

GREENHOUSE CHALLENGE FOR STUDENTS

‘You step outside the academic world for a while’



Wageningen University & Research challenged students to step outside their comfort zone. Their task was to develop an urban farming project for a former prison, working in interdisciplinary teams. That meant blood, sweat and tears for 24 international teams, but no study credits. ‘You have to find the motivation in yourself and your team.’

TEXT LUKK ZEGERS ARTIST'S IMPRESSION GREENWURKS

You are a team with a lot of different points of view, but in the end you have to develop a single concept. Getting everyone on the same page is a challenge in itself, quite apart from all the technical challenges.’ The speaker is Jolien Verweij (25), a Master’s student of Biology and member of Team GreenWURks, which won the first Wageningen Greenhouse Challenge. The university launched this international competition early in 2018. The aim was for students to develop the urban greenhouse of the future and the assignment: redevelop an existing building

in an urban setting and turn it into an optimally sustainable total concept for vertical urban farming, with citizen participation.

IDEAL SETTING

The existing building in question is one of the tower blocks of the former Bijlmer prison in Amsterdam. A new residential and business zone is planned for the location of this prison, to be called the Bajes Quarter. When the site is redeveloped, one of the prison towers is to remain standing and be transformed into a ‘green tower’: a vertical

urban park in which farming goes on. The ideal setting for the first Greenhouse Challenge, thought coordinator Rio Pals. ‘We took an existing project and attached an assignment to it in which students themselves could explore the potential of urban farming. They needed to look for possible innovations and end up with a design for a feasible total concept.’ At the beginning of 2018, 24 teams of students from 40 universities in 10 different countries got going on this challenge. The students set about researching sustainable food production, smart energy systems, >



INSPIRATION FOR THE GREEN TOWER

Bajes Kwartier Ontwikkeling (Prison Quarter Development) is tasked by the Dutch government with redeveloping the former Bijlmer prison into a residential and business zone with about 1350 new housing units and one green tower block. The consortium got the keys of the prison on 1 March 2018, and the building has to be completed by 2024. The green tower should serve as a model of green living in the big city. Bajes Kwartier Ontwikkeling C.V. sponsored the competition and was inspired by the pool of ideas the student teams came up with. The Rabobank was the main sponsor of the competition, aiming to stimulate the ‘disruptive innovation’ that is needed to feed the growing world population sustainably. For that reason, the bank agreed to be the main sponsor two more times in the next 10 years. Other sponsors included Klasmann-Deilmann, a firm that develops substrates for horticulture, and AMS Institute, which seeks to identify solutions to urban challenges.



The students went on excursions during which they could examine the design location, the former prison tower, and get inspiration for new cultivation techniques and how to engage the community.



PHOTO'S SVEN MENSCHER

‘It is evening and weekend work; it’s not just an odd job on the side’

greenhouse construction, economic feasibility, the social functions of the new urban greenhouse, architecture, and more. In August the 14 best teams came together in Wageningen to present their designs in a grand finale. GreenWURks ended up carrying off the main prize, worth 10,000 euros, for their design called Open Bajes (Open Prison: see inset). The team leaders want to invest the money sustainably.

LEARNING DIFFERENTLY

The Challenge meant a different approach to learning, says Verweij. No practicals, no lectures, but rolling up your sleeves. Taking a good look at the location, asking experts questions, talking to local residents to find out what their expectations of a greenhouse in the former Bijlmer Prison would be. ‘I see it as a bit similar to a year on a board at a student society. You have to attend a lot of meet-

ings and take on different roles. I helped design the plant production system, and at the same time I was secretary to the team.’ In order to arrive at a good total concept, students from various different disciplines needed to work together, says Pals. ‘You can’t simply solve big, complex global problems by relying on just one discipline or just one culture. Wageningen University & Research aims to educate the leaders and changemakers of tomorrow. To do that we have to challenge students to get out of the comfort zone of their own discipline and tackle complex problems with people from other subject areas. That is one of the strengths of this Challenge.’

FIVE-HOUR DISCUSSION

Stepping out of your comfort zone was easier said than done, remarks Verweij. ‘You get an assignment for which you have to build something out of nothing. Everyone brings in

ideas from their own subject and background. But you’ve got to end up with a single design.’ Verweij’s teammate in GreenWURks, Yaoyun Zhang (23), adds: ‘When we started, we discussed the project for five hours. After that everyone was exhausted from all the different opinions. It is tough when after such a long session it is still not clear how you are going to go about it. But in the end you do learn a lot from collaborating with students from other disciplines.’

Wageningen’s international student population was reflected in the GreenWURks team: besides Dutch students, it included Chinese, Hungarian, Bulgarian, German and Italian students. Other teams were made up of participants from several different universities. The Flor-Green team had nine agricultural students from the Universities of Bologna and Florence, and the Green Spark team had 15 students from WUR and five other

European universities. The teams varied in size, too. Team GreenWURks had 18 members, while Team Thanks Work (University of Michigan) had only four members. This team won a prize too, for the best architecture.

COMMITMENT

‘Taking part in the Challenge really took up an awful lot of time,’ says Verweij. Zhang: ‘It is evening and weekend work, and it is a real commitment. It’s not just an odd job you can easily fit in on the side.’ Lotje Hogerzeil (25), a Master’s student of Urban Systems Engineering, kept a blog about her participation in the Challenge. ‘I don’t think I – or the whole Evergreen team – have ever worked so hard on a project.’ On 25 July, after nearly seven months of beaver away,

her team submitted their design at four o’clock in the morning. ‘All the papers I wrote, the exams I took, even the designs I made previously for courses: none of them came close to the blood, sweat and tears we shed to get this done.’

In their degree programmes, students get study credit points in the ECTS system, with one credit equivalent to 28 hours of work. But the Challenge participants did not get credits for their participation. Strange, in Verweij’s view, given how much time participants put into it. ‘You could get something in return for that.’ At the same time, she adds, perhaps the strength of the Challenge lies precisely in the fact that it is not a course. ‘You don’t get chased up by a teacher. You have to find the motivation in

yourself and your team.’ Professor of Education and Competency Studies Perry den Brok is adamant that the Challenge must not be made into a course. ‘As soon as you formalize it, by allocating study credits to it for instance, the creative aspect and the intrinsic motivation are lost.’ But the education programme could benefit from some parts of the Challenge, thinks Den Brok. ‘If you build a mini-Challenge into a foundation course, for instance, it might make it nicer and stretch students more.’

THE REAL WORLD

GreenWURks member Yaoyun Zhang is a Master’s student of Organic Agriculture. He wants to use the knowledge and skills he is acquiring in Wageningen back in China later on. ‘While I am studying here, I am trying to learn as much as I can about urban farming projects in Europe. The Challenge gave me an opportunity to explore how I can apply what I study in the real world. You step outside the academic world for a while and look at how to go about it in practice.’ In that respect, the Greenhouse Challenge opened a lot of doors, says Verweij. ‘We got access to a lot of places and people within the world of urban farming. That gives you a nice picture of the possibilities and the developments within that sector.’ The team’s victory feels like a reward, says Verweij. ‘We all worked unbelievably hard on Open Bajes. That makes the moment when the jury says, “You’ve won” really cool.’ There are five more Greenhouse Challenges on the agenda for the coming 10 years. The next one will take place in China in 2020. Zhang already has a tip for the participants. ‘People in big Chinese cities have a lot of stress from working hard. They’ve lost their connection with nature. The urban greenhouse is needed in China to change that.’ ■

THE WINNING DESIGN: OPEN BAJES

The GreenWURks team won the Greenhouse Challenge with their Open Bajes design. In the design, large parts of the prison walls are replaced with glass and solar panels, creating an open feel while the history of the prison remains visible. One of the design’s strong points, in the jury’s view, is the ‘Simpli-city’ business model, based on community participation. Local residents can be shareholders in Open Bajes, which even has its own money: the BajesCoin. The building is designed to be an accessible place with space for activities such as workshops, exhibitions and sport. Residents and visitors can harvest fruit and vegetables themselves and get some experience of urban agriculture. The plant production system Biophilia is intended to be a closed cycle as far as possible. Moss from the greenhouse itself will be used as a nutrient base, and rainwater will be sprayed on the plant roots as mist, so that less water is needed than in conventional irrigation systems.



PHOTO GUY ACKERMANS

www.wur.eu/studentchallenges