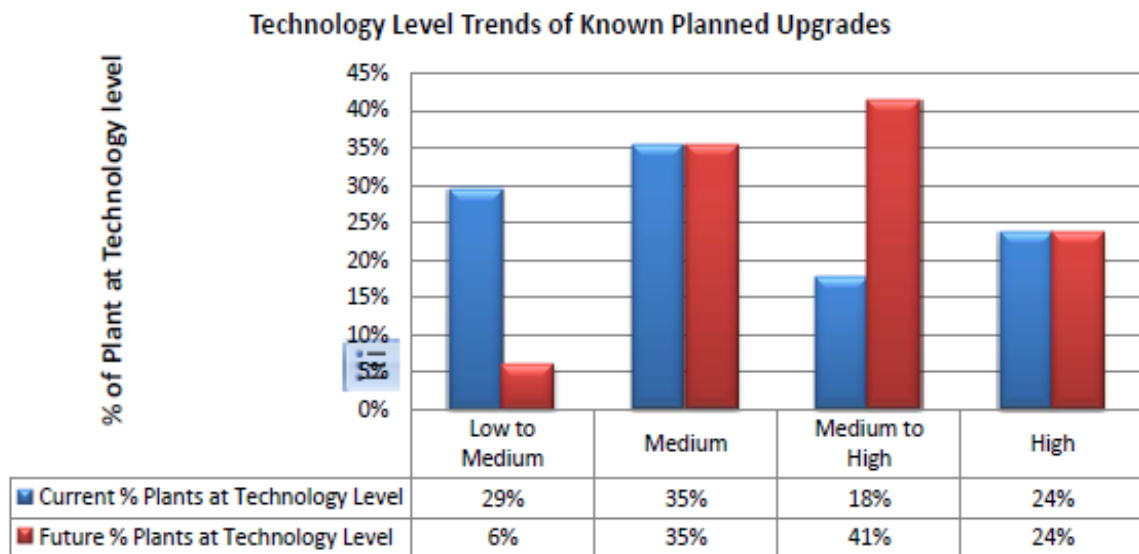




WW Tech Decision Support Tool

Unathi Jack

Why Develop a decision support tool for wastewater treatment technology selection?



(Bhagwan, 2012)

- Water Sector has a 'feel' that the most suitable technologies are not always considered and necessary drivers are not employed to arrive at sustainable technology choices.
- Recommended a programme/model to guide users in making a logical selection.

Aspects to consider in selecting Wastewater treatment technology

- Plant size or flow rate
- Land availability
- Type of influent
- Size of contributing community
- Treated wastewater quality
- Receiving environment
- Costs
- Operation & Maintenance
- Existing infrastructure



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Detailed Analysis

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NOTE: This Detailed Analysis helps you assess key criteria for both NEW and EXISTING wastewater treatment facilities required for new upgrades or refurbishments.

	Criteria	Your Conditions
1	Flow rate	
2	Land availability	0.5 - 2 MI/day 2 - 5 MI/day 5 - 10 MI/day > 10 MI/day
3	Type of influent	
4	Size of contributing community	
5	What COD removal do you want / need to achieve?	
	What SS removal do you want / need to achieve?	
	What FC removal do you want / need to achieve?	
	What NH ₃ removal do you want / need to achieve?	
	What Nitrogen removal do you want / need to achieve?	
	What P removal do you want / need to achieve?	
6	Receiving environment	
	Effluent Reclamation and Re-use	
7	Sludge handling	

NOTE: (References: Metcalf & Eddy 1991, Nozaic & Freese 2009)

If you don't know your flow-rate use the following calculation as a guide:

For low income areas: ~60-70 litres / person / day

For middle to upper income areas: ~160 litres / person / day

Flow-rate (MI/day) = (Average estimated flow X Population served) / 1000 000

NOTE:

Take note of your licence requirements

If you are not sure what % removal is required, Click on the "Calculate Removal Status" button on the right.




**Calculate Removal
Status**

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Preferred Technologies

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Detailed Analysis Results		SORT
1	Aerobic Granular Activated Sludge System	16
2	Rotating Biological Contactor	16
3	Membrane Bio-reactors	15
4	Activated Sludge System	15
5	Trickling / Biological Filters	13
6	Waste Stabilisation Ponds	13

-  Preferred Technology (16 - 21)
-  Proceed with caution (review inputs) (10 - 15)
-  Do not consider (re-think) (<10)

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Compare Wastewater Treatment Technologies

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NOTE: This comparison helps you determine other technologies which might be appropriate for your conditions. These are typical conditions for the selected wastewater treatment technologies.
Your conditions are highlighted in yellow, as well as in the comparison technologies.

Your System's conditions		Compare	Waste Stabilisation Ponds	Compare	Trickling / Biological
Criteria	Detailed Analysis				
Flow rate	5 - 10 MI/day		0.5 - 2 MI/day		2 - > 10 MI/day
Land availability	< 0.6 ha		>= 3 ha		< 3 ha
Type of influent	Domestic only		Domestic only / Partially Treated (e.g. via septic tanks, ponds)		Domestic / Partially Treated (e.g. via septic tanks, ponds)
Size of contributing community	50 001 - 250 000		< 5000		5000 - > 250 000
Licence conditions	Domestic only		0.5 - 2 MI/day		2 - > 10 MI/day
What COD removal do you want / need to achieve?	Good (70 - 100%)		Good (70 - 100%)		Fair (30 - 69%)
What SS removal do you want / need to achieve?	Good (70 - 100%)		Good (70 - 100%)		Fair (30 - 69%)
What FC removal do you want / need to achieve?	Good (70 - 100%)		Good (70 - 100%)		Good (70 - 100%)
What NH ₃ removal do you want / need to achieve?	Fair (30 - 69%)		Fair (30 - 69%)		Poor (0 - 29%)
What Nitrogen removal do you want / need to achieve?	Good (70 - 100%)		Fair (30 - 69%)		Fair (30 - 69%)
What P removal do you want / need to achieve?	Fair (30 - 69%)		Poor (0 - 29%)		Poor (0 - 29%)
Receiving environment	Not a listed river as per GA		No discharge / Not a listed river as per GA		Not a listed river as per GA
Effluent Reclamation and Re-use	Landscape irrigation		Landscape irrigation		Landscape irrigation / Other (e.g. for industrial use)
Sludge handling	Composting		Anaerobic digestion / Belt press / Composting / Stockpile on-site / Drying beds / Sludge lagoons		Belt press / Composting / Drying beds
Sludge Disposal / Re-use methods	Agricultural use (e.g. composting / fertiliser)		Agricultural use (e.g. composting / fertiliser) / Licenced landfill disposal		Industrial use (e.g. brick making, cement manufacture) / Licenced landfill disposal (e.g. composting / fertiliser) / Licenced landfill disposal
Ability to secure capital	Yes (100%)		Yes (100%)		Yes (100%)
Ability to cover operational and maintenance cost	Medium (~140c/m³)		Low (~79c/m³)		Medium (~140c/m³)

Thank you!

