The Bonnenpolder becomes a living example where circular industry, landscape, and community thrive together.

Management Summary

The Hoek van Holland Industrial Symbiosis Strategy transforms the greenhouse cluster into a self-sustaining, circular district where industry, ecology, and community mutually reinforce one another. Built on local collaboration between companies such as Beyond Chrysant, Renewi, BOL, and RWZI, the strategy creates closed loops for water, CO_2, and organic resources, turning residuals into inputs that reduce dependency on external supply chains. This circular integration strengthens local economies by lowering costs, generating new jobs, and improving spatial quality through blue-green corridors and clean mobility links. The governance model, led by the Hoek van Holland Industrial Council, ensures long-term stewardship and equitable representation, while the phased roadmap, moving from pilots to scaling, provides a clear pathway from feasibility to full regional integration. For companies, this means cost efficiency, regulatory readiness, and shared innovation potential; for residents, it delivers a cleaner, greener, and more connected environment. Together, these outcomes anchor Hoek van Holland as a replicable model for adaptive, locally driven circular transition.

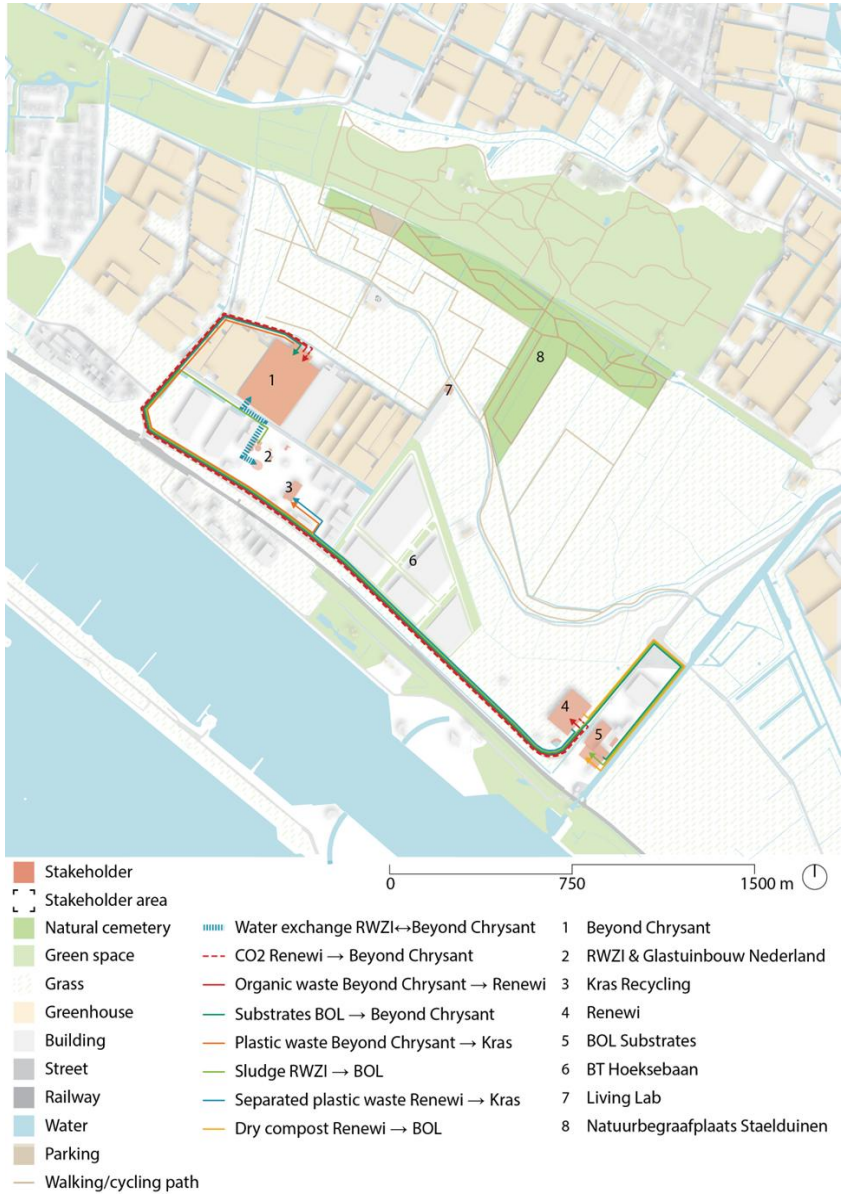


Figure 1: Map for the mid-term vision. (sources used: OpenStreetMap & PDOK)
→ See chapter 10.1

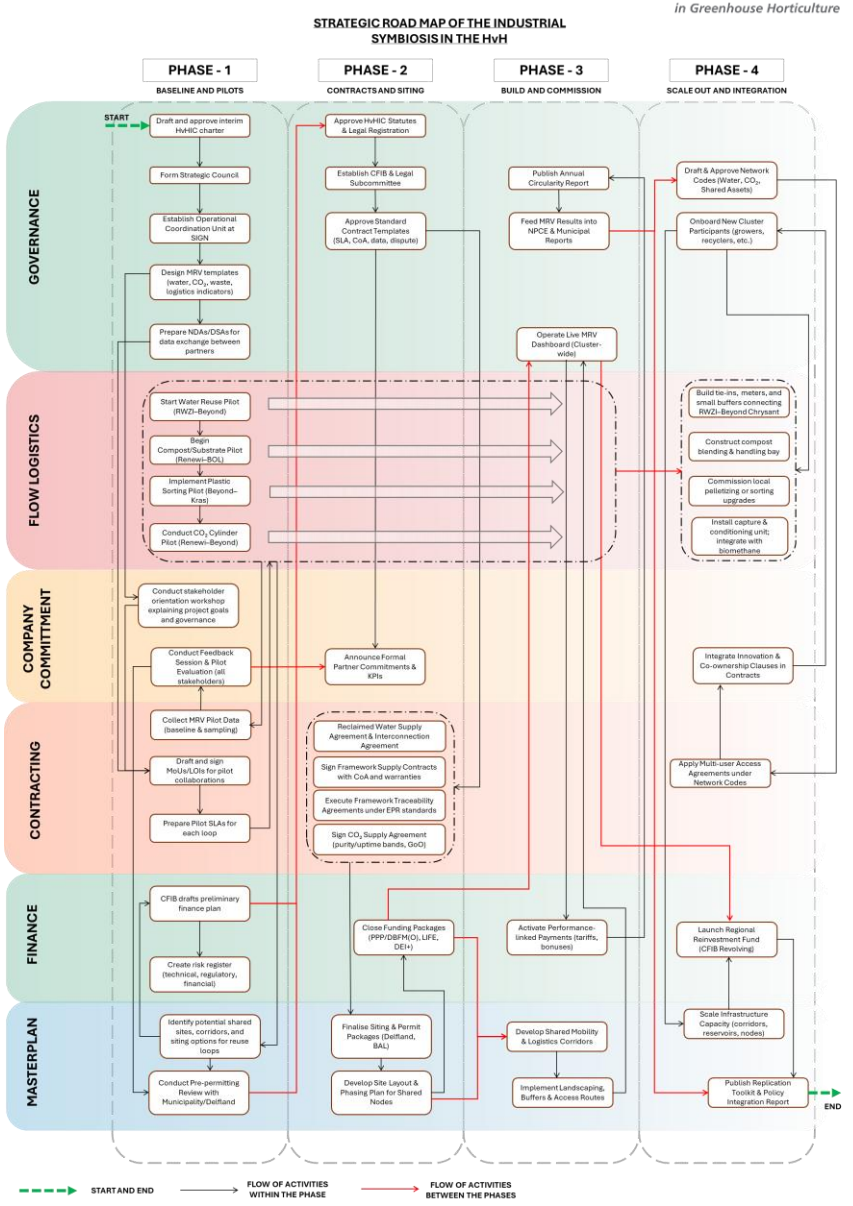
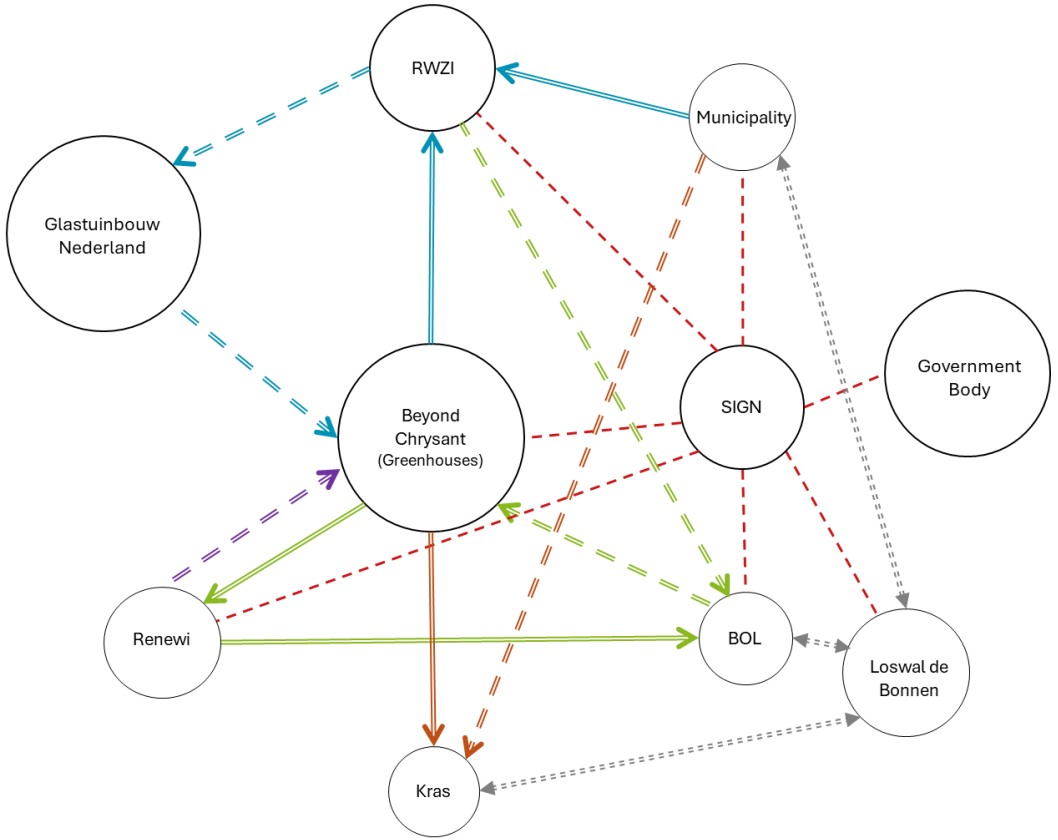


Figure 2: Strategic Roadmap for the industrial symbiosis in Hoek van Holland.
→ See chapter 11



Note: The dotted lines indicate long-term exchanges and the solid lines indicate the current exchanges. The dotted red line indicates the governance and data sharing relation

Reclaimed water Loop - RWZI avoid discharge costs and sell a useful product, while Beyond Chrysant gets cheaper, reliable, low-salt irrigation water and a stronger sustainable profile.

Organics loop - Renewi upgrades organics into higher-value inputs, BOL sells circular substrate fractions, and Beyond Chrysant cuts peat and input costs while improving its climate credentials.

Plastics loop - Growers reduce plastic handling hassle and prove responsible material use, while KRAS and converters secure clean local feedstock that can be sold as higher-value recyclate.

CO2 loop - Renewi earns extra income from biogenic CO_2 instead of venting it, and Beyond Chrysant gets a more secure, potentially cheaper, low-carbon CO_2 source for crop growth.

Shared assets - Shared hubs and corridors at Loswal de Bonnen cut infrastructure costs, streamline logistics, and create a circular cluster that boosts the area's economic and spatial value.

A shared Industry Council and MRV dashboard coordinated by SIGN unify companies in one transparent loop, keeping flows and investments jointly steered and aligned with local policy.

Mid term

Water cycle:

- RWZI (WWTP) → Beyond Chrysant: Pilot reclaimed-water exchange (0.7 km flexible line) reuses 40–60% of RWZI Nieuwe Waterweg's 1.13 million m^3/yr effluent under Omgevingswet Art. 23, with required polishing and nutrient monitoring.

CO_2 Short-Circuit

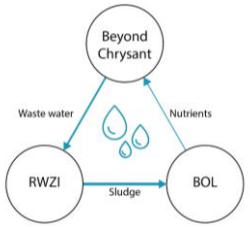
- Renewi → Beyond: Renewi supplies 250–350 t/yr biogenic CO_2 via a €75–90k pilot skid and mobile storage, replacing fossil OCAP CO_2 and achieving ~300 t/yr emission cuts and ~€45k annual savings.

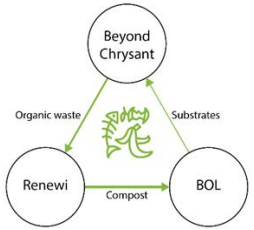
Organic cycle (compost/substrate):

- Renewi → BOL: 150 t/yr plant residues are digested at Renewi and upgraded to RHP/Keurcompost-certified end-of-waste compost, with BOL ensuring consistent, low-risk substrate quality for Beyond Chrysant.

Plastics loop :

- Renewi → Kras : 7.5 t/yr clean plastics are kept below BAL thresholds, collected by Kras with EN 15343 traceability, and recycled into end-of-waste polymers via a 0.9 km low-emission route.
- Effective implementation is driven by establishing adaptive HvHIC, coordinating co-located circular logistics, integrating blue-green infrastructure, and formalising phased contracts and financing supported by MRV systems. a 5- 7-year payback.





Long-term

Water cycle:

- A closed water cycle is enabled via a multifunctional reservoir, upgraded RWZI treatment (PACAS + new technology), and a permanent dual-direction pipeline supplying irrigation-grade water under shared network codes.

CO_2 Short-Circuit

- Biogenic CO_2 from Renewi becomes RED II/GoO-compliant and is delivered through a 3.5 km micro-pipeline with a €300,000 recovery module, eliminating trucking emissions and enabling multi-user access.

Organic cycle (compost/substrate):

- Up to 7.8 tonnes of phosphorus (e.g., struvite) are recovered, and ~3,000 t/yr of certified compost is produced for substrate blending within fully scaled circular nutrient loops.

Plastics loop :

- A local recycling facility at BT Hoeksebaan closes the plastics loop by shortening transport chains and converting plastics into end-of-waste polymers.
- The strategy establishes permanent blue-green infrastructure with integrated water management, supports shared multi-utility energy exchanges and waste-heat use, enables EU-compliant nutrient recovery (7.8 t P as struvite), and forms a scalable circular industrial network

