

Rainwater Harvesting for Drinking Water Production: A Sustainable and Cost-Effective Solution in The Netherlands?

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Supplementary information

Table S.1: TCO calculations for six scenarios

Scenario 1

Process	Dimensions	Building costs [€]	investments [€]	Interest & depreciation [€/y]	Operation and maintenance [€/y]	energy [€/y]	chemicals [€/y]	Membrane replacement [€/y]	Filter [€/y]	Lamp [€/y]	[€/m ³]
Clean water buffer (2)	5000 m ³	983080	1356650	79019	33916						1.76
Raw water buffer (concrete pond)	14000 m ³	316967	437414	25477	10935						0.57
Self cleaning filters	10 m ³ /uur	9750	13455	784	336	77					0.02
RO membrane unit	400 m ²	40000	55200	3215	1380	47	13	1200			0.09
Conditioning / pH correction	1.25 m ²	13500	18630	1085	466	256			50		0.03
UV disinfection	10 m ³ /uur	3900	5382	313	135	256	0			32	0.01
Distribution pump	15 m ³ /uur	2659	3669	214	92	77					0.01
Absolute filter	0.73 m ²	759	1047	61	26						0.00
Building	50 m ²	10000	13800	804	345						0.02
Staff	6720 €/jaar										0.10
PLC	55000 €	55000	75900	4421	1898						0.10
Total		1435615	1981148	115393	49529	713	13	1200	50	32	2.71

Scenario 2

Process	Dimensions	Building costs [€]	investments [€]	Interest & depreciation [€/y]	Operation and maintenance [€/y]	energy [€/y]	chemicals [€/y]	Membrane replacement [€/y]	Filter [€/y]	Lamp [€/y]	[€/m ³]
Clean water buffer (2)	5000 m ³	983080	1356650	79019	33916						1.76
Raw water buffer (concrete pond)	14000 m ³	316967	437414	25477	10935						0.57
Booster pump	10 m ³ /uur	1500	2070	121	52						0.00
Rapid sand filter	1.25 m ²	13500	18630	1085	466	256			50		0.03
Peroxide dosing	0.3 L/uur	526	726	42	18	256	3394				0.06
UV / H ₂ O ₂ AOP	10 m ³ /uur	15300	21114	1230	528	38460	962			480	0.65
Activated carbon filter	1.65 m ²	15000	20700	1206	518	256			4950		0.11
pH correction	1.3 m ²	13500	18630	1085	466	256			50		0.03
Distribution pump	15 m ³ /uur	2659	3669	214	92	77					0.01
Absolute filter	0.73 m ²	759	1047	61	26						0.00
Building	50 m ²	10000	13800	804	345						0.02
Staff	6720 €/jaar										0.10
PLC	55000 €	55000 €	75900	4421	1898						0.10
Total		1427701	1970227	114757	49256	39563	4355	0	5050	480	3.43

Scenario 3

Process	Dimensions	Building costs [€]	investments [€]	Interest & depreciation [€/y]	Operation and maintenance [€/y]	energy [€/y]	chemicals [€/y]	Membrane replacement [€/y]	Filter [€/y]	Lamp [€/y]	[€/m ³]
Clean water buffer (2)	20 m ³	17291	23861	1390	597						19.86
Raw water buffer	12 m ³	4800	6624	386	166						5.51
Self cleaning filter	1.25 m ³ /uur	3500	4830	281	121	0					4.02
RO membrane unit	40 m ²	17500	24150	1407	604	1	0	160			21.71
Remineralisation / pH correction	1.25 m ²	1500	2070	121	52	1			5		1.78
UV disinfection	1 m ³ /uur	1900	2622	153	66	1	0			3	2.22
Distribution pump	1 m ³ /uur	931	1285	75	32	0					1.07
Absolute filter	0.73 m ²	759	1047	61	26						0.87
Building	10 m ²	2000	2760	161	69						2.30
Staff	1440 €/jaar										14.40
PLC	10000 €	10000	13800	804	345						11.49
Distribution pump		60181	83049	4837	2076	3	0	160	5	3	85.24

Scenario 4

Process	Dimensions	Building costs [€]	investments [€]	Interest & depreciation [€/y]	Operation and maintenance [€/y]	energy [€/y]	chemicals [€/y]	Membrane replacement [€/y]	Filter [€/y]	Lamp [€/y]	[€/m ³]
Clean water buffer (2)	20 m ³	17291	23861	1390	597						19.86
Raw water buffer	12 m ³	4800	6624	386	166						5.51
Booster pump	1 m ³ /uur	500	690	40	17	0					0.57
Rapid sand filter	0.17 m ²	1500	2070	121	52	1			7		1.79
Peroxide dosing	0.1 L/uur	426	588	34	15	1	1188				12.37
UV / H ₂ O ₂ AOP	1 m ³ /uur	4300	5934	346	148	120	2				5.55
Activated carbon filter	0.17 m ²	1400	1932	113	48	1			495		6.56
pH correction	0.13 m ²	1500	2070	121	52	1			5		1.78
Distribution pump	1 m ³ /uur	931	1285	75	32	0					1.07
Absolute filter	0.73 m ²	759	1047	61	26						0.87
Building	10 m ²	2000	2760	161	69						2.30
Staff	1440 €/jaar										14.40
PLC	10000 €	10.000	13800	804	345						11.49
Distribution pump		45407	62661	3650	1567	123	1189	0	507	0	84.76

Scenario 5

Process	Dimensions	Building costs [€]	investments [€]	Interest & depreciation [€/y]	Operation and maintenance [€/y]	energy [€/y]	chemicals [€/y]	Membrane replacement [€/y]	Filter [€/y]	Lamp [€/y]	[€/m ³]
Clean water buffer	2 m ³	946	1305	76	33						1.09
Raw water buffer	20 m ³	2392	3302	192	83						2.75
Booster pump	0.01 m ³ /uur	931	1285	75	32	0					1.07
Bag filter 25 µm	0.19 m ²	568	784	46	20	0			17.6		0.83
RO. activated carbon filtration & UV disinfection	0.01 m ³ /uur	855	1222	71	31	1	0	210			3.12
Remineralisation / pH-correction	0.01 m ³ /uur	58	81	5	2	1			58		0.66
Distribution pump	0.01 m ³ /uur	931	1285	75	32	0					1.07
Absolute filter	0.73 m ²	759	1047	61	26						0.87
Building	4 m ²	800	1104	64	28						0.92
Staff	1440 €/jaar										14.40
PLC	10000 €	10000	13800	804	345						11.49
Distribution pump		18271	25214	1469	630	2	0	210	76	0	38.27

Scenario 6

Process	Dimensions	Building costs [€]	investments [€]	Interest & depreciation [€/y]	Operation and maintenance [€/y]	energy [€/y]	chemicals [€/y]	Membrane replacement [€/y]	Filter [€/y]	Lamp [€/y]	[€/m ³]
Clean water buffer	2 m ³	946	1305	76	33						1.09
Raw water buffer (concrete pond)	20 m ³	2392	3302	192	83						2.75
Booster pump	0.01 m ³ /uur	931	1285	75	32	0					1.07
Bag filter 25 µm	0.19 m ²	568	784	46	20	0			17.6		0.83
Cartridge filter 5 µm	onbekend	116	160	9	4	1			7		0.21
Peroxide dosing	0.01 m ³ /uur	500	690	40	17	1	32				0.90
UV / H ₂ O ₂ AOP	0.01 m ³ /uur	190	263	15	7	120	2				1.43
Activated carbon filter	onbekend	137	189	11	5	1			17		0.33
pH correction	onbekend	58	81	5	2	1			58		0.66
Distribution pump	0.01 m ³ /uur	931	1285	75	32	0					1.07
Absolute filter	0.73 m ²	759	1047	61	26						0.87
Building	4 m ²	800	1104	64	28						0.92
Staff	1440 €/jaar										14.40
PLC	10000 €	10000	13800	804	345						11.49
Distribution pump		18329	25294	1473	632	123	33	0	99	0	38.02

Table S.2: comparison of composition of harvested rainwater and Malaysian [1] and Dutch drinking water standards [40]

parameter	unit	rainwater		Drinking water standards	
		Min.	Max.	Malaysia	The Netherlands
pH		3.10	11.40	6.5-9.0	7.0 – 9.5
Alkalinity	mg/L	0.50	61.00		
Hardness	mg/L	0.00	270.00	500.0	> 1 (mmol/L)
conductivity 25° C	µS/cm	3.00	1017.00		1250
Turbidity	NTU	0.20	303.50	5	4
Color	Mg/L Pt-Co	0.40	310.50	15.0	20
Total dissolved solids (TDS)	mg/L	1.00	750.00	1000.0	
Total suspended solids (TSS)	mg/L	1.00	153.00	*)	*0
Total solids (TS)	mg/L	20.00	200.00		
BOD	mg/L	0.00	3.00		
COD	mg/L	8.74	23.83		
TOC	mg/L	0.00	0.00	**)	**)
N	mg/L	0.45	1.92		
P	mg/L	0.21	50.00		
NH ₃ -N	mg/L	0.00	0.00	1.5	
NO ₃ ⁻ - N	mg/L	0.00	72.40	10.0	50
NO ₂ ⁻ - N	mg/L	0.00	2.45		0.1
Totaal N Kjeldhl	mg/L	0.00	0.00		
Dissolved O ₂ (DO)	mg/L	4.41	6.79		>2000
Al	µg/L	80.20	336.00	200	200
NH ₄ ⁺	µg/L	0.00	35400.00		200
As	µg/L	0.00	27.10	10.0	10
B	µg/L	11.00	56.00		500
Ba	µg/L	0.00	11.20		
Cd	µg/L	0.00	0.40	3.0	5
Ca	µg/L	0.00	31150.00		
Cr	µg/L	0.00	4.80	50.0	50
Cl ⁻	µg/L	0.00	164000.00	250000.0	150000
Cu	µg/L	1.10	4500.00	1000.0	2000
F	µg/L	0.00	1000.00	600.0	1000
Fe	µg/L	0.00	1390.00	300.0	200
Pb	µg/L	2.00	271.00	10.0	10
Mg	µg/L	0.00	9350.00	150000	
Mn	µg/L	0.50	533.0	100.0	50
Hg	µg/L	0.00	0.00	1.0	1
Ni	µg/L	0.00	12.20	20.0	20
K	µg/L	0.00	8730.00		
PO ₄ ³⁻ - P	µg/L	0.00	620.00		
Na	µg/L	0.00	32320.00	200000.0	150000
Zn	µg/L	0.50	3200.00	3000.0	3000

Table S.3: inorganic parameters in directly harvested rainwater (min., max., median), (min-max), (mean ± std. dev.)

Location	pH	Cl ⁻ (mg/L)	SO ₄ ²⁻ (mg/L)	NO ₂ ⁻ (mg N/L)	NO ₃ ⁻ (mg N/L)	Na ⁺ (mg/L)	sampler material	reference
Paris, city center	No data	0 - 140 - 2.5	0.2 - 65 - 3	0.01 - 0.33 - 0.04	0.1 - 38 - 2	0.1 - 81.5 - 1.4	PVC	[2]
Denizly, Turkey	6.66 - 7.645	No data	No data	No data	No data	No data	PE	[3]
Izmir. Turkey	5.6 - 6.5	2.8 - 4.1	1.5 - 2.7	No data	0.9 - 1.7	1.4 - 2.0	Polycarbonate and HDPE	[4]
Caatinga. Brazil	4.59 - 7.16	1.0- 15.3	0.2- 4.9	No data	0.1- 1.8	0.3 - 7.3	PE	[5]
Srinagar. India	5.06 - 7.69 - 6.53	0.0 - 4.4 - 1.5	0.8 - 6.4 - 12.2	No data	1.8 - 15.8 - 8.5	0.4 - 2.5 -1.0	PE	[6]
Mohan. India	4.21 - 6.93 - 5.25	0.2 - 1.6 - 0.6	0.0 - 3.4 - 1.3	No data	0.0 - 11.2 - 4.0	0.0 - 2.0 - 0.4	PE	[6]
Jodhpur. India	5.36 - 8.20 - 6.91	1.3 - 19.1 - 4.8	0.5 - 12.2 - 4.5	No data	0.2 - 16.3 - 6.7	0.9 - 9.3 - 3.1	PE	[6]
Allahabad	3.67 - 7.61 - 5.99	0.3 - 3.7 - 1.7	0.5 - 14.4 - 2.9	No data	2.7 - 19.1 - 7.6	0.6 - 5.1 - 1.9	PE	[6]
Nagpur	3.84 - 6.89 - 5.41	0.2 - 3.1 - 1.4	0.1 - 9.4 - 2.5	No data	0.2 - 13.5 - 4.7	0.3 - 1.9 - 0.9	PE	[6]
Pune	5.32 - 7.21 - 6.03	1.0 - 4.5 - 2.2	0.6 - 3.1 - 1.6	No data	1.0 - 8.8 - 3.1	0.1 - 2.7 - 1.3	PE	[6]
Visakhapatnan	4.01 - 6.94 - 5.28	0.6 - 10.5 - 4.7	0.0 - 10.9 - 3.5	No data	0.6 - 19.3 - 8.2	1.2 - 8.6 - 4.3	PE	[6]
Port Blair	4.46 - 6.47 - 5.77	1.2 - 4.8 - 2.7	0.2 - 2.6 - 1.0	No data	0.2 - 6.3 - 1.7	0.9 - 2.4 - 1.7	PE	[6]
Kodaikanal	4.66 - 6.60 - 5.64	0.3 - 1.2 - 0.7	0.1 - 2.5 - 0.8	No data	0.0 - 3.0 - 1.0	0.1 - 1.4 - 0.5	PE	[6]
Minicoy	4.66 - 7.42 - 6.27	1.5 - 8.2 - 4.8	0.2 - 4.3 - 1.4	No data	0.3 - 5.7 - 2.1	1.5 - 5.7 - 3.0	PE	[6]

Table S.4: heavy metals in directly harvested rainwater (min.. max.. median). (min-max). (mean \pm std. dev.)

Location	Al (mg/L)	Cu (mg/L)	Pb (mg/L)	Zn (mg/L)	Fe (mg/L)	Sampler material	reference
Paris. city center	No data	0.002 - 0.0 - 0.0054	0.005 - 0.008 - 0.008	0.005 - 0.49 - 0.04	0.005 - 0.18 - 0.005	PVC	[2]
Denizly. Turkey	0.039 \pm 0.008	0.021 \pm 0.004	0.010 \pm 0.002	0.090 \pm 0.017	0.024 \pm 0.006	PE	[3]
Izmir. Turkey	0.085 - 0.129	0.008 - 0.010	0.005 - 0.007	0.019 - 0.032	0.057 - 0.114	PE	[4]

Table S.5: physico-chemical parameters in harvested rainwater (min.. max.. median). (min-max). (mean \pm std. dev.) after first flush

Location	pH	Ec (μ S/cm)	Turbidity (NTU)	TOC (mg/L)	TH (mmol/L)	Sample	reference
Seine Maritime. France	6.9-8.9 7.1-8.7	117-188 119-197	0.8- 2.0 1.3	<0.0 3 <0.03	0.3-0.8 0.4-0.7	T PoU	[7]
Ain. France	4.5-6.5 4.2-6.4	10-32 18-31	0.7- 3.4 0.6-1.8	166- 8800 170- 3500	<0.08- 0.1 <0.05-0.1	T PoU	[7]
Île-de-France. France	1.2 1.2	32 24	1.7 1.2	1.5 0.1	0.04 0.04	T PoU	[7]
Rual Village. France (SW)	6.5 (5.6- 10.4)	56.2 (13.5- 235)	2.4(0.5- 6.1)	2.3 (0.5- 5.1)	0.16 (<0.01- 0.58)	T	[8,9]
Sidney (4 sties). Australia	6.60 \pm 0.50	62.2 \pm 54. 5	2.96 \pm 6.1 6	No data	0.24 \pm 0.21	T	[10]
Seoul (3 tanks). Korea	7.04 (6.8-8.2) 8.71 (7.7-9.9) 8.56 (6.7- 9.7)	45 (42- 56) 88 (75- 109) 286 (152- 428)	3.4 (1.4- 10.8) 5.7 (0.41- 8.56) 4.90 (1.31-11)	No data	No data	T T T	[11]
Seoul. Korea	6.5 (6.3- 7.1) 7.3 (7.1- 7.6) 7.1 (6.7- 7.4) 6.0 (5.9- 6.3)	No data	No data	16 (13- 19) 10 (9- 12) 10 (8- 12) 2 (2-5)	No data	T.Wd T.Con T.Clay T.GSteel	[12]
Greece NE (6 sites)	6.75 \pm 0.4 6 6.64 \pm 0.5 8 6.99 \pm 0.5 7 6.65 \pm 0.5 1 6.63 \pm 0.4 9 6.76 \pm 0.63	63 \pm 31 68 \pm 20 143 \pm 2 5 37 \pm 10 46 \pm 22 31 \pm 13	No data	No data	0.26 \pm 0.0 9 0.36 \pm 0.1 3 0.48 \pm 0.1 1 0.21 \pm 0.1 0 0.27 \pm 0.1 2 0.27 \pm 0.11	T T T T T	[13]
Ballinabranna gh Ireland SE	7.21 (6.26- 8.21)	No data	1.11 (0.0- 4.60)	No data	0.35 (0.1- 0.6)	T	[14]
Exeter.UK	7.6-10.4	43.5-261	0.3-2.8	No data	0.16-0.27	T	[15]
UAB University Barcelona. Spain	7.59 \pm 0.07	85.0 \pm 10. 0	No data	11.6 \pm 1. 7	No data	T. 4 roofs	[16]

Austin. Texas USA	6.8	36.3	No data	11.7	No data	T.Asph	[17]
	6.5	25.5		4.8		T.ALZnS	
	7.6	74.5		6.1		tl	
	7.1	35.3		6.5		T.ConT	
	7.3	235.3		25.5		T.Bit T.Green	
Texas	8.7 - 9.3	No data	0.6 - 3	1 - 10	No data	1	[18]
	6.2 - 6.5		0.3 - 0.6	1.6 -		2	
	6.5 - 8.0		0.2 - 0.5	2.4		3	
	6.7		0.2 - 0.5	0.1 - 1		4	
	6.5 - 6.8		0.4 - 0.5	0.4 - 1		5	
	6.6 - 6.8		5 - 15	0 - 0.5 7 - 19		6	

¹T = Tank; PoU = Point of Use; T.Wd = Tank. water collected at wood tile roof. T.Con = Tank. water collected at Concrete roof; T.Clay = Tank. water collected at clay tile roof; T.GSteel = Tank. water collected at galvanised steel roof; T.Asph = Tank. water collected at asphalt shingle roof; T.ALZnStl = Tank. water collected at Aluminium-zinc coated steel. T.ConT = Tank. water collected at concrete tile roof; T.it = Tank. water collected from bituminous cool roof. T.Green = Tank. water collected at unfertilized green roof.

² All samples taken from water stored after first flush

- 1 Galvalume roof. aluminum gutter. cistern coated with fiberglass
- 2 Idem
- 3 Galvalume roof. PVC gutter. cistern coated with fiberglass
- 4 Galvalume roof. galvalume gutter. cistern coated with fiberglass
- 5 Galvalume roof. aluminum gutter. cistern coated with polyethylene
- 6 Asphalt fiberglass shingle. PVC gutter. cistern coated with fiberglass

Table S.6: inorganic parameters in harvested rainwater (min.. max.. median). (min-max). (mean ± std. dev.) after first flush

Location	Cl ⁻ (mg/L)	SO ₄ ²⁻ (mg/L)	NO ₂ ⁻ (mg N/L)	NO ₃ ⁻ (mg N/L)	Na ⁺ (mg/L)	Sample	reference
Texas	No data	No data	No data	No data	No data	1 2 3 4 5 6	[18]
Seoul. Korea	No data	0.1-1.5 0.1-0.8 0.1-0.5 0.0-0.1	No data	0.06 0.06 0.02 0.00	No data	T.Wd T.Co n T.Cla y T.GSteel	[12]
Greece NE (6 sites)	7.29±3.9 7 5.05±2.9 3 4.16±2.8 1 3.54±2.2 5 3.48±3.2 8 3.61±2.2 8	10.65±3.1 4 13.56±4.3 4 15.70±6.4 3 8.28±2.69 8.84±5.31 10.25±3.9 8	0.08±0.10 0.05±0.12 0.05±0.10 0.03±0.07 0.04±0.10 0.01±0.02	0.83±0.71 0.84±0.71 0.58±0.52 0.71±0.57 0.66±0.51 0.58±0.55	5.15±2.0 8 4.42±1.5 7 6.91±1.9 0 3.26±1.8 9 3.78±2.1 4 4.15±1.7 7	T T T T T T	[13]
Ballinabrannagh Ireland SE	5.06 (1.50- 22.49)	7.50 (0.0- 31.7)	0.01 (0.0- 0.15)	0.33 (0.0- 0.64)	4.60 (0.0- 8.6)	T	[14]
Exeter.UK	3-28	No data	<0.01-0.22	1.32-17.74	2.8-4.3	T	[15]
UAB University Barcelona. Spain	8.86±2.3 8	3.54±0.39	0.040±0.01 5	0.395±0.05 9	No data	T. 4 roofs	[16]
Austin. Texas USA	No data	No data	0.03 0.02 0.03 0.02 0.03	1.0 1.1 1.1 1.1 1.5	No data	T.Asph T.AIZnSt l T.ConT T.Bit T.Green	[17]

¹T = Tank; PoU = Point of Use; T.Wd = Tank. water collected at wood tile roof. T.Con = Tank. water collected at Concrete roof; T.Clay = Tank. water collected at clay tile roof; T.GSteel = Tank. water collected at galvanised steel roof; T.Asph = Tank. water collected at asphalt shingle roof; T.AIZnStl = Tank. water collected at Aluminium-zinc coated steel. T.ConT = Tank. water collected at concrete tile roof; T.it = Tank. water collected from bituminous cool roof. T.Green = Tank. water collected at unfertilized green roof.

² All samples taken from water stored after first flush

Table S.7: heavy metals in harvested rainwater (min.. max.. median). (min-max). (mean ± std. dev.) after first flush

Location	Al (mg/L)	Cu (mg/L)	Pb (mg/L)	Zn (mg/L)	Fe (mg/L)	Sample	reference
Texas	No data	No data	No data	No data	No data	1 2 3 4 5 6	[18]
Sidney (4 sties). Australia	0.115±0.14 3	0.221±0.29 4	0.011±0.01 3	2.63±2. 2	No data	T	[10]
Seoul. Korea	0.043 0.099 0.036 0.033	0.009 0.012 0.015 0.016	0.003 0.005 0.003 0.003	0.018 0.038 0.019 0.074	0.023 0.048 0.024 0.027	T.Wd T.Co n T.Cla y T.GSteel	[12]
Ballinabrannagh Ireland SE	No data	No data	0.002(0.0- 0.025)	No data	0.022(0.0 -0.095)	T	[14]
Exeter.UK	0.080-0.108	0.218-0.290	0.026-0.064	0.193- 0.480	0.009- 0.027	T	[15]
Austin. Texas USA	0.36 0.31 0.48 0.46 0.21	0.035 0.0 0.0 0.0 0.0	0.001 0.001 0.003 0.001 0.004	0.045 0.186 0.135 0.105 0.345	0.262 0.244 0.349 0.349 0.070	T.Asph T.ALZnSt l T.ConT T.Bit T.Green	[17]

¹T = Tank; PoU = Point of Use; T.Wd = Tank. water collected at wood tile roof. T.Con = Tank. water collected at Concrete roof; T.Clay = Tank. water collected at clay tile roof; T.GSteel = Tank. water collected at galvanised steel roof; T.Asph = Tank. water collected at asphalt shingle roof; T.ALZnStl = Tank. water collected at Aluminium-zinc coated steel. T.ConT = Tank. water collected at concrete tile roof; T.it = Tank. water collected from bituminous cool roof. T.Green = Tank. water collected at unfertilized green roof.

² All samples taken from water stored after first flush

Table S.8: microbiological parameters in harvested rainwater (min.. max.. median). (min-max). (mean ± std. dev.) after first flush

Location	Total/faecal coliforms (N/100 ml)	E. coli (N/100 ml)	Enterococci (N/100 ml)	PC22°/PC37°C N/ml	Sample	reference
Texas*)	<1	<1	<1	<1 - 300	1	[18]
	400 - 2000	<1 - 25	<1 - 500	3.1E5 - 1E7	2	
	<1 - 3	<1	1 - 13	6300 - 31600	3	
	2- 400	<1	<1 - 30	10.000 - 100.000	4	
	30 - 130	<1 - 1	<1 - 40	10.000 - 60.000	5	
	6 - 630	<1 - 125	3 - 500	1E5 - 3 E6	6	
Seine Maritime. France	30-1.800/— and illegilble results	No data	No data	56-480/40-450 and illegilble results	T PoU	[7]
Ain. France	<30-230/— 12-92/—	No data	No data	133-8.800/3-10.400 170-3.500/6-5.000	T PoU	[7]
Île-de-France. France	1200/— 1200/—	No data	No data	>100/400 >100/250	T PoU	[7]
Rual Village. France (SW)	40 (<10- >10.000)	2 (<10- 5.500)	45(<10- >10.000)	10-632.000/25-368.000	T	[8,9]
Sidney (4 sites). Australia	426/77	11	12	No data	T	[10]
Seoul. Korea	12/—	1	Not detected	No data	T.Wd	[12]
	12/—	2	detected		T.Con	
	2/—	<1	Not detected		T.Clay	
	<1/—	0	detected		T.GSteel	
Greece NE (6 sites)	0-7750/—	5-200	No data	103-104/103-104	T	[13]
	0-3250/—	0-3		30-100/240-104	T	
	0-2800/—	0-2		20-30/8-60	T	
	0-2050/—	—		—	T	
	0-1600/—	—		—	T	
	0-4700/—	—		—	T	
Austin. Texas USA	540/28.1	No data	No data	No data	T.Asph	[17]
	440/1.9				T.AlZnStl	
	780/4.7				T.ConT	
	530/10.8				T.Bit	
	50/4.7				T.Green	

¹T = Tank; PoU = Point of Use; T.Wd = Tank. water collected at wood tile roof. T.Con = Tank. water collected at Concrete roof; T.Clay = Tank. water collected at clay tile roof; T.GSteel = Tank. water collected at galvanised steel roof; T.Asph = Tank. water collected at asphalt shingle roof; T.AlZnStl = Tank. water collected at Aluminium-zinc coated steel. T.ConT = Tank. water collected at concrete tile roof; T.it = Tank. water collected from bituminous cool roof. T.Green = Tank. water collected at unfertilized green roof.

² All samples taken from water stored after first flush

Table S.9: use of drinking water in the Netherlands in L/person/day in 2016 [19]

Bath	1.9
Shower	49.2
Sink	5.2
Toilet flushing	34.6
Laundry	15.4
Dish washing	6.0
Food	1.2
Drinks	1.3
other	4.5

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