

Ongegund (PPC) Distribution System - Input Variables for Water Requirement Model								
Parameter / Variable	Year	Income Categorization				Com. & Ind. (D)	Other(E)	Total
		HI	MI	LI	Sub- Total			
Units are presented in brackets with the "Parameter Description" - First Column								
Population(A)	2016	206	45	45	296			
	2021	217	49	77	343			
	2026	228	54	115	397			
	2031	239	60	161	461			
	2036	252	66	216	534			
	2041	264	73	281	619			
Growth (%/year)	Growth in Population					Growth in Demand		
	2016-2021	1.00%	2.00%	11.38%	3.00%	4%	2%	
	2021-2026	1.00%	2.00%	8.46%	3.00%	4%	2%	
	2026-2031	1.00%	2.00%	6.96%	3.00%	4%	2%	
	2031-2036	1.00%	2.00%	6.04%	3.00%	4%	2%	
	2036-2041	1.00%	2.00%	5.43%	3.00%	4%	2%	
Unit Demand (l/c/d)(B)	2016	200.0	120.0	80.0	-	-	-	-
Average Annual Daily Water Requirement (Kl/d - NRW Excluded)	2016	41	5	4		6	3	59
	2021	43	6	6		7	3	66
	2026	46	7	9		9	4	74
	2031	48	7	13		11	4	83
	2036	50	8	17		13	5	93
	2041	53	9	22		16	5	105
NRW (%) (C)	2016	45.2	45.2	45.2		45.2	45.2	
	2021	25.0	25.0	25.0		25.0	25.0	
	2026	22.5	22.5	22.5		22.5	22.5	
	2031	20.0	20.0	20.0		20.0	20.0	
	2036	17.5	17.5	17.5		17.5	17.5	
	2041	15.0	15.0	15.0		15.0	15.0	
Average Annual Daily Water Requirement (Kl/d)	2016	75	10	7		11	6	108
	2021	58	8	8		10	5	88
	2026	59	8	12		11	5	95
	2031	60	9	16		13	5	103
	2036	61	10	21		16	6	113
	2041	62	10	26		19	6	124
Average Peak Month Daily Water Requirement (Kl/d)	2016	135	18	12		19	10	193
	2021	103	14	15		17	8	158
	2026	105	15	21		20	9	170
	2031	107	16	29		24	9	185
	2036	109	17	37		28	10	202
	2041	111	19	47		33	11	221
Peak Day Water Requirement (Kl/d)	2016	168	22	15		24	13	242
	2021	129	18	18		21	10	197
	2026	132	19	27		25	11	213
	2031	134	20	36		30	12	232
	2036	136	22	47		35	12	252
	2041	139	23	59		41	13	276
Total Annual Water Requirement (Kl/year)	2016	27471	3572	2382		3930	2065	39420
	2021	21096	2882	2983		3493	1666	32120
	2026	21457	3079	4333		4113	1780	34762
	2031	21847	3294	5876		4848	1904	37768
	2036	22265	3526	7640		5719	2038	41189
	2041	22713	3779	9659		6754	2184	45088
Peak Month Factor(F)	1.79							
Peak Day Factor(G)	1.25							

Notes :



TO USE THIS SHEET, FILL IN THE VARIABLES IN THE SHADED BLOCKS ABOVE

References:

(A) - Total population based on Census 2011 data. Future estimated growth agreed with Municipality in January 2014.

(B) - Residential unit demands estimated.

(C) - Non Revenue Water (NRW): Calculated NRW from July 2016 to June 2017. Estimated 20.2% reduction of NRW over the next five years.

(D) - Commercial and Industrial: Calculated from Billed Metered Consumption data for the period July 2016 to June 2017. Average 5.9 kl/d.

(E) - Others: Calculated from Billed Metered Consumption data for the period July 2016 to June 2017. Average 3.1 kl/d.

(F) - Peak Month Factor: Maximum value calculated from July 2012 to June 2017 data.

(G) - Peak Day Factor : Estimated

Ongegund (PPC) Distribution System Projected Water Requirements (KI/a)								
Year *	Measured Potable Water Requirement (System Input Volume)	Projected Water Requirement from model	2% Annual growth on 2016/2017 Water Requirement	4% Annual growth on 2016/2017 Water Requirement	Other Projections			Annual WWTW Flows (Estimated from Billed Metered Consumption Data)
					DWS's Reconciliation Strategy (February 2016)			
					Low	Medium	High	
2001								
2002	53,765							
2003	48,600							
2004	31,170							
2005	43,225							
2006	43,555							
2007	54,875							
2008	57,676							22,528
2009	62,512							24,116
2010	64,439							24,578
2011	63,600							23,018
2012	58,857							25,872
2013	48,814							26,692
2014	48,539							22,678
2015	43,529							17,138
2016	39,286	39,420	39,286	39,286				12,923
2021		32,120	43,375	47,797				
2026		34,762	47,889	58,153				
2031		37,768	52,874	70,752				
2036		41,189	58,377	86,080				
2041		45,088	64,453	104,730				

Notes: (\*) The years in the above table refer to the Municipal Financial Years and is for the period July till June the following year. The measured demand for 2016 is therefore from July 2016 up to June 2017.

