FIELD LAB FOR SUSTAINABLE INNOVATION

THE GREEN VILLAGE

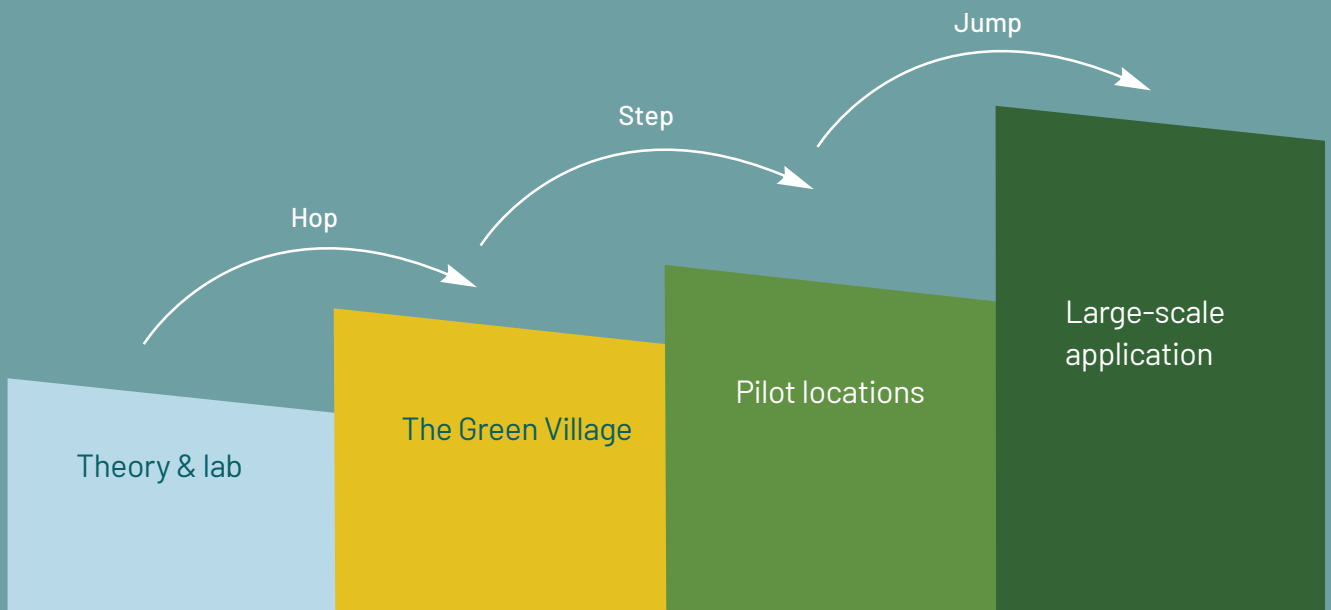
Experiment at The Green Village: an essential step towards sustainability

A sustainable future requires innovative ideas and new useful methods and techniques. At The Green Village, knowledge institutions, businesses, governments and citizens research, test and improve innovations that contribute to making neighbourhoods energy-efficient, climate-proof and circular.

At the heart of TU Delft Campus, you will find our low-regulation open-air laboratory with a focus on the built environment, where we test at neighbourhood, street and building level. With access to TU Delft's innovation ecosystem, science is always around the corner. People live, work and learn at The Green Village.

The low-regulation status makes it possible to try out concepts that cannot easily be tested elsewhere. Experimenting in a real-life environment with residents and other users keeps you on your toes and ensures that after a test period at The Green Village, you are ready for the next step: the outside world.

Are you looking for the place to test your sustainable innovation? Or are you curious about what these innovations could mean for your organisation? Please visit or contact us.



Pioneering in a field lab

At The Green Village, researchers, students, start-ups, entrepreneurs and governments spend every day working on the innovation challenges of tomorrow. By bringing together and collaborating with all these target groups, we accelerate innovation. In doing so, we collectively contribute to a sustainable and future-proof society.

Organisations such as ministries, municipalities, water boards, grid operators and housing corporations participate by facilitating experimental sites and programmes within our three themes: Sustainable Building & Renovation, Future Energy System and Climate Adaptive City. They advance knowledge and innovations by applying them in (pilot) projects and by developing or adapting policies, rules, norms and standards.

Researchers from TU Delft and other knowledge institutions are closely involved in our field lab for research and experiments. After all, when the operation of new designs and techniques is better understood and scientifically substantiated, they find their way into practice faster. Students from secondary vocational education, applied sciences and universities frequently work here on practical assignments. Not only do they gain valuable experience, but entrepreneurs and researchers also benefit from these insights.

Within each of the three themes, you can test innovations in the existing state-of-the-art infrastructure.
The Green Village features inhabited terraced houses, office buildings, streets, a hydrogen, DC and heat grid, and a data platform. Everything is designed to allow easy connection of new installations. Our buildings and outdoor spaces are intensively used by residents, employees and tens of thousands of visitors who find inspiration here every year.

The Green Village's low-regulation status combined with scientific validation, data, user feedback and visibility enables you to take your innovation to the next stage: implementation and scaling.

Students Water Management gaining practical, real-world experience here

IN THE FIELD

Bio-based insulation

Joost van der Waal – owner Isoleerbewust: “Bio-based insulation is a huge opportunity to make homes energy efficient and bring CO_2 emissions down to zero. Straw has good moisture absorption and thus ensures a healthy indoor climate for residents. We are testing and monitoring this here in experimental site DreamHûs at The Green Village. We work together with parties such as the Trade Association for Skilled Workers (VLOK), because it is important that installers learn how to insulate using bio-based materials professionally.”

Biense Dijkstra – owner Bouwgroep Dijkstra Draisma: "The challenges in the Netherlands are enormous. By 2050, 7,3 million existing homes need to be taken off the gas grid. Therefore, it is of great importance to continuously innovate and test new solutions. Some 85% of emissions are released during the production of new materials. We can reduce this considerably by using more bio-based materials. By creating new cycles - keeping the chains as short as possible - this way of building benefits residents, farmers, builders and the planet."

Our expertise

We specialise in guiding innovation projects, know the way to grant opportunities, and have a large network of stakeholders and end users at our disposal. We enable early-stage research and testing of innovations.

Innovation is more than just technology, as we understand better than anyone. That is why, alongside technical development, we pay attention to business-economic, social and policy challenges. Residents and users play a crucial role in testing the innovations.

By doing so, we help accelerate innovation from theory to practice and contribute to a sustainable and future-proof society.

Experimental site DreamHûs: three inhabited 1970s homes featuring various innovations

THE GREEN VILLAGE

1. SUSTAINABLE BUILDING AND RENOVATION

Energy-efficient, circular, bio-based and nature-inclusive. In our field lab, we work on building and renovating homes and offices as sustainably as possible to make them future-proof.

2. FUTURE ENERGY SYSTEM

Local production, storage and use of renewable energy. In our field lab, we work on smart and reliable energy innovations for the neighbourhood and home.

3. CLIMATE ADAPTIVE CITY

Flooding, drought and heat stress: we are facing the consequences of more extreme weather. In our field lab, we work on keeping neighbourhoods, streets and buildings liveable and habitable.

LOW-REGULATED AND SAFE TEST FACILITY WITH:

- Various research facilities such as energy grids, green spaces, homes, offices, surface water, squares and streets, designed for plug & play integration
- Sensors and a data platform to monitor and analyse the performance of tested technologies
- Residents and visitors sharing their experiences
- More than 100 innovations live

IN THE FIELD

Testing with energy hubs

Prof. Miro Zeman – TU Delft: "Energy hubs are logical, sustainable energy solutions for the future, and have gained further relevance due to grid congestion issues. At this stage, it is important to gain experience in designing, installing and driving these locally integrated solutions. The Green Village is the ideal place to test our ideas in practice."

Within TU Delft's 24/7 Energy Hub research programme, Joel Bosrup, owner of Wintersol, has built a seasonal hydrogen-based storage system. Joel: "Besides the many technical challenges, we also paid a lot of attention to safety and regulations. The experience Wintersol gained while designing and building at The Green Village will also be applied at other locations."

Two more TU Delft field labs

The team at The Green Village also manages two field labs off-site, on the themes of water safety and urban water management.

Flood Proof Holland
In this "pilot polder" on TU Delft Campus, various parties research, test and experiment with water safety innovations to reduce flood risks and limit damage. Examples include various modular systems and flexible constructions as an alternative to the traditional sandbag. A test dike allows different scenarios, such as dike breaches, to be simulated. In addition to research, realistic calamity exercises are also conducted here to prepare for potential floods.

Diergaarde Blijdorp
Since 2014, Diergaarde Blijdorp (Rotterdam Zoo) serves as a unique location for entrepreneurship, research and education on sustainable urban water management. The waterways and ponds are continuously monitored, including by students and researchers from various educational institutions. With 1,5 million visitors a year, Diergaarde Blijdorp offers an excellent opportunity to raise public awareness of the important functions of water for people and nature, and the need to treat this resource with care. Innovations are tested in the fields of climate adaptation, water quality, water saving and reuse, among others.

Calamity exercise with the army at Flood Proof Holland

Measurements with a thermal camera in Diergaarde Blijdorp

Come learn with us

Innovation and learning go hand in hand, which is why a continuous exchange of knowledge and experience takes place at The Green Village. Every day, we give tours and share lessons learned from our field lab. In our thematic learning communities, innovation, practical experience, education and the labour market are closely aligned.

For instance, mechanics learn the intricacies of working with hydrogen here. Municipalities, water boards and housing corporations know how to find us for workshops based on their real-world cases. How do you design streets that can retain water? How do you sustainably upgrade existing buildings efficiently? What are alternatives to a heat pump?

Our project managers guide these sessions and connect parties with relevant entrepreneurs and researchers on site. By actively sharing and documenting perspectives, experiences and lessons, we foster mutual understanding and move closer to large-scale implementation.

Learning about water infiltration

Knowledge session bio-based building

Stedin trains hydrogen experts

IN THE FIELD

Matchmaking climate adaptation

Manita Koop – Water board of Delfland: "How do we ensure our region can withstand the changing weather? We are increasingly facing heat, drought and heavy rainfall. At The Green Village, we are finding new, smart solutions. As Delfland, we have been a partner of The Green Village for more than five years, working to advance climate-adaptive innovations. Together with entrepreneurs, municipalities and the water board, we organised a day to bring innovative solutions from the field lab into practice."

Entrepreneur Ger Pannekoek of EWB: "At the WaterStraat (WaterStreet), our Urban Rainshell and the DSI depth infiltration well were placed side by side as two separate innovations. At The Green Village, the idea arose to test the technical coupling of our systems and their impact on water quality. By continuing to work together beyond the field lab, our combined system is now being applied to business parks."

A unique location to innovate

- Testing in a realistic and low-regulation environment with residents and end users sharing experiences
- A versatile testing and learning environment with inhabited terraced houses, office buildings, surface water, streets and squares
- Access to a hydrogen, DC, heat grid and our own data platform
- Learning communities: we make lessons learned and knowledge acquired accessible to everyone
- Co-Creation Centre: an inspiring meeting place where knowledge sharing and cooperation take shape in thematic programmes, workshops and tours
- A network of public and private partners willing to think along and contribute to scaling up sustainable innovation
- Access to TU Delft's innovation ecosystem; science is literally around the corner

THE GREEN VILLAGE

> 200
innovations on their way to scale-up

> 40
40 different innovations applied in the real world at hundreds of sites

> 20.000
national and international visitors per year

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