

Thermal pre-treatment for
improving anaerobic
digestion of kraft pulp mill
biosludge

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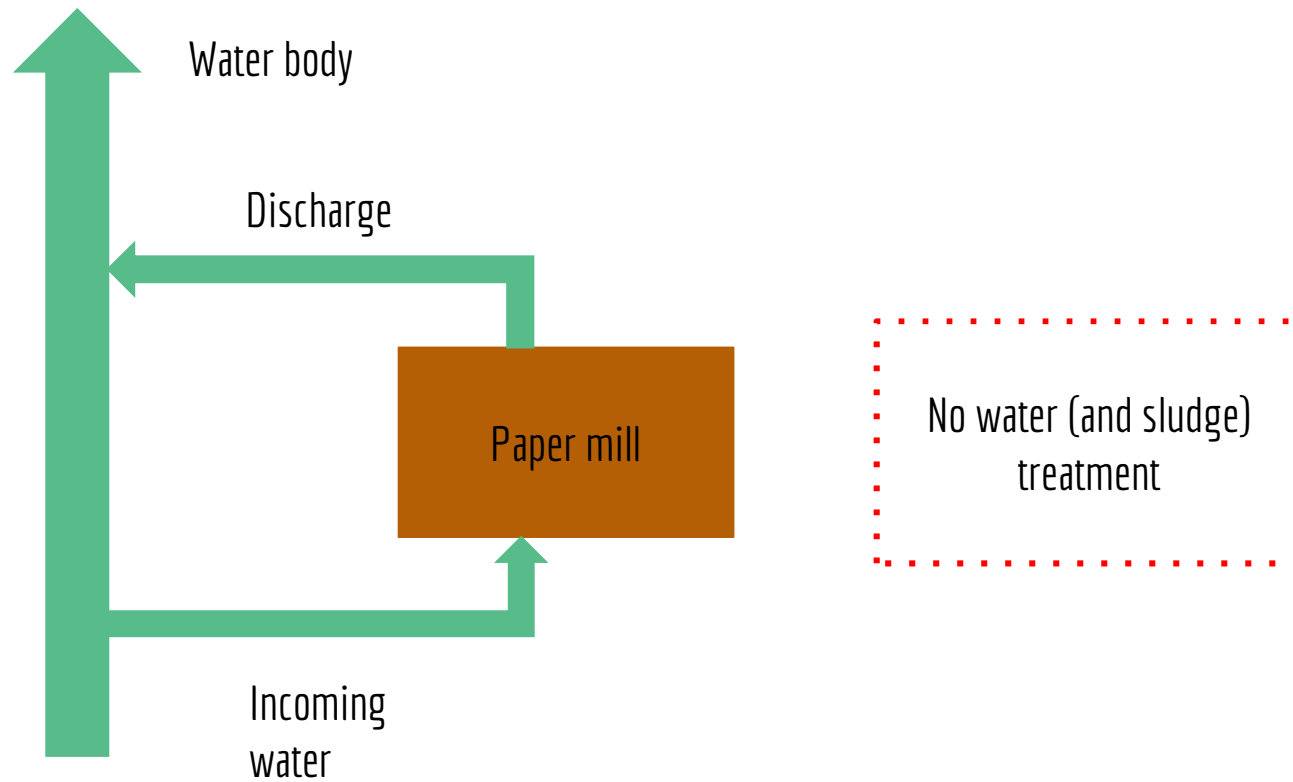
May 22 2019
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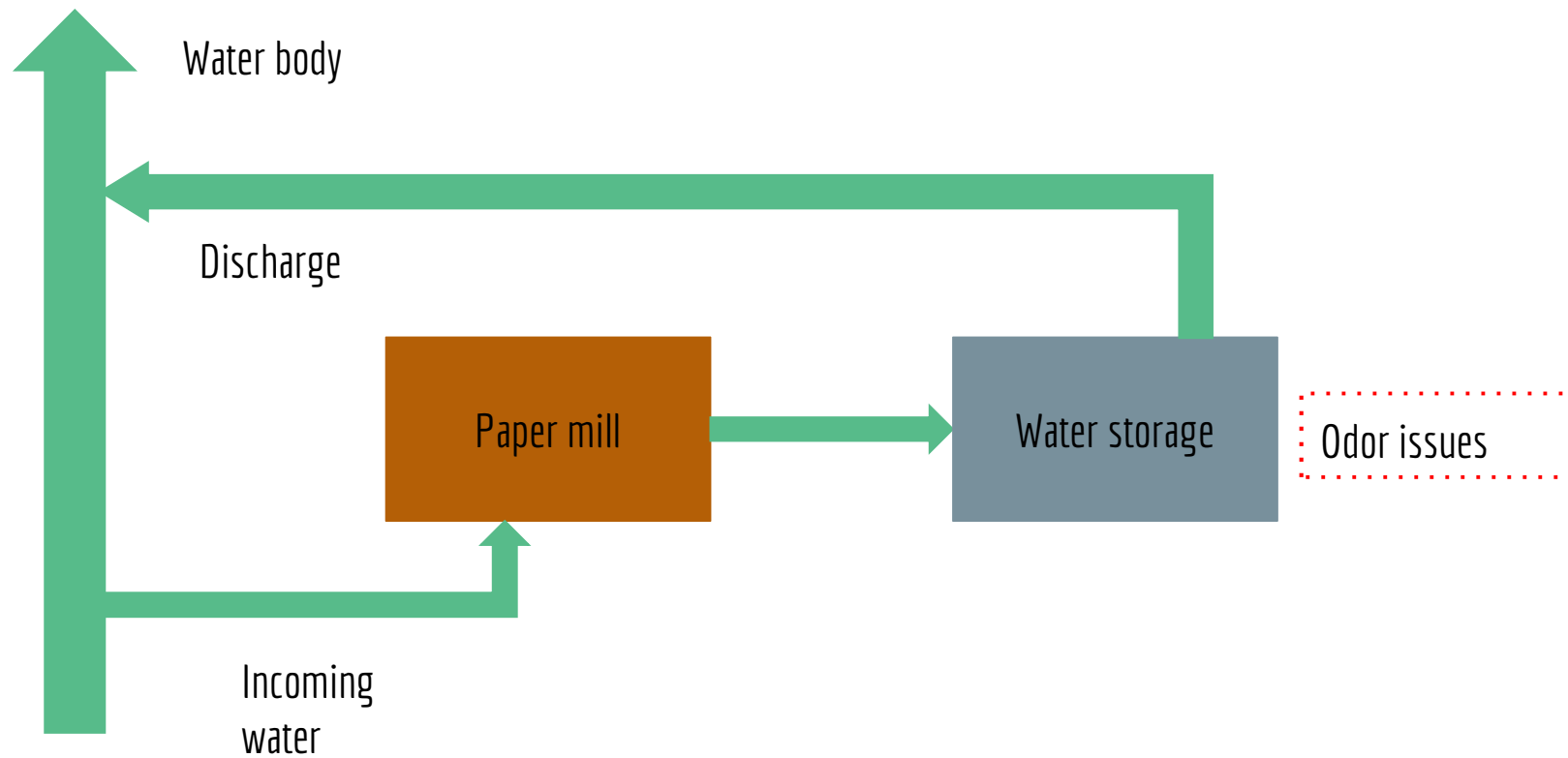
- Introduction
- Evolution of wastewater treatment
- Internship assignment



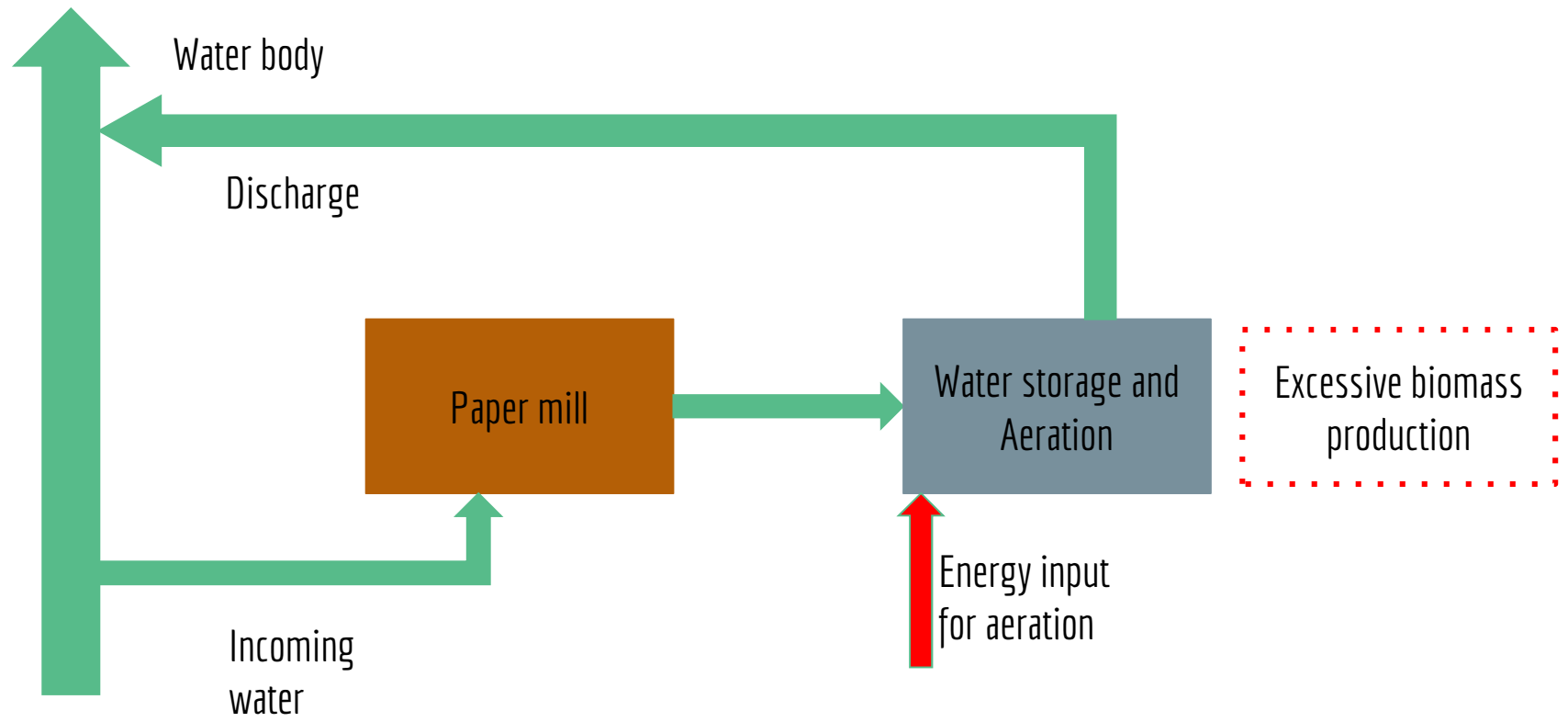
Evolution of wastewater treatment: stage I



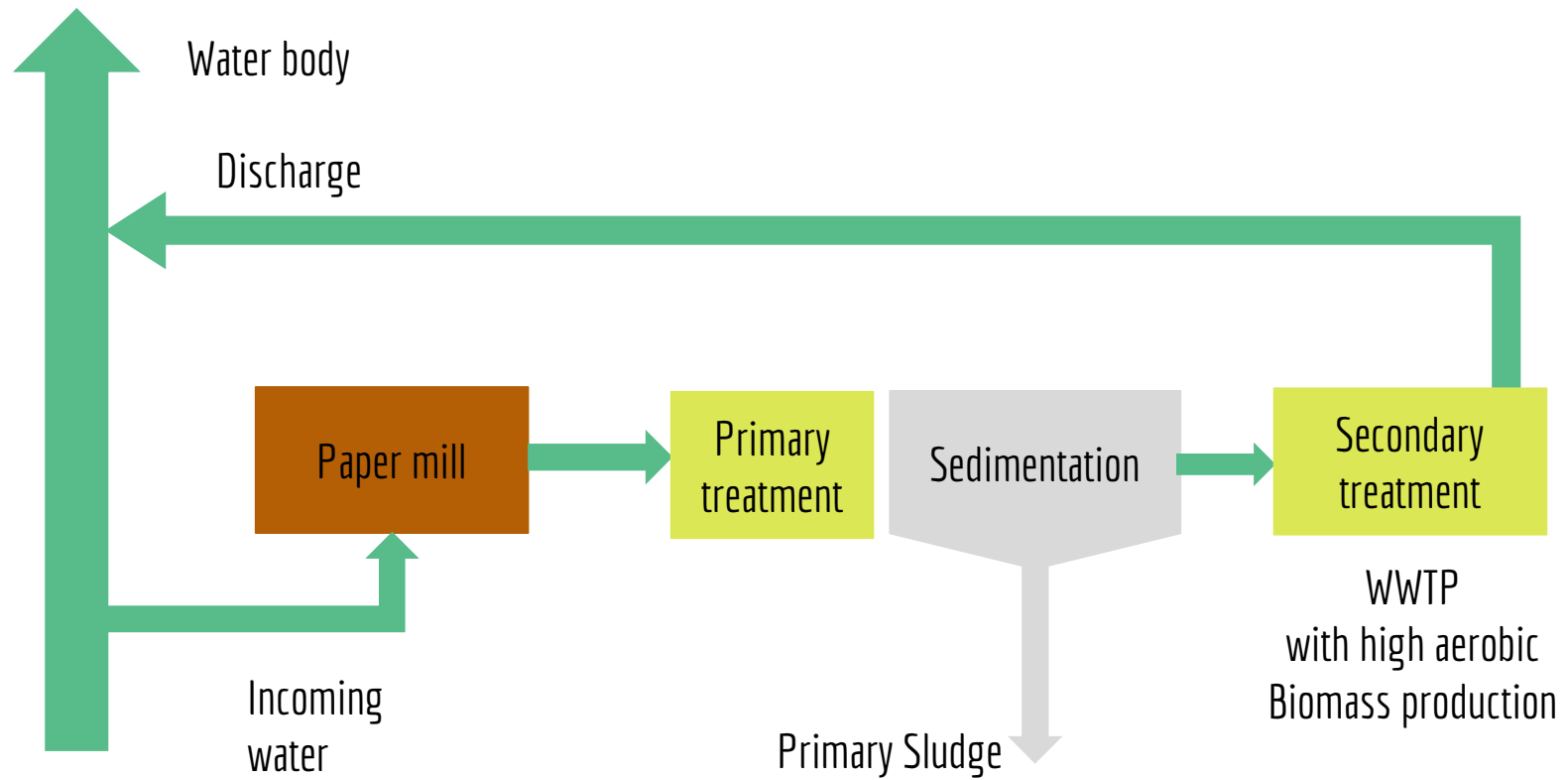
Evolution of wastewater treatment: stage II



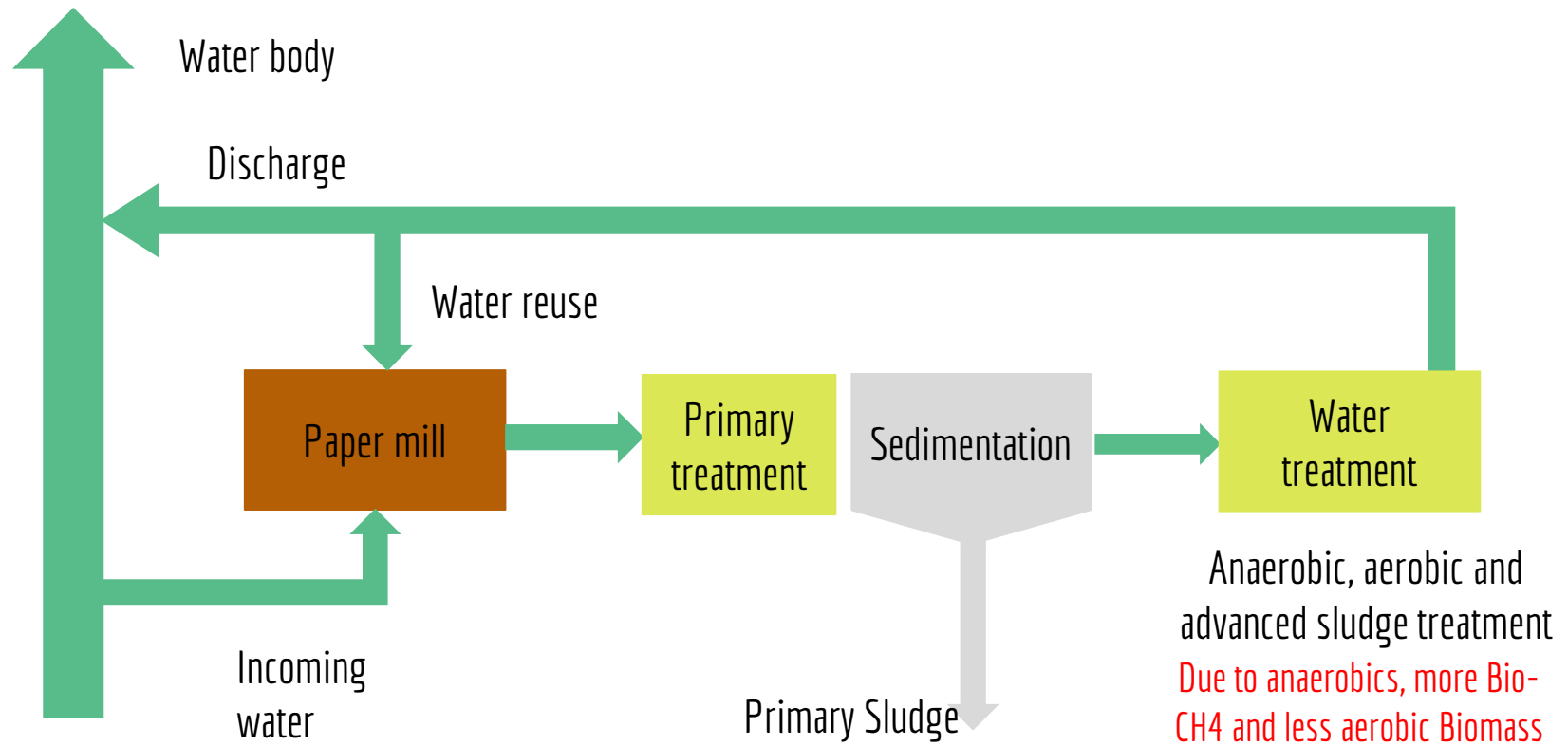
Evolution of wastewater treatment: stage III



Evolution of wastewater treatment: stage IV



Evolution of wastewater treatment: stage V



Thermal pre-treatment for
improving anaerobic digestion
of kraft pulp mill biosludge

- Project carried out at Federal University of Vicosa, Brazil
- September 2018 - January 2019

Goal:

- To determine the most effective thermal pre-treatment conditions (time and temperature)
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Methodology

Observed parameters: pH,
solids, tCOD, sCOD, BOD5, N, P



Pre-treatment tests	
150 °C 15 min	x2
150 °C 30 min	
150 °C 60 min	
175 °C 15 min	
175 °C 30 min	
175 °C 60 min	
200 °C 15 min	
200 °C 30 min	
200 °C 60 min	

- Optimum pre-treatment conditions: 175 degrees and 30 minutes
- sCOD under these conditions was increased by nearly 10 times, followed by a 5-fold increase in BOD



Conclusion

- Results confirmed that thermal pre-treatment is an effective method for increasing SOM in biosludge
 - Further research → determining the BMP (Biochemical Methane Potential) + energy feasibility analysis
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Thank you for your attention!

