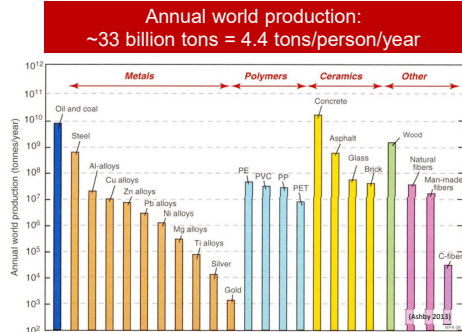




Realistic Ways to Drastically Reduce the CO₂ Emission of Cement and Concrete

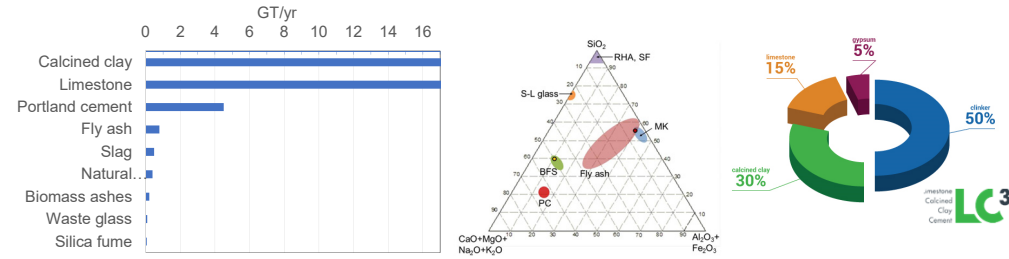
Farshad Rajabipour

Concrete is the #1 human-made material

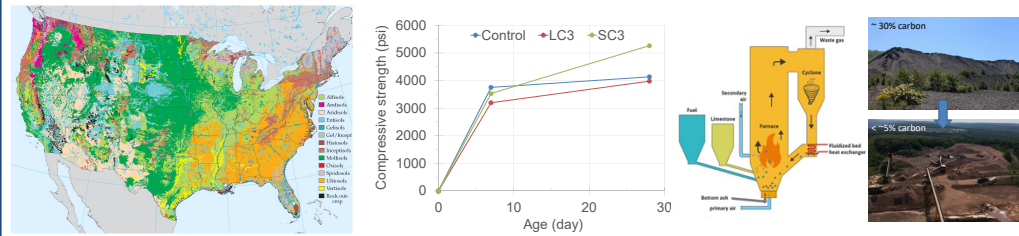


Only scalable, impactful, and rapidly implementable solution to curb CO₂ emissions: Use less Portland cement

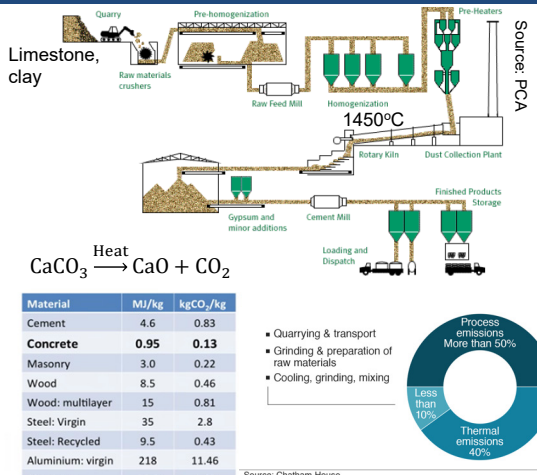
1. Replace cement with supplementary cementitious materials (SCM)



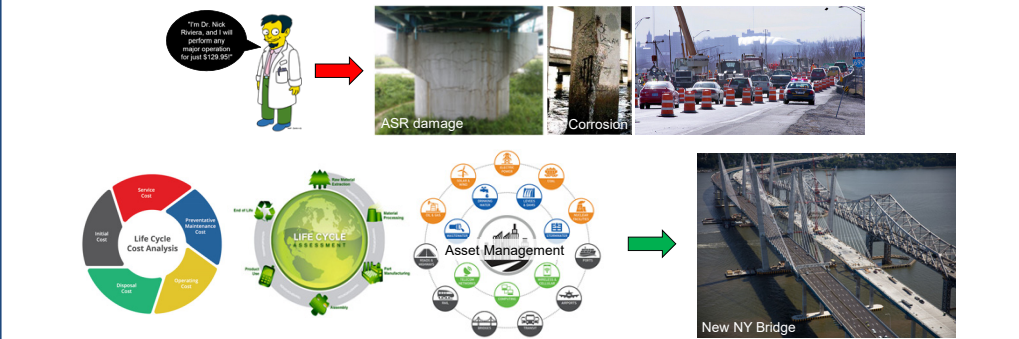
LC³ reduces CO₂ emissions of cement by up to 30% → ~85GT CO₂ reduction over 30 years



Cement CO₂ emissions = 2.3 GT/yr (~6% of total anthropogenic CO₂ emissions)



2. Improve (double) the service life of concrete structures (100+ years)



Conclusions and Acknowledgements

Only realistic way of drastically reducing the CO₂ emission of concrete is to reduce the use of Portland cement:

- Replace 50% of cement with SCMs
- Double the service life of concrete structures