



ECOLOPES

ECOLOGical building envelOPES: a game-changing design approach for regenerative urban ecosystems

H2020-FET-OPEN-2021-2025

Action number 964414

D2.2

First Report on Dissemination and Communication Activities

Dissemination level:	<i>Public</i>
Contractual date of delivery:	Month 12, 31 March 2022
Actual date of delivery:	
Work package:	WP 2
Task:	
Type:	<i>Report/</i>
Approval Status:	<i>Submitted</i>
Version:	final
Number of pages:	32
Filename:	D2.2 first report on dissemination and communication activities final.docx

Abstract

The aim of the dissemination activities is to raise interest and awareness on ECOLOPES objectives, methodologies, and outcomes and to make the overall project concept and approach visible for the public and specific target groups. Key features and benefits of the approach need to be communicated to potential users and the overarching concepts and aims need to be continuously refined through appropriate internal communication measures. This is the report of the dissemination and communication activities for the first year.

The information in this document reflects only the author's views and the European Community is not liable for any use that may be made of the information contained therein. The information in this document is provided as is and no guarantee or warranty is given that the information is fit for any particular purpose. The user thereof uses the information at its sole risk and liability.



Funded by the European Union

HISTORY

Version	Date	Reason	Revised by
1	06.02.2022	First draft (Ferdinand Ludwig)	
2	21.3.2022	Updated for internal revision	Assaf Shwartz, Maria Canepa, Wolfgang Weisser, Anne Mimet, Francesca Mosca
3	26.03.2022	Integration of comments	

AUTHOR LIST

Organization	Name	Contact Information
TUM	Ferdinand Ludwig	ferdinand.ludwig@tum.de
TUM	Anna-Lena Bauer	anna-lena.bauer@tum.de
TU Vienna	Michael Hensel	hensel@iemar.tuwien.ac.at
TUM	Anne Mimet	anne.mimet@tum.de
TUM	Wolfgang W. Weisser	wolfgang.weisser@tum.de
UNIGE	Katia Perini	katia.perini@unige.it
Technion	Yasha Grobman	yasha@technion.ac.il
UNIGE	Francesca Mosca	francesca.mosca@edu.unige.it



EXECUTIVE SUMMARY

The report presents the dissemination and communication activities carried out in the first project year. The website and a Facebook page had already been set up before the start of the project. All relevant social media channels have been set up. After ten months of the project, the number of social media followers was well over 500. Starting with the development of the logo, a consistent graphical language and a color code were developed (corporate identity). First publications such as a book chapter and a conference paper were published, two journal papers are under review, further publications are in progress or in preparation. Microsoft Teams is used as the most important technical tool for internal communication. In this regard, the cooperation of the interdisciplinary consortium was strongly promoted by the joint work on a user workflow and supported by a "design game". These measures helped to sharpen the objectives and develop a common understanding of the goals and challenges of the project, which is also highly relevant for identifying target groups for dissemination in the next step. A lecture series (ECOLOPES TALKS) was conceived; starting on 05.04.2022, monthly public online lectures will take place. Compared with the KPIs set for dissemination the majority of the activities is within the expected range or exceeding it.



Abbreviations and Acronyms

Abbreviation	Description
CA	Consortium Agreement
EC	European Commission
GA	Grant Agreement
KPI	Key Performance Indicator
RP	Reporting Period
WP	Work Package



Table of Contents

History.....	2
Author list.....	2
Executive Summary	3
1 Introduction and Context	7
2 Corporate Identity.....	7
2.1 Development of Logo	7
2.2 Development of Colour Code and Graphical Language.....	7
2.2.1 Colors	7
2.2.2 Shapes and symbols	8
2.2.3 Photos.....	9
2.2.4 Font.....	9
3 Website	9
3.1 Structure and Visual Impression.....	9
3.2 Achievements and Metrics	10
4 Social Media and Networks	10
4.1 Facebook	10
4.1.1 Implementation.....	10
4.1.2 Achievements and Metrics	11
4.2 Instagram	12
4.2.1 Implementation.....	12
4.2.2 Achievements and Metrics	12
4.3 Twitter	13
4.3.1 Implementation.....	13
4.3.2 Achievements and Metrics	13
4.4 LinkedIn	13
4.4.1 Implementation.....	13
4.4.2 Achievements and Metrics	13
4.5 ResearchGate	14
4.5.1 Implementation.....	14
4.5.2 Achievements and Metrics	14
5 Press Releases	14
6 Conferences and Conference Papers.....	14
6.1 Attended Conferences.....	14
7 Research Papers.....	15
8 Book Chapters etc.....	15
9 Exhibitions.....	15
9.1 Participation in Exhibitions.....	15



9.2	Organization of Exhibitions.....	15
10	Workshops.....	16
11	Public Events.....	16
11.1	Lecture Series	16
12	Internal Communication Measures	17
12.1	Teams Platform	17
12.2	Team Exercise “Design Game”	17
12.3	Workshops on the Design Workflow	21
13	Teaching Activities.....	23
13.1	TUM.....	23
13.2	TU Vienna.....	25
13.3	Technion.....	28
13.4	Lessons learned from the first year’s teaching activities.....	30
14	Conclusion.....	31
14.1	Overall evaluation of KPIs.....	31
14.2	Evaluation of the status quo.....	31



1 INTRODUCTION AND CONTEXT

The activities undertaken during the first year of ECOLOPES follow the dissemination and exploitation strategy described in Deliverable 2.3. “First Dissemination and Exploitation Plan”, to reach the maximum extent possible. As described there, the consortium uses an agile approach to developing the dissemination and communication activities, i.e., we aim to reach the general public and target groups identified so far at an early stage in order to further develop the strategy, based on the feedback and the resulting network. The impact of the Covid-19 pandemic had and continues to have a significant effect on the internal communication as well as the dissemination. So far, only online and hybrid meetings have been possible, and all dissemination activities are working with purely digital formats.

2 CORPORATE IDENTITY

Already in the application phase, great importance was given to the convincing graphic representation of the complex interrelationships and ambitious objectives of the project. The visuals and colour coding used here form the starting point for the development of the corporate identity is described below.

2.1 Development of Logo

As already described in D2.1 “Website and project logo” the ECOLOPES logo uses a common architectural representation of a building as a basis to facilitate visual communication with architects and other disciplines. The arrow-like tips of the outline represent the role of the *ecolope* as an architectural element that supports interactions between different natural and human elements, and the inside and outside of the building. The colors stand for the main stakeholders (green = plants; violet = microbiota; red = animals)



Figure 1. The ECOLOPES logo

2.2 Development of Colour Code and Graphical Language

2.2.1 Colors

The color code of the graphical language is based on the ECOLOPES Logo. The colors from the Logo’s gradient were extracted and rearranged to attain a smoother color transition. Since the color gradient is mainly used as background, the green color was replaced by a dark purple



color to create a more cohesive and understated look. The resulting linear gradient functions as frame for the development of further gradients, which can be considered as subsets derived from the main gradient. The color scheme is developed to be used for all graphical material that should stand out to underline the identity of the project, e.g., for generating social media posts, public presentations, handouts etc.



Number	HEX-Code	RGB Code
1	#F6D18A	R:246 G:209 B:138
2	#F6CFA0	R:246 G:207 B:160
3	#D5AFA6	R:213 G:175 B:166
4	#D9A695	R:217 G:166 B:149
5	#BBA9B5	R:187 G:169 B:181
6	#D8D2AA	R:216 G:210 B:170

Figure 2. Color code

2.2.2 Shapes and symbols

To promote brand awareness in the visual representation of ECOLOPES, emphasis is placed on the logo. Therefore, the logo is repeated on all graphics in different color variations, either using above mentioned gradients or in black and white. When altering the logo's size, its elements must be resized proportionally.



Further symbols are extracted from the header-image of the Website, with each symbol representing an element of the *ecolope* (houses & people = humans; trees = plants; bird = animals; bacteria = microbiota), at least two different components should be incorporated into a graphic when using symbols (compare Figure 3).

The only additionally created shapes are continuous lines with a width size of 0,6pt, which again establish a connection to the front-page illustration and ensure a clean and simplistic look.

2.2.3 Photos

Photos that are used to support the corporate identity are edited by using a monochrome halftone raster (size: 2,5 – 4px; contrast: 60-80%). As the first quarter's communication activities focused on introducing the team, the application of the black and white halftone filter aims to achieve a coherent appearance even with heterogeneous images.

2.2.4 Font

The font used in all graphics is Neue Helvetica. The sans serif type of font was chosen to align with the sleek and straightforward style of the logo. While there are no specific requirements regarding the font size, the font must be adjusted proportionally when resized and hence changing the spacing is inadmissible. Font variations are made by altering the weight or color. In headings or highlighted areas Neue Helvetica 75 Bold is used (Default: Neue Helvetica 55 Regular). Variations regarding the form, such as italic, are not applied. Color adjustments are made following the description in section 2.2.1.

3 WEBSITE

3.1 Structure and Visual Impression

The ECOLOPES website is online since the 22nd of January 2021. It is reachable at the address <https://www.ecolopes.org/>, and also accessible with the suffix “.eu”. It's a WordPress web-hotel with a huge capacity for large content (see D2.1 Website and project logo).

It contains several sections:

- **About ECOLOPES** presents the rationale of the project
- **News** is dedicated to project updates and dissemination. It is currently used for job advertisement
- **Partners** both presents the institutions and members of the consortium
- **Publications** currently contains the publications of the members of the consortium related to the project, and will grow as ECOLOPES papers will be published
- **Contact** provides links to join the consortium according to the type of request: for information requests (forwarded to Prof. Dr. Wolfgang Weisser and Dr. Anne Mimet):



info@ecolopes.org; for dissemination requests (forwarded to Prof. Dr. Ferdinand Ludwig): dissemination@ecolopes.org; Webmaster (forwarded to Prof. Dr. Michael Hensel): webmaster@ecolopes.org

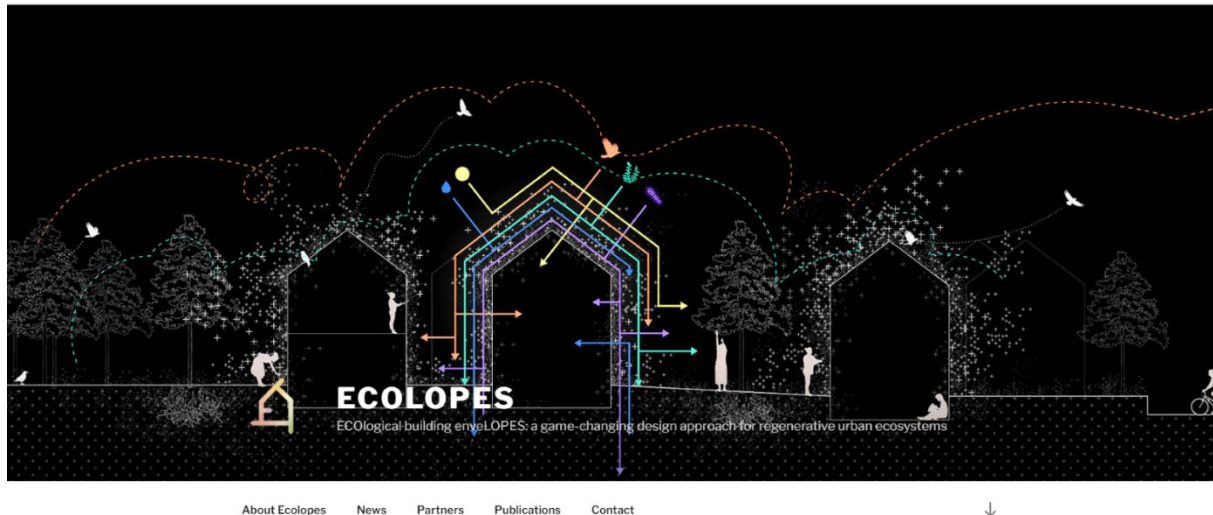


Figure 3. Front page of the ECOLOPES website (<https://www.ecolopes.org/>)

3.2 Achievements and Metrics

Since the WordPress PlugIn MonsterInsights has been installed only in March 2022 there are no metrics available yet. They will be presented in the following report after year 2.

4 SOCIAL MEDIA AND NETWORKS

The strategies how to reach the target groups and how to build a strong visual impact within the different social media channels is described in D2.3. “First Dissemination and Exploitation Plan” The work presented here is building on this preliminary strategy.

4.1 Facebook

4.1.1 Implementation

The Facebook page was already set up in January 2021. The aim of this early establishment was to use the Facebook page for the acquisition of employees and doctoral students. Job advertisements were placed for this purpose. To enable the highest possible degree of brand recognition the logo is used for the profile picture and the header of the homepage is used for the cover picture. Starting from the end of November 2021 all members of the consortium were introduced one by one in a daily series until Christmas. This also served to ensure that all members could identify with the Facebook presence. Members of the consortium can now



identify and begin to share the content on their channels. To manage the content, the Meta Business Suite, a content management tool for Facebook and Instagram, is used.

All consortium members were encouraged to share the content through their own Facebook presences and invite their network to follow the page. In terms of building a network, the page now follows 135 other pages, individuals, and groups. In the future, this will be increasingly used to spread the posts of the page through mentions, hashtags and posts in groups and to reach different target groups in a targeted manner. For this purpose, a team was formed out of the consortium that represents the different disciplines and thus ensures networking in the different fields.

Example of a post from the “introducing the team” series:

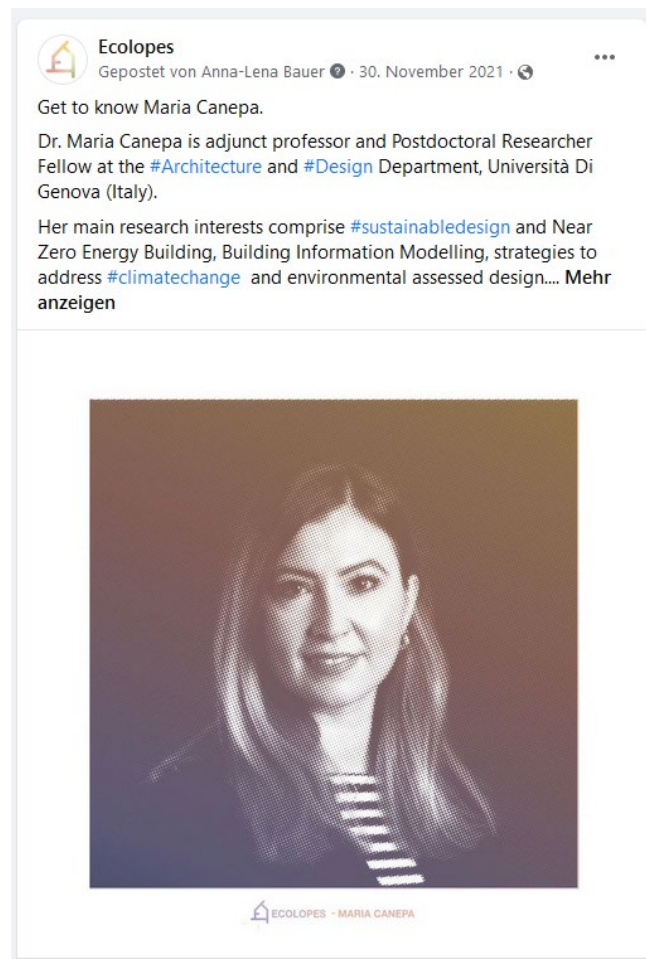


Figure 4. Example of a Facebook post introducing the team.

4.1.2 Achievements and Metrics

Key insights (per 8.03.2022 since start of the page):

- Followers: 548
- Following: 137
- Outreach: 9.999
- Pages views: 1.075



- Likes: 950
- Number of posts: 49

4.2 Instagram

4.2.1 Implementation

The Instagram page was launched at the end of November 2021 with a post of the logo and a brief description. As with Facebook, a team member was then introduced every day until Christmas. Likewise, people and other pages were specifically followed to establish a network of target groups.

Impression from the Instagram page:

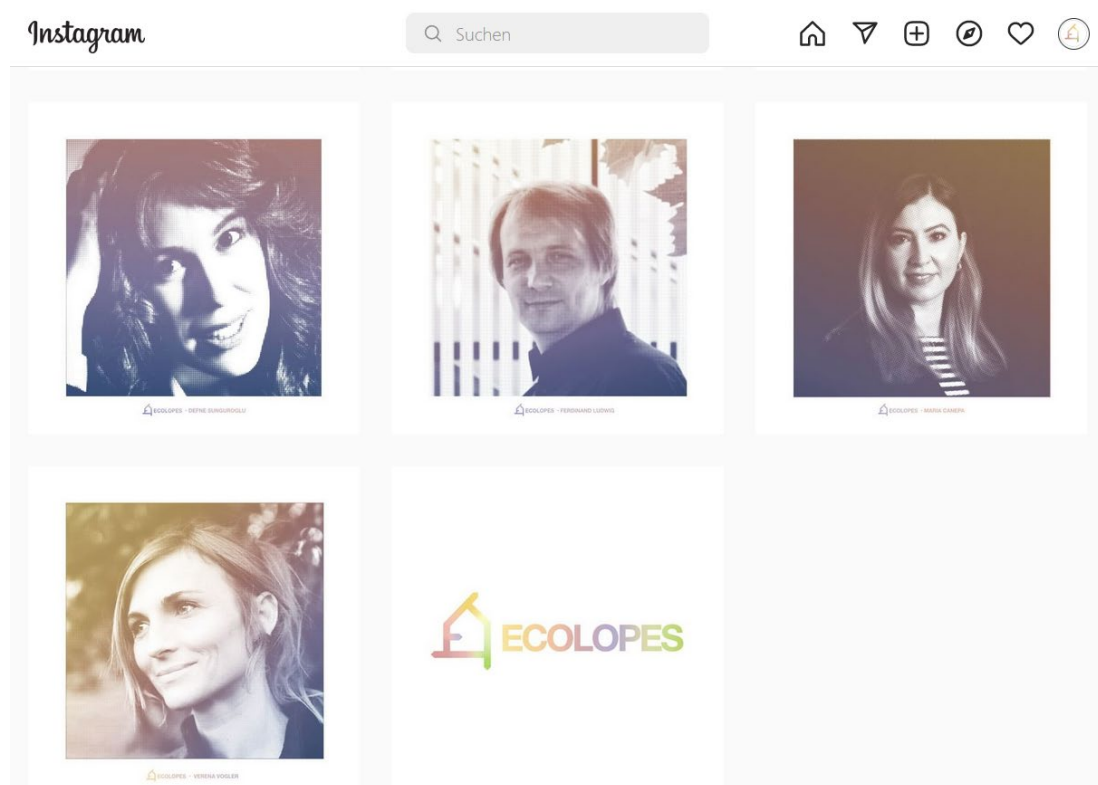


Figure 5. Screenshot from the Instagram page, introducing the logo and the team.

4.2.2 Achievements and Metrics

Key insights (per 08.03.2022 since start of the page):

- Followers: 83
- Following: 148
- Outreach: 1.110
- Page visits: 652
- Number of Posts: 31
- Likes: 305



4.3 Twitter

4.3.1 Implementation

Twitter was started 08.03.2022 with an animated introduction of the Logo and the partners.

Impression of a twitter post:



Figure 6. Screenshot of a twitter post, introducing team members from Genoa.

4.3.2 Achievements and Metrics

Since Twitter was started only recently there are no statistics available yet.

4.4 LinkedIn

4.4.1 Implementation

The LinkedIn page was launched in May 2021 including the announcement of the start of the ECOLOPES research project and related open positions at the partners. One post-doc and on PhD could be hired via LinkedIn.

4.4.2 Achievements and Metrics

Key insights (per 09.02.2022):

- Total Followers: 453
- Top job functions:
 - o Education: 45.15%
 - o Research: 16.75%
 - o Arts and Design: 8.01%



- Top industries:
 - o Research: 35.1%
 - o Higher Education: 27.81%
 - o Architecture & Planning: 18.76%

4.5 ResearchGate

4.5.1 Implementation

The ECOLOPES project page on ResearchGate was launched in January 2021. The page contains a description of the goals of the project, the partners, the link to the website, and lists relevant references. All the project members are identified as collaborators of the project and can easily use the platform to share their scientific production linked to ECOLOPES. It is also used for giving project updates, as job positions, to the followers.

4.5.2 Achievements and Metrics

Key insights (per 01.03.2022):

- Total followers: 28
- Reads: 213

5 PRESS RELEASES

Based on consultations with TUM's Corporate Communication Office, press releases are not appropriate until substantial interim results are available. Therefore, no press releases have been issued so far.

6 CONFERENCES AND CONFERENCE PAPERS

6.1 Attended Conferences

The ECOLOPES project was presented on the 12th of November 2021 at the Responsive Cities symposium, a bi-annual international symposium on the future of cities organized by the Advanced Architecture Group of IAAC (Barcelona, Spain). The 2021 edition focused on “**Design with Nature**”. ECOLOPES participants prepared a paper¹, which has been accepted and is under publication. A video was prepared and presented during the symposium

¹ K. Perini, S. Barath, M. Canepa, M. Hensel, A. Mimet, F. Mosca, E. Roccotiello, T. Selami, D. Sunguroglu Hensel, J. Tyc, S. Uthaya Selvan, V. Vogler, W. W Weisser, 2021. ECOLOPES. A multi-species design approach to building envelope design for regenerative urban ecosystems. RESPONSIVE CITIES: DESIGN WITH NATURE - SYMPOSIUM PROCEEDINGS 2021. Editor A. Markoupoulou, Institut d'Arquitectura Avançada de Catalunya. ISBN-978-84-120885-6-4



(<https://responsivecities2021.iaac.net/>). Katia Perini attended the round table and discussion, regarding the topic “PERFORM - living systems | increased liveability | ecosystem services”, discussing the ECOLOPES approach.

7 RESEARCH PAPERS

A paper entitled "Creating ecologically sound buildings by uniting ecology, architecture, and computational design" was submitted to the journal *People & Nature*. After receiving feedback from the reviewers, the manuscript is currently being revised and will be resubmitted until end of March.

An extended abstract was submitted to the journal *Agathon*, special issue "Greenery - its symbiosis with the built form" and accepted. The full paper entitled "ECOLOPES: BEYOND GREENING - An approach for multi-species design" will be submitted in mid-March and is expected to be published in June.

8 BOOK CHAPTERS ETC.

For the book “Bauen von morgen” (Building of Tomorrow, edited by the Federal Institute for Research on Building, Urban Affairs and Spatial Development (BBSR)) a chapter² that describes the ECOLOPES approach was written to introduce the project to the German speaking audience in the architecture and building sector. The book is published in a printed and an open access version. It can be downloaded [here](#).

9 EXHIBITIONS

9.1 Participation in Exhibitions

So far there are no exhibition contributions. One of the aims is to present interim results (design cases) at the Architecture Biennale in Venice in 2023.

9.2 Organization of Exhibitions

Considerations for own exhibitions were postponed in view of the unclear development of the COVID-19 pandemic.

² Ludwig, F., Hensel, M., & Weisser, W. (2021). ECOLOPES - Gebäudehüllen als biodiverse Lebensräume. In *Bauen von morgen. Zukunftsthemen und Szenarien* (pp. 84-89). Bundesinstitut für Bau-, Stadt- und Raumforschung (BBSR).



10 WORKSHOPS

Workshops with potential users of the ECOLOPES components (architecture firms, consulting firms, interdisciplinary planning teams) are planned for the second half or the last third of the projects period, i.e., as soon as the first versions of the digital tools are available and a suitable user workflow has been tested internally on the basis of the design cases. Regarding internal workshops please see the section about internal communication.

11 PUBLIC EVENTS

Public events did not take place so far. In the following the planned ECOLOPES lecture series is described.

11.1 Lecture Series

The lecture series “ECOLOPES TALKS” is planned as regular event, taking place every first Tuesday each month at 17:00 German Time. Speakers will be renowned representatives of the disciplines represented in ECOLOEPS as well as of other relevant subject areas. The event is addressing all interested parties and potential users of the results of the project. Thus, planners such as architects and engineers, but also ecologists and computational scientist are equally addressed. Furthermore, it is seen as a networking activity that brings together members of all partner organizations, especially students of the involved universities. The series will start as an online-only event; in the further course, it is planned to conduct it in a hybrid format as well. It will start as a zoom event, with a live stream on YouTube planned for the future.

The ECOLOPES TALKS will start on April 5th with a lecture by the architect Helga Fassbinder. Helga Fassbinder was chosen as the first speaker because her concept of “Biotope City – city as nature” is a comprehensive conceptual basis that underpins the ECOLOPES approach. With the realization of a Biotope City in Vienna, Helga Fassbinder is also directly involved in the implementation of a real estate project, which could be an example for an application of the digital planning tools and processes developed in ECOLOPES. The ornithologist and urban ecologist John Marzluff has been invited as a second speaker.

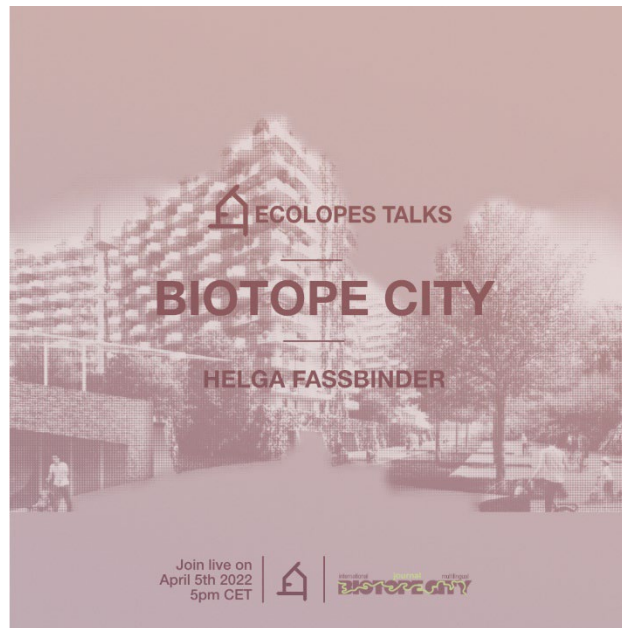


Figure 7. Instagram post for the first lecture in the ECOLOPES TALKS series.

12 INTERNAL COMMUNICATION MEASURES

Regular and effective internal communication is essential for the success of a highly interdisciplinary research project such as ECOLOPES. This concerns both the technical, but especially the personal level. To make this possible, the following measures were adopted.

12.1 Teams Platform

The communication platform used for in ECOLOPES is the Microsoft Teams platform. The platform is used to organise meetings, keep track of the project deadlines, attribute tasks, have more or less formal chats between the members of the consortium, share data, and work on shared documents. The ECOLOPES team is organized into a general channel and channels corresponding to the ECOLOPES work packages. Meetings, data sharing, and chats are organized within the channels to better target the members involved in given activities. The MS platform keeps former versions of the MS documents, as well as the content of the chats between team members, which secures the editing on shared documents and enables to keep track of the material (e.g. shared pdf of scientific articles) exchanged also using this mode of communication.

12.2 Team Exercise “Design Game”

While for the architects in the consortium the procedure of a design process is familiar, the individual steps of such a procedure are something uncommon for other disciplines, such as ecologists. Therefore, the first necessary step was to create a common understanding of the interdisciplinary design of an *ecolope*. Only in this way is it possible for all the researchers involved to understand what requirements the components they develop must ultimately fulfill for the user and what the corresponding expectations are. In order to approach this, a



playful exercise or "design game" was conducted with all participants at the first General Meeting (November 2021). Although it can be noted that the hybrid format has made communication much more difficult, the playful approach turned out to be very fruitful and was described by the participants as a "door opener" or "icebreaker" for mutual understanding. The procedure proved particularly useful for concretizing the design objectives.

Divided in mixed architects-ecologists groups, team members worked together to identify different sets of design principles and to define the most relevant aspects (design objectives) to potentially inform the KPIs selection. Thus, the workshop allowed us to collect a wide number of design objectives both from the architectural and ecological point of view. Some groups worked together by proposing joint objectives, others, instead, listed first different design objectives for architects and ecologist, and then worked together to define shared solutions. After the workshop we built a table with all of the design objectives collected during this activity (divided in two main sections: architectural and ecological) and relative Key Performance Indicators (KPIs).

Here some results of the workshop showing the different approaches:



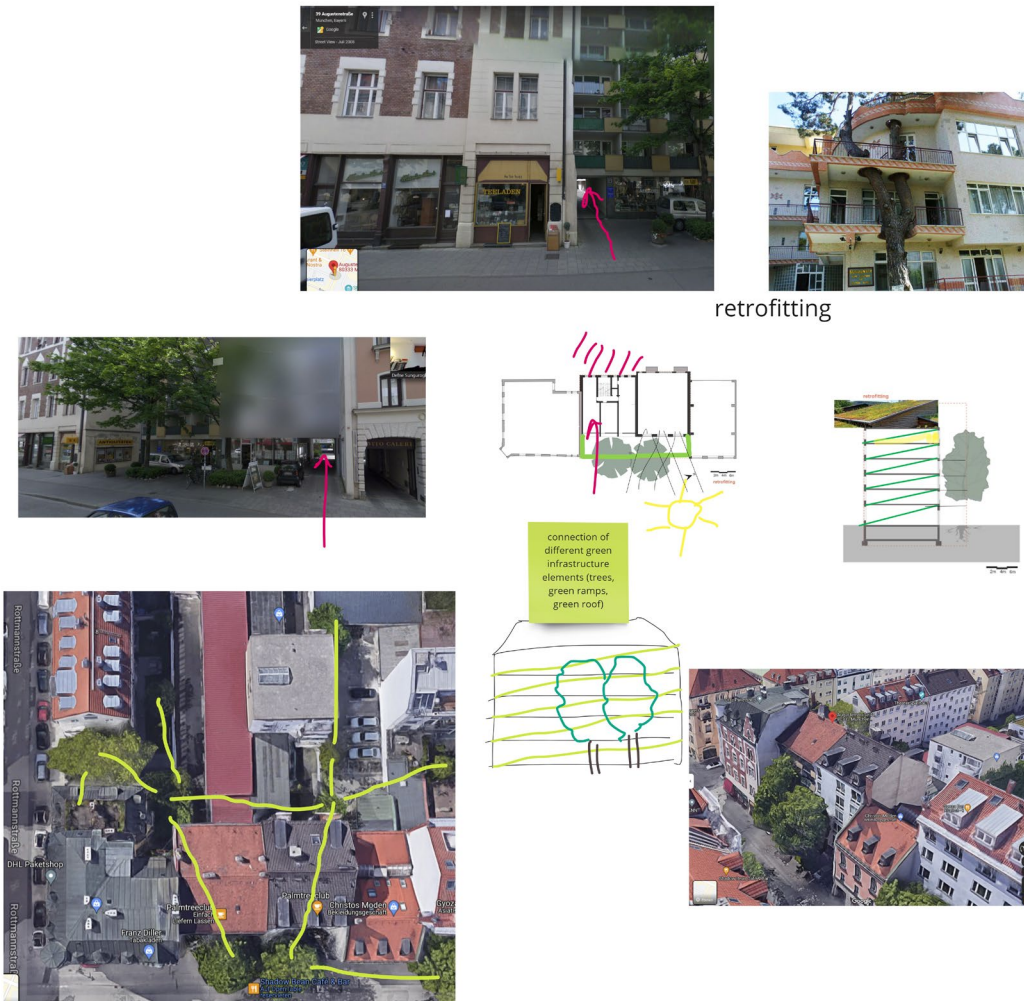
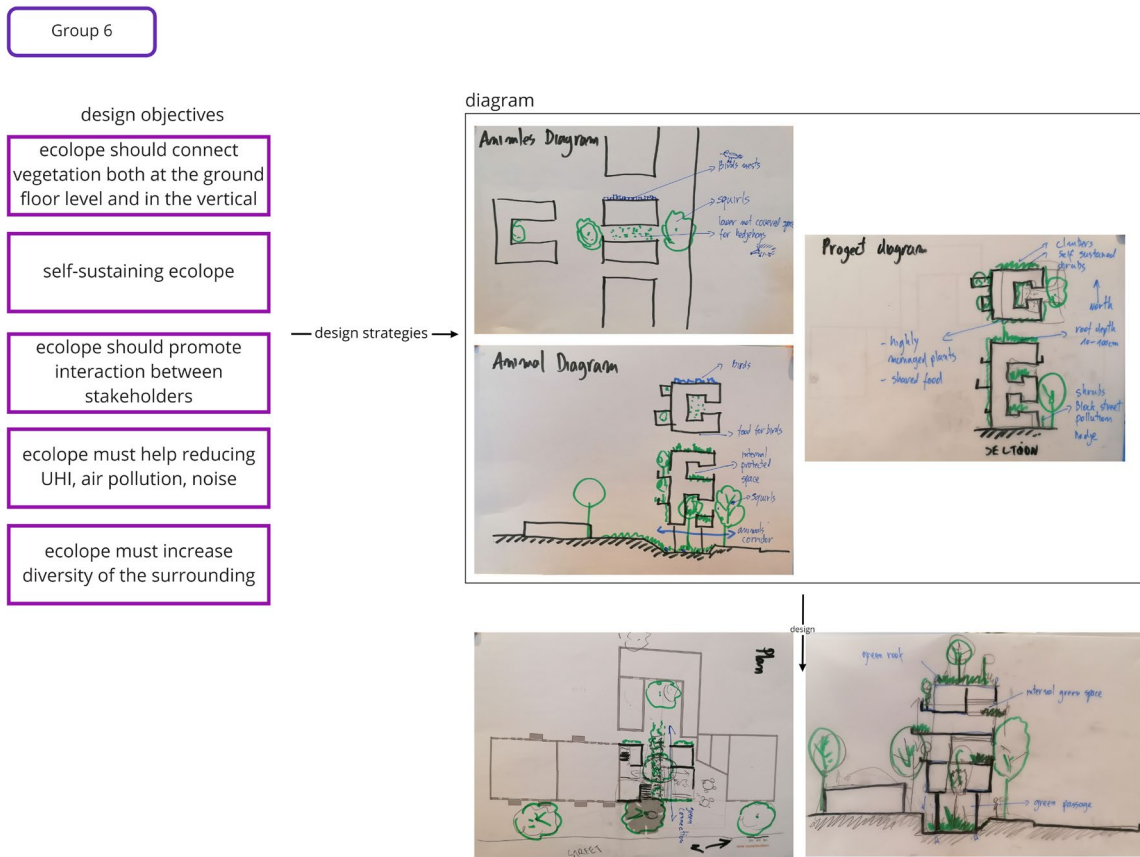


Figure 8. Design objectives provided by the online member group, both from the architectural and from the ecological point of view and possible solutions for the retrofitting option.



12.3 Workshops on the Design Workflow

Another relevant workshop arranged during the Barcelona meeting was focused on the design workflow from the user perspective: in particular, the discussion was centred on the role of some technical components (in particular the EIM Ontology and the Voxel model) in the design workflow and on how these components are related with the more “traditional” steps of a design procedure. In parallel, another key point discussed was the role of the ecological component in this process. The discussion started from a diagram (Fig. 10 below) that had been developed by a sub-group in advance with the aim of describing the main steps of a design process: starting from the site analysis up to the design development. In a series of subsequent online-workshops the workflow was refined and intensively discussed by all partners. Similar to the design game this measure can be seen as essential for internal communication because it allowed to reveal potential differences in the understanding of design steps and the role of specific ECOLOPES components.

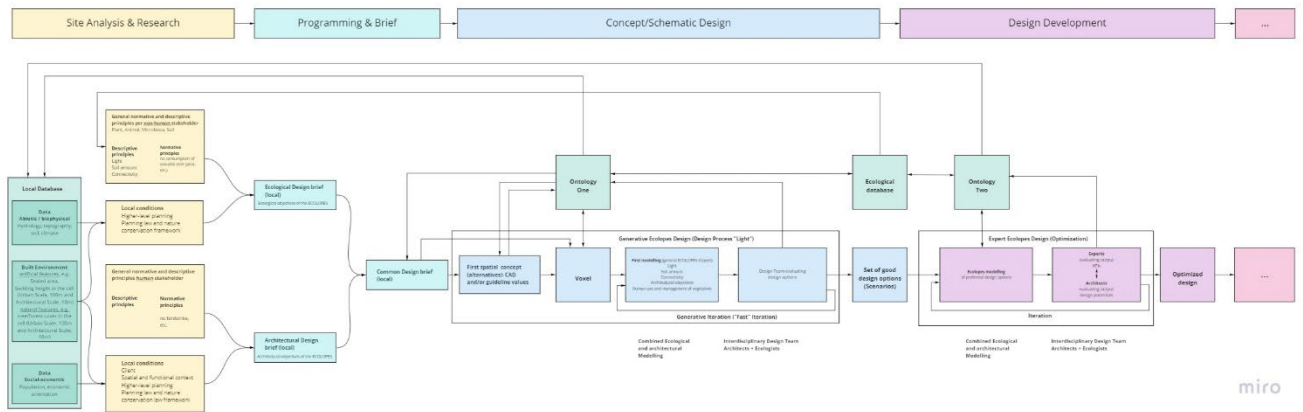


Figure 10. First draft of the design workflow diagram

During the discussion, several key points emerged:

- 1) the need to define all inputs and outputs for all the workflow component (especially for the technical ones)
- 2) the need of definition of both, a computational workflow as well as a user/design workflow
- 3) the need to introduce our non-human stakeholders as clients for an *ecolope* and to define a workflow that combines human and non-human needs.

As mentioned before, this workshop was fundamental also to highlight the peculiarity of the ECOLOPES design approach: there are not only humans as a main stakeholder, but also other “clients” like plants, animals and microbiota that are represented by the ecologists and their models.

The following diagrams, developed in the last months, show the differences between a “traditional” human-centred design workflow and the aspired ECOLOEPS design workflow.

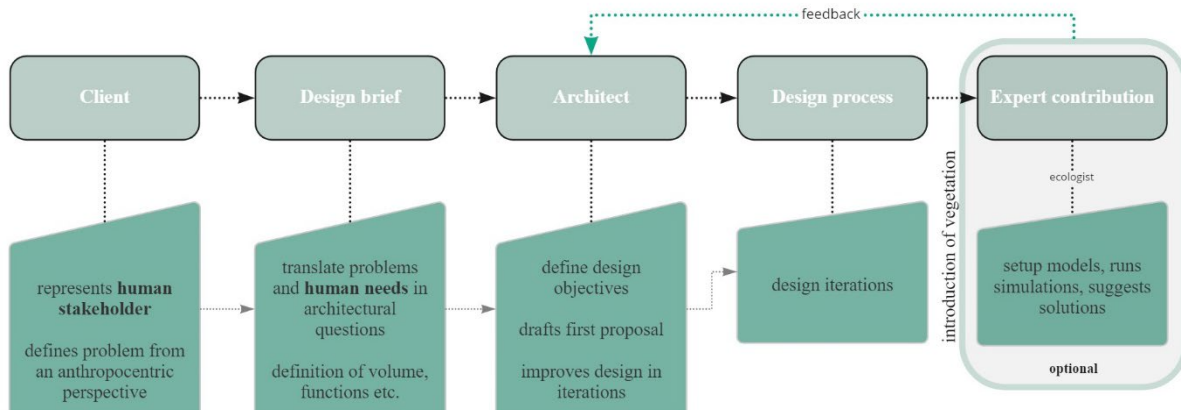


Figure 11. Traditional workflow for human-centered design.

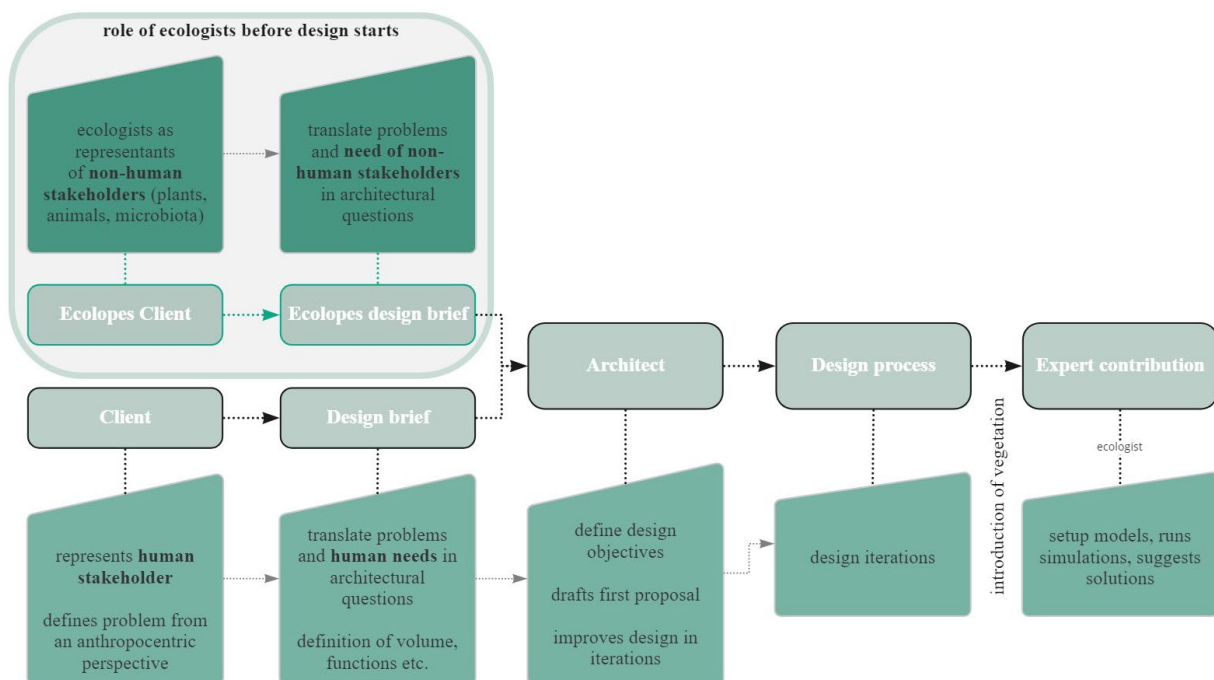


Figure 12. First draft of a non-anthropocentric, multi-species design workflow for designing an ecotope (conceptual base for the design workflow as presented in the report of the first year).

13 TEACHING ACTIVITIES

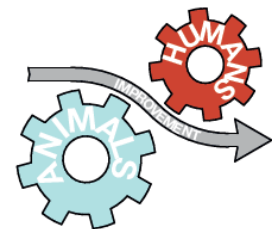
Already in the first year of the project, the research was integrated in different ways into various courses at the participating universities. Since project results have only been available to a very limited extent so far, existing (computer-aided) design approaches were used as the basis for design projects to explore what requirements designers have in principle for supporting tools to be developed in ECOLOPES. In part, the students also developed basic features of new approaches that inspire further research. Moreover, the integration into teaching also represents a crucial communication measure. This is because it makes it possible to communicate the possibilities, but also the challenges that come with the ECOLOPES approach to a group of young, future users at an early stage of development and to feed their attitudes, opinions and experiences back into the project. The following is a brief presentation of the courses conducted to date and the results achieved.

13.1 TUM

In the summer semester 2021 the professorship for Green Technologies in Landscape Architecture (GTLA) conducted a “Design-Research” studio in which students can develop their own project ideas based in the research topics of the professorship. An interdisciplinary team of an architect and a landscape architect focused on the ECOLOPES approach.



Starting from the concept of “Animal Aided Design” (AAD)³ the project “Isar wave – building with ECOLOPES” by Florian Fischer und Lennart Wolf, the life cycle and critical site factors were analysed for three target species and the natural habitats in the Munich region were derived in order to expand the biodiversity on the ECOLOPES building. Using a conceptual design approach that locates the three habitat types on the building, several urban designs were developed over the course of the semester. Supported by an evaluation matrix, they were checked for the best possible synergy between the two planning parties (people and animals) and optimised if necessary. Based on this evaluation, the best-rated concept was further elaborated in an urban design, combined with site plans and detailed sections. In the process, important design changes were reviewed again using the evaluation matrix in order to weigh up the impacts on the two planning parties, animals and humans. The following figures illustrate the approach by an exemplary design step.



Evaluation matrix preliminary design - Ecolopes Building

Draft Name: Perimeter block development		Not applicable (0)	Slightly applicable (1)	balanced (2)	Almost applicable (3)	Fully applicable (4)	Factor	Scorej
Human	Sufficient lighting for the use predefined in the concept	○	○	○	○	●	8	32
	Possible integration of a wide range of different open space uses	○	○	○	○	●	3	12
	Human well-being (backdrop of nature for mental recreation)	○	●	○	○	○	1,5	1,5
Animals	Undisturbed habitat structure for target species from the concept	○	○	●	○	○	8	16
	Interconnection of habitat areas among each other	○	●	○	○	○	3	3
	Transition into the landscape and adaptability of the building structure	○	○	●	○	○	1,5	3

Calculation: Sum humans * Sum animals =

1001

Figure 13. Impressions of the studio project “Isarwave”. Top: A possible design variant. Bottom: Draft of an evaluation table.

Representatives of all ECOLOPES partners were present at the final online presentation of the project. The fact that a possible design process of an *ecolope* was run through in general terms on the basis of an example contributed – despite obvious shortcomings of the project in terms of its ecological basis – in a very fruitful way to internal communication and was taken up in the measures described above (design game, workflow workshops).

³ Hauck, T. E. and W. W. Weisser (2015). "AAD Animal-Aided Design."



13.2 TU Vienna

At Vienna University of Technology, we are running a series of six consecutive master-level design studios and several master thesis projects. The first Ecolopes studio took place during the winter semester 2021-22 and focused thematically on the design of a kindergarten. The site for the project was located in the 23rd district of Vienna in Wienerwaldrand-Liesing near the Maurer Wald national forest. Five students were enrolled and produced four projects. Focus was placed on a systematic approach to site and stakeholder analyses. This resulted in the development of two distinct types of datasets: maps and networks. Maps describe conditions prior to design intervention and conditions resulting from design interventions. Examples include for instance a broad range of microclimatic conditions (solar exposure, wind exposure, etc.). For this reason, maps contain data that can support an iterative design process by serving as in-put and out-put for a generative algorithmic design process. Networks describe diverse design intentions such as the distribution and relation of building programs, human-nature interactions, ecological relations, food webs, stakeholder provisions, etc. For this reason, networks constitute datasets that can support an iterative design process by serving as in-put and out-put for a generative algorithmic design process. Based on these maps and networks students developed a design process that focused on correlating datasets.

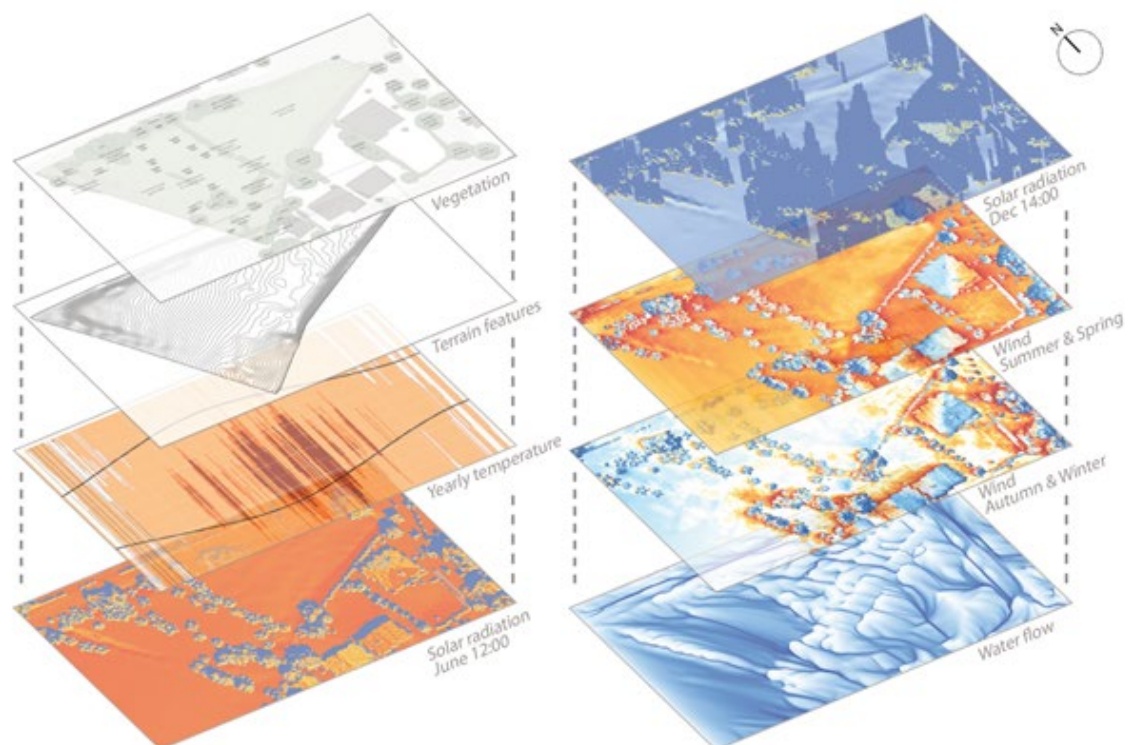


Figure 14. Example of maps and networks resulting from site analysis. (Students: Julianna Schuch, Filip Larsson)

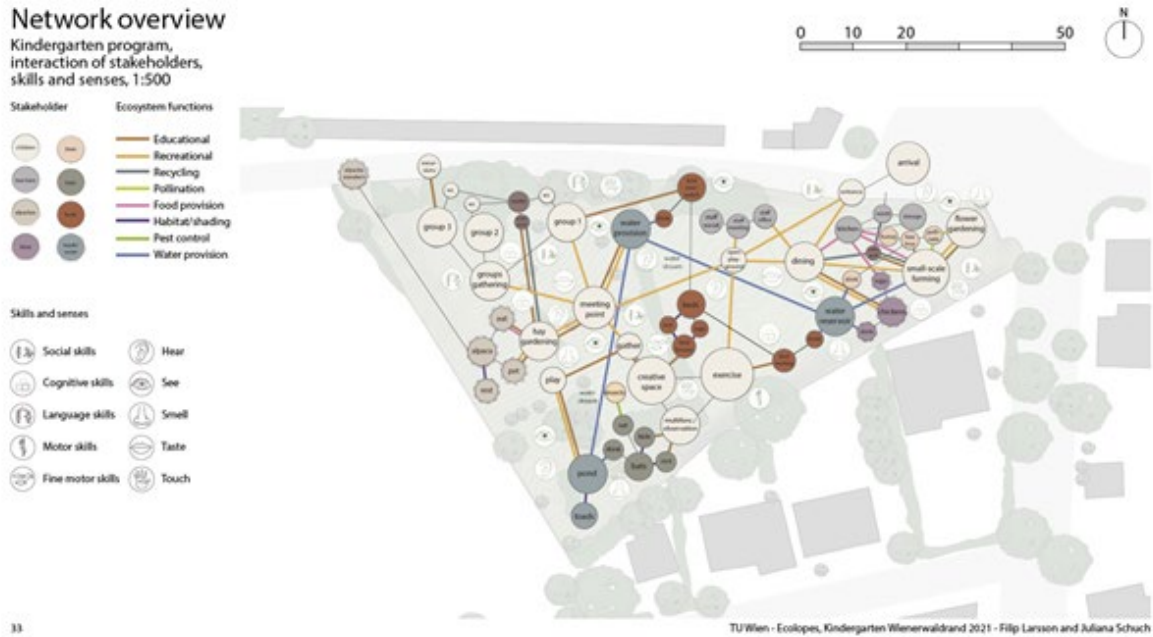


Figure 15. Example of combined building program and stakeholder interaction networks (Students: Juliana Schuch, Filip Larsson)

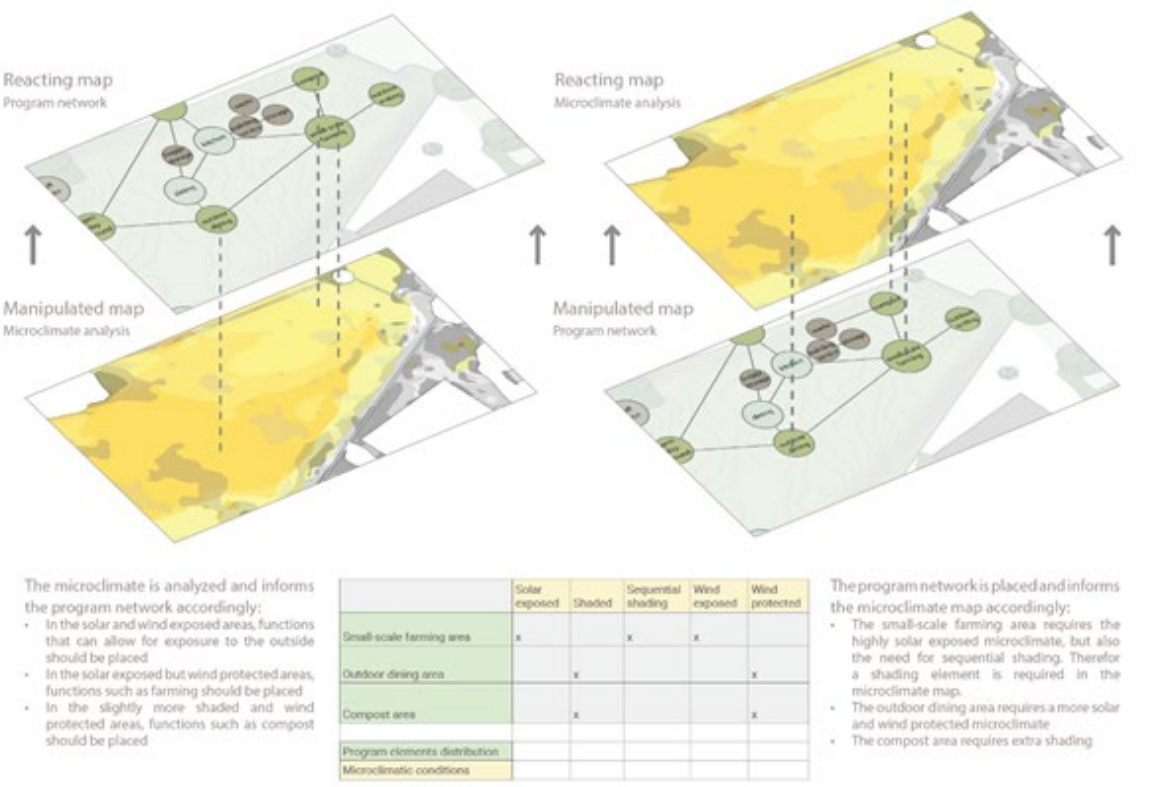


Figure 16. Example of two alternative ways of correlating two datasets in the design process (Students: Juliana Schuch, Filip Larsson)



Figure 17. Example of final design of a kindergarten (right) with a more detailed excerpt showing provisions for different species (Students: Victoria Nemeth)

The results were helpful feedback for the consortium in regard to the development of the ECOLOPES components and unveiled the challenges designers are faced with when addressing a multi-species approach with digital tools. Key results of the studio had been presented in the general meeting and representatives of the consortium (TU Munich, University of Genua) had been involved in the mid-term and final presentations. The software was provided by McNeel. The results are covered and discussed in more depths in D5.1 and will be documented on the project's website.

The second run of the studio that focuses on the same brief and site has started and will run throughout the summer semester 2022. During this second run focus is placed on developing algorithmic tools for working with maps and networks, while adding the dataset terrain. The latter implements an understanding of urban form as continuous terrain with architectures articulated as instances in this terrain. This delivers the basis for an ecosystem-focused approach to planning and designing multi-species territories and exigencies in conjunction with the transformation of environments necessitated by the need for construction. In this context several questions arise: (1) How can a continuous terrain be systematically described and organized as identifiable instances that can be transformed by design, while at the same time avoiding to establish a new system of physical segregation? (2) What can constitute meaningful input or data for transforming the continuous urban terrain through design interventions? (3) How can a step-by-step and iterative design process be developed that is based on the approach to 1. and 2?

We have laid the groundwork for developing these steps by identifying and adapting existing or preparing new algorithmic approaches for the design process, while implementing strong evidence-based grounding in the teaching under the guidance of Assistant Prof. Dr. Milica Vujovic from Vienna University of Technology.



13.3 Technion

In the winter semester 2021/22 an ECOLOPES studio with 10 Bachelor students entitled “Post anthropocentric 3D modular residential buildings” took place. The aim was to suggest a new approach for the conception of residential buildings by creating a synergy between three themes: 1. Ecolopes - multi-species approach to the building envelope; 2. 3D modular construction; 3. Developing a new approach for residential building design

The site for the residential building is 56 Rockah street, Ramat Gan. The program is a mixed-use residential complex where residential apartments are the large majority. The design proposal should follow existing building and city laws and include various sizes of apartments that could fit various types of individuals/families.

Regarding the ECOLOPES related aim an exercise took place in which the students developed a parametric facade system for multispecies stakeholders

The development process was performed in grasshopper and was based on data regarding selected animal species (mammals, birds, insects), plants, following six steps:

1. Definition of the dimensions of the facade system, grid, and facade elements.
2. Choice of a basic element initial geometry.
3. Definition of the parameters of the different stakeholders that influence the basic element's geometry.
4. Development of a parametric system that controls these parameters and development of a catalogue of different ecolopes envelope tiles for various stakeholder in different location of the building envelope according to ecological and environmental criteria.
5. Evaluation of the performance of the generated tiles in an iterative design process.
6. Generation of a catalogue of tiles based on specific design conditions based on the previous stages.

As can be seen from this procedure the studio aimed at testing the design workflow developed by the consortium as described above. Selected results are presented below.

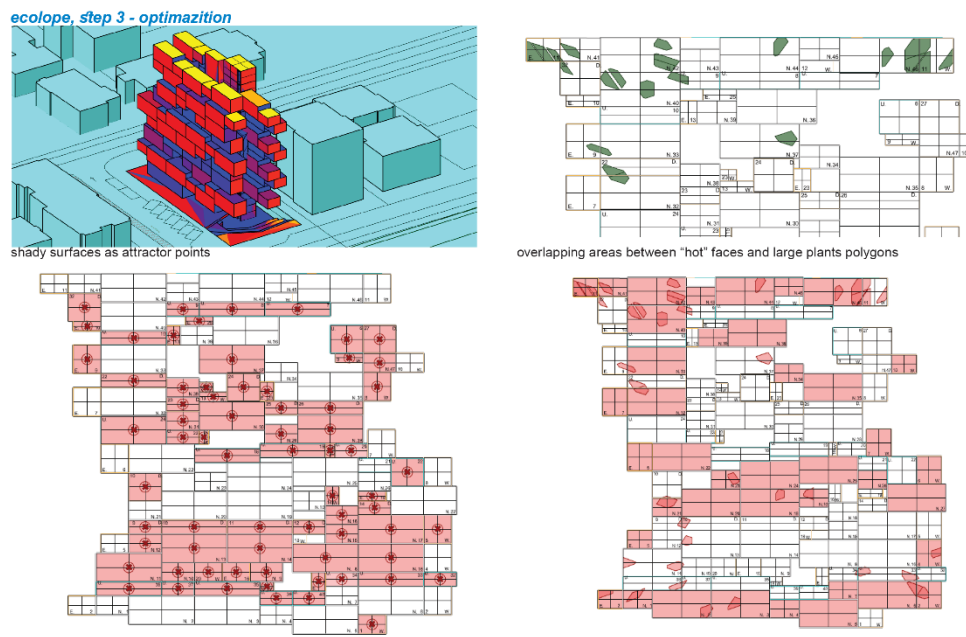


Figure 18. Project by Yoav Dabas. Shady analysis and its overlapping with the façade structure in regard to the planting concept.

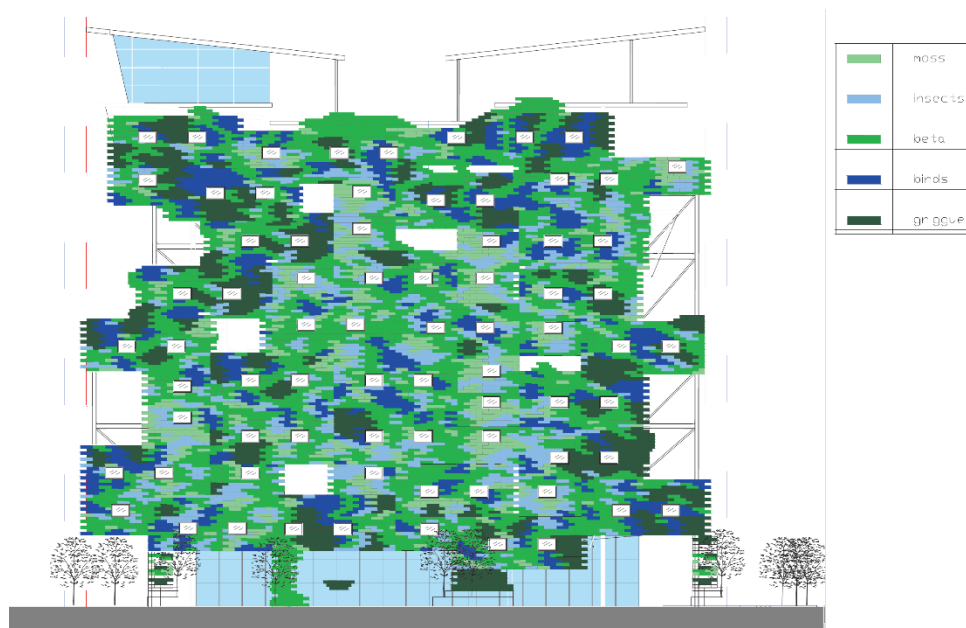


Figure 19. Project by Yoav Dabas. Disribution of modules (tiles) for different inhabitants of the envelope.

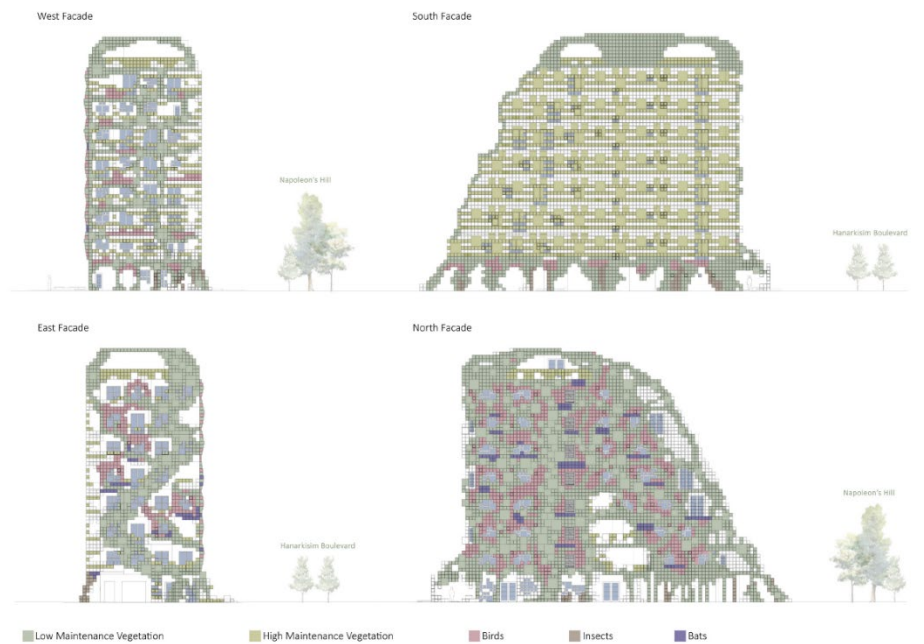


Figure 20. Project by Tetyana Marchenko. Elevations showing the areas for possible population of the envelope.

The quality of the results reflects the high motivation of the students to work on the topics of ECOLOPES. At the same time the experiences with the studio exposed some challenges: 1) designers and architecture students do not have adequate knowledge on ecology and it is difficult for a designer to adapt an eco-systemic way of thinking: to plan for processes that are dynamic and can only partly be predicted. 2) There is not enough design knowledge on artificial habitats for animals. 3) The most challenging areas were related to defining strategy for distributions of animals and insect habitats on the building envelope and especially the generation of a systematic approach for the multisystem envelope. These are highly important insights for the further steps of all partners, especially regarding the dissemination and exploitation.

Key results of the studio had been presented in the general meeting and representatives of all institutions from the consortium had been involved in the mid-term and final presentations. The software was provided by McNeel.

13.4 Lessons learned from the first year's teaching activities

The studios described above were the first teaching activities of the project. Despite their success they also showed that we still miss ways to integrate ecology with design in a “breakthrough way”. We still face important limitations: the methods applied are still very “architectural”, and the ecological knowledge used is quite basic and species-centered. The collaboration between architects and ecologists needs to be improved to go toward higher-level ecological objectives, i.e., objectives targeted at the scale of the ecosystem and reflecting ecosystem functioning; in this regard it would be very beneficial to integrate ecology students in the groups in a truly multidisciplinary ECOLOPES exercise. So far, the ecological concepts identified as important in the ECOLOPES (e.g. connectivity, scaling issues, the diversity of resources necessary for life cycle, “ecosystem approach”). Studios were implemented in a conceptual and simplified way, without using real ecological data describing the ecological



state of the site, e.g., to define realistic or ecologically profound objectives. This demonstrates how important it is to find ways to integrate the generated knowledge into design practice. The ECOLOPES tools that will result from e.g., WP3, 4 and 5 will help to close this gap.

14 CONCLUSION

14.1 Overall evaluation of KPIs

The following table compares the dissemination and communications actions of the first year with the entire KPIs for ECOLOPES set in the application for the whole 4-year project

Activity	KPI	% reached after 1. year	Comments
Number of ECOLOPES project website visits	9,000		No data yet
Average ECOLOPES project website visit duration	2 min		No data yet
Number of ECOLOPES website material downloads	360	0	So far no materials have been provided
Social media actions on LinkedIn, Twitter, Facebook, Instagram (tweets, blogs, posts, etc.)	360	ca. 25%	
Social media followers, across channels	1,200	Ca. 95%	
Number of key decision makers engaged (e.g. Ministry of Planning Bavaria)	20		Activity not started yet
Other stakeholder networks engaged: environmental groups (e.g. WWF, DGMB)	15		Activity not started yet
Number of leaflets (short pdfs, summaries, digital presentations) generated	20		Activity not started yet
Number of peer-reviewed research papers generated	15	(15%)	(under review/to be (re)submitted
Number of technical articles	20	(5)	1 Book chapter
Number of press releases created	6		Activity not started yet
Number of participants in scientific/academic conferences/seminars	10	10%	
Number of participants in trade and industry events/fairs/shows	4		Activity not started yet
Number of participants in workshops organized (20 workshops)	400		Activity not started yet
Showcase ECOLOPES in third-party events: eco-architecture, environmental planning, urban design, sustainable architecture, environmental health conferences and symposia	15		Activity not started yet
Number of participants in online streamed events (5 events)	250		Activity not started yet
Number of participants in the final closing conference	100		Activity not started yet

14.2 Evaluation of the status quo

In light of the table above the dissemination activities regarding the website and social media are clearly within the expectable range after the first year, in some cases (followers) already in



Deliverable number and version

the range that was expected for the end of the project. Also, the publication activity is on its way, taking into account that some preparation time is necessary to publish substantial preliminary results. The lecture series will contribute to wider outreach and it is expectable that the planned number of participants in online streamed events will be surpassed.

Important next steps are a more specific definition of the target groups and stakeholders in order to focus the dissemination actions more precisely and to start the specific networking activities (involving decision makers, environmental groups etc.).

The measures used to facilitate internal communication have in many cases contributed to create a common understanding of targets, issues, chances and challenges but need to be consequently refined and applied in order to solve misunderstandings and to guarantee a synergetic and effective collaboration between the different work packages and disciplines.