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Asia Water Forum 2022

8–11 August 2022 • Online

Focus Area: Productive water in agriculture and the economy

Session Title: Circular Glasshouses: "Water & Food Security through High-Tech Horticulture"

Schedule: [10 august 2022 | 11:00 – 12:30]



CIRCULAR CITY GREENHOUSES

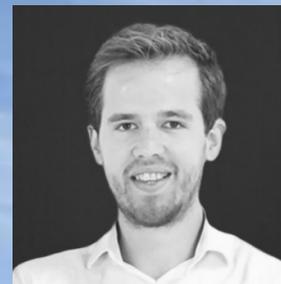
BY VAN DER HOEVEN

closing the loop

ADB



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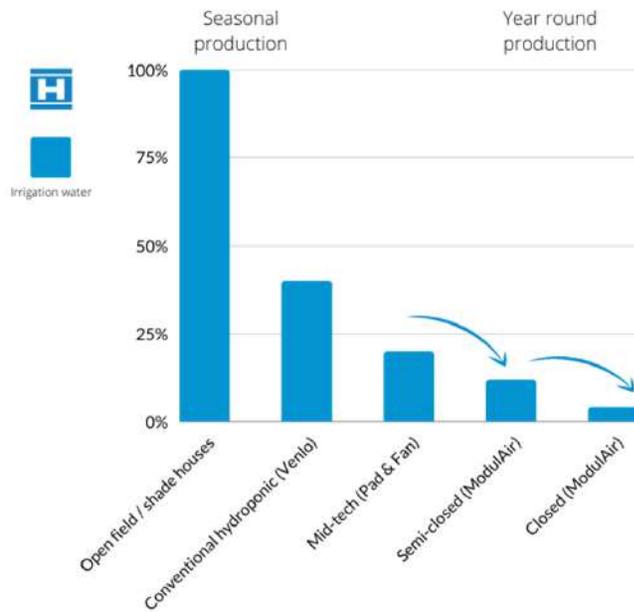




Water energy food nexus

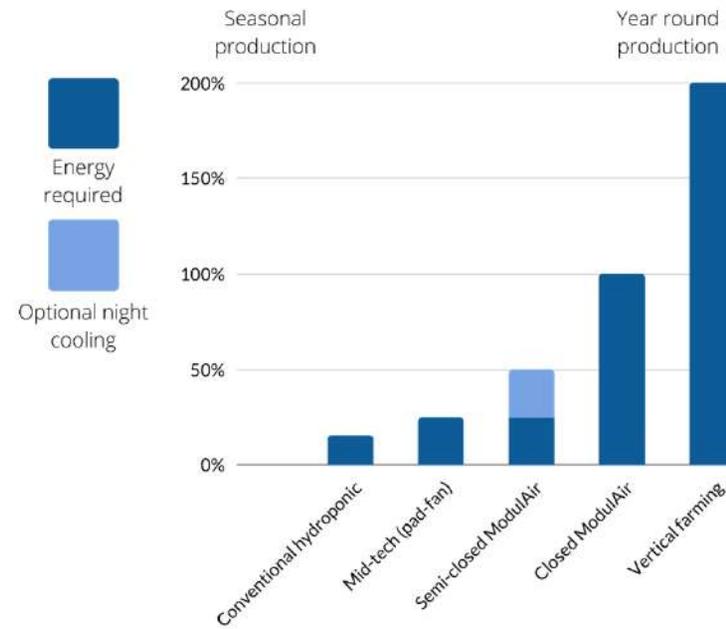
L WATER PER KG FRESH PRODUCE

Energy (kWh); Water (L)



ENERGY DEMAND

In kWh per kg

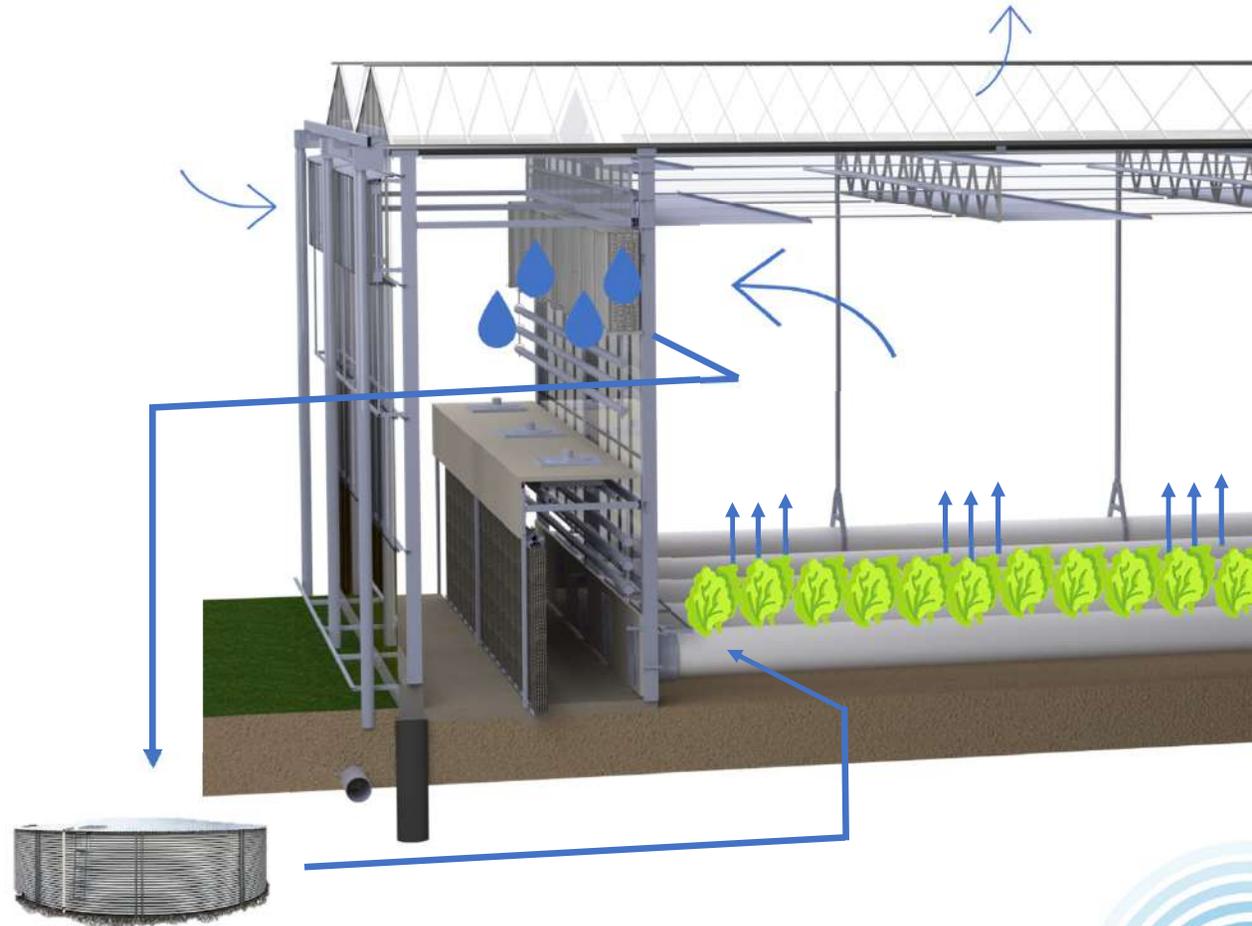
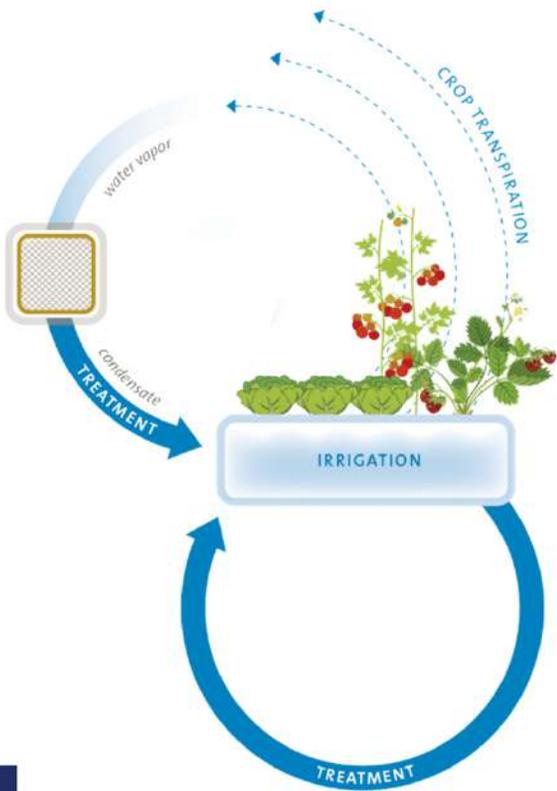


High tech horticulture





Minimizing demand; High tech horticulture



Greenhouses in circular ecosystems

Where does our food ultimately go?

What inputs do we need to grow new vegetables?

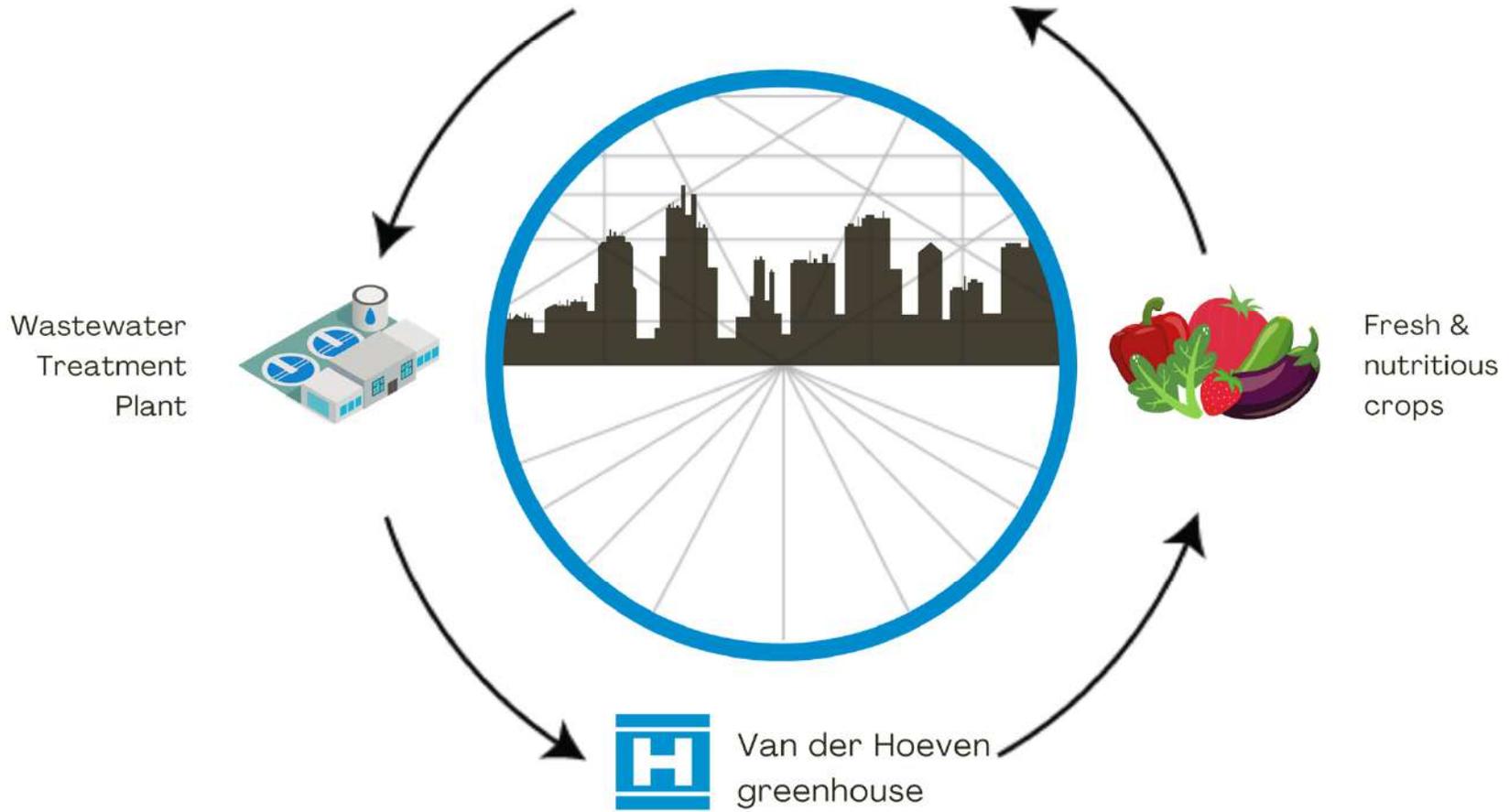
- Water
- Heat
- CO₂
- Electricity
- Nutrients





feed the city

SUSTAINABLY & CIRCULARLY





Feasibility

Sludge digestion on WWTP is already common practice, and feasible
Electricity

We create an additional value in the waste products:

Water | CO₂ | Low grade heat/cold

“All invaluable for sustainable greenhouse vegetable production”





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