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NEED

- Water borne diseases claim a lot of lives in India
- Indian news journal, Times of India reported 13000 deaths due to drinking water contamination between 2010-2014^[1]

Classification of water filters [3]

Reverse Osmosis filters



Price : \$98-233

Gravity non-electric filters



Price : \$17-50

Conventional particle filters



Price : \$0.5-1

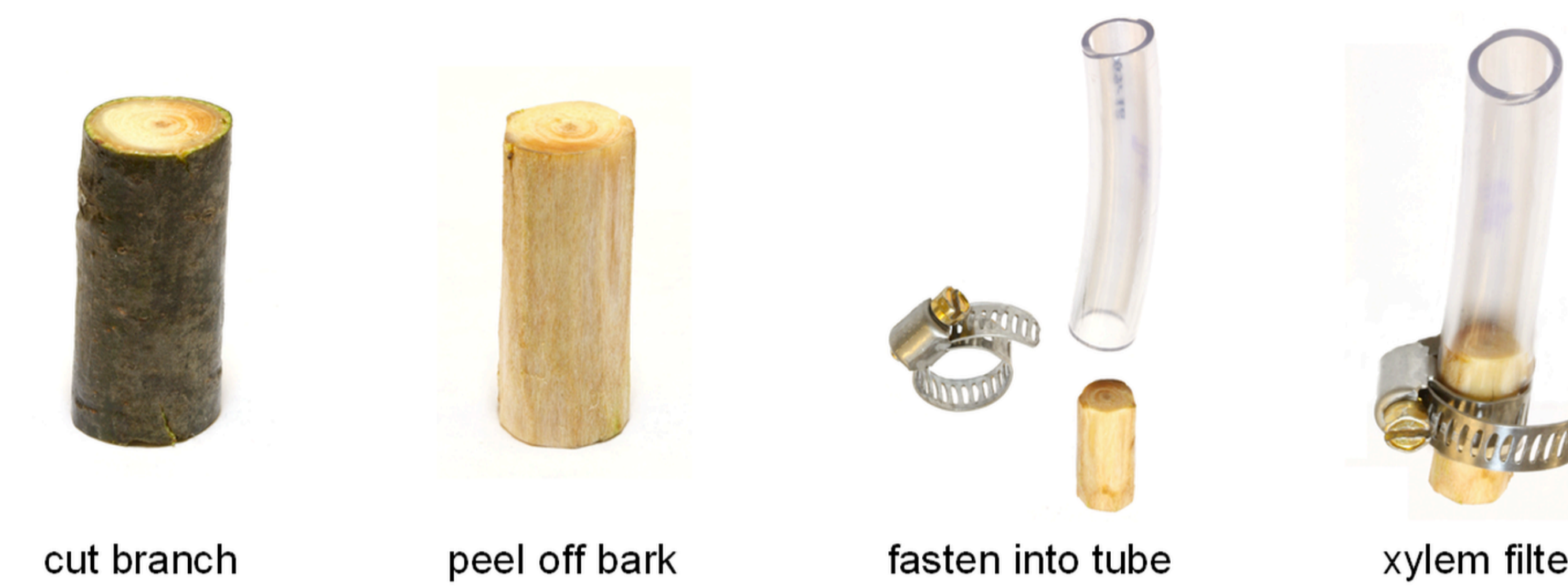
Parameter	Conventional particle filters		Gravity non-electric filters
	Cloth (8-folds)	Jali	
Filtration performance	Turbidity reduction	60%	<5%
	E.Coli reduction	<20%	No effect
Access	Availability	Wide variety Readily available	Few pocket-friendly options Not readily available
	Affordability	Very affordable	Initial payments are high. Financing options are poor



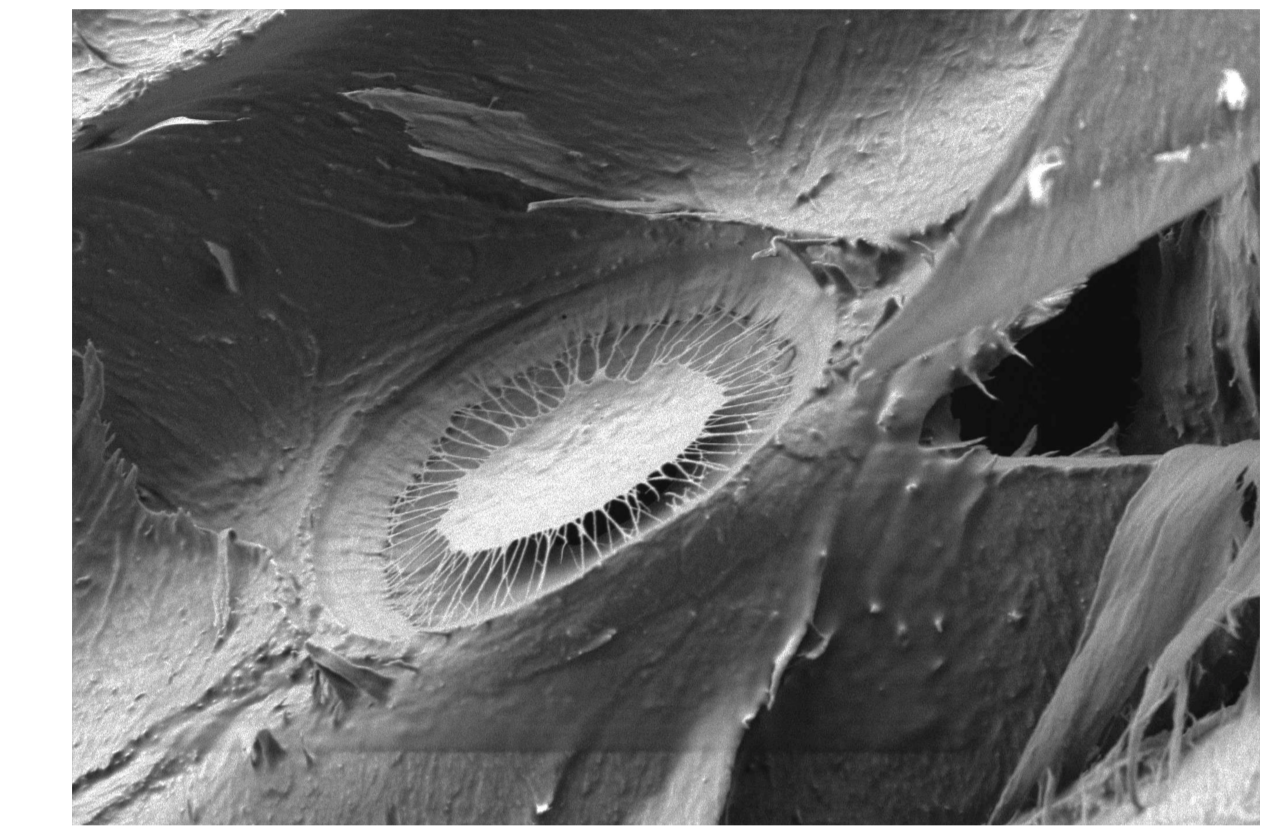
PRODUCT??

PROPOSED SOLUTION AND RESULTS

- Use wood from conifers (non-flowering plants) as a membrane for filtration



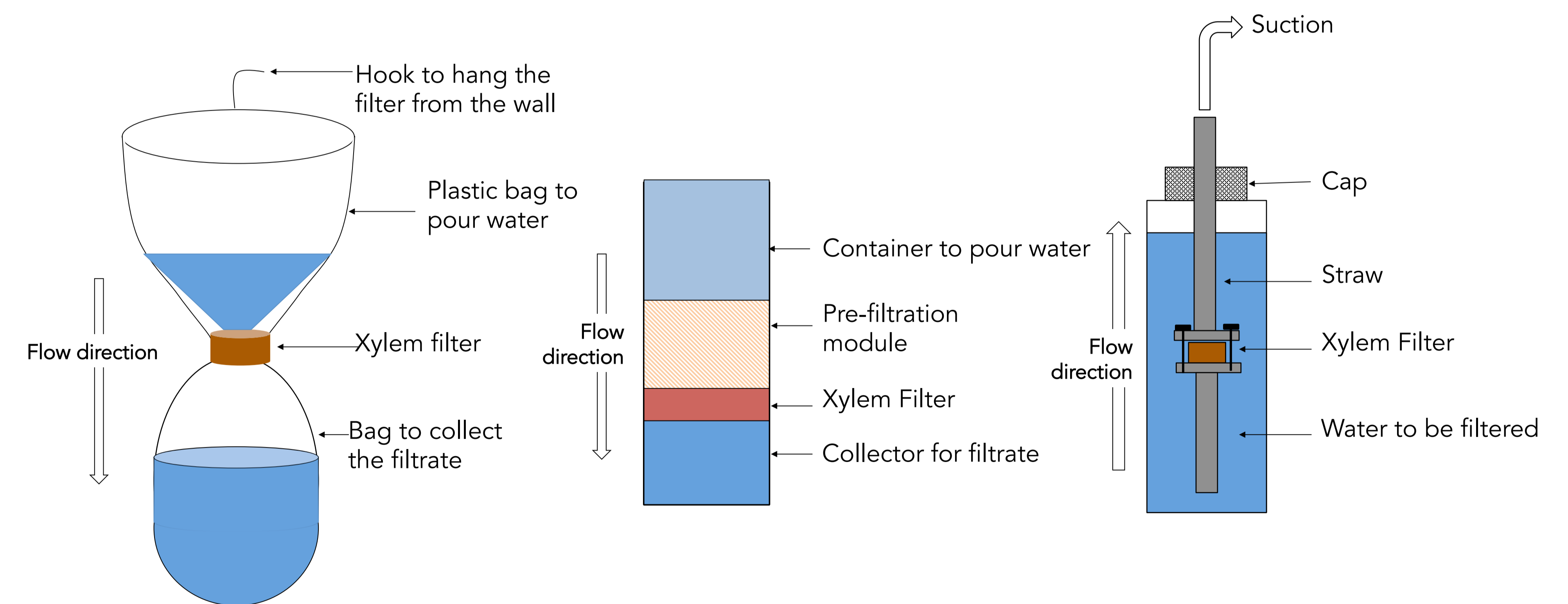
Process of manufacturing filters from wood [2]



Membrane responsible for filtration

Performance:

- 99.99% rejection of E. Coli
- 99.99% rejection of particles > 1 um
- Capable of achieving high reduction in turbidity



Possible product configurations

CONCLUSIONS AND FUTURE GOALS

- Xylem filters have a low cost and are more effective against E.Coli than conventional particle filters
- We have developed a protocol to preserve these filters after drying to facilitate transportation and storage
- Lifetime tests and fouling studies are currently being conducted
- The possibility of using local trees like chir pine for making these filters is also being explored

REFERENCES

- [1] Timesofindia.com
- [2] Boutilier, Lee et al, 'Water filtration using plant xylem', 2014
- [3] 'Evaluation of household water filter,' CITE Report, 2015

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