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# Challenge Statement: Carbon Neutral Horticultural Processes

*Challenge Theme – Low Carbon Solutions*

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# Background

- JID will feature more than 15 ha of park spaces and will have an estate-wide green cover target of 40%.
- The horticultural process include a range of activities such as soil preparation, tree planting, pruning and trimming, fertilization and soil management, pest & disease management, irrigation and watering and overall tree care.
- JTC is looking for solutions that are able to address any part of the horticultural process, including the use of carbon-negative soil amendments.

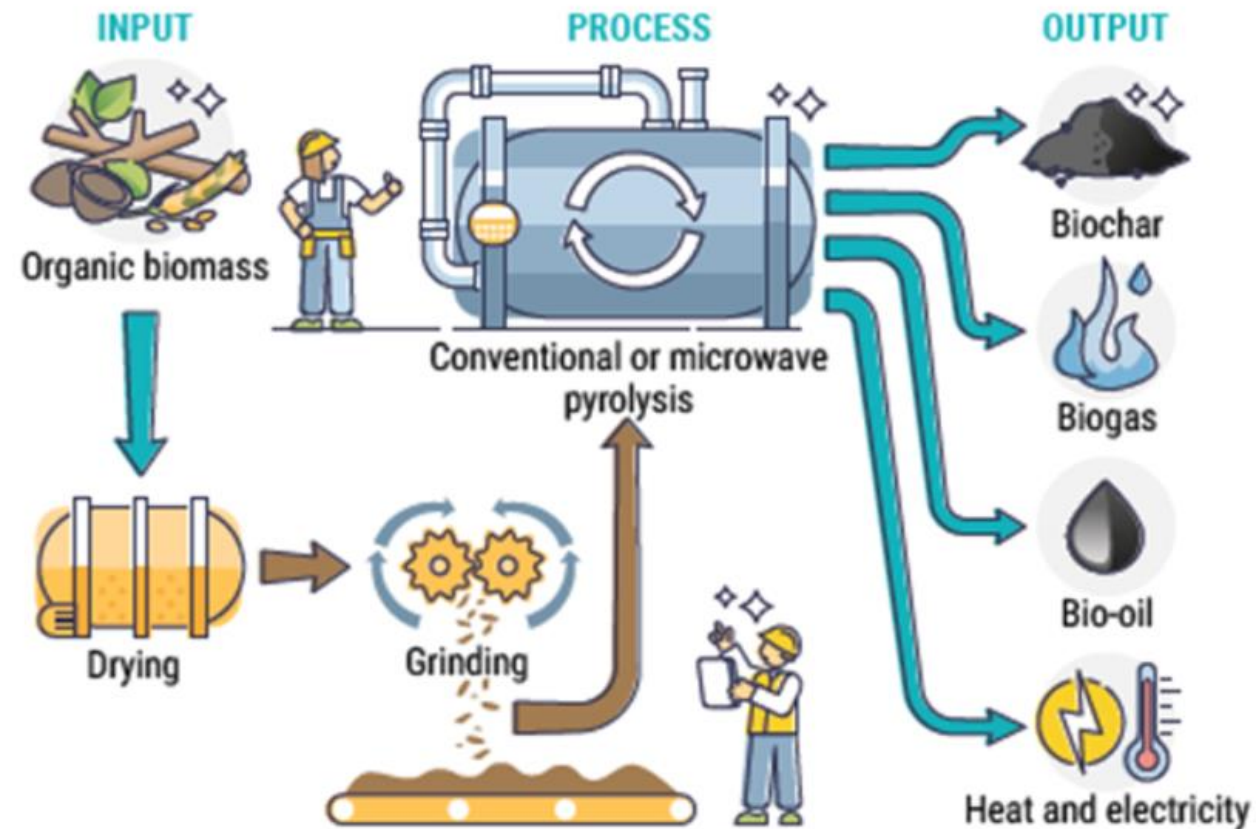


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# Challenges

- Steep cost premium of carbon-neutral horticultural solutions and products.
- For carbon-negative soil amendments, deployment outside the laboratory has not been done before in Singapore.



*Biochar production – an example of a carbon-neutral/negative horticultural innovation*

# Desired Outcome



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The envisioned solution shall:

- Ensure the solution is net carbon neutral over its lifecycle. Carbon negative solutions are preferred.
- Minimize cost premium or reduce costs when compared to conventional processes as an alternative.
- Maintain or improve plant health.



# Requirements

1. Have no adverse impact on plant health.
2. Indicate if any Singapore Standards are applicable and shows how the solution complies with it.
3. No recurring maintenance efforts or costs (e.g. routine top-up of soil additive).
4. If carbon-negative: have its carbon sequestration intensity be certified by an accredited lab or recognized carbon removal body such as VERRA.
5. Cost premium of no more than 50% over conventional processes.
6. Include experimental methods to obtain the best scenario for implementation at JID.

## **For proposed solutions involving soil amendments:**

7. Measurements in terms of (1) plant height and plant girth and (2) foliar nutrient concentrations (N, P, K) should be performed.
8. Measurements in terms of soil total carbon, organic content, pH and electrical conductivity to verify the permanence of the sequestered carbon.

