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ADVISORY COMMITTEE ON SUSTAINABLE FOREST-BASED INDUSTRIES (ACSFI)

Using wood residues for energy as part of a bioeconomy transition

Project overview

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Global shares of biomass sources for energy

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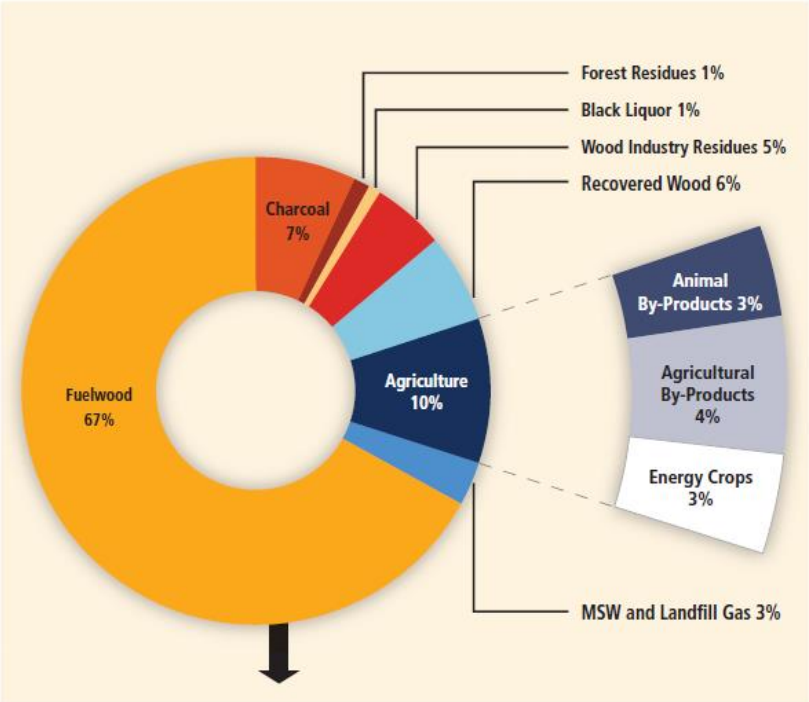

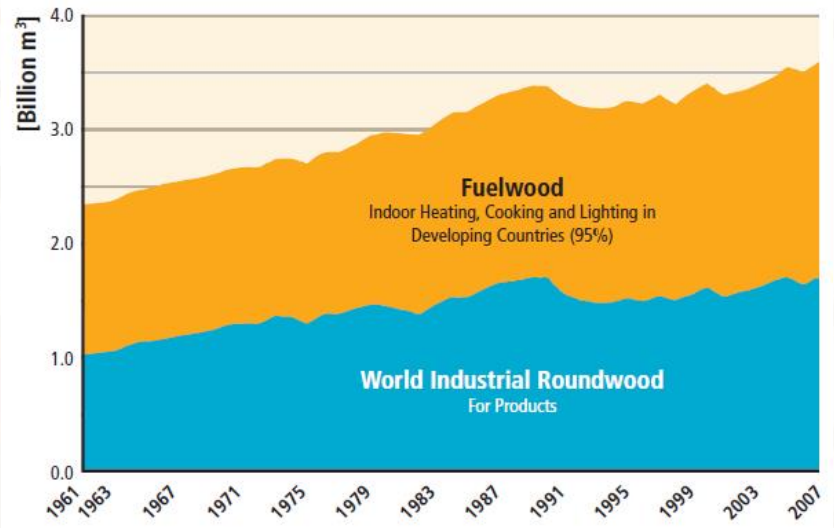

Chum et al. (2011, p.217)

Role of bioenergy in future global energy supply: Renewable Energy Roadmap 2030

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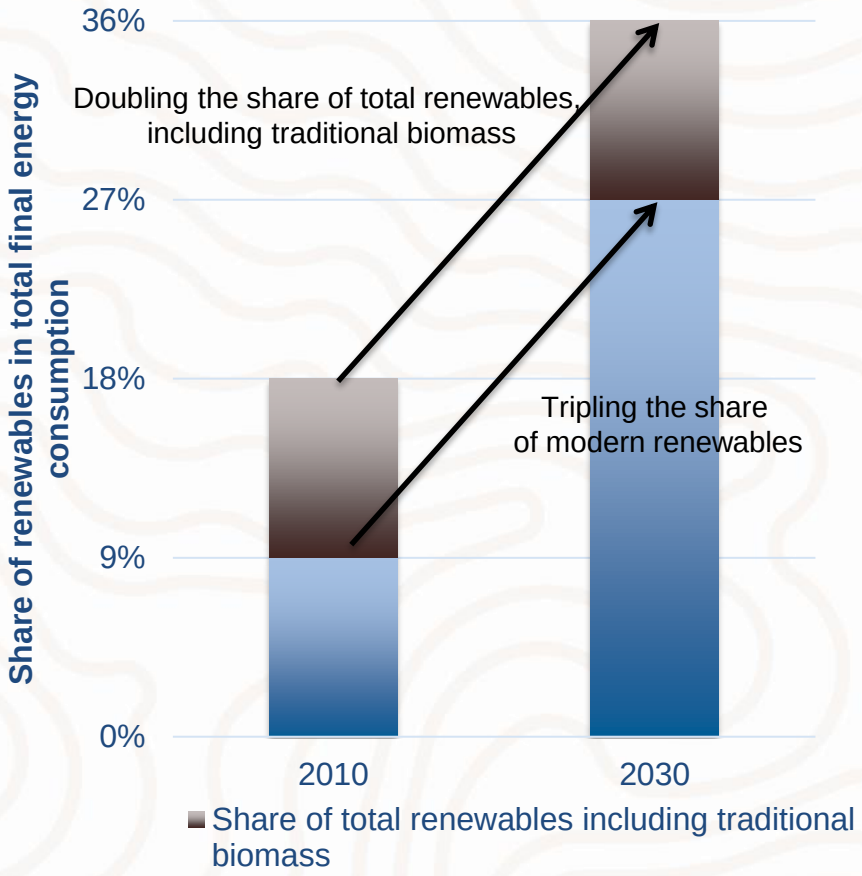
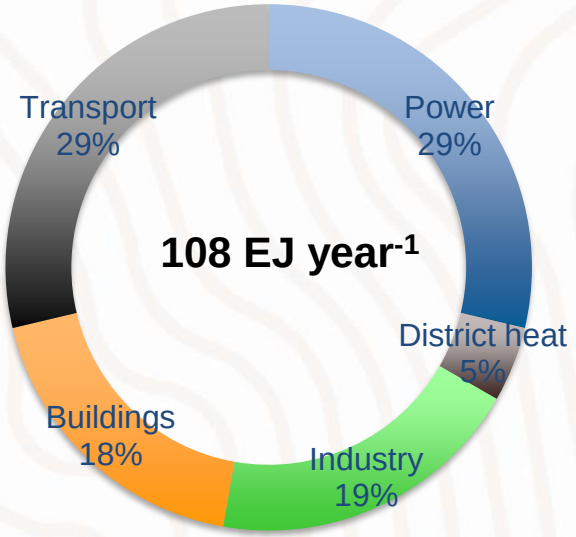
Target for renewable energy in2030



Target for bioenergy in 2030



IRENA (2014a, 2014b)

Stages of commercial development of biomass conversion pathways

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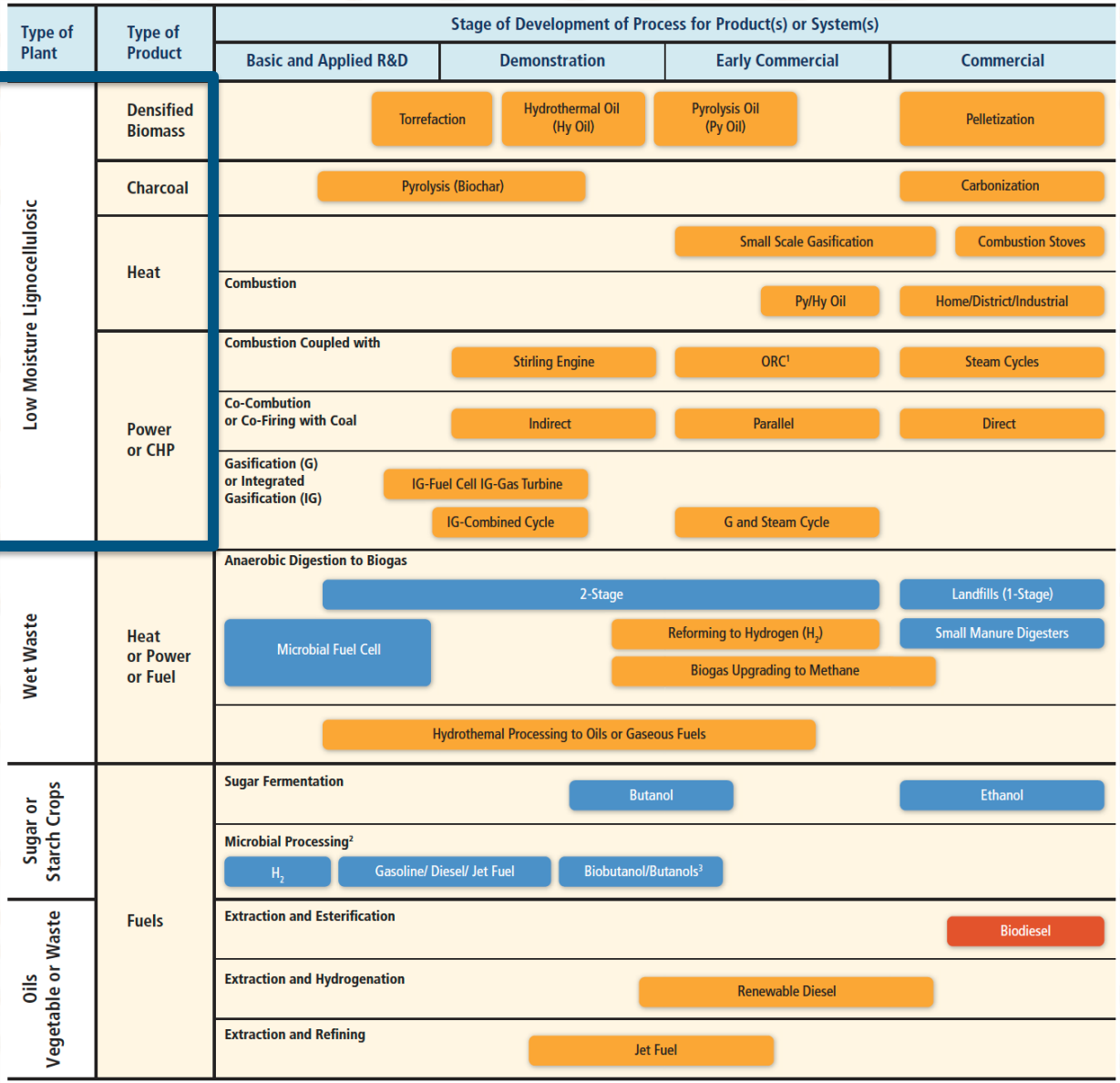

Conversion pathways for woody biomass are technologically and commercially mature

Chum et al. (2011, p.239)

Categories of woody biomass

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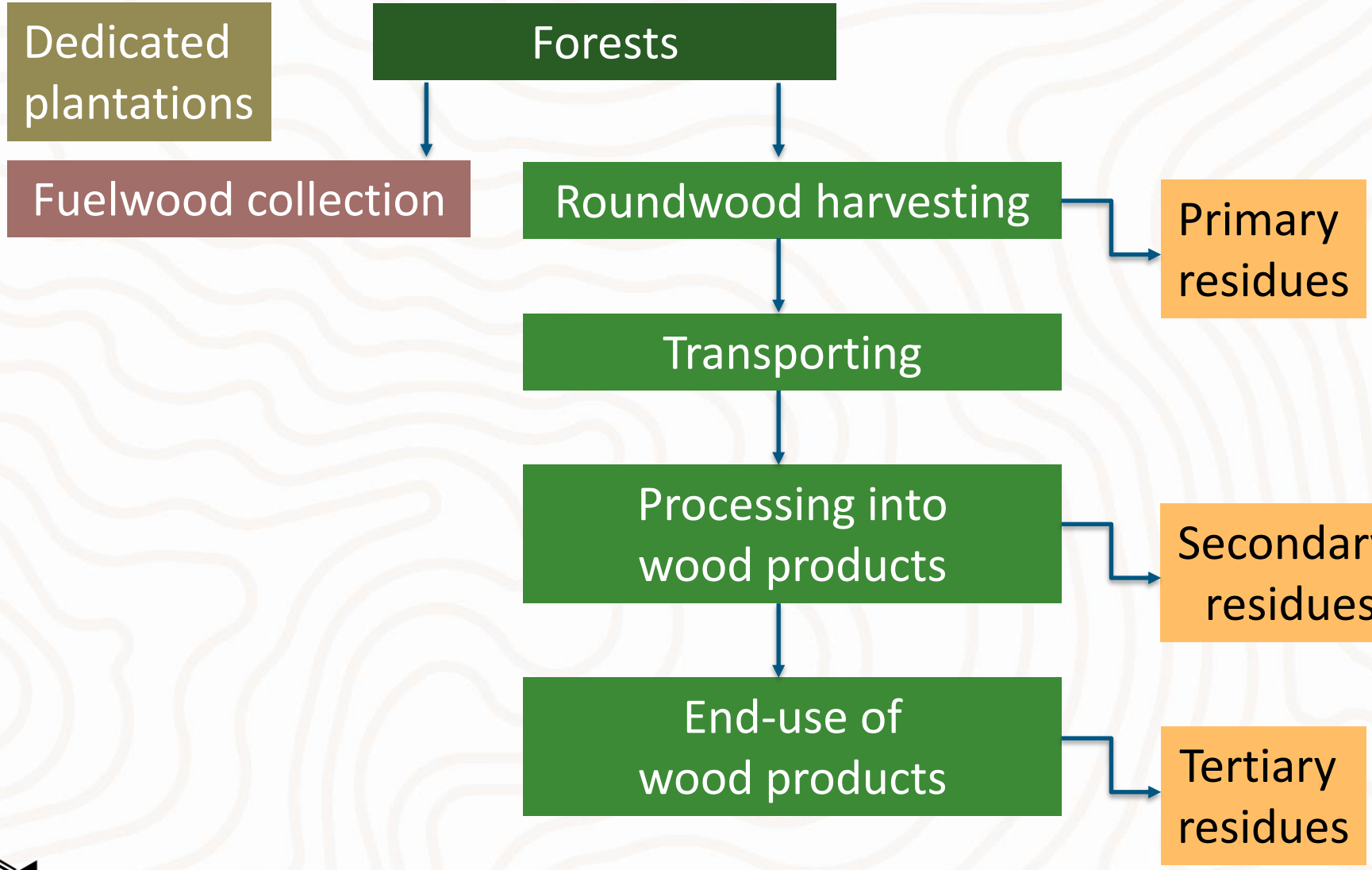

Röser et al. (2008)

Potential of wood residues for modern bioenergy

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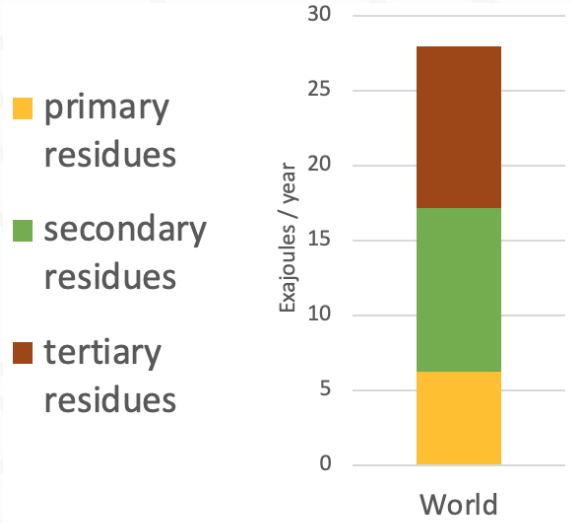
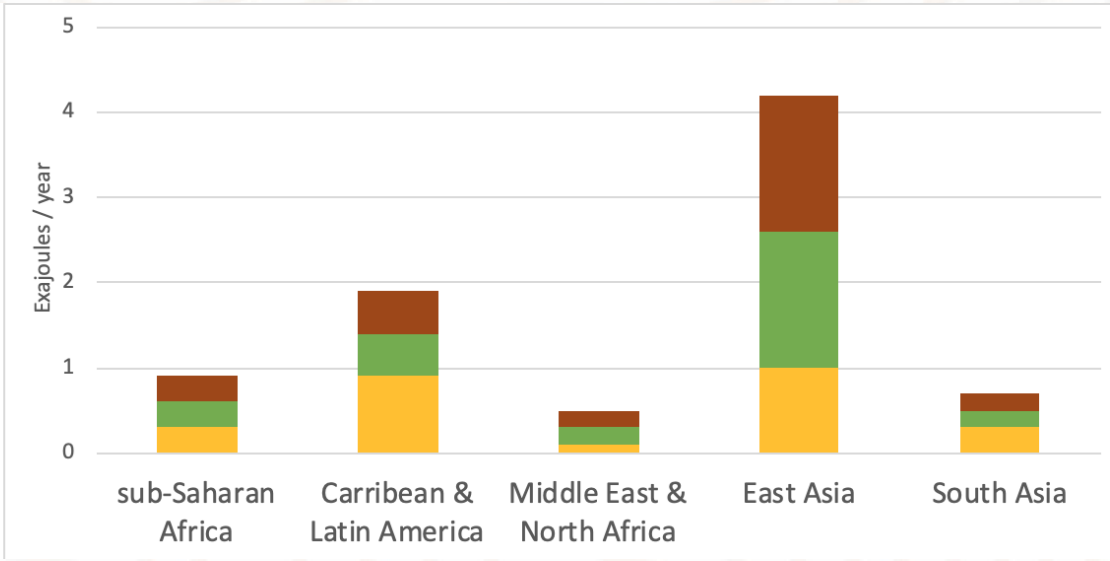
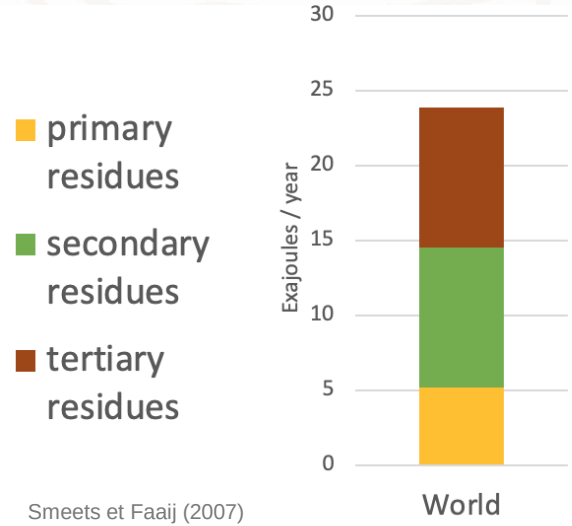
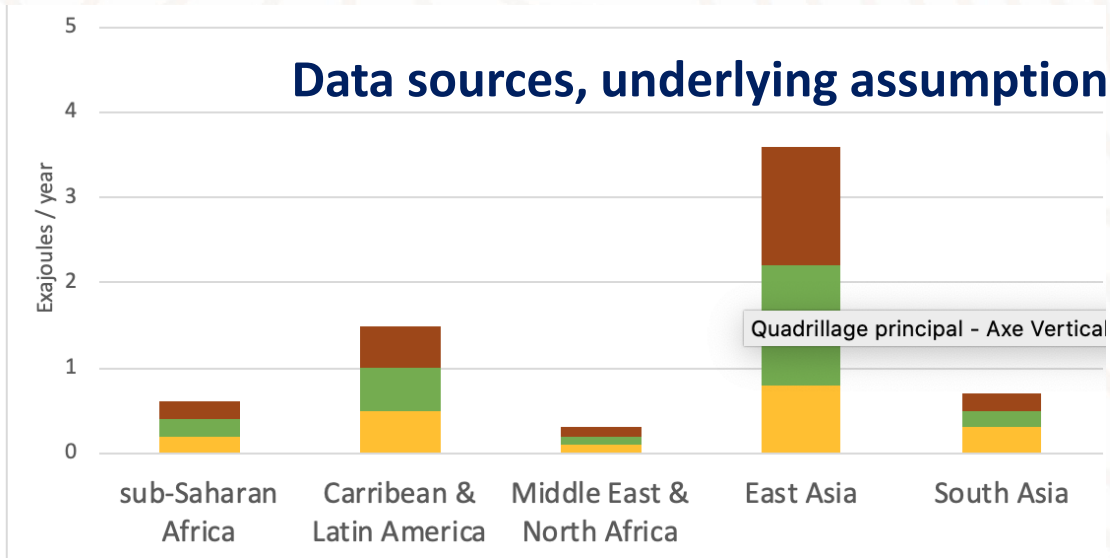
Theoretical potential





Potential taking into account ecological and economical constraints





Data sources, underlying assumptions?

Smeets et Faaij (2007)

The use of secondary residues: Example from Ghana

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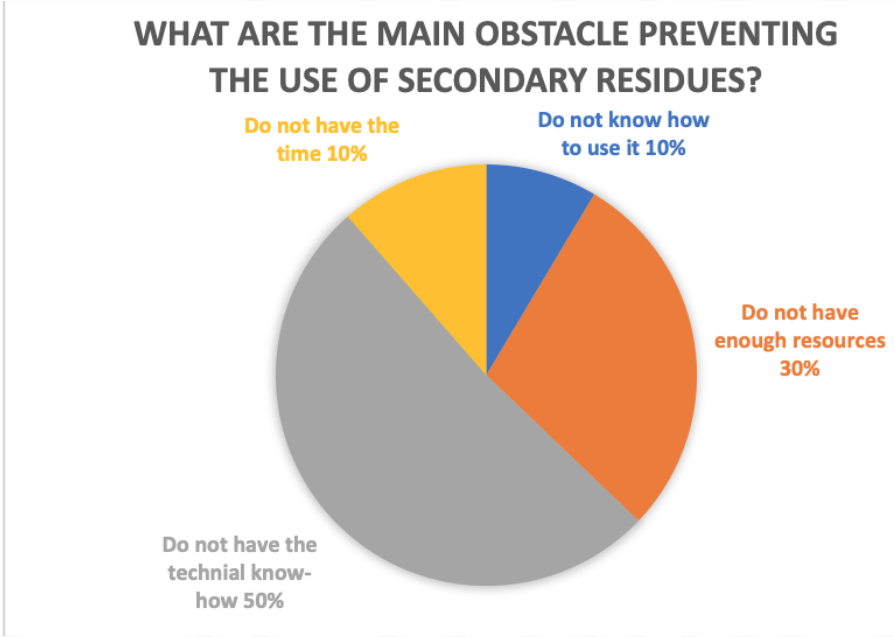
Survey of 50 wood processing facilities



How can we ensure technological learning in the context of developing countries?

- learning-by-searching
- learning-by-doing
- learning-by-using
- learning-by-interacting

Asamoah et al. (2020)

Wood residue supply chain, basic version

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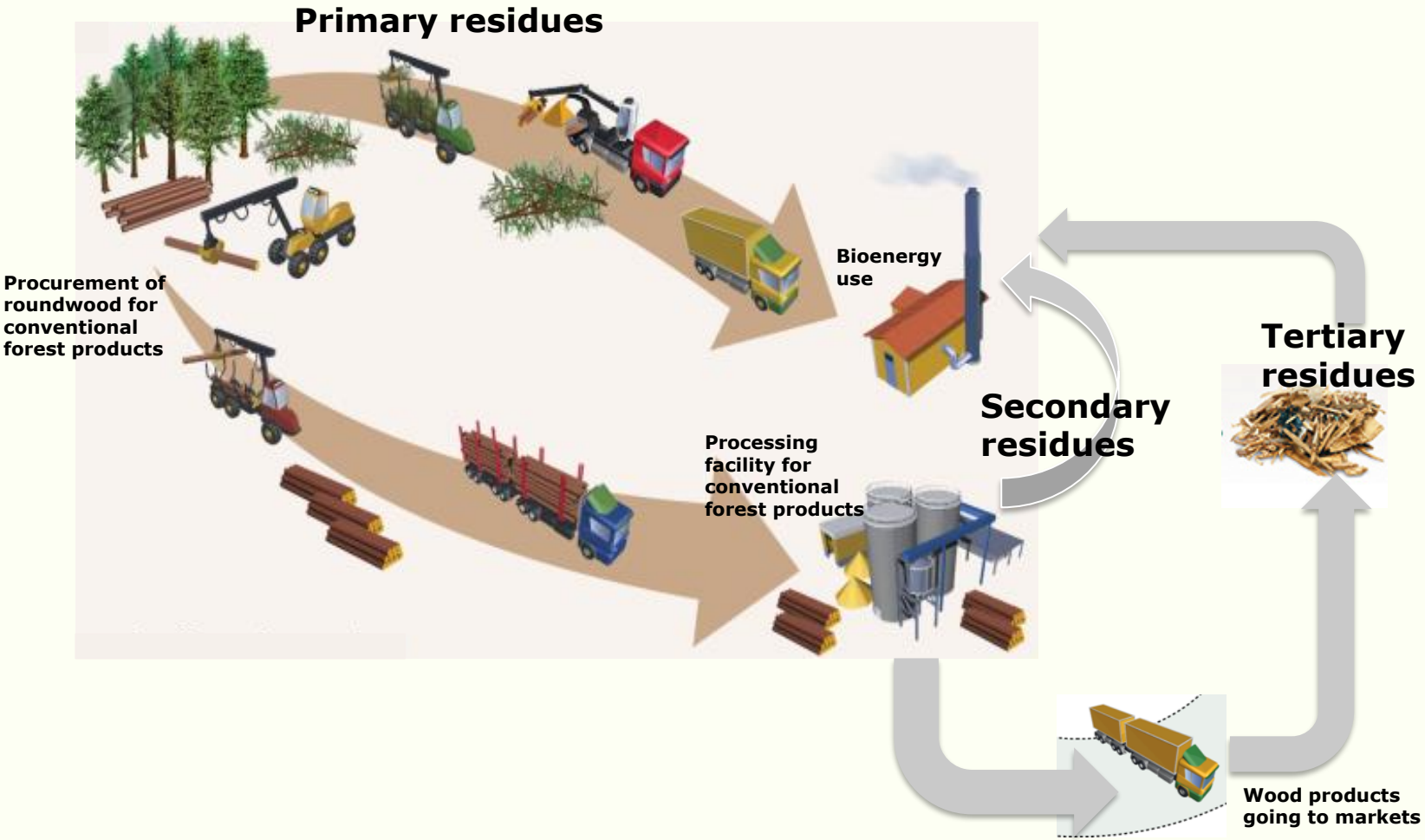
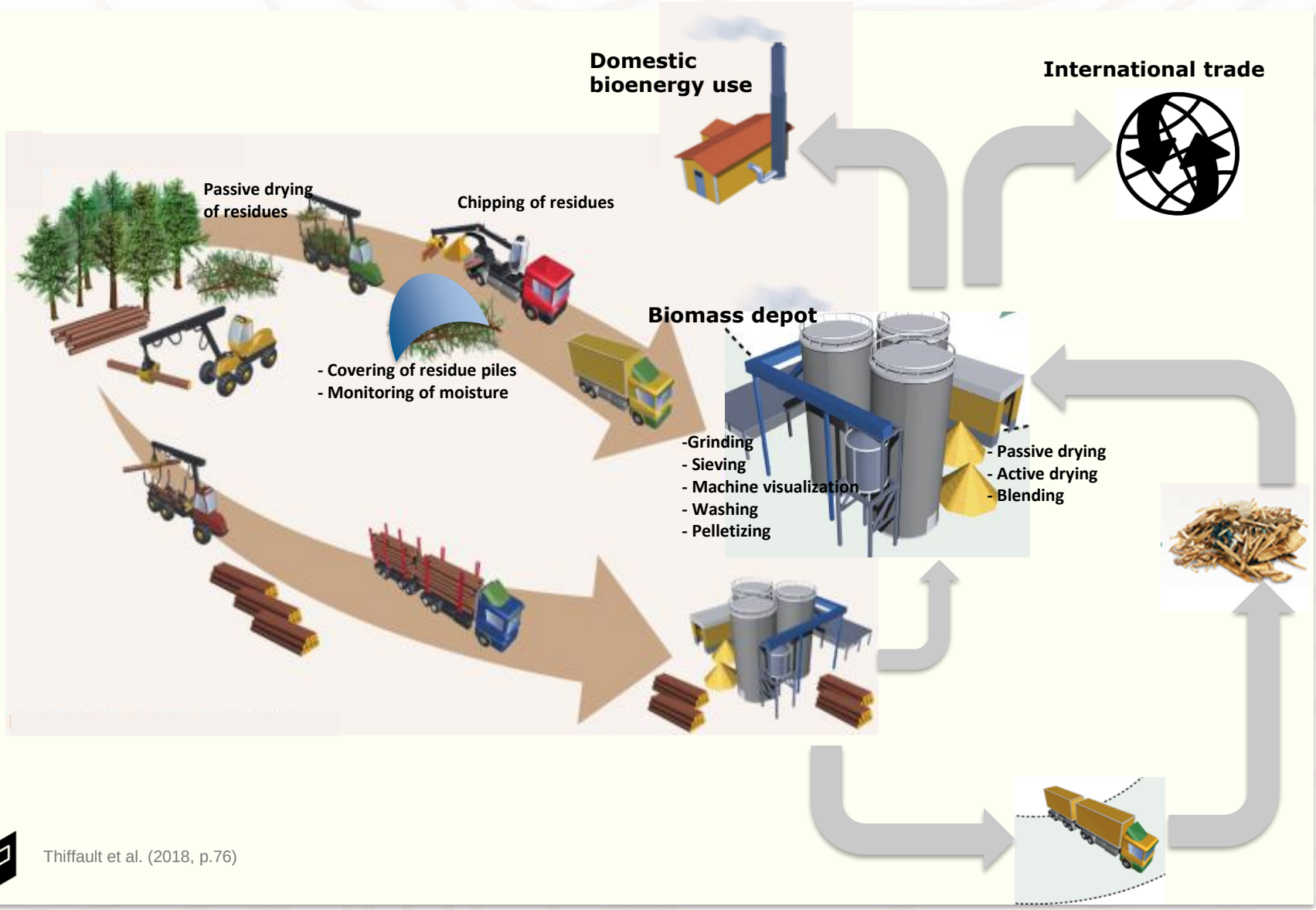


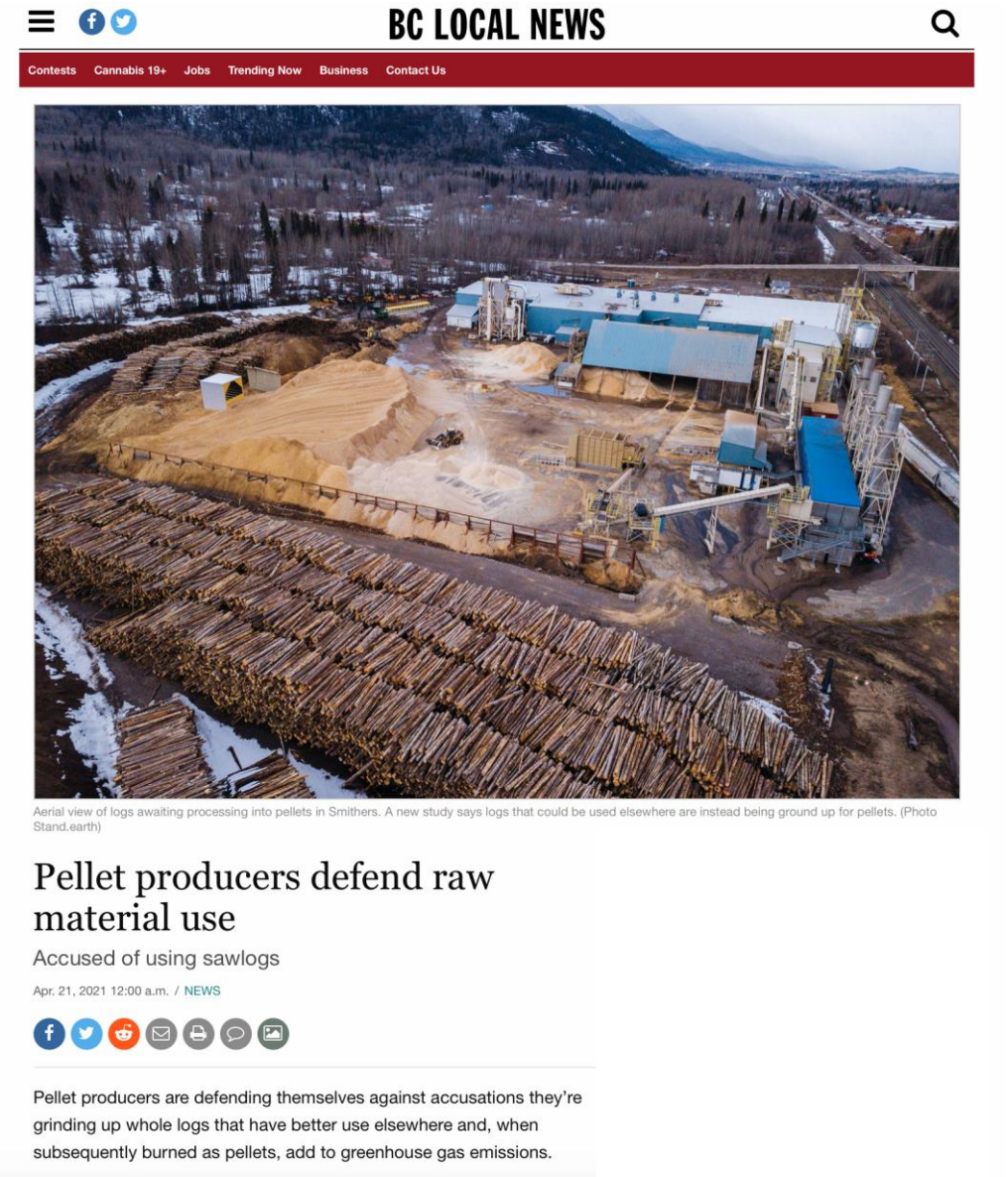
Thiffault et al. (2018, p.14)

Wood residue supply chain, optimized version



Thiffault et al. (2018, p.76)

Example from Canada



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Aerial view of logs awaiting processing into pellets in Smithers. A new study says logs that could be used elsewhere are instead being ground up for pellets. (Photo Stand.earth)

Pellet producers defend raw material use

Accused of using sawlogs

Apr. 21, 2021 12:00 a.m. / NEWS

Pellet producers are defending themselves against accusations they're grinding up whole logs that have better use elsewhere and, when subsequently burned as pellets, add to greenhouse gas emissions.

How can we ensure monitoring and traceability in the context of developing countries?

BC Local News (2021)

Example from Canada

La Tuque, northern Quebec

How can we take into account the complexity of socio-economic systems in the context of developing countries?

How can the mobilization of wood residues for energy contribute to sustainable development?

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References

- Asamoah, O., Kuittinen, S., Abrefa Danquah, J., Quartey, E. T., Bamwesigye, D., Mario Boateng, C., & Pappinen, A. (2020). Assessing Wood Waste by Timber Industry as a Contributing Factor to Deforestation in Ghana. *Forests*, *11*(9), 939. https://doi.org/10.3390/f11090939
- BC Local News. (2021, April 21). *Pellet producers defend raw material use: Accused of using sawlogs*. BC Local News. https://www.bclocalnews.com/news/pellet-producers-defend-raw-material-use/
- Chum, H., Faaij, A., Moreira, J., Berndes, G., Dhamija, P., Dong, H., Gabrielle, B., Eng, A. G., Lucht, W., Mapako, M., Cerutti, O. M., McIntyre, T., Minowa, T., Pingoud, K., Bain, R., Chiang, R., Dawe, D., Heath, G., Junginger, M., … Ribeiro, S. K. (2011). Bioenergy. In C. von Stechow, G. Hansen, K. Seyboth, O. Edenhofer, P. Eickemeier, P. Matschoss, R. Pichs-Madruga, S. Schlömer, S. Kadner, T. Zwickel, & Y. Sokona (Eds.), *Renewable Energy Sources and Climate Change Mitigation: Special Report of the Intergovernmental Panel on Climate Change* (pp. 209–332). Cambridge University Press. https://doi.org/10.1017/CBO9781139151153.006
- IRENA. (2014a). *REmap 2030: A Renewable Energy Roadmap* [Full Report]. /publications/2014/Jun/REmap-2030-Full-Report
- IRENA. (2014b, September). *Global Bioenergy Supply and Demand Projections: A working paper for REmap 2030*. /Publications/2014/Sep/Global-Bioenergy-Supply-and-Demand-Projections-A-Working-Paper-for-REmap-2030. /publications/2014/Sep/Global-Bioenergy-Supply-and-Demand-Projections-A-working-paper-for-REmap-2030
- Röser, D., Asikainen, A., Raulund-Rasmussen, K., & Stupak, I. (Eds.). (2008). *Sustainable Use of Forest Biomass for Energy: A Synthesis with Focus on the Baltic and Nordic Region*. Springer Netherlands. https://doi.org/10.1007/978-1-4020-5054-1
- Smeets, E. M. W., & Faaij, A. P. C. (2007). Bioenergy potentials from forestry in 2050: An assessment of the drivers that determine the potentials. *Climatic Change*, *81*(3–4), 353–390. https://doi.org/10.1007/s10584-006-9163-x
- Thiffault, E., Sokhansanj, S., Ebadian, M., Rezaei, H., Ghiasi, E. O. B., Yazdanpanah, F., Asikainen, A., & Routa, J. (2018). *Biomass pre-treatment for bioenergy – Case study 2: Moisture, physical property, ash and density management as pre-treatment practices in Canadian forest biomass supply chains* (p. 84). IEA Bioenergy. https://itp-fueltreatment.ieabioenergy.com/publications/biomass-pre-treatment-for-bioenergy-case-study-2-moisture-physical-property-ash-and-density-management-as-pre-treatment-practices-in-canadian-forest-biomass-supply-chains/
- UKaid, LTS International Limited, Aston University, E4tech, & AIGUASOL. (2020). *Bioenergy for Sustainable Local Energy Services and Energy Access in Africa: Prospects for commercial biomass gasification in Sub-Saharan Africa*.