

SludgeTec extended dataset framework - 0 - CONTEXT DATA

Total data items 50

DATASET 0.1 - CONTEXT DATA - WWTP Boundary

Category	ID	Data item	Item description
	0.01...	(indicator)	
GEOGRAPHY A	A0.001	Lat	Location of the WWTP - Latitude
	A0.002	Long	Location of the WWTP - Long
	A0.003	Map	Cartography at the adequate scale to understand the location of the plant in relation to near-by human settlements, water resources and other relevant features.
	A0.004	Elevation above sea level	
	A0.005	Is the plant inside or outside the city ?	
	A0.006	Land uses in 1 km radius	
	A0.007	Distance to nearest house	

DATASET 0.2 - CONTEXT DATA - Municipal Boundary

Category	ID	Data item	Item description
	0.02...	(indicator)	
GEOGRAPHY A	A0.001	Spatial definition (maps)	Cartography at the adequate scale to understand the location of the plant in relation to near-by human settlements, water resources and other relevant features.
	A0.002	Surface	Total surface of municipality
	A0.003	Weather type	
	A0.004	Dry season months	During which months is it the dry season?
	A0.005	Rainy season months	During which months is it the rainy season?
	A0.006	Average yearly precipitation	
	A0.007	Average precipitation during dry season	
	A0.008	Average precipitation during rainy season	
	A0.009	Average highest temperature	
	A0.010	Average lowest temperature	
POPULATION B	B0.001	Total population	Total population in the municipality. When possible and relevant, include floating population and their temporal behaviour (e.g. tourism, yearly massive events, etc.)
	B0.002	Percentage rural population	How urban / rural is this municipality?
	B0.003	Unemployment rate	
	B0.004	Percentage of people living on or below the poverty line	Specify poverty line threshold in the notes section
	B0.005	Percentage of people with a different mother tongue than the country's official	
	B0.006	Percentage indigenous population	
LAND USE AND ECONOMY C	C0.001	Predominant Land uses	Major land uses in the municipality, describe to the best degree of detail possible, e.g. crop type and farming methods.
	C0.002	GDP percentage of different economic activities	

DATASET 0.3 - CONTEXT DATA - Subcatchment Boundary

Category	ID	Data item	Item description
	0.02...	(indicator)	
GEOGRAPHY A	A0.001	Spatial definition (maps)	Cartography at the adequate scale to understand the location of the plant in relation to near-by human settlements, water resources and other relevant features.
	A0.002	Total subcatchment surface	
	A0.003	Altitude at main source	Altitude above sea level at the source or spring of the main river course
	A0.004	Altitude at discharge point	Altitude above sea level at river mouth
	A0.005	Length of main river course	
	A0.006	Discharges to	Waterbody or place water body discharges to
	A0.007	Main soil types	
	A0.008	Main substrate type	
	A0.009	Conservation status, general ecological status	Overall ecological status of the area (conserved, endangered, etc.).
POPULATION B	B0.001	Total population	Total population in the subcatchment area. When possible and relevant, include floating population and their temporal behaviour (e.g. tourism, yearly massive events, etc.)
	B0.002	Percentage rural population	
LAND USE AND ECONOMY C	C0.001	Predominant Land uses upstream from WWTP	
	C0.002	Predominant Land uses downstream from WWTP	

DATASET 0.4 - CONTEXT DATA - Watershed Boundary

Category	ID	Data item	Item description
	0.04...	(indicator)	
GEOGRAPHY A	A0.001	Spatial definition (maps)	Cartography at the adequate scale to understand the location of the plant in relation to near-by human settlements, water resources and other relevant features.
	A0.002	Total watershed surface	Total catchment area in watershed
	A0.003	Endo/exorheic	Open or closed basin
	A0.004	Discharges to	If exorheic, body of water and/or basin where the watershed discharges into
	A0.005	Yearly discharge regime	
	A0.006	Main soil types	
	A0.007	Main substrate type	
	A0.008	Level of exploitation of water resources	
	A0.009	Conservation status, general ecological status	Overall ecological status of the area (conserved, endangered, etc.).
POPULATION B	B0.001	Total population	
	B0.002	Percentage rural population	How urban / rural is this watershed?
LAND USE AND ECONOMY C	B0.003	Predominant Land uses	

SludgeTec extended dataset framework - I - TECHNICAL-ENVIRONMENTAL DATA

Total data items 380

DATASET I.01 - TECHNICAL-ENVIRONMENTAL BASELINE - WWTP Scale

data items 211

Category	ID	Data item	Item description
	I.01...		
GENERAL A	A0.001	Technology used	Technical procedure with which the plan treats waste water. Note any relevant particularities. If needed, include a diagram of the process in an annex.
	A0.002	Construction year	Year of construction. When construction lasted more than one year, state ending year.
	A0.003	Surface occupied	Surface occupied by the plant.
	A0.004	Land reserves	Amount of land that the plant has already acquired to grow or expand
	A0.005	Number of people served	
INPUTS B	B0.001	Design inflow	Flow capacity that the plant was originally designed for.
	B0.002	Volume waste water input	Total volume of water entering the plant in the reporting year
Inflow B0	B0.003	Average inflow (AF)	Average flow (in a year) of wastewater into WWTP.
	B0.004	Average inflow (AFr) rainy season	Average flow (during the rainy season) of wastewater coming into WWTP. At best choose a reporting year that describe average seasonal conditions, i.e. not extraordinarily dry or wet years. Specify the duration of the season (in between what months?).
	B0.005	Average plant capacity utilization	Percent of design capacity being used, on average, during the reporting year
	B0.006	Volumetric Efficiency	Total treated water / total wastewater incoming (100)
	B0.007	Average inflow (AFd) dry season	Average flow (during the dry season) of wastewater coming into WWTP. The best data will describe average season conditions, i.e. not extraordinarily dry or wet years. Specify the duration of the season (between what months).
	B0.008	Peak inflow	Maximum flow of wastewater coming into WWTP at peak times. Specify hour of day and duration of peak period.
	B0.009	Rain Proportion of AF during rainy season	Proportion of rain water entering the WWTP during the rainy season. If calculations are performed, include in an annex.
	B0.010	Wastewater fractions	Identify the proportions of different types of waste water entering the plant (agricultural runoff, industry, domestic, etc.)
	B1.001	Temperature	
	B1.002	BOD	
Inflow quality parameters B1	B1.003	COD	
	B1.004	Total Nitrogen	
	B1.005	Ammonium	
Inflow Nutrients	B1.006	Nitrates	
	B1.007	Nitrites	
	B1.008	Total Phosphorus	
	B1.009	K	
	B1.010	Ca	
	B1.011	Mg	
	B1.012	Na	
	B1.013	SAR	
Salts inflow	B1.014	Electric conductivity	
	B1.015	Faecal coliforms	
	B1.016	E.Coli	
	B1.017	Helminths	
	B1.018	Dissolved organic Carbon (DOC)	
	B1.019	Organic Matter	
	B1.020	Organic acids	
	B1.021	TSS	Total Suspended Solids
	B1.022	Turbidity	
	B1.023	pH	
Metals, metalloids and trace elements in inflow	B1.024	Al	
	B1.025	As	
	B1.026	Cd	
	B1.027	Co	
	B1.028	Cr	
	B1.029	Cu	
	B1.030	Fe	
	B1.031	Mn	
	B1.032	Ni	
	B1.033	Ti	
	B1.034	Zn	
	B1.035	Hg	
	B1.036	Pb	
	B1.037	Se	
	B1.038	B	
	B1.039	Mo	
	B1.040	Residual chlorine	
Others	B1.041	Grease and oils	
	B1.042	Floating matter	
	B1.043	Color	
	B1.044	Microplastics	
	B1.045	AOX	
	B1.046	B(a)P	
	B1.047	PCB	
	B1.048	PCDD	
	B1.049	PCDF	
	B1.050	PFC	
	B1.051	dI-PCB	

	B1.052	Possible main compounds in AF	This is a backup data item, used to register data on inflow quality that is vague or qualitative, in case no quantitative data is available for physico-chemical parameters. For instance, if it is known that a textile industry is connected to the sewage system, but no precise wastewater quality information is available, this data item can register the likely existence of compounds in the waste water (in textile dye industries e.g.: benzenes, copper, lead, amines), giving thus a general guidance as to what can be expected in terms of treatment needs.
Other inputs B2	B2.001	Raw materials used	Raw materials are all inputs necessary for the plant to function (e.g. machine oils, fuel, chemicals for the flocculation phase or other stages of the process, etc.), as well as office supplies. Should be given in tonnes per year when possible. When data available is in other units, make sure to note so in the units column. This data can be used for material flow analysis.
	B2.002	Raw materials sources	Useful for footprinting
	B2.003	Total energy consumed	Energy consumed in the reporting year, all energy carriers together and all energy uses considered.
Energy matrix and uses	B2.004	Energy/m ³ treated water	
Energy uses	B2.005	Energy matrix	Total J consumed per type of energy source (carrier) e.g. natural gas, solar, electricity, etc.
OUTPUTS C	B2.006	Energy uses per activity	Specify consumption of different activities (e.g. pumping, lighting) in J. Add as many categories as identifiable.
	C0.001	Total volume Treated Water produced	Total Outflow of waste water from the plant, in yearly total average.
	C0.002	Average yearly outflow	Average outflow of treated water out of WWTP. The best data will describe average season conditions, i.e. not extraordinarily dry or wet years.
WW Outflow C0	C0.003	Average outflow (AF) rainy season	Average outflow (during the rainy season) of wastewater out of WWTP. Specify the duration of the season in the context dataset
Quality parameters - outflow C1	C0.004	Average outflow (AF) dry season	
	C0.005	Discharge point	Where does the WWTP discharge to?
	C0.006	Bypass discharge point	
	C1.001	Temperature	
	C1.002	BOD	
	C1.003	COD	
	C1.004	Total Nitrogen	
Nutrients in outflow	C1.005	Ammonium	
	C1.006	Nitrates	
	C1.007	Nitrites	
	C1.008	Total Phosphorus	
Salts in outflow	C1.009	K	
	C1.010	Ca	
	C1.011	Mg	
	C1.012	Na	
	C1.013	SAR	Can be used when measurements for salinity/SAR (Na, Ca Mg) are not available, as general indicator for salinity.
	C1.014	Electric conductivity	
Pathogens in outflow	C1.015	Faecal coliforms	
	C1.016	E.Coli	
	C1.017	Helminths	
Organics in outflow	C1.018	Dissolved organic Carbon (DOC)	
	C1.019	Organic Matter	
	C1.020	Organic acids	
	C1.021	Sedimentable solids	
	C1.022	TSS	
	C1.023	Turbidity	
	C1.024	pH	
Metals, metalloids and trace elements in outflow	C1.025	Al	
	C1.026	As	
	C1.027	Cd	
	C1.028	Cyanide (CN)	
	C1.029	Co	
	C1.030	Cr	
	C1.031	Cu	
	C1.032	Fe	
	C1.033	Mn	
	C1.034	Ni	
	C1.035	Ti	
	C1.036	Zn	
	C1.037	Hg	
	C1.038	Pb	
	C1.039	Se	
	C1.040	B	
	C1.041	Mo	
Others in outflow	C1.042	Residual chlorine	
	C1.043	Grease and oils	
	C1.044	Floating matter	
	C1.045	Color	
	C1.046	Microplastics	Visible microplastics. Microplastics are defined as no greater than 5 mm plastics and/or synthetic fibre strands.
Organic pollutants in outflow	C1.047	AOX	
	C1.048	B(a)P	
	C1.049	PCB	
	C1.050	PCDD	
	C1.051	PCDF	
	C1.052	PFC	
	C1.053	dI-PCB	

Wastewater Reuse C2	C2.001	Percentage of wastewater output being recycled or reused	
Sludge C3	C3.001	Total Sludge produced yearly	Total amount of sludge produced in the reporting year
Sludge Quality parameters	C3.002	Al	
Metals, mewtalloids and trace elements in sludge	C3.003	As	
	C3.004	Cd	
	C3.005	Co	
	C3.006	Cr	
	C3.007	Cu	
	C3.008	Fe	
	C3.009	Mn	
	C3.010	Ni	
	C3.011	Ti	
	C3.012	Zn	
	C3.013	Hg	
	C3.014	Pb	
	C3.015	Se	
	C3.016	B	
	C3.017	Mo	
Nutrients in sludge	C3.018	Total Nitrogen	
	C3.019	Ammonium	
	C3.020	Nitrates	
	C3.021	Nitrites	
	C3.022	Phosphorus	
	C3.023	Electric conductivity	
	C3.024	K	
Salts in sludge	C3.025	Ca	
	C3.026	Mg	
	C3.027	Na	
	C3.028	SAR	
	C3.029	Moisture content	
Pathogens in sludge	C3.030	Calorific value	
	C3.031	Helminths	
	C3.032	Total coliforms	
	C3.033	E.Coli	
	C3.034	Salmonella	
Organics	C3.035	Organic Matter	
	C3.036	Organic acids	
	C3.037	pH	
	C3.038	Microplastics	
	C3.039	AOX	Visible microplastics. Microplastics are defined as no grater than 5 mm plastic pieces and/or synthetic fibre strands.
Organic pollutants	C3.040	B(a)P	
	C3.041	PCB	
	C3.042	PCDD	
	C3.043	PCDF	
	C3.044	PFC	
	C3.045	dI-PCB	
sludge use C4	C4.001	Scope of sludge management	% of sludge that is managed, including treatment in different ways, such as use in agriculture, thermal disposal, landfills, etc. As proposed by Popovic & Kraslawski (2018)
	C4.002	Current use/management of sludge	What is done with sludge once it is dried at the plant?
	C4.003	Which sludge management improvement options have been identified in the past and by whom?	
	C4.004	Potential sludge users	Who?
Emissions C5	C5.001	Total Biogas production	How much biogas was produced in the reporting year?
Biogas	C5.002	Current use/management of biogas	How is biogas currently managed?
	C5.003	Which improved biogas management options been identified and by whom?	Yes/No. What options have been proposed in the past?
	C5.004	Potential biogas users?	Who?
	C5.005	GHG emissions	Can be divided into GHG emissions linked to plant operation and maintenance, and emissions produced by the wastewater itself. Specify and disclose method for calculations performed in an annex. The online tool ECAM (wacclim.org/ecam) is an option for estimation.
GHG Emissions	C5.006	Are there complaints regarding odours?	E.g. neighbours
	C5.007	Stength of odour in the treated waste water	high, medium, low
	C6.001	Solid Waste produced	Solid waste types produced by operation at the plant.
	C6.002	Solid waste sustainable management plan	Is there a waste management programme in place that takes into consideration reuse and/or recycling of solid waste, and/or plans to reduce waste or eliminate it, e.g. by changing inputs ?
MANAGEMENT D2	D0.001	Number of operators	
	D0.002	Shift length	How many hours do the operators work in a normal shift?
Staff D0	D0.003	Employee/inhabitant ratio	Number of employees per 1,000 inhabitants served by the plant.
Management D1	D1.001	Existance Operation manual	Does a clear, up to date operations manual exist on site, and available to all people operating the plant?
	D1.002	Regularity of maintenance	
Capacities D2	D2.001	Capacity sufficiency	Does all the personnel involved have the knowledge and skills they need to have?
	D2.002	Capacity needs identified	What skills or knowledge are needed by plant operators and other personnel directly in contact with the facility? Make a precise list relating stakeholders with capacity needs.

Compliance and certification D3	D2.003	Accessible Sampling and processing equipment	Does the plant have its own equipment or easy and hassle-free access to sampling and analysis to monitor wastewater, treated water and by-products quality?
	D3.001	Discharge standards compliance	Percent of time that the plant's outflow complies with applicable regulations. State which regulations are being considered
	D3.002	Analysis frequency compliance	Ratio of the number of effluent samplings per month and number of effluent sampling per month required by law of wastewater treatment policy (as proposed by Popovic & Kraslawski (2018)
	D3.003	Certification	Does the plant have some quality certification (ISO, or other national/international standards)
RISK E1	E0.001	Has a health risk assessment related to waste water been performed at the site?	
Health E0	E0.002	Are health risks being managed?	
	E0.003	Do the operators have the necessary health and safety equipment?	
	E1.001	Has a natural hazard risk assessment been performed at the facility?	
Other hazards E1	E1.002	Are natural hazard risks being managed?	
	E1.003	Has an environmental impact study relating wastewater with ecosystem health been performed at the site?	
	E1.004	What efforts are being made to reduce or manage environmental impacts?	
	E1.005	Presence or risk of groundwater pollution	
	E1.006	Presence or risk of surface water pollution	

DATASET I.02 - TECHNICAL-ENVIRONMENTAL BASELINE - MUNICIPAL Scale

data items		31	
Category	ID	Data item	Item description
GENERAL A	I.02...		
	A0.001	Total number of connections to sewerage system	
	A0.002	Total population connected to sewerage system	
INPUTS B	B0.001	Total Estimated Municipal Water Demand	Calculation of the theoretical water demand, according to the total population x an average endowment. Specify what endowment was used to estimate (WHO, local regulation, etc).
	B.002	Total Municipal Water Supply	Volume "produced" by the municipal water facility, i.e. volume pumped into the water system.
	B.003	Supply per source	Where does the municipality get its water from? State proportions if data is available
	B.004	Estimated yearly water availability per capita	Water balance calculations
	B.005	Water consumption per sector	When possible, identify water demand proportions by different user groups within the municipality. Modify or add other user groups if necessary.
OUTPUTS C	C0.001	Total Waste Water Production (TWW)	Total Waste water produced in the municipality in the reporting year
	C0.002	Wastewater types	The answer to this data item is a list identifying different types of waste water, (domestic, agricultural run off, industrial, etc).
	C0.003	Wastewater composition (fractions)	Identify the different proportions that each consumer type contributes to the total waste water produced (TWWF) in the municipality: domestic, rain, urban runoff, agricultural runoff, etc.
	C1.001	Proportion of wastewater safely treated	WHO proposes this indicator and a methodology to measure it. It indicator 6.3.1 of the SDG 6.
	C1.002	Proportion of TWW going to treatment at studied plant	http://www.who.int/water_sanitation_health/monitoring/coverage/stepbystep-631-20161021.pdf
	C1.003	Proportion of TWW going to treatment at other plant(s)	
	C1.004	Name, location and process of other plants within the municipality	
	C1.005	Proportion of TWW going to unsafe or inefficient disposal within the municipality	
	C1.006	Proportion of TWW going to untreated release within the municipality	
	C1.007	Proportion of TWW being exported to other regions (municipalities, microwatersheds or watersheds)	
	C1.008	Proportion of population using open defecation	
MANAGEMENT D	D0.001	Number of employees in the wastewater management sector	
	D0.002	Employee/inhabitant ratio	Number of employees per 1,000 inhabitants served by the plant.
	D1.001	Regularity of maintenance	
	D2.001	Capacity sufficiency	Does the personnel involved in wastewater management have the knowledge and skills they need to have?
	D2.002	Capacity needs identified	What skills or knowledge are needed by plant operators and other personnel directly in contact with the facility?
			Make a precise list relating stakeholders with capacity needs.
	D2.003	Accessible Sampling and processing equipment	Does the municipality have its own equipment or easy and hassle-free access to sampling and analysis to monitor wastewater, treated water and by-products quality?
RISK E	D3.001	Certification	Does the municipal wastewater management system have some quality certification (ISO, or others) ?
	E0.001	Has a health risk assessment related to wastewater been performed at the municipal scale	
	E0.002	Are health risks related to the wastewater system being managed at the municipal scale?	
	E1.001	Has a natural disasters risk assessment been performed for the wastewater management system at the municipal scale?	
	E1.002	Are natural hazard risks to the municipal wastewater management system being managed?	
	E2.001	Has an environmental impact study relating wastewater with ecosystem health been performed at the municipal scale	
	E2.002	Are efforts being made to reduce or manage environmental impacts?	

DATASET I.03 - TECHNICAL-ENVIRONMENTAL BASELINE - Subcatchment Scale

data items		70	
Category	ID	Data item	Item description
ECOLOGICAL DYNAMICS A	I.03...	(indicator)	
	A0.001	Average Yearly Discharge regime	Water volume discharged by the river or main water course in the sub-catchment into receiving water body
	A0.002	Mean yearly Water resources availability	Water resources available to humans under current infrastructural conditions (wells, dams, etc)
	A0.003	Mean annual water volume from springs	Proportion of the subcatchment's yearly discharge volume coming from springs
	A0.004	Mean annual water volume from run off	Proportion of the subcatchment's yearly discharge volume coming from rain run-off
	A0.005	Mean annual volume raw waste water	Proportion of the subcatchment's yearly discharge volume coming from raw wastewater
	A0.006	Mean annual volume from treated waste water	Proportion of the subcatchment's yearly discharge volume coming from treated water

Resources health A1	A1.001	Level of deforestation upstream	Upstream from WWTP
	A1.002	Level of soil erosion upstream	Upstream from WWTP
	A1.003	Identified factors affecting river water quality upstream	Other than the WWTP. From literature and/or visual surveillance and interviews on field.
WATER QUALITY B	B0.001	Temperature	Quality of stream/river before contact with discharge from the treatment plant
	B0.002	BOD	
	B0.003	COD	
	B0.004	Total Nitrogen	
	B0.005	Ammonium	
	B0.006	Nitrates	
	B0.007	Total Phosphorus	
	B0.008	K	
	B0.009	Ca	
	B0.010	Mg	
	B0.011	Na	
	B0.012	SAR	
	B0.013	Electric conductivity	
	B0.014	Fecal coliforms	
	B0.015	E.Coli	
	B0.016	Helminths	
	B0.017	Dissolved organic Carbon (DOC)	
	B0.018	Organic Matter	
	B0.019	Organic acids	
	B0.020	TSS	
	B0.021	Turbidity	
	B0.022	pH	
	B0.023	Al	
	B0.024	As	
	B0.025	Cd	
	B0.026	Co	
	B0.027	Cr	
	B0.028	Cu	
	B0.029	Fe	
	B0.030	Mn	
	B0.031	Ni	
	B0.032	Ti	
	B0.033	Zn	
	B0.034	Hg	
	B0.035	Pb	
	B0.036	Se	
	B0.037	B	
	B0.038	Mo	
	B0.039	Residual chlorine	
	B0.040	Microplastics	
	B0.041	AOX	
	B0.042	B(a)P	
	B0.043	PCB	
	B0.044	PCDD	
	B0.045	PCDF	
	B0.046	PFC	
	B0.047	dI-PCB	
WASTEWATER C	C0.001	Number of waste water treatment plants	How many WWTP exist within the subcatchment area
	C0.002	Total waste water produced	
	C0.003	Proportion of wastewater safely treated	
MANAGEMENT D	D0.001	Number of non municipal staff employed in water resources management at the subcatchment scale	Number of staff hired by public institutions other than the municipality , appointed especially for the subcatchment scale .
	D0.002	Employee ratio	Number of employees in wastewater management sector per 10,000 inhabitants in the subcatchment.
	D1.001	River water quality monitoring frequency	
	D2.001	Capacity sufficiency	Does the personnel involved in wastewater management at this scale have the knowledge and skills they need to have?
	D2.002	Capacity needs identified	What skills or knowledge are needed by personnel operating the WWMS at this scale? Make a precise list relating stakeholders with capacity needs.
	D2.003	Accessible Sampling and processing equipment	Does the authority in charge of sub-catchment management have its own equipment or easy and hasslefree access to sampling and analysis to monitor water quality?
	D3.001	Certification	Has the administration facility received certification (of procedures, quality standards, etc)?
RISK E	E0.001	Has a health risk assessment related to wastewater been performed at the subcatchment scale	
	E0.002	Are health risks related to the wastewater system being managed at the subcatchment scale?	
	E2.001	Has an environmental impact study relating wastewater with ecosystem health been performed at the municipal scale	
	E2.001	Are efforts being made to reduce or manage environmental impacts of the wastewater management system on the subcatchment?	

DATASET I.04 - TECHNICAL-ENVIRONMENTAL BASELINE - Watershed Scale

data items		68	
Category	ID	Data item	Item description
	I.04...		
ECOLOGICAL DYNAMICS A	A0.001	Average Yearly Discharge regime	
Hydrology A0	A0.002	Mean yearly Water resources availability	Water resources available to humans under current infrastructural conditions (wells, dams, etc)
Resources health A1	A1.001	Degree of deforestation	
	A1.002	Degree of soil erosion upstream	
	A1.003	Identified factors affecting water quality	

	A1.004	Main waterbody eutrophication	low, medium, high
WATER QUALITY B	B0.001	Temperature	
	B0.002	BOD	
	B0.003	COD	
	B0.004	Total Nitrogen	
	B0.005	Ammonium	
	B0.006	Nitrates	
	B0.007	Total Phosphorus	
	B0.008	K	
	B0.009	Ca	
	B0.010	Mg	
	B0.011	Na	
	B0.012	SAR	
	B0.013	Electric conductivity	
	B0.014	Faecal coliforms	
	B0.015	E.Coli	
	B0.016	Helminths	
	B0.017	Dissolved organic Carbon (DOC)	
	B0.018	Organic Matter	
	B0.019	Organic acids	
	B0.020	TSS	
	B0.021	Turbidity	
	B0.022	pH	
	B0.023	Al	
	B0.024	As	
	B0.025	Cd	
	B0.026	Co	
	B0.027	Cr	
	B0.028	Cu	
	B0.029	Fe	
	B0.030	Mn	
	B0.031	Ni	
	B0.032	Ti	
	B0.033	Zn	
	B0.034	Hg	
	B0.035	Pb	
	B0.036	Se	
	B0.037	B	
	B0.038	Mo	
	B0.039	Residual chlorine	
	B0.040	Microplastics	
	B0.041	AOX	
	B0.042	B(a)P	
	B0.043	PCB	
	B0.044	PCDD	
	B0.045	PCDF	
	B0.046	PFC	
	B0.047	dI-PCB	
WASTE WATER C	C0.001	Number of waste water treatment plants	How many WWTP exist within the watershed area
	C0.002	Total waste water produced	
	C0.003	Proportion of wastewater safely treated	
MANAGEMENT D	D0.001	Number of non municipal staff employed in water resources management at the watershed scale	Number of staff hired by public institutions other than the municipality , appointed especially for the watershed scale.
Staff D0	D0.002	Employee ratio	Number of employees per 10,000 inhabitants in the watershed
	Managment D1	D1.001	Uses of main waterbody water
			Main water body water quality monitoring frequency
Capacities D2	D2.001	Capacity sufficiency	Does the personnel involved in wastewater management at the watershed scale have the knowledge and skills they need to have?
	D2.002	Capacity needs identified	What skills or knowledge are needed by personnel involved in wastewater management? Make a precise list relating stakeholders with capacity needs.
Compliance and certification D3	D2.003	Accessible Sampling and processing equipment	Does the authority in charge of monitoring the watershed have its own equipment or easy and hasselfree access to sampling and analysis to monitor water quality?
	D3.001	Water quality monitoring frequency compliance	
	D3.002	Certification	Has the watershed authority received certification (of procedures, quality standards, etc)?
RISK E	E0.001	Has a health risk assessment related to wastewater been performed at the watershed scale	
	E0.002	Are health risks related to the wastewater system being managed at the watershed scale?	
	E2.001	Has an environmental impact study relating wastewater with ecosystem health been performed at the munatershedipal scale	
	Health E0	E2.001	Are efforts being made to reduce or manage environmental impacts of the wastewater management system on the watershed's resources?
Environmental Impact E2			

SludgeTec extended dataset framework - IIA- SOCIAL ECONOMIC DATA

Total data items 62

DATASET II.01 - SOCIAL/ECONOMIC BASELINE - WWTP Scale

Data items 26

Category	ID	Data item	Item description
	II.01...		
ECONOMICAL A	A0.001	Total Running costs	Total costs of yearly operation, including all areas.
Costs A0	A0.002	Cost per m3 of water treated	Cost of producing one cubic meter of treated water
	A0.003	Cost per inhabitant served	
	A0.004	Proportion of costs: energy	
	A0.005	Proportion of costs: raw materials	
	A0.006	Proportion of costs: maintenance and repairs	
	A0.007	Proportion of costs: quality testing and lab work	
	A0.008	Proportion of costs: salaries and other labour costs	
	A0.009	Proportion of costs: training, capacity building	
	A0.010	Proportion of costs: solid waste management	
Income A1	A1.001	Total plant income	Total income of the plant yearly. Specify currency used under 'units'
	A1.002	Real financial availability per inhabitant served	
	A1.003	Budget deficit	
	A1.004	Current financing sources	
	A1.005	Alternative financing sources identified	
	A1.006	Valorisation of by products	Are products of the plant being valbrised (sold, recycled, etc)

DATASET II.02 - SOCIO ECONOMIC BASELINE - Municipal Scale

Data items 56

ECONOMIC A	A0.001	Financial requirements of wastewater sector at the municipal scale	Total budgetary requirements for the wastewater sector in the municipality.
Costs A0	A0.002	Cost per m3 of water treated	For the municipality
	A0.003	Cost per inhabitant served	For the municipality
Income A1	A1.001	Total real budget	Total budget available to the municipality to deal with sanitation and wastewater management issues. A similar indicator is proposed in Quadros et al., 2010.
	A1.002	Ratio Investment per inhabitant	How much does the municipality invest in the WW management system per inhabitant?
	A1.003	Percentage of municipal budget destined to wastewater management	
	A1.004	Budgetary deficit	
	A1.005	Cost of connection to water system	To users
	A1.006	Cost of connection to sewerage system	To users
Finance management A2	A2.001	Financial plan existing	Does the wastewater sector in the municipality have a financial plan?
	A2.002	Current financing sources	
	A2.003	Alternative financing sources identified	
SOCIAL B	B0.001	Institutional Planning: Existence of an institutional plan for ww management at the municipal scale	
Governance and Management B0	B0.002	Clear governance and management structures	Is the governance and management structure clear to all stakeholders involved? Are responsibilities clear?
	B0.003	Cross sectoral integration	is wastewater management integrated with other sectors at the operative or planning scale? i.e coordination with waste sector, with water sector, with agriculture.
	B0.004	Policy concurrence	Are policies overlapping (e.g. two different policies regulate one same resource or process, so as to create confusion or double-regulating)
	B0.005	Managerial communication	Is there a direct or uncomplicated communication channel for operators and actors on the ground to inform and influence decision makers?

DATASET II.03 - SOCIO ECONOMIC BASELINE - Subcatchment Scale

Data items 7

SOCIAL B	B0.001	Is there a governance administrative body for the watershed?	
Governance and Management B0	B0.002	Institutional planning: Existence of an integrated water resources management plan for the watershed?	
	B0.003	Institutional PPlanning: Existence of an institutional plan for wastewater management at the watershed scale	
	B0.004	Clear management structures	Is the governance and management structure clear to all stakeholders involved at this scale? Are responsibilities clear?
	B0.005	Cross sectoral integration	is wastewater management integrated with other sectors at the operative or planning scale? i.e coordination with waste sector, with water sector, with agriculture.
	B0.006	Policy concurrence	Are policies overlapping (e.g. two different policies regulate one same resource or process, so as to create confusion or double-regulating)
	B0.007	Managerial communication	Is there a direct or uncomplicated communication channel for operators and actors on the ground to inform and influence decision makers?

DATASET II.04 - SOCIO ECONOMIC BASELINE - Watershed Scale

Data items 12

ECONOMIC A	A0.001	Total costs for operating water/wastewater facilities/management system at the watershed scale	For running the watershed governance/administration facility.
	A0.002	Budget destined to the watershed administration facility	If a watershed management facility is existing. See data item B0.001
	A0.003	Budget deficit?	
	A0.004	Current financing sources	
	A0.005	Alternative financing sources identified	
SOCIAL B	B0.001	Is there a governance administrative body for the watershed/ecoregion	
Governance and Management B0	B0.002	Institutional planning: Existence of an integrated water resources management plan for the watershed?	
	B0.003	Institutional Planning: Existence of an institutional plan for wastewater management at the watershed scale	
	B0.004	Clear management structures	
	B0.005	Cross sectoral integration	is wastewater management integrated with other sectors at the operative or planning scale? i.e coordination with waste sector, with water sector, with agriculture.
	B0.006	Policy concurrence	Are policies overlapping in a way as to create unclearness in respos
	B0.007	Managerial communication	Is there a direct or uncomplicated communication channel for operators and actors on the ground to inform and influence decision makers?

SludgeTec extended dataset framework - IIB - MULTISCALE SOCIAL DATA

Data items	10
SOCIAL ACCEPTANCE A	<div><div>A0.001</div><div>Personal interest in wastewater management problems</div></div> <div><div>A0.002</div><div>Personal awareness of wastewater management problems</div></div> <div><div>A0.003</div><div>Willingness to be informed about the wastewater management problems</div></div> <div><div>A0.004</div><div>Accessibility to information</div></div> <div><div>A0.005</div><div>Possibilities for providing a recommendation</div></div> <div><div>A0.006</div><div>Recommendations are taken into account?</div></div> <div><div>A0.007</div><div>Willingness to participate in decision-making</div></div> <div><div>A0.008</div><div>Participative decision-making</div></div> <div><div>A0.009</div><div>Personal acceptance of the current wastewater management</div></div> <div><div>A0.010</div><div>Perception of social acceptance of the current wastewater management</div></div>