

Treatment systems in agricultural areas: Lessons learnt

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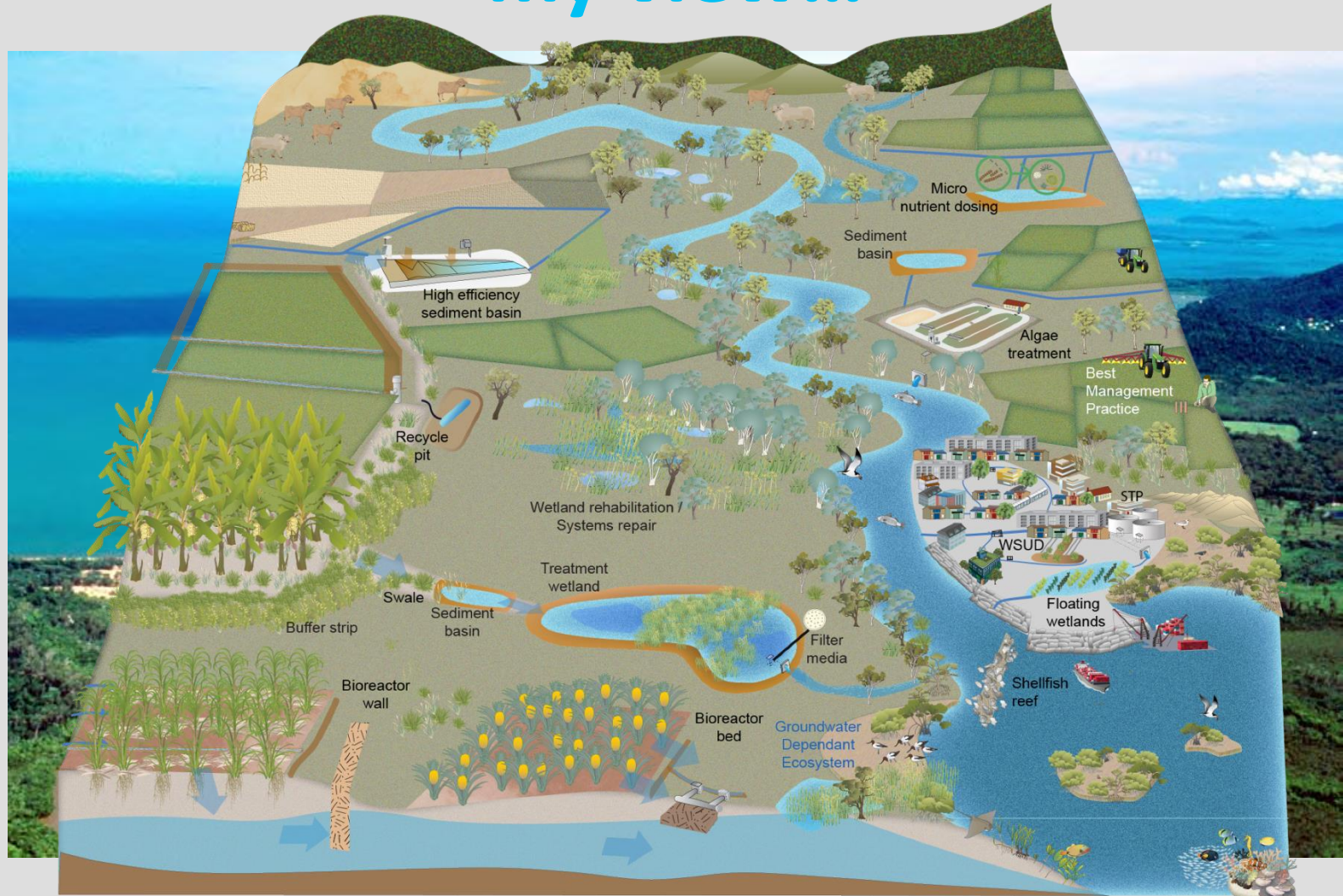
Wet Tropics
Major
Integrated
Project

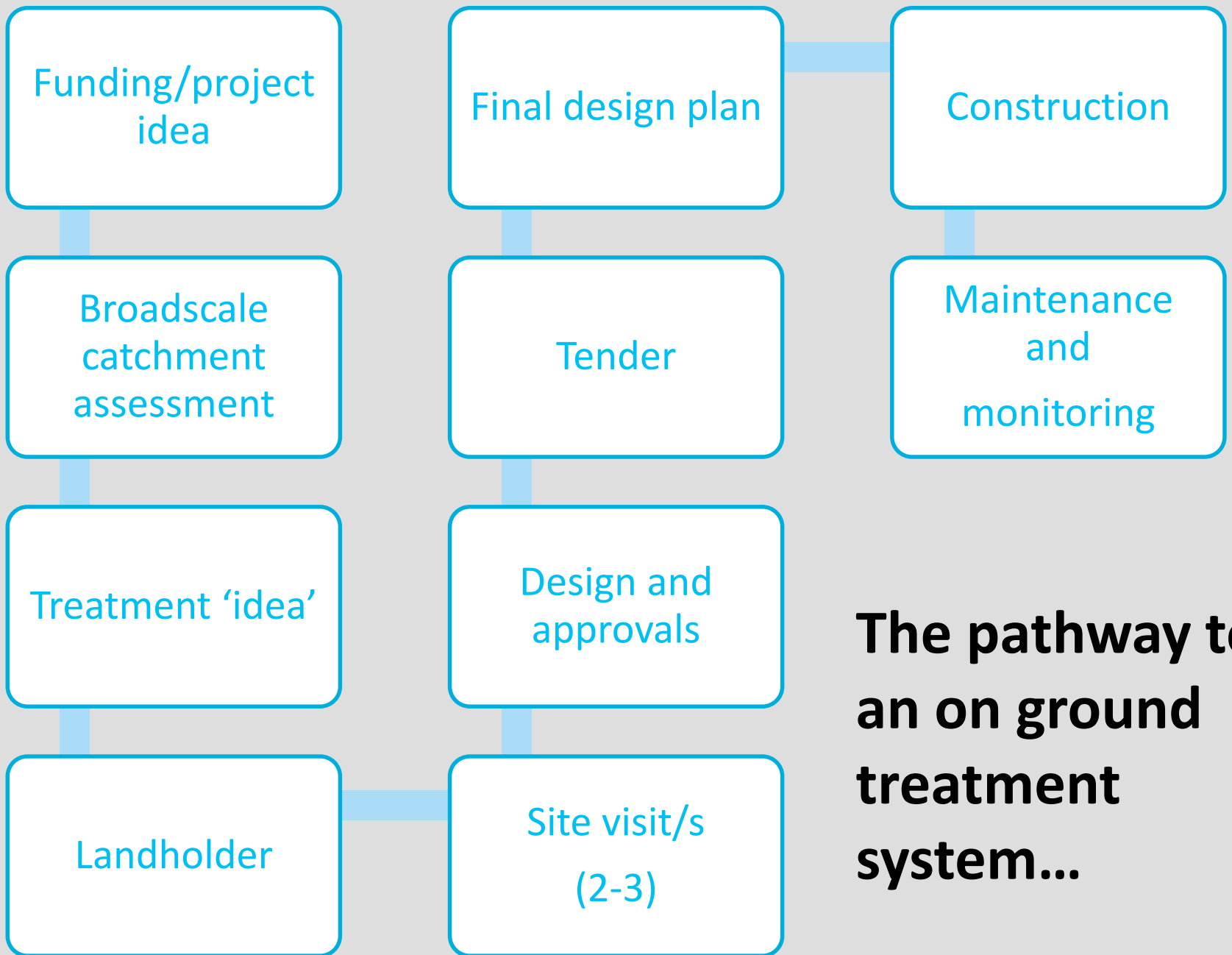
Putting local knowledge into reef action



AWC

Agricultural treatment systems... my view...





Finding sites

- Multifaceted
 - Desktop
 - Local networks
 - Site appraisals and catchment analysis
 - Detailed site visits and tests
- PLUS willing landholder

Lessons:

- Cast a wide net
- For every 10 sites visited, 2-3 might be goers, then you might have 1 willing landholder
- Desktop mapping relatively useless
- Local knowledge and feet on the ground key to success
- Momentum

The approval process



- Local government
 - ASS
 - Environment
- State Government
 - Interfering with waterways
 - HEV wetlands
 - Water licence



Lessons:

- Have early meetings with approval authorities
- If approvals are needed, either avoid via seeking exemptions or changing sites
- Assume 2-3 months from lodgement to approval
- Make applications as detailed as possible
- Increases costs to projects and blows timeframes out

Some useful websites

- Local Council (CCRC):
 - http://ccrc.x-info.com.au/XI_Project.htm?ProjectName=PLN0003&mode=xiis_embedded&user=guest
- State Government:
 - <https://dams.dsdip.esriaustraliaonline.com.au/damappingsystem/?accordions=SARA%20DA%20Mapping>

Establishing a working relationship with the farmer...

- Many farmers have a long history of 'government people' coming onto their land and telling them what they are doing wrong without explaining or showing them why.
- First few visits are of upmost importance. You want to:
 - Be patient
 - Be interested
 - Ask questions (not just about the site/project)
 - Don't assume
- You need to encourage:
 - Collaboration
 - Faith
 - Excitement
- Don't rush, let them 'show you **their** site'.

\$24 per tonne
Minus...

- \$4 mill fees
- \$4 transport
- \$4 harvesting
- \$4 planting
- \$4 fertilising

= \$4 profit to cover machinery, labour etc etc



Most common 'farmers' comment

*Show me there is a
problem....(don't tell me)... and
we can figure out a solution*

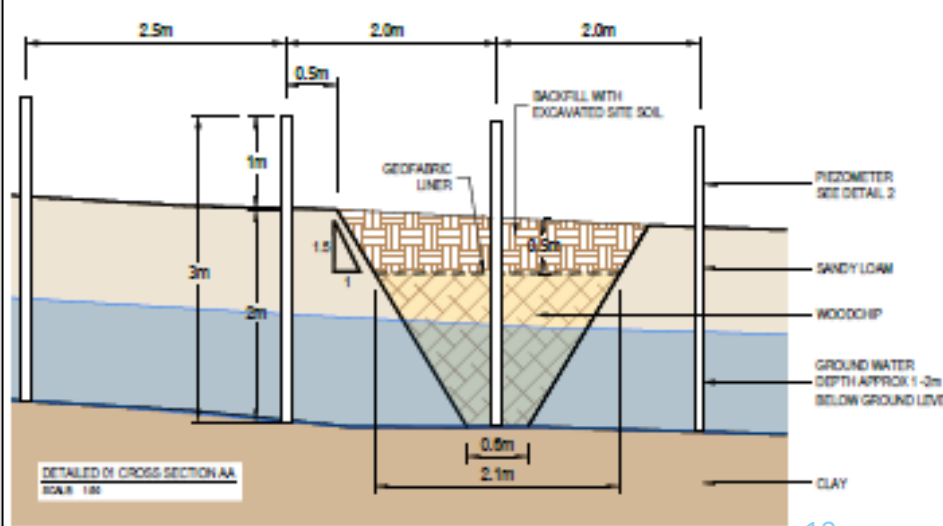
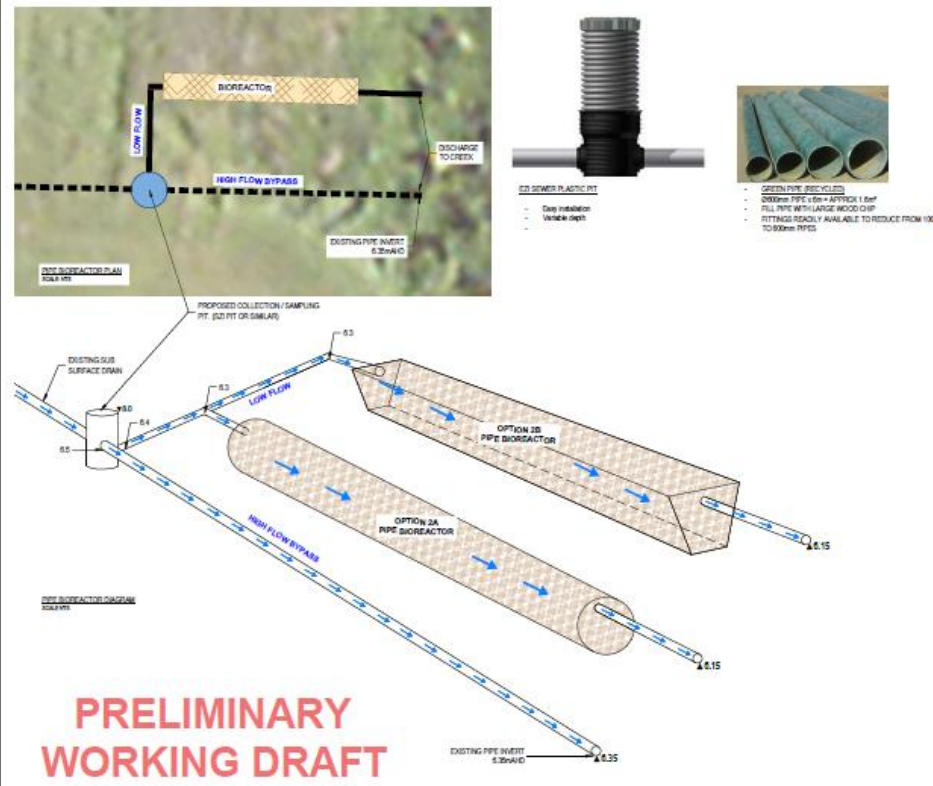
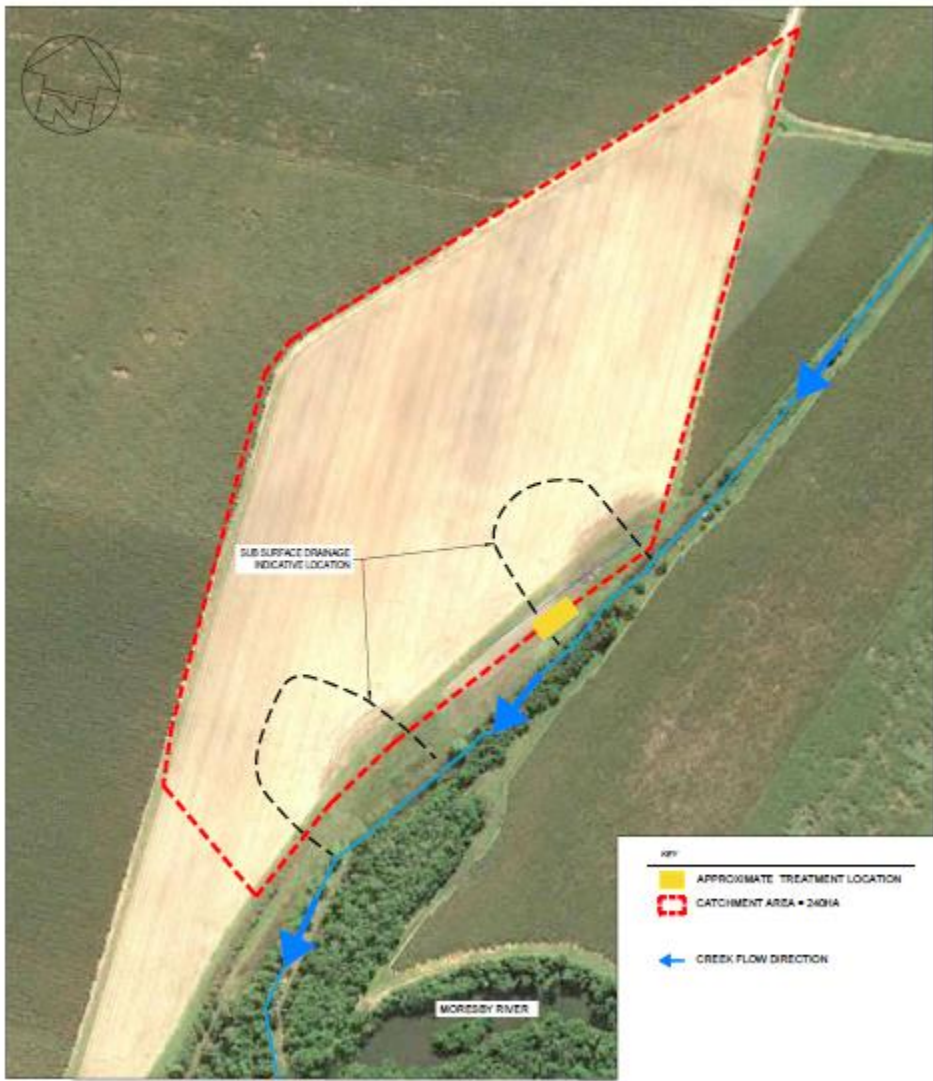
*...I've bought my kids houses. I've put them through
school. I think now its time to give something back.*

Explore innovative options...but remember the basics

- Sometimes we can all strive to be innovative, in an attempt to ‘break from convention’ to offer something truly unique to the project/s

Bioreactors (!?!)

- Lets still make sure we can...
...see the “forest through the trees”



Depending upon the treatment system chosen, differing soils will help or hinder a project

- This information is not usually available on ‘computers’, so you need to be in the field digging:
 - Soil science surveys
 - Acid Sulfate Soil survey
 - Geotechnical survey

Assume geotechnical survey if building a large wetland (\$30,000 + 2 months)

Soil science surveys limited in use



Creating wetlands: two ways

- Bring the water up



Limited earthworks (Better in ASS sites?)
Larger area
More difficult to predict what happens
Natural regeneration

- Take the soil down



Earthworks costs high (\$5-15/m³)
Often smaller areas
Can built where wetlands would not normally occur
Active regeneration

Construction budgets

- Biosecurity
 - \$20,000
- Earthmoving
 - \$5-15 per m3
- Plants
 - \$2-4 each
- Site establishment + prelim
 - \$10,000
- Structures
 - \$5-10,000
- Maintenance
 - \$3-400 per day
 - 1 day per week for 4 months

Cost estimation		
Technology size	Area, m2	20,000
Site prep to get ready for earthworks/construction (slashing, weed spraying - general market rate)	Area,m2	20,000
	cost/m2	\$0.10
	Subtotal	\$2,000
Earthworks (excavator/dumptruck/scrapper - genral market rate of \$5/m3)	area	20,000
	depth	1
	volume	20000
	cost/m3	\$5.00
	Subtotal	\$100,000
Structures (inlet and outlet devices - require permanent strucures that faciate water elvel control)	# req	2
	unit costs	\$15,000
	Subtotal	\$30,000
Plants	# plants/m2	4
	# plants	80,000
	Cost	2.0
	Subtotal	\$160,000.00
Seeding (supplement planting to increase success of plant establishment)	Area	30000
	cost/m2	1
	Subtotal	\$30,000.00
Mainetenace (1 day per week, 16 weeks)	Day	\$480.00
	#days	16
		\$7,680.00
Total estimated costs		\$329,680.00
Earthmoving float		\$3,000.00
Biosecurity costs		\$20,000.00
Total Est costs, incl 20% contingency		\$352,680.00

Acknowledgments

- Huge collaborative effort:
 - Alluvium
 - WT-MIP team
 - QLD Government
 - JCU
 - **Landholders**





Leading environmental solutions...

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THANK YOU

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