
Competences for a sustainable city development:
Qualification scheme for Climate Adaptation in Construction,
Architecture and Planning

Clim-CAP

Deliverable 5.1

Summary of the pilot test results

Project acronym: **CLIM-CAP**

Project full title:

***Competences for a sustainable city development: Qualification scheme
for Climate Adaptation in Construction, Architecture and Planning***

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1. Introduction

This deliverable is a summary of the five national reports on the pilot test results. It was produced on the basis of the 50 questionnaires filled in by the participants of the 5 national pilot seminars, the expert questionnaires and the statistics of the online sessions.

The aim of the report is to identify potential problems (defects and drawbacks of the training curricula and content) based on the pilot courses and to provide knowledge on how to make necessary amendments to the project's future product so it would meet the demands of its potential end-users (consultants and multipliers). Users of this deliverable will be the consortium members.

In the following chapters the Promotion of the pilot is described (2), the Application procedure and selection of the participants (3), the Background of the participants (4), the Dates and Structures of the pilot course (5), the Examination (6) and the Feedback (7).

2. Promotion of the pilot

All partners used online methods such as newsletters and e-bulletins, website advertisement combined with various social media entries and tags to support more classic ways of marketing via print brochures and flyers. Additionally all partners used their own well established roots in the national expert communities and their networks to further promote the new program and its pilot course. Furthermore the program was presented at various conferences, exhibitions, fairs, local meetings and seminar and advertised via roll-ups.

The Wageningen Academy as one example used their network consisting of professionals working in the Wageningen University knowledge fields, (urban) planning and architecture. The monthly newsletter with news topics and the course advertising has been send to over 4000 professionals, with an opening percentage of 25%. Apart from this newsletter a specific newsletter about the ClimCAP pilot was send to 1250 persons. Also the social media channels from Wageningen Academy were used, like twitter and LinkedIn. An example of communicating trough other channels is the Landscape architecture Chair group and Dutch organization for (Landscape) architects and (urban-) designers, named Architectenweb. The Architectenweb receives about 300.000 visitors a month and

their digital newsletter is sent to approximately 10.000 email addresses. CLIM-CAP content was posted both on their online agenda and in a newsletter edition. Another external source through which communication took place is the digital newsletter of the NVTL, Dutch organization of garden- and landscape architects. Their network consists of about 1800 professionals.

In Hungary on the other hand the promotion of the pilot project started already in summer 2014. Since the topic of climate adaptation is barely known in Hungary and there are very few publications available in Hungarian language, awareness raising activities on climate adaptation were started by Energiaklub even before the advertising for the pilot course went out. In February 2015 they started to promote the pilot course. One of the main target groups was the Hungarian municipalities, as according to the Market and Demand Analysis the municipalities lack awareness and education on climate adaptive planning. In March 2015 a promotion email was sent to around 2000 addresses, to the collected mailing list for municipalities with more than 50.000 inhabitants, architecture and landscape architect companies, universities and via their monthly newsletter. Via Facebook with the tags urban planning, environment, climate, adaptation, city, landscape architecture etc. they reached around 20.000 users according to the Facebook statistics.

3. Application procedure and selection of participants

There was considerable interest in the pilot by the target audiences for all partners.

Application procedure

The application procedure in all countries was based on two important aspects.

The first aspect was a set of criteria, stated to be obligatory:

- Education: At least BSc level in the field of urban planning / design, spatial planning, landscape architecture or architecture.
- Commitment of 150 hours, divided over 12 weeks.

The second aspect was the years of experience and the potential use of the learned subject. In every country the number of received applications exceeded the number of spots in the pilot course.

Selection of participants

Of over 100 received applications project wide, only around 70 could be enrolled by the partners to the pilot. A selection procedure was performed on all applications.

The selection was performed and based on the stated prerequisites.

4. Background of the participants

Some of the trainees were professionals with years of experience in urban planning, in environment and sustainable development and architecture in different levels of government both regional and national. There were also freelancer professionals with a predominantly undergraduate education of architecture, who also received a master's degree in different areas of city management, sustainable architecture and urban planning. In addition, to solicit a more diverse point of view in the areas of architecture and urbanism in a multidisciplinary group, intentionally environmentalists were selected for the pilot course.

The background of the participants varied on several aspects, some were students but the majority were professionals with years of experience in urban planning, in environment and sustainable development and architecture

Work Experience

The group had a mingled character. From the participants a small part could be marked as 'young professional' with a work experience of less than one year. Most professionals had a working experience of more than 10 years. The remaining professionals had an experience between the 1 and 10 year(s).

Educational background

The prerequisite was a B.Sc. level of education or higher, which all participants met.

Profession

The majority of all participants are employed as landscape architects / designer. The other participants respectively, are occupied as an architect, web designer and a contractor for construction and maintenance of green spots in urban areas, including green roofs.

The groups contained both of male and female participants.

5. Dates and structure of the pilot course

The pilot course contained 4 modules, each focusing on different climate topics stated by the curriculum. These modules were taught to the participants during the face-to-face group sessions and further learned and practiced during (online)-homework assignments.

Study load

By design it was clearly stated the programme would take around 150 hours, spread out over 12 weeks, roughly 12 hours a week. Due to national summer holidays a break of six weeks was part of the programme. Almost all participants could meet this commitment, only very few dropped out due to health conditions, time management issues and personal circumstances. The stated 150 hours appeared to be a minimum amount, the participants felt they spend more time on the (homework) assignments, especially the design assignments from module 3 and the large scale assignment from module 4.

Group Meeting set-up & dates

All face to face meetings took place on both a Thursday and a Friday (Netherlands) or a Friday and a Saturday (rest of the partners).

The 8 days, divided in 4 blocks of 2 days were well attended. The choice of 2 days every week was well chosen, participants liked the 2 days –as it takes a switch to get fully back into all course materials. The days at the end of the week were well chosen as well, as most participants agreed with this choice and saw it as a break from their regular work. Considerations regarding the group meetings are more based on content. The only remark regarding the schedule would be that additional time for the design assignments for module 3 (they had to make these assignments between meeting 2 and 3) and tutoring, to better integrate all offered modules would be welcomed. Participants were also very happy with the external experts and suggested more time to discuss content for future courses.

Excursions

The pilot programme offered usually 2 excursions, paying attention to both small scale and large scale climate adaptation interventions –already constructed and how a place could benefit from interventions and actions.

Home assignments

The home assignments play a very important role in the blended learning environment and in the didactic concept of the 4C/ID-model and are a key to this

programme. Participants appreciated and needed the homework assignments to incorporate the offered theory and tools.

On the next page some examples are shown from the small scale assignments, analyses and design interventions. (Sun and shadow, heat, water and design intervention.)

General structure

All the elements of the programme combined together make the blending learning environment. The three key elements of this blended learning environment are:

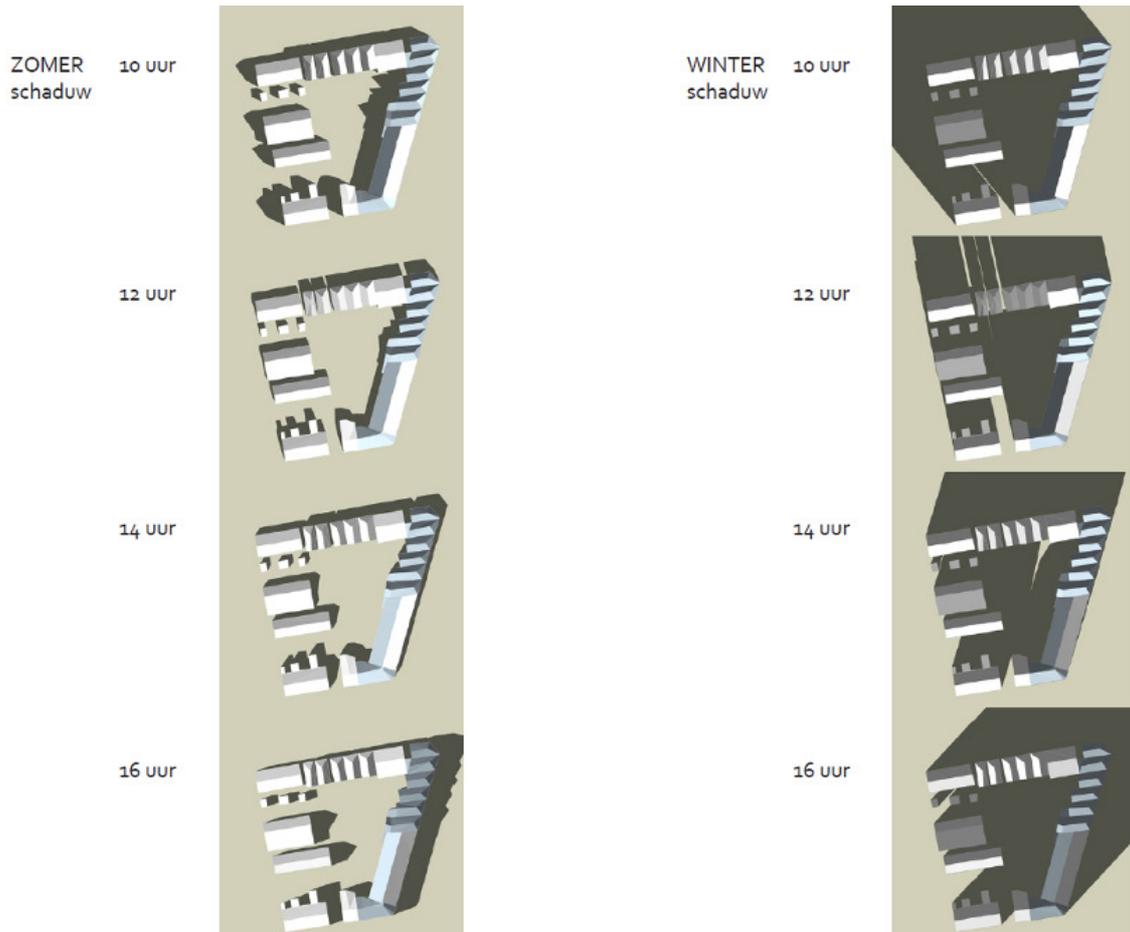
1. The 4 face to face meetings including excursions;
2. The homework and especially the design exercises;
3. The digital learning environment (blackboard).

It is important to understand the overall structure of this training course and therefore to realise the difference between the face-to-face meetings and the modules. At the first face to face meeting, module 1 and 2 were taught. At the second face-to-face meeting, module 1, 2 and 3 were covered and so on. An important part of the tutoring was done during these face to face meetings.

Essential for the didactic concept of the 4C/ID-model are the homework assignments. By doing these assignments, the participants put the new knowledge and skills into practice and focussed on developing new competences.

The last aspect of this blended learning scenario is the digital learning environment. All content was offered on a content management system (CMS). Online exams were offered for various modules and the participants could upload their assignments to the CMS. There was also a forum where they shared articles and other relevant content related to the course.

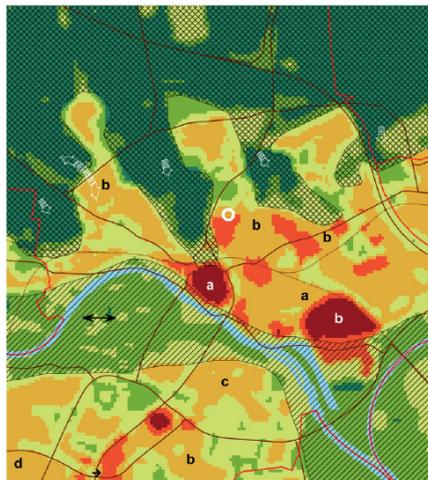
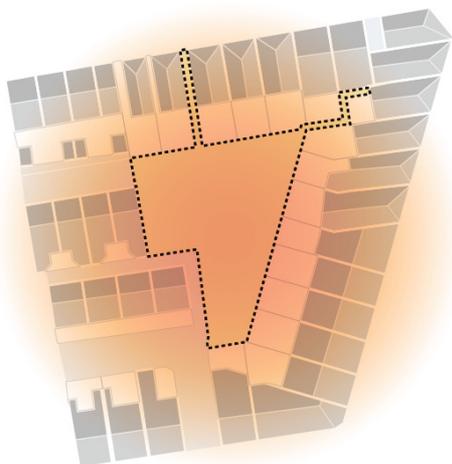
Netherlands:
Example of student analyses of sun and shadow



Example of student analyses of heat and water

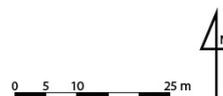
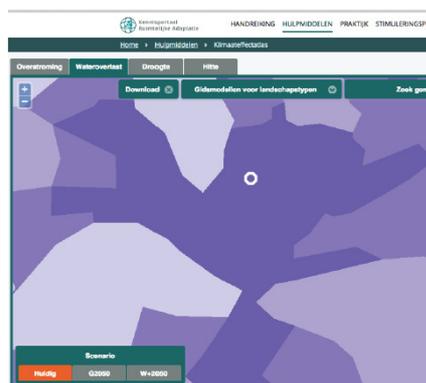
HITTE:

- o Slechts 0-17% aandeel groen (= zeer laag)
- o Aandeel verharding = 20-25% (= zeer hoog)
- o Hitte eiland effect: 2-3 graden verschil met omgeving 's nachts > versterkte hittevorming.
- o Ca. 1 week per jaar boven 's nachts boven de 20 graden, dit wordt naar de toekomst toe alleen maar meer.
- o Leeftijd: minder dan 20% is 65+ (= zeer laag)



WATEROVERLAST:

- o Bij 1/100 buien 30-40 mm p/m2 = relatief hoog
- o Bij 1/100 buien >60 mm p/m2 = zeer hoog
- o Ondanks zandgrond zijn er lokaal leemlagen aanwezig waardoor water slecht weg kan.
- o Door hoge ligging en zandgrond geen last van grondwater
- o Binnen het hof circa 2 meter hoogteverschil



Result of climate responsive design exercise of one of the students.

RESULTAAT: ONTWERP ST. MARTENSHOF ARNHEM



Foto's: Excursion Rotterdam, 12 June 2015

Spain:

Climatope map considering the risk groups (over 65 years old)	Analysis techniques for Wind	Report about the urban excursion	The commission letter
The climatope map of Barcelona	The recommendation map for Barcelona	Small Scale measures adaptation	The role-playing exercise

In the excursion, the trainees were able to visit areas with different climatic conditions in the city and the inner city, as shown in pictures.

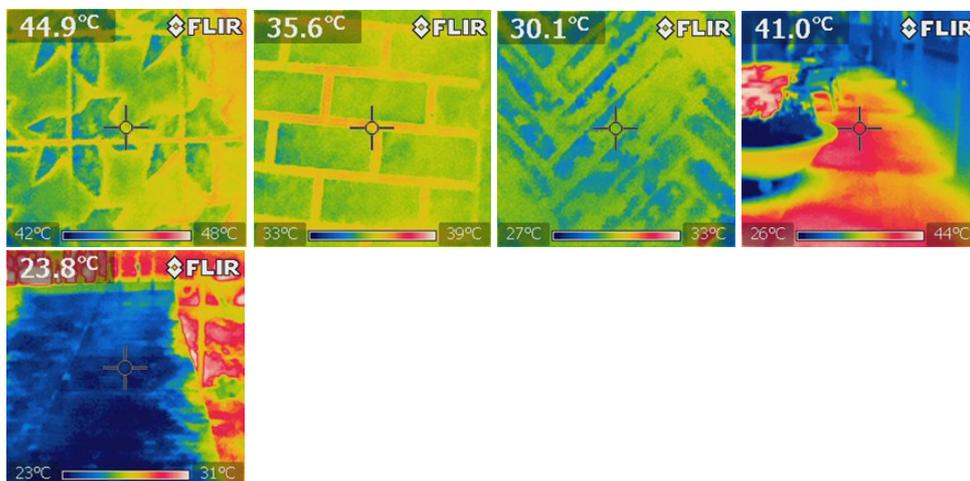


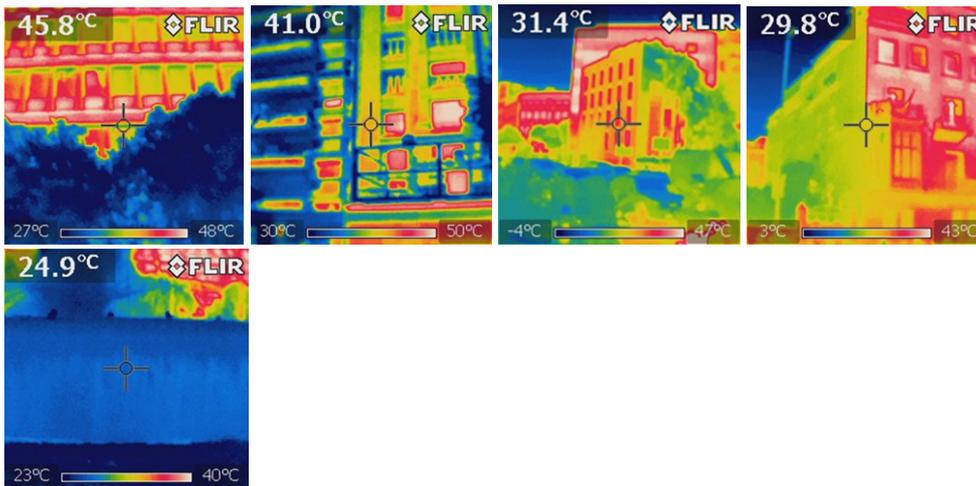


Also they had the opportunity to visit several projects adaptations to climate change, as green roofs and vertical gardens.



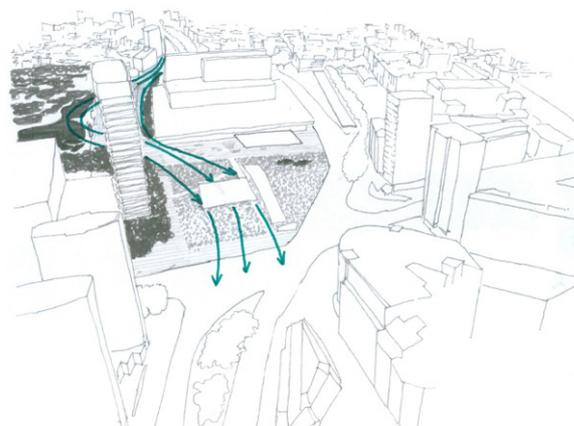
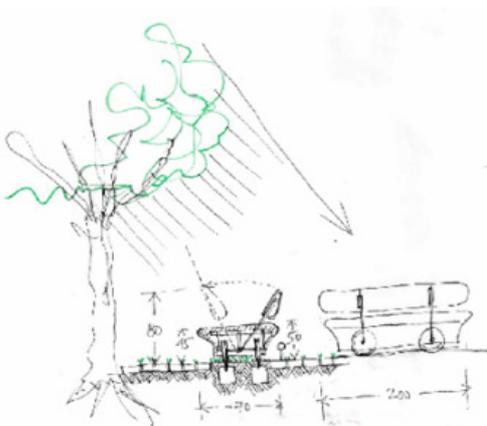
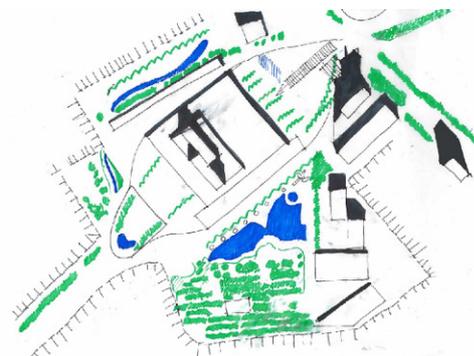
As well as taking measurements of air temperature, wind, relative humidity and surfaces temperatures.

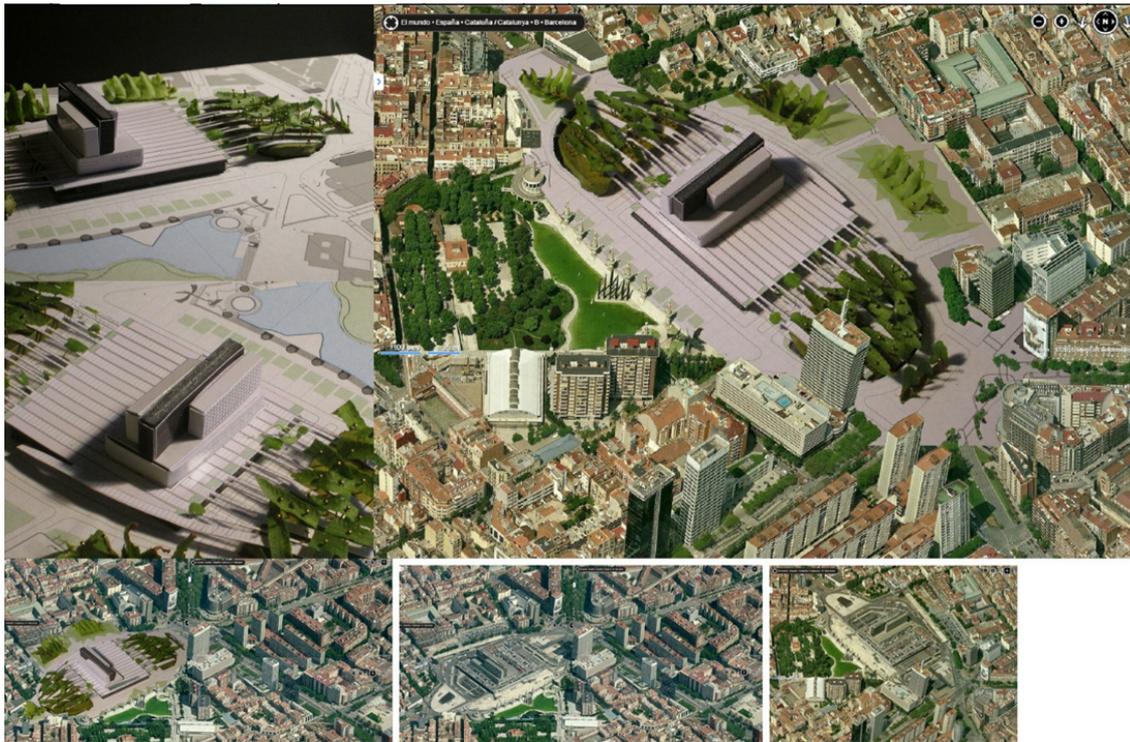




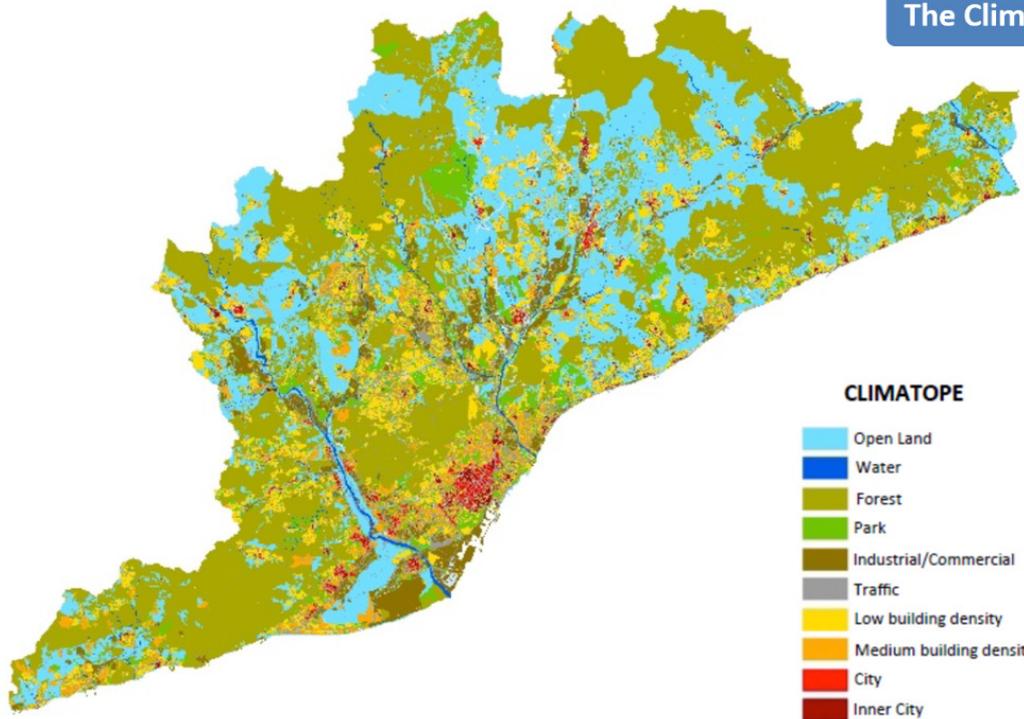
The following pictures show examples of the assignments delivered on adaptations to climate change in small scale and large scale such as the climatope and the recommendations map.

Integration of adaptation measures in small-scale urban design





The Climatepe Map



Recommendations Map



Germany:



[presentation/
discussion](#)

[teamwork](#)

[student
homework](#)

Module 1:
Basic scientific knowledge
on climate change and
urban climatology

Module 2:
Analysis techniques for
urban climate

Module 3:
Small scale adaptation
measures

Module 4:
Large scale urban
planning
implementation

[e-learning
basic knowledge](#)

[e-excursion
urban climatopes](#)

[excursion:
examples of good
climate adaptation
measures](#)

[create a
recommendation map
\(exam\)](#)

[online
test](#)

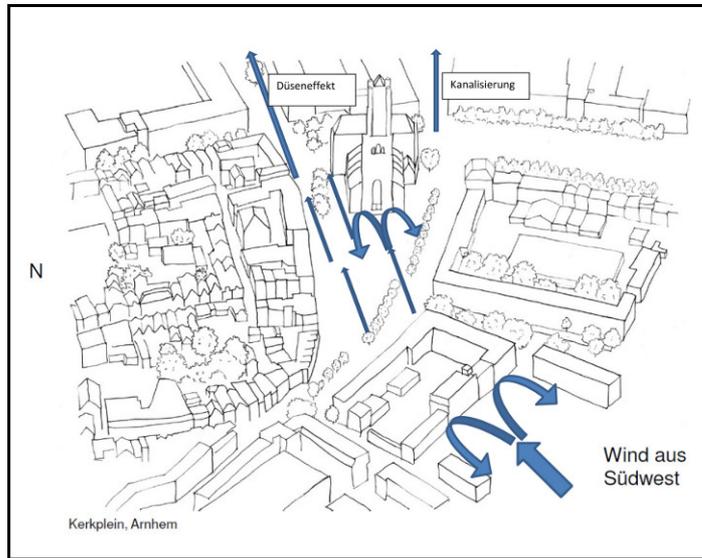
[create a
climatope map](#)

[case studies for
climate adaptation](#)

[microclimate modelling
/
role play for
implementation](#)

Structure of the CLIM-CAP Pilot

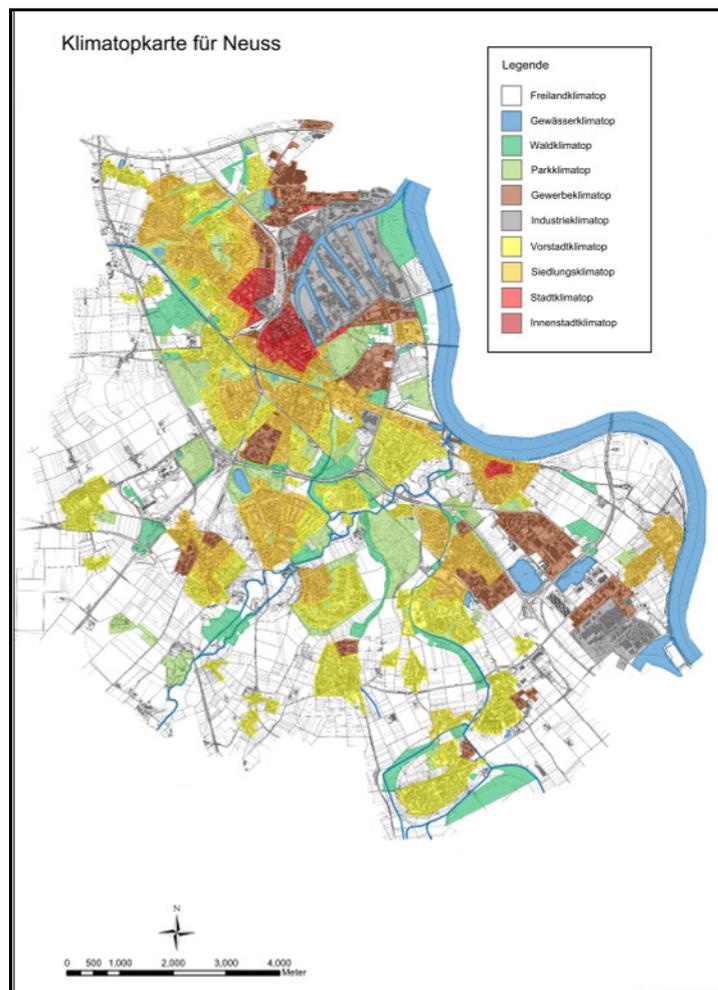
Examples of student analyses of wind field modifications in urban structures



wind field analysis

Examples of student analyses of a climatope map

Climatope map



Examples of group exercise: microscale modelling with ENVI-met

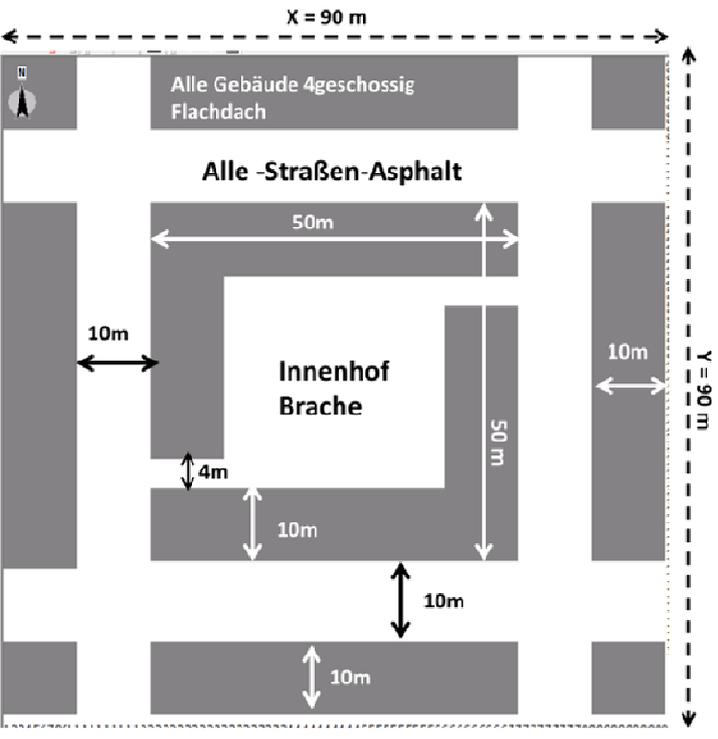
Modellieren mit dem Mikroskaligen Klimamodell ENVI-met - Fallstudie

ENVI-met Modell:
 Modellgröße= 90 m x 90 m,
 Wind aus Osten,
 24 h Simulationszeit,
 Strahlungswetterlage

Aufgabe:
 Der Innenhofbereich in einer Blockbebauung soll neu begrünt werden. Die Verteilung der verfügbaren Vegetation soll nach klimaoptimierten Kriterien erfolgen.

Sie haben dafür nur begrenzte Ressourcen:

- 500 Quadratmeter Rasen
- 15 Stck. 10 m hohe Bäume
- 10 Stck. 15 m hohe Bäume



Alle Gebäude 4geschossig Flachdach

Alle -Straßen-Asphalt

Innenhof Brache

Microscale Modelling

6. Examination

For the final examination, the participants had to provide a presentation on the last homework and prepare for questions on all course content. It was set by curriculum that a course participant was only allowed to take the final examination after it was proven that he/she obtained the knowledge, skills and competences of module 1, 2 and 3.

For a course based upon the ISO 17024 standard, a strict separation between education and examination is essential. An external and independent examiner assessed the final examination of all participants. During the examination a presentation about a climate recommendation map and possible climate adaptation was given separately by every student. In addition, questions about the course content had to be answered, but also knowledge transfer was necessary.

The online test, homework assignments and the final examination were developed in such a way that all knowledge, skills and competences were tested. To harmonize these testing, rubrics were developed for all assignments.

All but one participant took the final examination and successfully, passed the course and received their certificate.

7. Feedback

During the pilot training all partners facilitated a feedback session at the beginning of every face-to-face meeting, where the trainees could give feedback on the previous modul and the homework which was carried out between the two face-to-face meetings. At the end of the course the trainees filled in an evaluation form concerning the whole course and each trainer. The trainers also filled in a general evaluation form. At the end of the course the partners asked the trainees which information was useful for them, what they would change if the course would be running a second time and what personal benefits they had from attending to the course.

After completing the course and conducting the surveys we could say that the course was successful in all partner countries.

Among the positive aspects of the course were:

- That the course is an innovative project.
- It links different disciplines and opens an interesting field of study on climate change.
- It also raises awareness on the relationship between urban planning and climate.
- The willingness of teachers to troubleshoot and resolve doubts, combined with a hands-on-mentality when it came to difficult questions and individual work projects.

Asked about the contents of the course, the attendees believed that the course provides knowledge in tools and evaluation measures, and incorporates new parameters to be taken into account in urban planning and architecture projects. After finishing the course the trainees felt that they are now able to introduce urban climate criteria to enrich their professional work on architecture and urban interventions. The trainees also found it interesting to learn of adaptation measures in other countries and benefited from the introduction to Climatope maps.

Regarding the structure of the course they said that the course outline is clear and its objectives are easy to follow. The trainees appreciated the dynamic teamwork that enables interaction among attendees. In the same way, small classes allowed more individual participation in discussions, and helped to bring the diverse trainees together and to common understandings. The city walk tour/excursions were an excellent approach to public space. They allowed experiencing almost all the concepts explained in class, such as temperature differences of the materials, the importance of vegetation and water, the wind corridors, and so on. Finally the trainees pointed out that the material in the interactive e-learning platform was good and sufficient but for their shown “knowledge-hunger” too limited.

On the other hand, the negative aspects of the course were, that there is no guarantee to apply this knowledge and adaptation measures in some partner countries because of the lack of information of urban climate available in the respective countries. Using examples from other countries was not practical for them because they were not comparable, for example Climatope exercises.

Concerning the contents of the course, all trainees requested more regional content but acknowledged that this lifelong learning programme also contributes to the awareness of generating information to study the impact that the cities have on climate change..

Relating the structure of the course, the trainees thought that the homework should be more stretched out over time and that it would be in the future important to give enough time to the correction of the tasks once each module is finished. But above all, the students pointed out that the course structure requires more hours of class, since they consider that insufficient classroom hours hinders teamwork (which requires more time and effort outside the class).

8. Conclusion

In general the pilot training was a complete success in all participating partner countries. The different work packages delivered good results to the point where everything could be pieced together to create a final standard product which could be sold anywhere in the EU.

The market analysis showed that there was a different national framework in place when it came to problem awareness, main actors and employment fields and regional climate topics. But the general format, a blended learning scenario with excursions and face-to-face meetings worked out great.

Various input could be drawn from the feedback sessions and evaluation forms to get the product from its pilot state to a launch version.

First and foremost the regional climate topics need more room in the appropriate modules. It became quite obvious that all participants want salvageable results and knowledge for their daily business which should lead to a stronger national focus on certain areas backed by the excursions.

In addition the timeframes in the final product need to be adjusted to give the trainees more time for the blended learning phases and to cut down on optional content which some mistakenly took as mandatory. However the evaluation forms also showed some cases of “knowledge-hunger” among the trainees, which might cause the whole thing to be a walk on a fine line to find just the “right” amount and “right” way of presenting optional content in future courses. Furthermore some partners added that they might need to adjust some parts of the course because their regional data isn’t sufficient to generate tests and scenarios for their students.

All partners agreed that the market success of the product will mainly rely on the regional/national will to pay for the course. Especially that UK mentioned that the full course would most likely be hard to sell due to the selfemployed nature of the trainees and the usual otherwise low marketprices (for inferior products) in this knowledge field.



Competences for sustainable city development

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www.climcap.eu