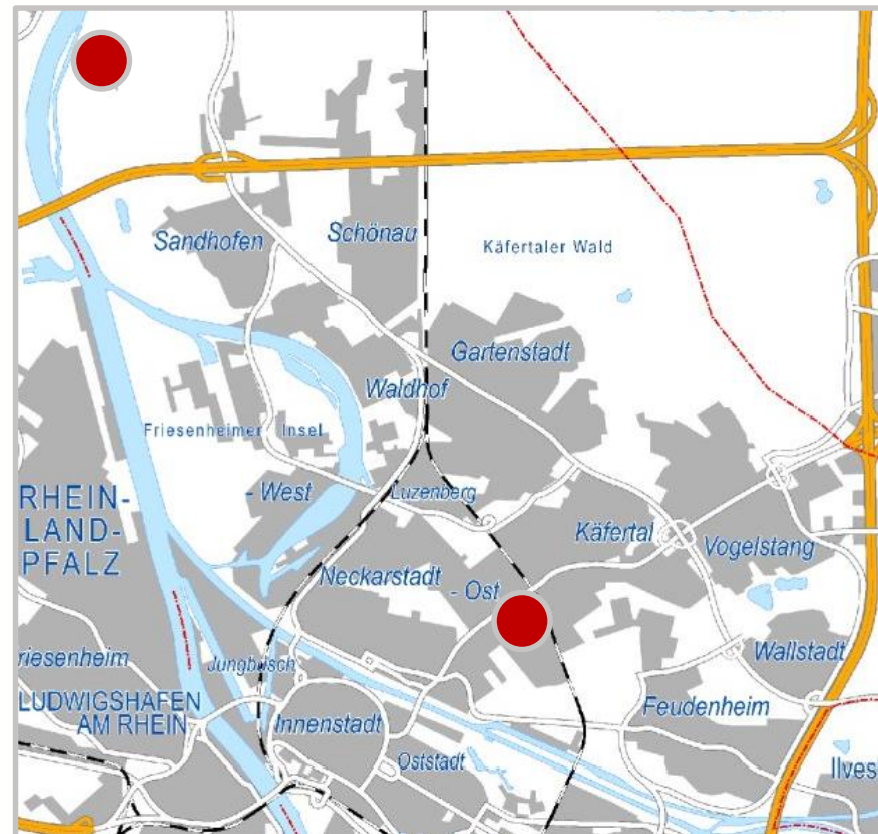
161 employees

Karl-Imhoff-Straße 50
68307 Mannheim

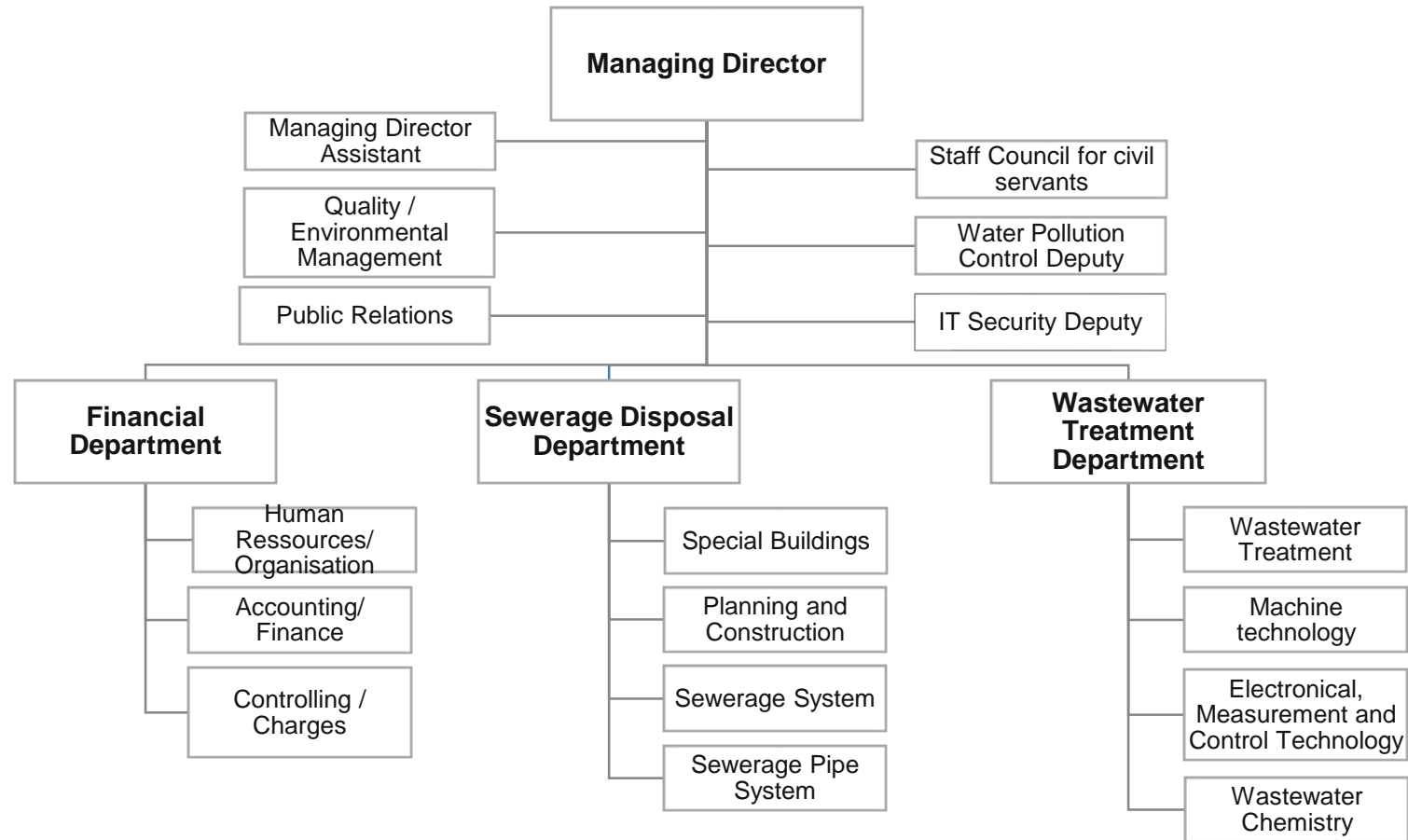
Sewerage disposal and administration

99 employees

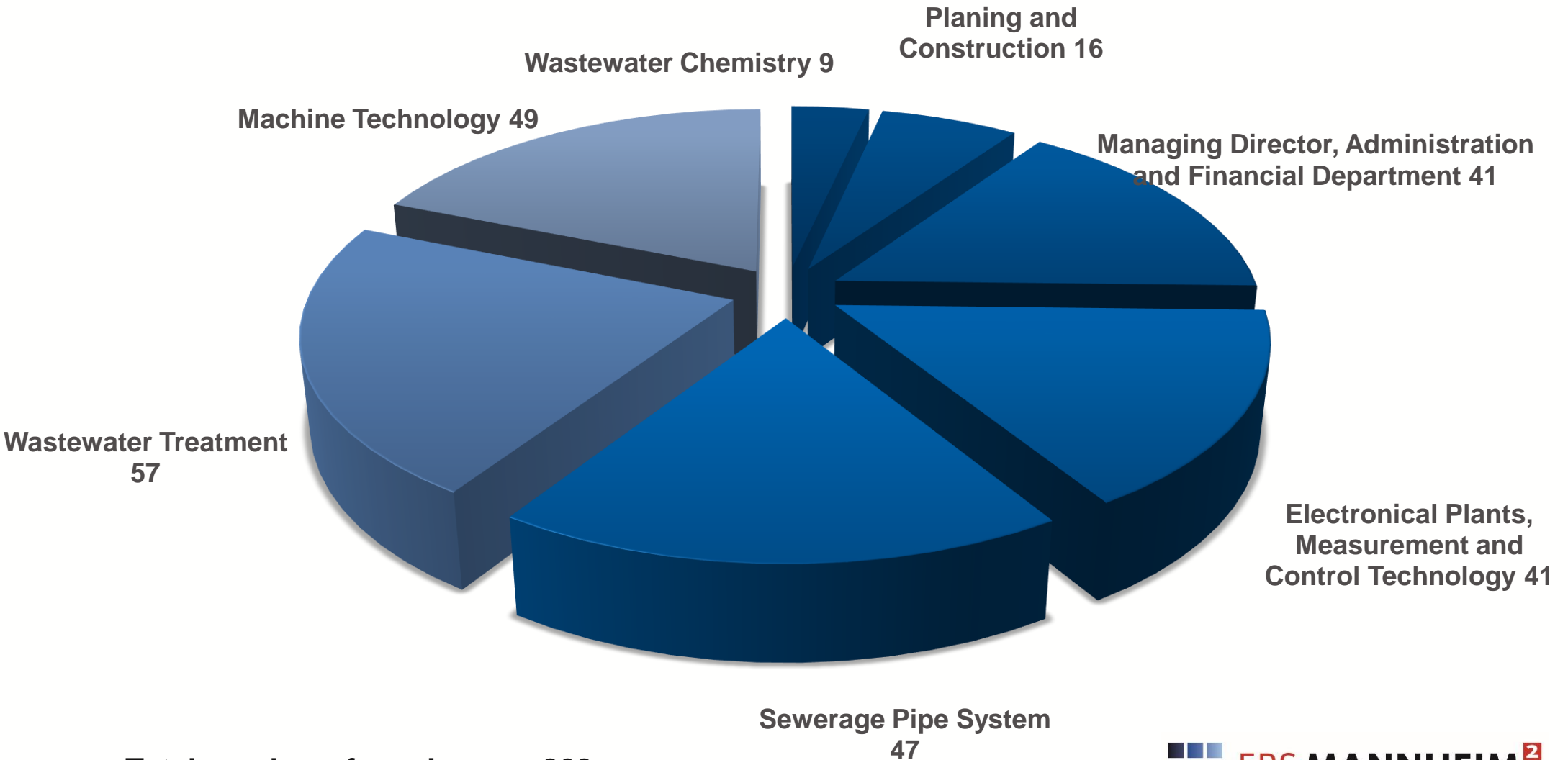
Käfertaler Straße 265
68167 Mannheim



ORGANISATION



DISTRIBUTION OF STAFF



Total number of employees: 260

WASTEWATER CHARGES AND EXPENSES

Sewage fees

Per cubic metre of delivered drinking water 1,68 € (since 2021-01-01, before 1,61 €)

Rain water fees

Per square metre and year of drained surface 0,80 € (since 2021-01-01, before 0,83 €)

Income (Wastewater Charges) 59,7 Mio. €

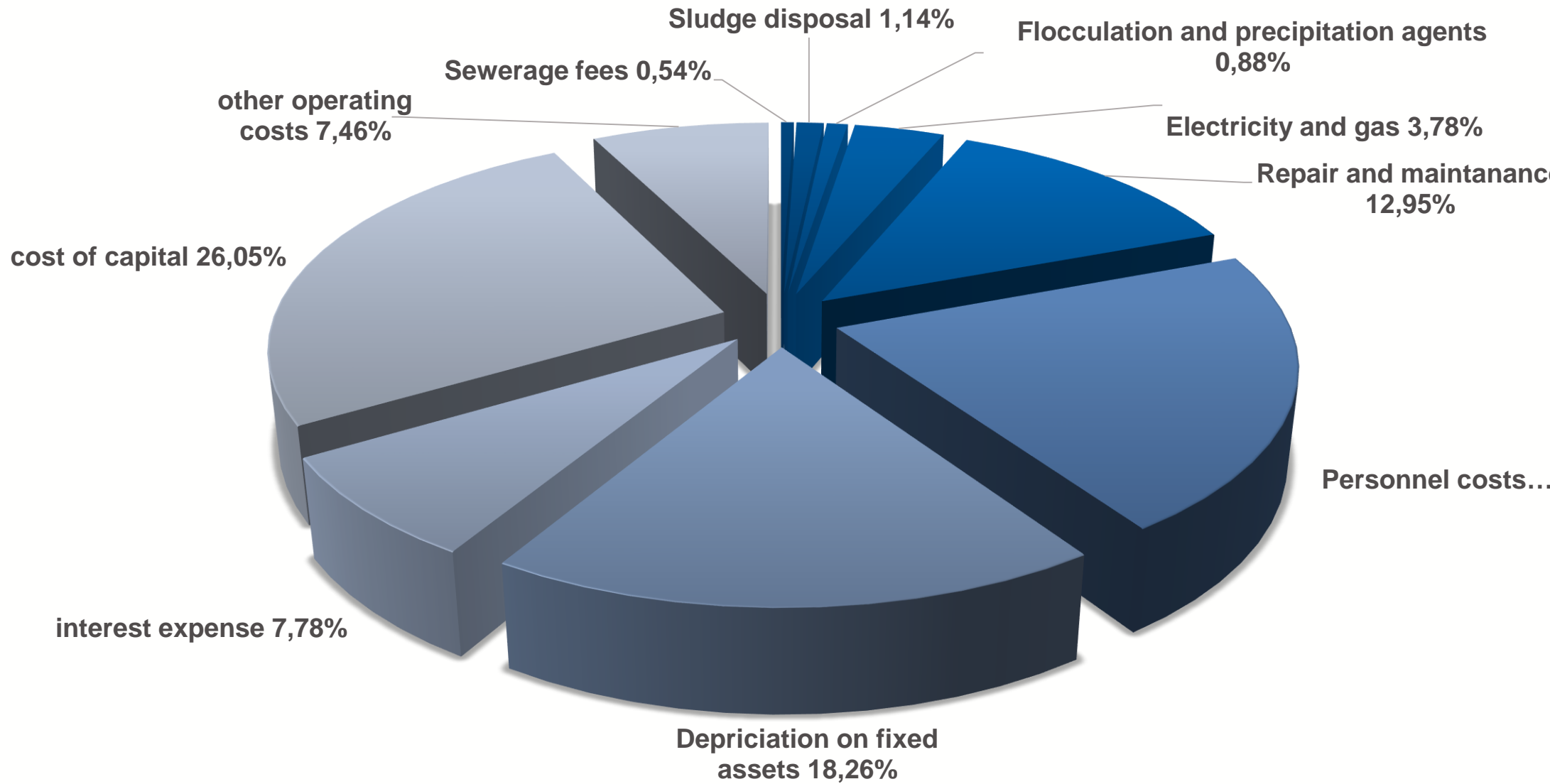
Material costs 17,4 Mio. €

Personnel costs 17,4 Mio. €

Depreciations 15,0 Mio. €

Financial result 6,4 Mio. €

EXPENSE DISTRIBUTION



SEWERAGE DISPOSAL

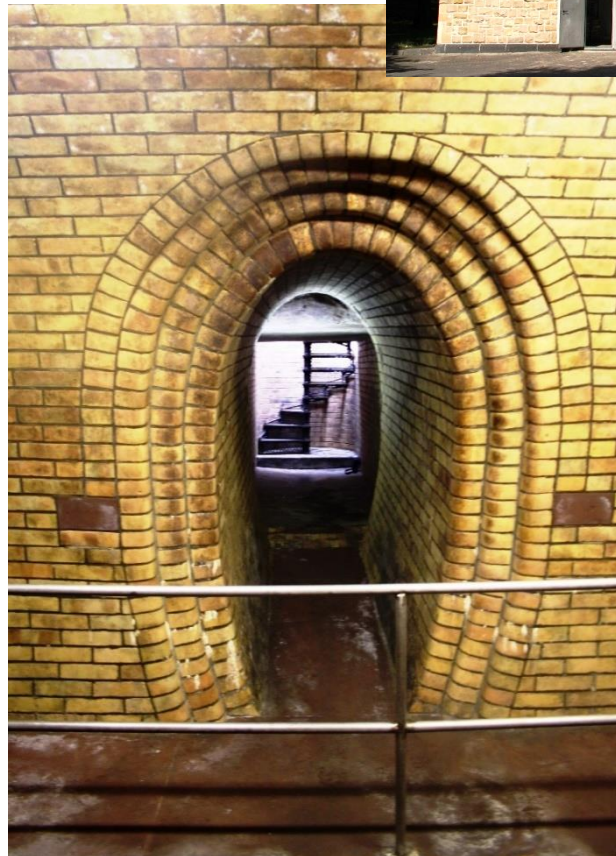
Sewerage system length
838 km under the responsibility of EBS
Mannheim

Year of sewerage system construction
Since 1876

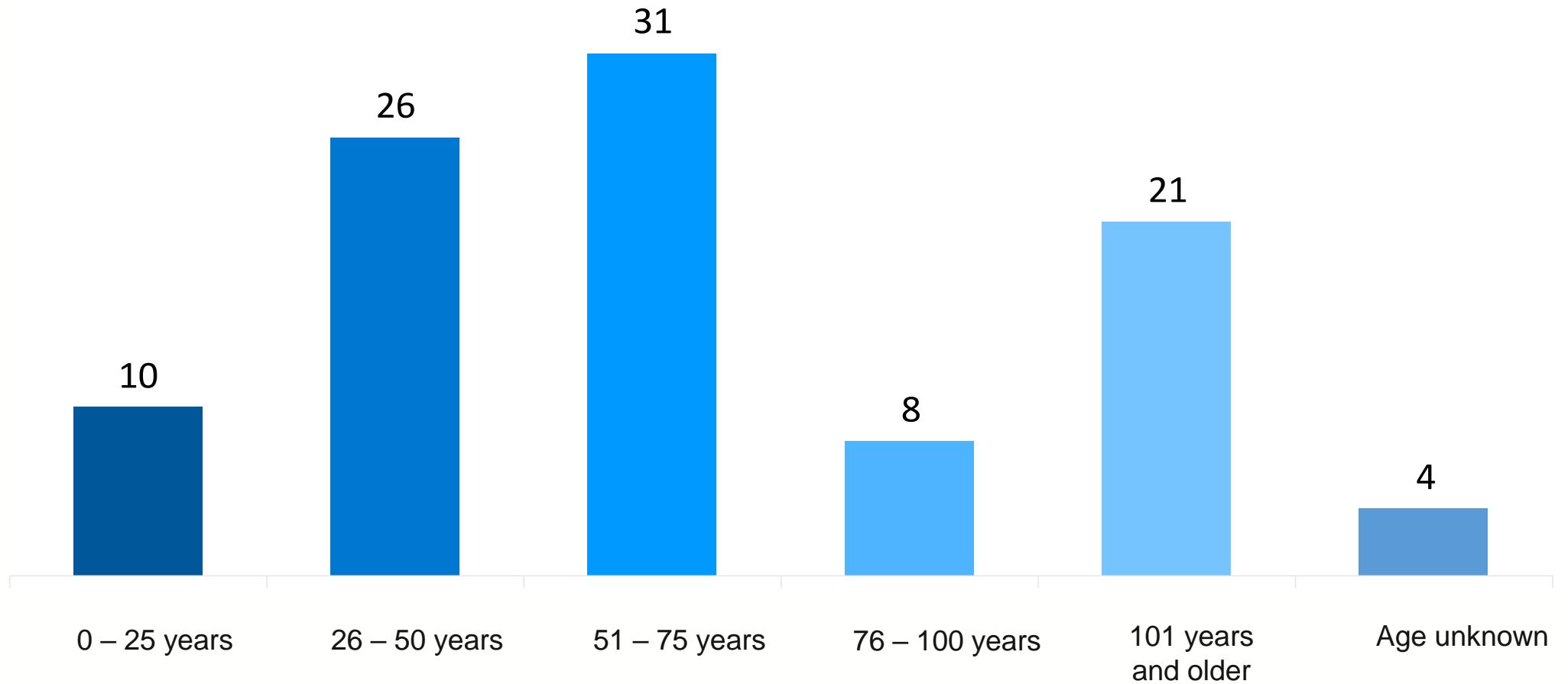
Sewer section 250 – 5.200 mm

Canalized area approx. 7.100 ha

Connection to sewerage system
99,9 %



AGE STRUCTURE OF SEWERS



SEWERAGE SYSTEM INSPECTON

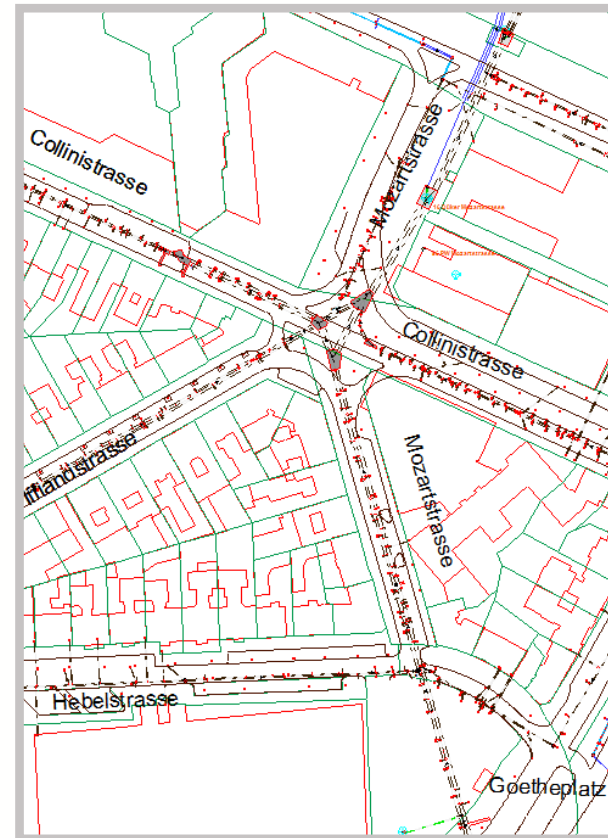
Digital based on TV examination (since 1986)	94,4 %
Analog based on walking through	5,6 %
Examination in total	100,0 %



SEWER DATABASE

Administration of the sewer inventory data for the whole urban area

- Survey data (channel geometry and topography)
- Data from the TV-Inspection – Gathering of the sewer conditions
- Gathering of the house connections (noozles)
- Special buildings
- Hydraulic performance of the sewer system
- Indirect discharge data
- Data of the plants



RENOVATION AND CONSTRUCTION OF SEWER

Length in total of

repaired sewer:	approx. 5,8 km
renovated sewer:	approx. 22,6 km
renewed sewer:	approx. 0,5 km



WASTEWATER TREATMENT PLANT

Operation

- 1973 Wastewater treatment plant
- 1986 Filtration
- 1999 New biological plant
- 2016 Fourth treatment stage (removal of pharmaceuticals, etc.)

Flow of wastewater at dry weather

Conditions per day: approx. 89.000 m³

725.000 population equivalents (design size), approx. 50% from the industry



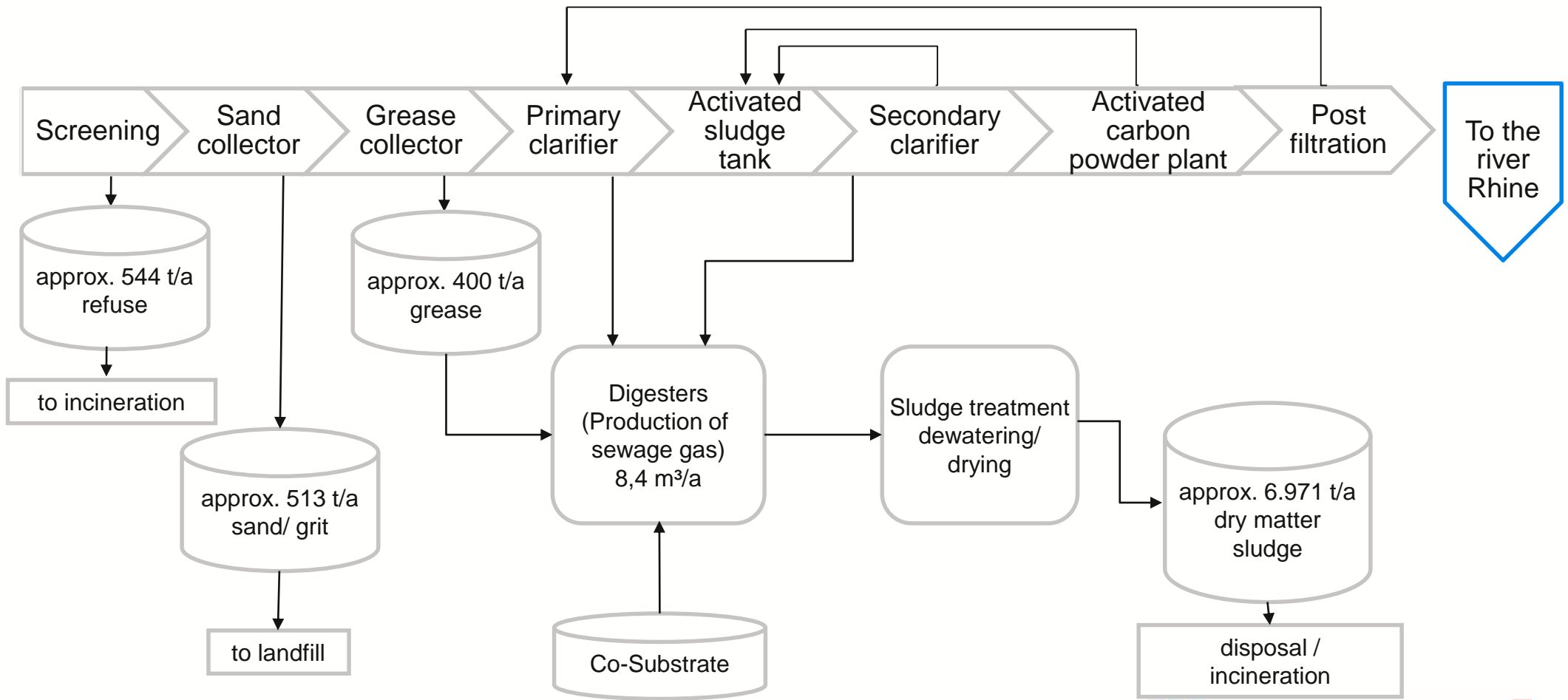
ENVIROMENTAL PERFORMANCE

		Raw waste water mg/l	Treated waste water mg/l	Efficiency level %
Chemical oxygen demand	COD	942	17	98,2
Organic carbon in total	TOC	322	6,05	98,1
Nitrogen in total	N _{tot}	75,4	5,00	93,4
Phosphor in total	P _{tot}	12,43	0,10	99,2



MATERIAL BALANCE

Raw water: approx. 32,6 Mio. m³ flow of wastewater per year (approx. 89.000 m³ flow of wastewater per day)



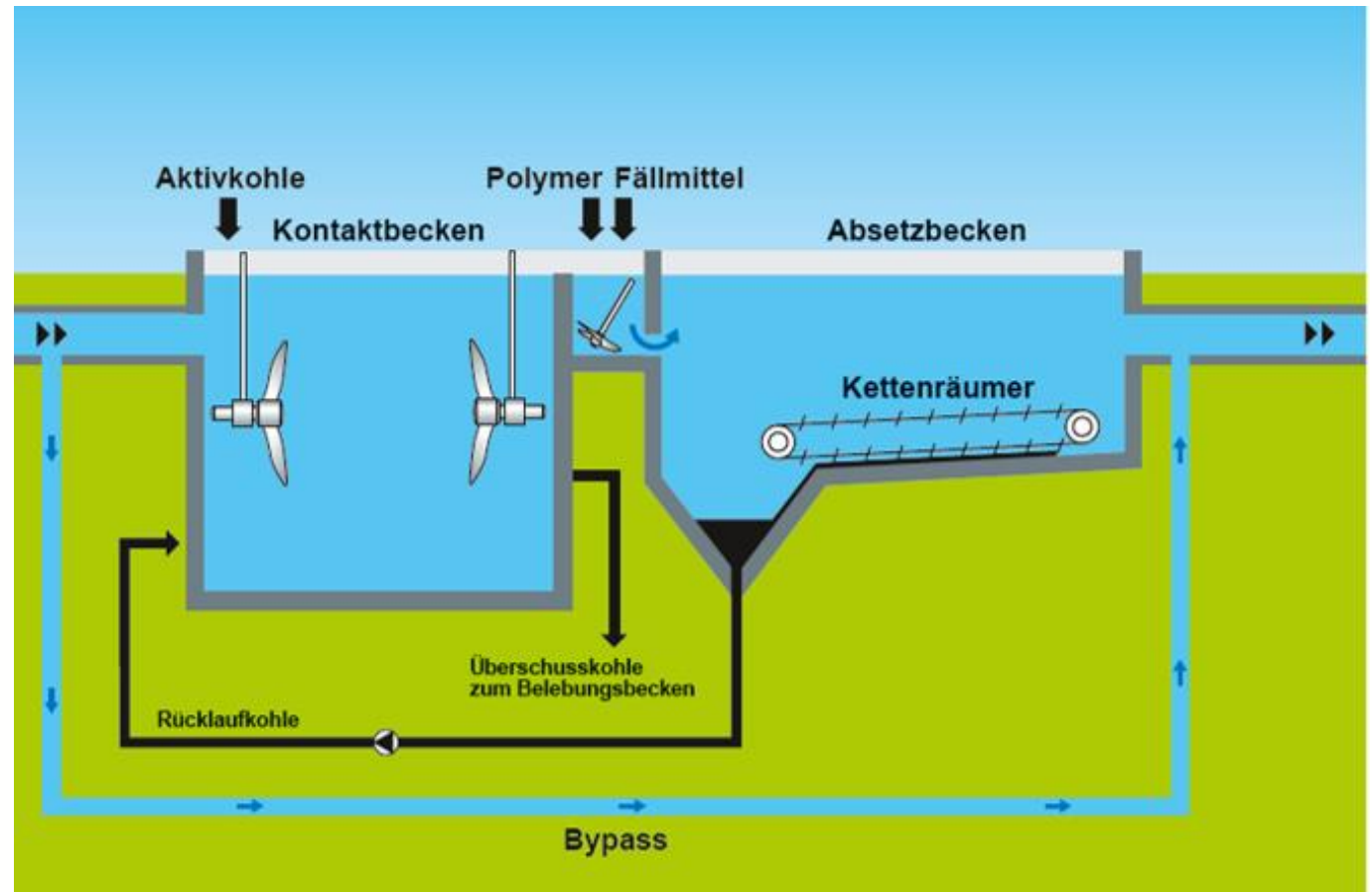
ACTIVATED CARBON PLANT

Micropollutants are being removed from wastewater by dosing powdered activated carbon.

Micropollutants consist of residues from pharmaceuticals, X-ray contrast media, chemicals from industries and households, aromatic substances, etc.

5 parallel tanks

Maximum flow 2000 l/s, 90% of the annual wastewater flow are being treated



RENEWABLE ENERGIES

Sludge treatment at the digesters

since 1973 Digesters

since 1996 Drying



To generate electricity and heat :

→ Co-generation plant

To generate heat :

→ Sludge drying

Photovoltaic and Waterpower

since 2007



To generate electricity:

→ Solarpanel on top of the filtration plant

→ Water wheel at the outlet to the Rhine

Supply of Co-Substrates

since 2012



To generate additional gas:

→ Co-Substrates will be supplying at the digesters in addition

CONTACT:

STADTENTWÄSSERUNG MANNHEIM

KÄFERTALER STRASSE 265

68167 MANNHEIM

PHONE: 0621 293-5210

FAX: 0621 293-5211

MAIL: STADTENTWAESSERUNG@MANNHEIM.DE

