



VERMIFILTRATION CONFERENCE

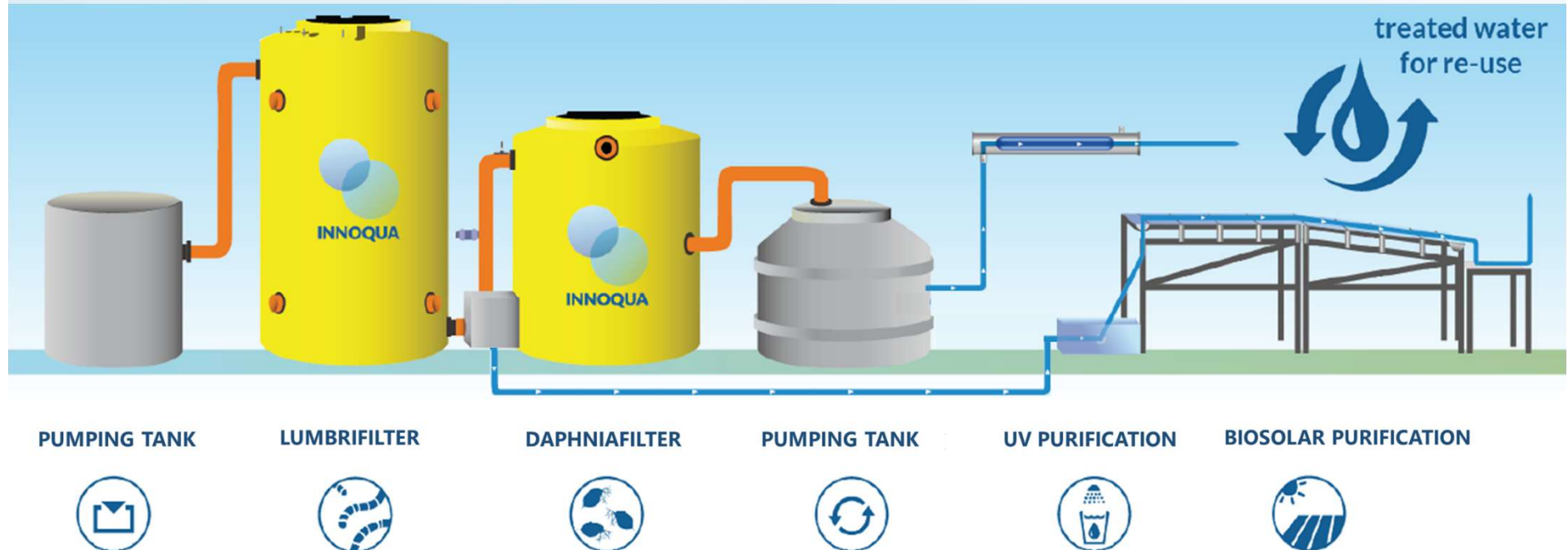
The Indian Demonstration Site

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INNOQUA

System Configuration at the Indian Demonstration Site



This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 689817

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Demonstration Site Characteristics



Installed system size	:	10 PE
Connection	:	9 households in a water scarce and economically weak community setting
Wastewater source	:	pour flush toilets, washing room
Feed & test characteristics	:	unsettled, direct dosing over pump in different frequency intervals
Analysis timeline	:	July 2019-October 2020



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Wastewater characteristics – high strength

TSS	:	940-4030mg/L, aver. 2190mg/L
BOD	:	600-2000mg/L, aver. 1165mg/L
COD	:	1104-4190mg/L, aver. 2241mg/L
NH ₄ -N	:	60-144mg/L, aver. 104mg/L
wastewater temp.	:	20.8 up to 38.8°C

→ Analysis under extreme conditions with parameters exceeding critical ranges for Lumbrifiltration, Daphniafiltration and UV Disinfection



Installed system size	:	10 PE, tested in range of 516-1,680L/day
System specification	:	vertical filter, primary and secondary stage
Filling material	:	Coconut chips as active layer, gravel
Worm species	:	3 different species composed of <i>Eisenia fetida</i> , <i>Perionyx excavatus</i> , <i>Eudrillus eugenia</i>
Dosing arrangement	:	splash plate for even distribution, feeding on 1-hour or 2-hour basis



Performance Lumbrifilter		TSS mg/L	BOD mg/L	COD mg/L	NH ₄ - N mg N/L
LF _i	average; STD N	2190 +/- 951	1165 +/- 369	2242 +/- 851	104 +/- 23.7
	max	4030	2000	4190	144,0
	min	940	600	1104	60,1
LF _{eff}	average; STD N	271 +/- 186	90 +/- 76	371 +/- 217	15.2 +/- 8.5
	max	615	300	803	37,0
	min	36	14	86	2,7
efficiency [%]	average; STD N	88 +/- 8	93 +/- 6	83 +/- 10	85 +/- 10
	max	98	98	94	98
	min	62	75	60	54
Performance INNOQUA		TSS %	BOD %	COD %	NH ₄ - N %
Average LF-DF-UV		98	99	96	94
Average LF-BSP		87	97	91	97



Thank you for your Attention!
Any Questions?



In case of further interest or questions kindly contact me at schellenberg@borda.org