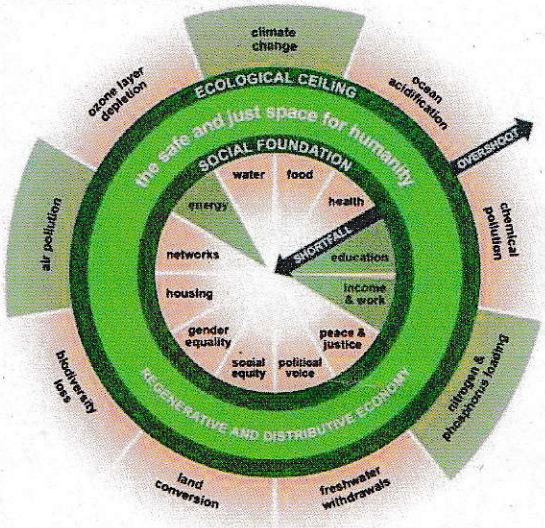
Doughnut Deal
Towards a Circular Marineterrein with a Mini-biodigester

Research- and innovation project small-scale biodigester at Marineterrein Amsterdam

This doughnut deal concerns the implementation of a small-scale biodigester at the Marineterrein in Amsterdam. The project aims to increase the circularity of resource flows on the Marineterrein, and enable research about small-scale biodigesters. The six partners in the deal agree that the project is of value and in the end contributes to: discovering the potential of small-scale biodigesters in Amsterdam, researching the applicability of the digestate, the general realization that food waste is a resource, directly decreasing the amount of food waste from the Marineterrein that is incinerated, and directly reducing natural gas use on the Marineterrein.



The partners, for this reason, sign the doughnut deal with the direct intention to realize the integration of a biodigester at the Marineterrein. A doughnut deal is a social and sustainable agreement between at least two partners. It aims to address at least one issue beyond our planet's ecological ceiling and three issues below our social foundation (Stijkel, 2019). When following this scheme our agreement moves into 'the doughnut', meaning it prevents harm to both our planet and our society. The image on the above showcases "The doughnut of social and planetary boundaries by Kate Raworth (2017)".

This doughnut deal addresses three issues on the outside of the doughnut. The deal mitigates the overshoot of climate change by treating food waste as a resource and reducing natural gas use. Instead of natural gas, biogas is produced and used on the Marineterrein. Secondly, research on the digestate from the biodigester mitigates an overshoot of nitrogen and phosphorus, by focusing on its potential for a vertical farm. Vertical farming does not create runoff of excessive nutrients. Thirdly, the deal mitigates on air pollution, since research on the digestate will also focus on whether it can replace artificial fertilizer. The production of artificial fertilizer emits harmful particulate matter. On the inside it addresses three issues. First of all, the agreement aims to prevent a shortfall in energy security. The energy transition to wind- and solar energy cannot be done without an additional source of energy. When there is no wind or sun available, biogas can secure our energy supply. Secondly, the deal promotes income and work. For the restaurants providing swill, awareness of their waste production provides economic benefits. Restaurants have the opportunity to rethink their supply costs. The lower costs can benefit entrepreneur and employees. Thirdly, the deal promotes education. The biodigester at the Marineterrein will be one of few accessible biodigesters by an educational institution. The Marineterrein aims to educate people about our urban challenges. The biodigester can teach anyone who is interested about organic resources and energy. It is for these reasons that the partners to this doughnut deal, "the Collaborators", together argue that this project is worth pursuing. After completion Kate Raworth will be the formal jury of the doughnut deal.

The deal, called 'Towards a Circular Marineterrein with a Mini-biodigester (TCMM)' is active until at least 1 January 2026 and the partners will get together every 3 months to discuss the state of the project and celebrate successes. The Collaborators will specify their roles and aditional requirements for new reasearch during these meetings.

AMS-institute

- Role: Head of research.
- Commitments: Proactively searching for new research opportunities. Making the biodigester available for research through setting up a living lab research project. When decided to apply for the RVDI program, request the subsidy.
- Interest: Access to a biodigester.

Intention:
AMS Institute hereby enters into this Doughnut Deal. AMS Institute, together with "the Collaborators", aims to work towards implementation of the biodigester on the Marineterrein.

Name: Kenneth Heijne

Date: 18/12/2023

Place: Amsterdam

Signature on behalf of AMS Institute:

Circ Energy

- Role: Producer of the biodigester machine.
- Commitments: Deliver technical expertise. Co-Funding €5000 in the form refurbishing the Biodigester from the Groene Hub.
- Interest: Showcase for their machine.

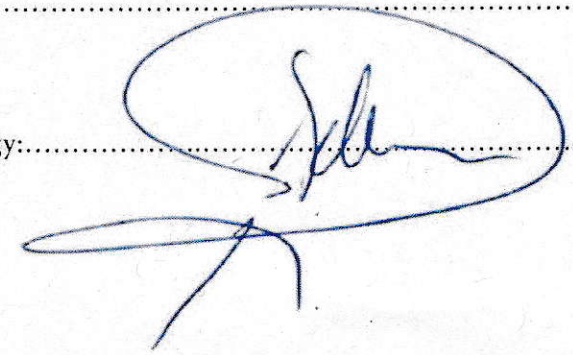
Intention:
Circ Energy hereby enters into this Doughnut Deal. Circ Energy, together with "the Collaborators", aims to work towards implementation of the biodigester on the Marineterrein.

Name: René Schers

Date: 18 december 2023

Place: Houten

Signature on behalf of Circ Energy:



COCRATOS

- Role: Legal owner of the biodigester.
- Commitments: Funding in the form of the annual depreciation of the biodigester. Preparing the documents needed for the permits. When decided to apply for the RVDI project, request the subsidy.
  Guide communication and decision-making between the parties to this deal.
- Interest: Fostering innovative ways to process organic waste streams in Amsterdam.

Intention:
COCRATOS hereby enters into this Doughnut Deal. COCRATOS, together with "the Collaborators", aims to work towards implementation of the biodigester on the Marineterrein.

Name: Anne Stijkel

Date: 18-12-2023

Place: Amsterdam

Signature on behalf of COCRATOS:

Marineterrein Beheer

- Role: Operator of the biodigester.
- Commitments: Handling daily operations and transporting organic food from restaurants to the bio-digester five days a week. Checking the digestate containers and request the pick-up. Provider of the physical space. Submitting the permit for the machine.
- Interest: Marineterrein as an example for sustainable urban innovation.

Intention:
Marineterrein Beheer hereby enters into this Doughnut Deal. Marineterrein Beheer, together with "the Collaborators", aims to work towards implementation of the biodigester on the Marineterrein.

Name: Johan van Dijk

Date: 18-12-2023

Place: Amsterdam

Signature on behalf of Marineterrein Beheer:

Growy

- Role: Fellow research party.
- Commitments: Investing time in conducting research. Their research will at least aim to discover how the digestate influences a hydroponic cropping system, and which input gives the maximum biogas yield. Co-funding the transportation costs of the Biodigester to its new location, by making €3500 available.
- Interest: Access to a biodigester.

Intention:
Growy hereby enters into this Doughnut Deal. Growy, together with "the Collaborators", aims to work towards implementation of the biodigester on the Marineterrein.

Name: Luca Jäger

Date: 18.12.2023

Place: Amsterdam

Signature on behalf of Growy:

Municipality of Amsterdam

- Role: Facilitator of project
- Commitments: Guide the parties during the permit process. Guide the parties during the subsidy request.
- Interest: Learning from successful implementation of a small-scale biodigester.

Intention:
The municipality of Amsterdam hereby enters into this Doughnut Deal. The municipality of Amsterdam, together with "the Collaborators", aims to work towards implementation of the biodigester on the Marineterrein.

Name: Paul Wallerbos

Date: 18-12-2023

Place: AMS - Amsterdam

Signature on behalf of the municipality of Amsterdam:
(stadsdeel centrum o.a)