



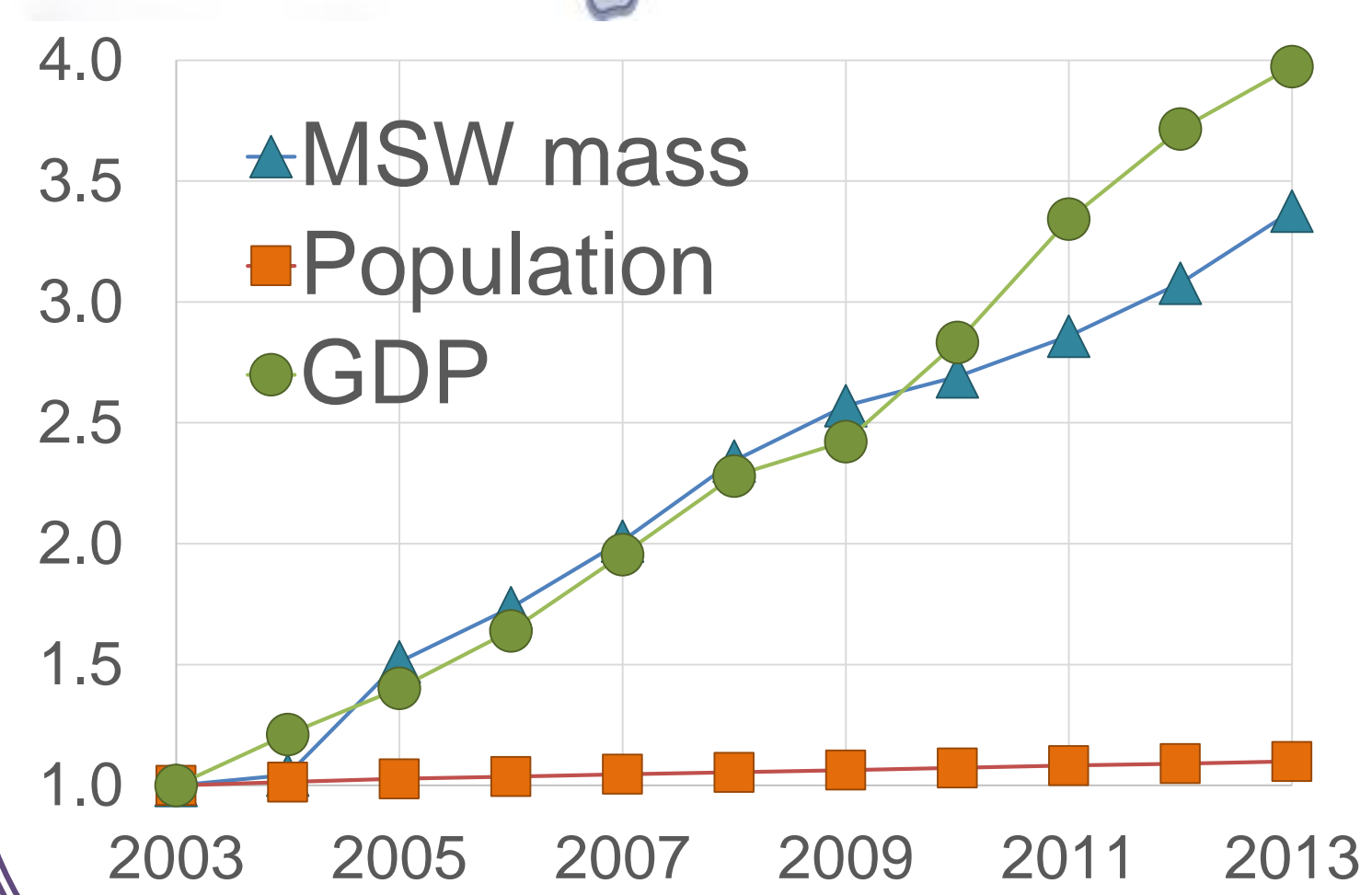
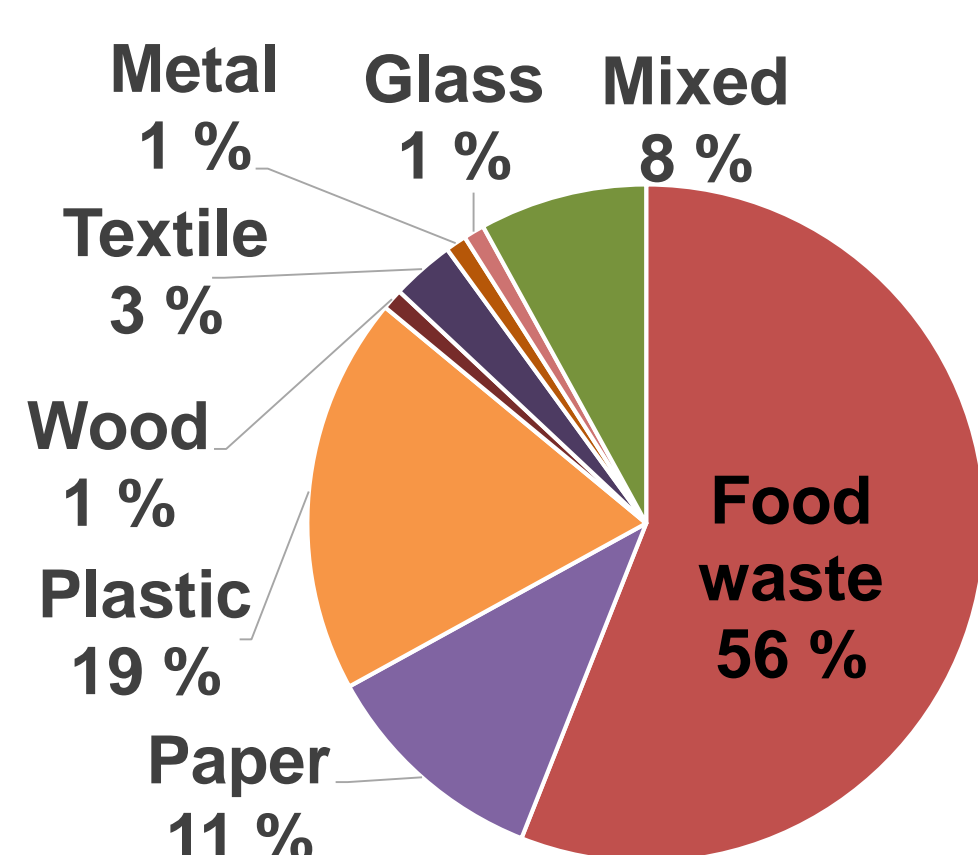
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Material Value Chains

Improving the environmental impacts of MSW management in Hangzhou by waste refining

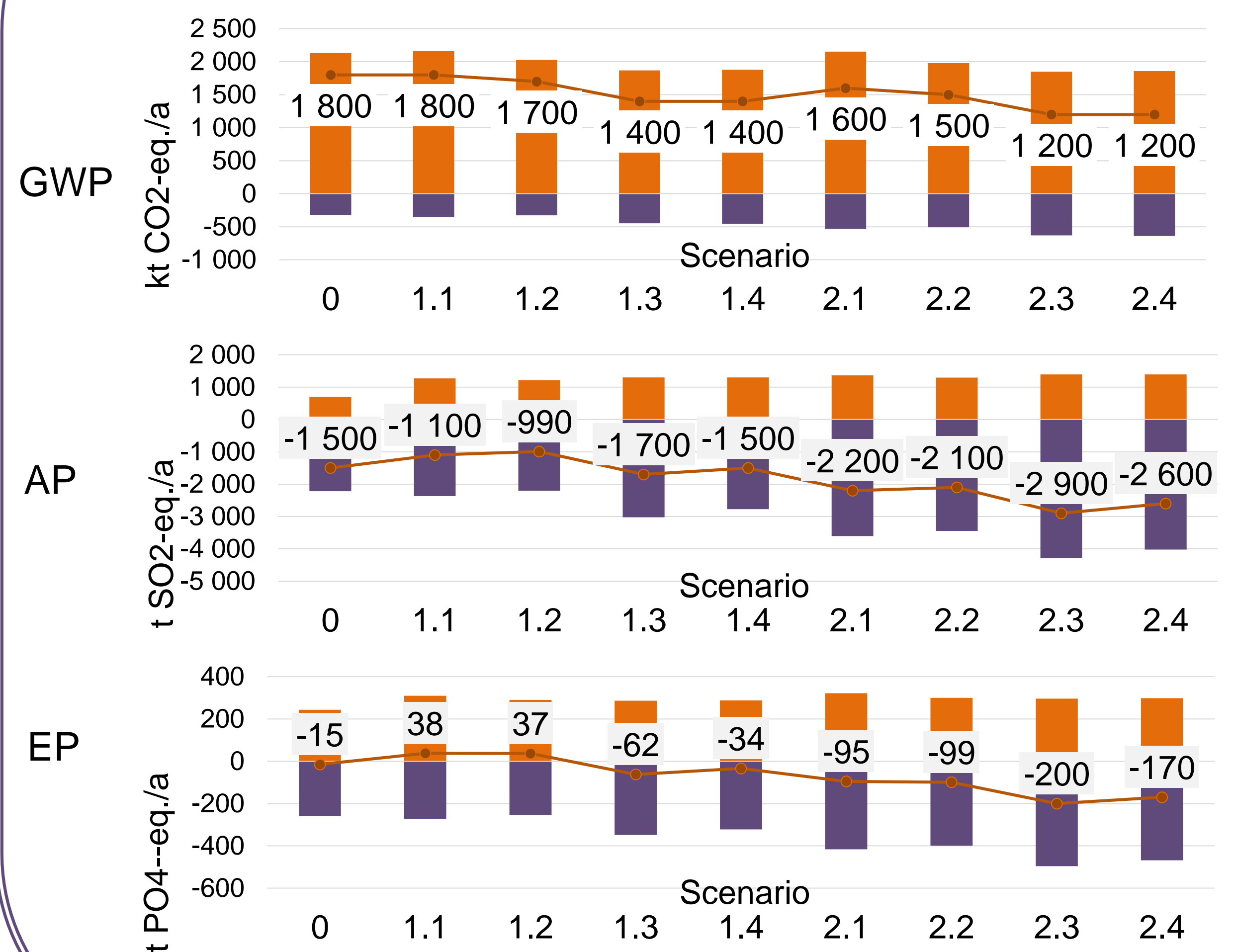
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Background

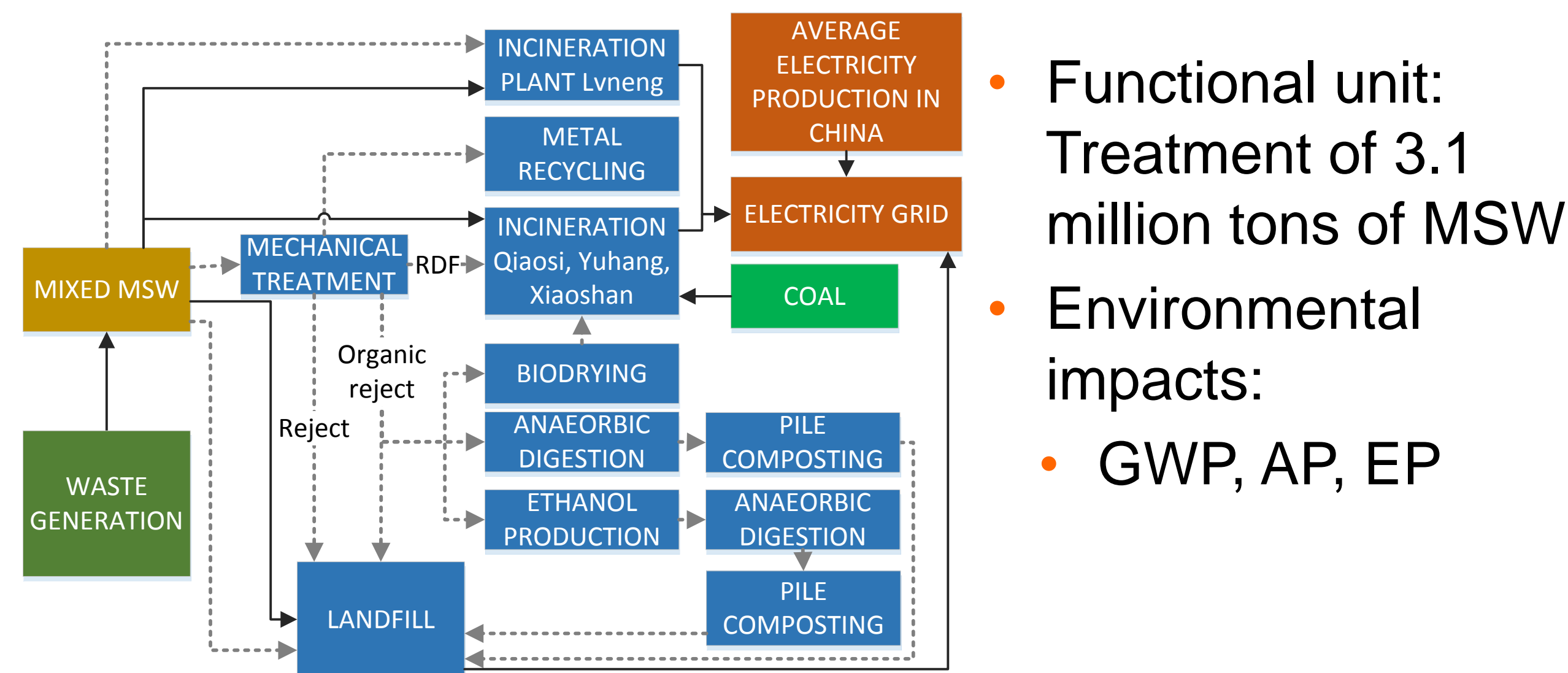


- MSW**
- Moisture 57 %
 - Ash 19%
 - LHV 4.9 MJ/kg

Results



Methods



- Functional unit: Treatment of 3.1 million tons of MSW
- Environmental impacts:
 - GWP, AP, EP

Scenario	0	1.1 & 1.3 & 1.4	1.2	2.1 & 2.2 & 2.3	2.2
Org. reject treatment	-	LF, AD or EtOH	Biodrying	LF, AD or EtOH	Biodrying
Lvneng	204	204	204	204	204
Qiaosi	411	490	394	0	0
Yuhang	256	343	276	0	0
Xiaoshan	416	604	487	0	0
New plants	0	0	0	1494	1201
Landfill Liugongduankt/a	366	13	293	0	248
Landfill Tianziling	1432	1432	1432	1388	1432
Total	3086	3086	3086	3086	3086

Conclusions

- Environmental impacts of MSW management in Hangzhou can be reduced by mechanical treatment before incineration
- The utilization of organic reject is vital to ensure the reduction in environmental impact
- Main challenge in MSW management in Hangzhou is in source separation
 - High food waste share in MSW
 - High moisture content
 - Low LHV

Contact information

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Havukainen, J., Zhan, M., Dong, J., Liikanen, M., Deviatkin, I., Li, X., Horttanainen, M. Environmental impact assessment of municipal solid waste management incorporating mechanical treatment of waste and incineration in Hangzhou, China. Journal of cleaner production, 2016, 141, 453-461.



Solution Architect for Global Bioeconomy & Cleantech Opportunities

