School as Forest - Forest as School

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ABSTRACT

Most important problems of these days converges at just one notion: Education. Everyone talks about it and its definition, methodology, improvement, restructuring and even necessity of reformation for it.

All this turmoil makes us reach to ask question of what is important for 21st century children. This study aimed at offer a new design language to school architecture by questioning relation between student – teacher – space in our era that questioning of education systems and searching for new ways still continues. In this study, by considering architecture as a notion belongs to both social and natural science, beyond recent school place perception, shaping an education space appends freedom and flexibility to school architecture, and self-determines borders and usage by utilize both aesthetic, technologic and multidisciplinary aspects of architecture was targeted.

The aim was to position one of the most effective disciplines on structuring of society, the architecture, as base origin of education and refer on other fields, thereby not in terms of design and function but by analyze the problems undergone by whole world and worry all humanity like refugee problem, climate change, scarcity of natural resources, crass consumerism of society.

No matter in which country you are when said “school architecture” the first thing comes to mind is a yard surrounded with fences/walls and usually this “yard” is paved with asphalt/concrete or with a bit of luck grass or stone. Rectangular classrooms ordered by the sides of a long corridors and in those classrooms school desks like beads-on-a string and a stand for teacher is in almost everyone’s mind as a place spend most of their childhood. Nearly nothing different in this structure from a prison or a factory. Perhaps spending the most joyful time of childhood, a time that human mind is so productive and open and knowledge acquisition level is so high in such a place is biggest infortunium of us.

How should be schools of future? How should be designed a place that throwing together people from all strata, integrative, offering chance to all individuals to self-fulfillment alongside of learning and reach them to be conscious from a living body that carries consciousness. Is it possible to design an education space that makes people to think if there is/can be any truth except their absolute truths or if there is anything not thought by anyone else by examining present world’s educational values. Can a place which children are grew like children, live their young ages with dreaming, generating, playing games joyfully, away from societal insisting, imposition of system and obligations build? School should designed by which values taken as bases so humanity can grow as individuals who can perform sustainable solutions about future in era which they live?

In consideration of these questions, we will carry into future individuals who are not lose their curiosity about nature and what is happening around them, their imagination ability and excitement by opening new doors to education space design in a place that deserves to be 3rd teacher.

KURZFASSUNG

Die größten globalen Probleme unserer Zeit sind auf irgendeine Art und Weise „verwickelt“ unter einem Begriff - Bildung. Alle reden darüber. Deren Definition, Methodologie, Weiterentwicklung, Umstrukturierung oder sogar Notwendigkeit für eine Revolution.

Dieser Aufruhr bringt uns zu der Frage, was überhaupt für die Kinder des 21. Jahrhunderts wichtig ist. In einer Zeit, in der Bildungssysteme auf der ganzen Welt hinterfragt werden, zielt diese Arbeit darauf ab, der Schularchitektur eine neue Gestaltungssprache zu widmen, indem die Beziehungen zwischen Schüler, Lehrer und Raum kritisch beleuchtet werden. Mit der Annahme, dass die Architektur sowohl den Sozial-, als auch den Naturwissenschaften zugeordnet werden kann, wird versucht ein Ort zu schaffen, welcher der Schularchitektur Flexibilität und Freiheit verleiht. Ein Ort, der sich von der Raumwahrnehmung heutiger Ausbildungsstätten distanziert, seine Grenzen und Nutzungsmöglichkeiten selbst definiert, der Teil der Ausbildung ist und somit von den ästhetischen, technologischen und transdisziplinären Richtungen der Architektur profitiert.

Egal wo man sich befindet – wenn es um Schularchitektur geht, kommen den Menschen ähnliche Bilder in Gedanken. Ein umzäunter bzw. ummauerter “Platz” belegt mit Asphalt oder mit etwas Glück mit Grünflächen, Klassenräume, die entlang von langen Korridoren aneinandergereiht werden und innerhalb dieser Räume von vorne nach hinten gegliederte Reihen sowie ein Lehrerpult ganz vorne. In diesen Orten, die sich in den Erinnerungen festhalten, verbringen die meisten Leute den Großteil ihrer Kindheit. Es gibt beinahe nichts, was diese Art von Architektur von Gefängnissen oder Fabriken unterscheidet. Wahrscheinlich ist es eines unserer größten Unglücke, den friedlichsten, produktivsten, aufmerksamsten, kreativsten Lebensabschnitt, nämlich die Kindheit, in einem derartigen Ort zu verbringen.

Wie sollen die Schulen der Zukunft aussehen? Wie soll ein vervollständigender Raum geschaffen werden, der Menschen aus allen Lebensbereichen an einen Ort bringt, wo jedem Einzelnen neben dem Lernen ebenfalls die Möglichkeit zur Selbstverwirklichung gegeben wird und den Menschen von einem Wesen mit Wissen zu einem Wesen mit Bewusstsein antreibt? Ist es nach einer Untersuchung von Bildungswerten der heutigen Welt möglich, einen Ausbildungsraum zu gestalten, der die Menschen abgesehen von den „offenkundigen“ Wahrheiten die Frage stellen lässt, ob es möglicherweise andere Wahrheiten auf der Erde gibt bzw. geben kann oder etwas entstehen könnte, was bisher noch nie ausgedacht wurde? Ist es möglich abseits von Gesellschafsdruck, Systemzwang und Pflichten einen Ort zu konzipieren, an dem das Kind ein Kind sein kann, sich die eigene Jugend vorstellen und produktiv, spielend, mit Freude leben kann? Auf welche Grundwerte basierend sollte eine Schule gestaltet werden, damit der Mensch in seiner gegenwärtigen Zeit als ein Individuum aufwachsen kann, das nachhaltige Lösungen für die Zukunft entwickelt?

Angesichts dieser Fragen werden wir neue Türen für die Gestaltung von Ausbildungsräumen öffnen und Menschen, die ihre Neugier für die Natur und die Geschehnisse im eigenen Umfeld, ihre Aufregung und ihre Vorstellungskraft nicht verloren haben, an einem Ort, der es verdient hat, „dritter Lehrer“ zu werden, in die Zukunft tragen.

CONTENTS

PREFACE

Our journey with my professor Takaharu Tezuka, which started with ‘School Without Corridor’ project at Vienna University of Technology 3 years ago, afterwards continued with the master thesis project you are currently reading. In this process, I took an imaginary journey to Istanbul, where I was born and raised, to my travels between concrete buildings to school, to the days that while I was a fidgeting child with the desire to move all day long, I had to listen and understand some information, with 40 other children and without making any noise, given in a quite narrow classroom between four walls, to the moments that fueled the excitement within me, sometimes from the plants and animals that I saw among the buildings to the books full of interesting information I found in the library of our house and to reading them again and again.

What we often do as adults is to look at our own childhood experiences with the eyes of an adult, to try to understand today‘s childhood and children with a mind that has evolved / changed our emotions from that time until today and with partial evaluations. For this reason, it has become the primary goal to understand the dreams, expectations and problems of modern-day children for space designers, content producers and people producing alternative ways of learning for children.
For this purpose, I talked to the children in the schools I visited in Istanbul and examined the status of the primary schools. Talking to children about their dreams and the school in their dreams, making drawings together does of course fall short to reach their world, but this gave me a basis to understand and some ideas. For me, the biggest inspiration for this project was their colorful and exciting worlds and listening to me with full of curiosity.

In addition to school visits in Istanbul, I also visited the centers where refugee children receive temporary education before transition to school. I realized how strong the children were despite the painful events they experienced, and they were full of desire for learning new things and for life. These children who stuck between the ‘four walls life’ between school and home don’t put any walls into their dreams while they are talking about them, on the contrary, they were inspired by unusual events in movies they watch or books they read, often without limits and far from the real world. While one of them was talking about a school which you can climb up the walls and fly down, the other was talking about a school with 100 cats and we were sometimes going into a school with 100 cats and sometimes a boiler in which you can swim in vegetables. The best job I could do as an architect was to try to design a school that would keep these children‘s dreams alive and to be inspired by what the children actually wanted to tell me.

This contact with children led me to understand the reality that existed, and to think of the possibility of a world beyond this reality, just as in a thousand space and time games that they had fictionalized in their minds. Prior to the project design, the ideas I got from Ivan Illıch‘s Deschooling Society and John Taylor Gatto‘s Weapons of Mass Instruction books have had a huge impact on my educational inquiries. Today, we have to take children out of prison-like structures called school buildings and leave them to nature, to learn by experience, to a place where they will spend more time in their own imagination, to the nature. There are three things children should meet at an early age. The first one is astronomy.

Since human beings have polluted the universe above their head with their own artificial lights, our horizons have narrowed. We separated ourselves from nature and were trapped in our rectangular parallelepiped. The child who is disconnected from the sky is also disconnected from art and philosophy, and his imagination becomes infertile.

The second is biology. We've lost the touch with the soil under our feet. It is no more "ashes to ashes dust to dust". Children no longer establish a bond with other creatures on the planet of which they are a part. They cannot feet in the land with bare foot. The land, which is clean enough that we can perform wudu with it, is shown to children as dirty by their families. The children are afraid even of ants because they do not know the land and the living things in it. They can't love it because they can't have the chance to meet. They cannot protect it because they don't relate it with the bond of love, and now in the middle of The Big Ocean we have a floating 7th continent consists of piles of plastic.
The third is philosophy-logic. Human is a creature that makes philosophy and science instinctively. We ask the question "why" every new thing we face. We investigate the mechanisms behind it asking the question "how". We need to learn to negotiate and reason, to make analogies, to compare, to make inferences so that we can build a healthy relationship with the universe and with other people.

Children are learning to think like adults instead. Because we have a black hole called "the curriculum". An eddy called "learning outcomes."

In a wall-less world that will save us from this eddy, I dream of a childhood away from adult viewpoint, touching the universe with all its senses.

The snow is melting
and the village is flooded
with children.

Kobayashi Issa, 1763

CHILDREN

CREATIVITY

From nature or nurture?

In recent years, many studies have shown human beings to have natural born creativity and the childhood period to be the highest level of ability and creativity. In this section, we will examine where creativity comes from and its importance using scientific data.

We are born creative geniuses

In 1968, George Land (Land& Jarman, 1992) gave 1,600 five-year-olds an imagination test to perceive how they scored in terms of being exceptionally innovative. This was the same test NASA utilizes for choosing creative engineers and scientists. The same children were re-tested when they were 10 years old (1978), and then again at 15 years old (1983). He later tried 280,000 grown-ups to perceive how they scored in terms of being profoundly imaginative (see Fig. 1; Vint, 2005; Kerley, 1994).

Age group tested	Number tested	Year of testing	Percent who scored in the 'highly creative' range
5 year olds	1,600 children	1968	98%
10 year olds	1,600 children	1978	30%
15 year olds	1,600 children	1983	12%
25+ year olds	280,000 adults	1985	2%

Fig. 1

In George Land's exploration of the 1,600 five-year-olds tested, 98% scored in the range of "highly inventive." When re-testing these same youngsters five years later, only 30% of these now ten-year-olds were appraised as "highly inventive." By the age of 15, only 12% were positioned in this class; while a minor 2% of 280,000 adults over 25 years old who had gone through similar examinations were still at this level. Land concluded non-imaginative conduct to be found out. From this and comparative studies, we can infer that inventiveness is therefore not adapted, but instead unlearned.

In order to understand the decline of creativity over time as mentioned here, we will search for answers by examining some scientific research about the brain that leads to the developmental processes of the brain and the factors that cause humans to lose creativity from the moment of birth.

Brain Development and the Role of Experience in the Early Years

Neurologically, the early years of brain development and the role of experience have been recognized to form the basis for the future of innovators and creative thinkers. Strong evidence exists that young children in the first ten years of life are in the creative development phase of the brain, which is still being wired (Doidge, 2007) when critical times are at hand.

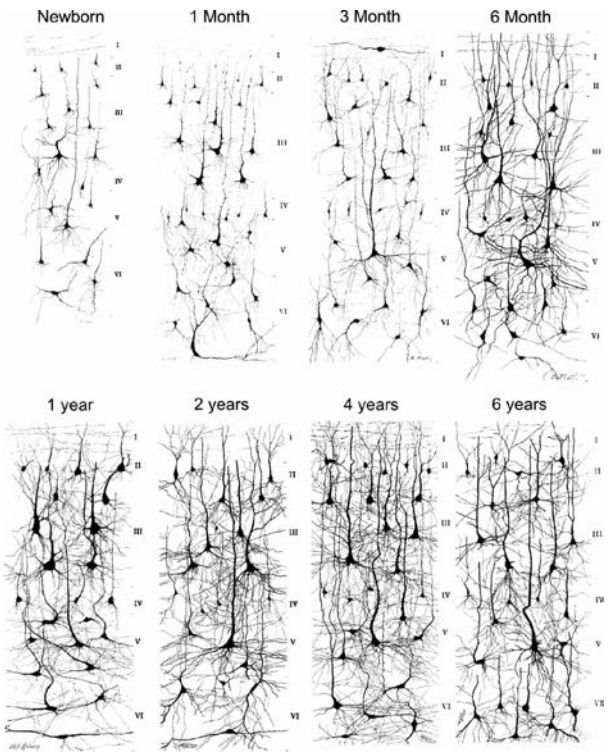

Fig. 2

Brains are formed over time. The fundamental architecture of the brain is built through an ongoing process that begins before birth and finishes by adulthood. Simpler connections and skills are initially developed, followed by more complex circuits and competences. Over 1 million new neural connections occur every second* in the first few years of life.
After this period of rapid expansion, connections are decreased through a process known as pruning, which makes brain circuits more effective.

The brain's architecture consists of billions of connections around various areas of the brain between individual neurons. Such connections allow rapid communication between neurons that specialize in various brain functions. While new connections form throughout life, unused ties continue to be tapped and the early years are the most active period for forming neural connections. Two-year-old children have as many synapses as an adult, and three-year-old children have billions more. The brains of young children are dense, complex, and neural, and more complex than at any other time in life (Trawick Smith, 2003).

Indeed, so many synapses are found in young children. Approximately 60% of a baby's energy is used by the brain, and adult brains only need 20%-25% (Brunton, 2007). Children and teenagers lose far more brain synapses than they gain from development. As teens turn eighteen, about half their child's synapses have been lost. Brain connections that are not used and not actually needed simply vanish. This pragmatic use it or lose it is beneficial because links that are used are improved and maintained, while connections that are not used are permanently lost (see Fig. 2).

The brain's many functions do not develop at the same time, nor do their developmental patterns follow the same time frame. Because this dynamic process is nonstop, the percentage of the brain that has been developed at a certain age cannot be determined. Most specifically, early connections may provide a strong or weak base for later connections (Schunk, 2012).

In particular, brain development is considered to start weeks after the onset of puberty and to finish by early adulthood. The fundamental structure of the brain is primarily laid out during prenatal and early childhood, and neural networking continues on a long term basis. The brain's many activities evolve non concurrently and obey the same time frame of their developmental patterns. Although specific mechanisms of sensation and vision are developed as kids reach childhood age, other structures such as those associated with memory, decision making, and feeling also evolve well into adolescence. However, the basis for many of these skills is built in the early years.

The number "more than 1 million new neural connections per second" updates an earlier estimate of 700-1,000 new connections (which still appears in some of the **Center on the Child Developing Center, Harvard University's printed publications, but as of April 2017 has been updated online and in all PDFs).*

Early childhood is especially important for the development of a healthy brain, as development continues in the early years of growth. In these early years, the fundamentals and experiences of the sensory and perceptual systems are formed, which are critical to language, social behavior, and emotion. This does not mean that further growth will not affect these behaviors interactions later on in life often play an important role in how the brain works. Yet, experiences in early childhood influence the brain's architecture development in a way that does not happen later.

Neural circuitry is most responsive to the effects of outside knowledge for better or worse during the early period of receptive growth. Healthy emotional and cognitive growth is characterized by sensitive, trustworthy relationships with adults during these periods, while chronic and extreme stress can interrupt normal brain development. In contrast to children who have never been institutionalized, children who have been raised soon after birth by orphanages with circumstances of extreme abuse show significantly reduced brain activity (Center on the Developing Child, 2007).

Genes and experiential interactions shape the brain. While genes provide the blueprint for how the brain forms circuits, repeated applications strengthen these circuits. Children's interactions with their parents and other caregivers in the family or community are a fundamental ingredient in this developmental process. When sensitive treatment is insufficient or if responses are inconsistent or inadequate the brain structure does not evolve as expected, which can contribute to cognitive or behavioral disparities. Gens and experiences ultimately co-operate in the building of brain architecture (Center on the Developing Child, 2007).

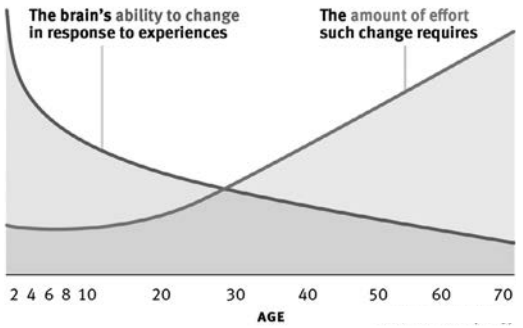

Fig. 3

LEARNING

Learning continues permanently from the start to the end of life. During this period are many factors that help learning. We know that learning is inferential; we do not observe it directly but rather through its products and outcomes. This section covers ways to assess the products or outcomes of learning. These methods include cognitive learning, active learning, and self-directed learning.

Spontaneous learning

In the process of active and even spontaneous learning, without adult supervision and with their peers, children complete a healthy learning process by first recognizing the special circumstances of a topic and then generalizing these special circumstances.
One of the most salient things about children is that they can learn from almost everything; while watching their older siblings play, learn how to speak by listening their parents, how to wash themselves or to feed themselves by watching their caregivers. This kind of knowledge is called ‚self learning'. Especially children at/under the age of 3 years continuously learn unconsciously.
Spontaneous learning was first invented by Vygotsky - he wanted to show the difference between ‚unconscious' learning at home, the learning at school and ‚scientific' learning. Much of what children learn before starting school is based on what they see other people do, their learning goes through daily experiences and does not necessarily have to be planned. When children go to school, their learning is based on what the educator believes they should learn; learning is planned and information is provided using rules and systems.
There is also a relationship between self learning and scientific learning. They should be done to help one another. One example that is often used to illustrate this is the concept of day and night. A child in the self-learning stage associates the daytime with sunlight which means it is daytime when sunlight is available, so it is nighttime when there is no sunlight. Children do not question why it is, they believe that it is only the daytime when the sun is there, and then the sun goes away. However, when children go into the scientific stage of learning, they learn that the Earth revolves around the Sun. They learn it not only by looking at the sky, but through pictures and graphics and diagrams. They learn this information by visualizing Earth with physical objects, such as a light on a globe rotating away from the Sun. However, without the first learning in the spontaneous stage, learning in the scientific stage would be much more difficult! Therefore, children need to witness positive activities in order to learn in the best possible way. Playing in the mud helps children learn about the mix of rain and soil and nature, playing with blocks helps children learn colors, to count and shape, play house helps building social relationships. This spontaneous learning in early childhood and early years helps to shape the child's future learning.

Active learning

The opportunity to make your own choices and have a capacity for environmental impact is necessary to learn actively and efficiently. Active learning is essential.

Benware and Deci (1981) tried to develop an active and a passive motivation in their study on the motivating and learning impacts of these sets. To create the active learning orientation, they asked the subjects to learn some material in order to teach others. To create the passive set, the students were asked to learn the material for testing. They argued that if people learned with the expectation that they would teach other people, they become more involved in learning the subject because they prepare themselves to have an environmental impact. They need to be effective and successful. The students in both classes spent the same amount of time learning, but the results showed that active students were significantly more motivated and happy compared to inactive students. Even more importantly, the active group's conceptual learning was much greater than that of the passive group, although the two groups were interestingly the same with respect to rote learning. Passive students memorize well in memory oriented tests and therefore do not achieve the conceptual understanding that characterizes active learning.

Additionally, the active student never did actually learn the material; he just learned through expectations, yet still claimed to be highly motivated and to have completed his learning.

While autonomous learning does not mean abandoning structure, creating structures that allow freedom within limits (Ginot, 1972), allowing children to solve their own problems, providing guidance, and enabling children to evaluate their own skills are noteworthy. Such structures instead focus on the means and the information instead of control. It focuses on results. With such structures, children are more likely to learn using their own curiosity and will enhance the results of learning and greater satisfaction (Deci, 1984).

Self-motivated learning

Lifelong learning is a reality for young children. Children are curious, are interested in stuff, ask about every new discovery, and bring many questions to their family.
Nevertheless, it seems that older children have a tremendous aversion to education, and a great deal of learning they do relies on teachers' and parents' orders, qualifications, and gold stars or different kinds of public appreciation.

When did the passion and deep desire to understand and learn the universe fade away? Why does their education appear so closely linked to demands, controls, and rewards?
Essentially, people can have one of the three motivational states at any given time: intrinsic motivation, extrinsic motivation, or amotivation. When the incentive for a task is intrinsically motivated, it seems to be part of the task itself. The random sensation and thinking that go with the operation is no different from the reward.

Intrinsically-motivated actions are based on how people imagine themselves to be knowledgeable and self-determined (White, 1959; deCharms, 1968; Deci, 1975). Examples for this type of motivation include excitement, discovery, and recreation.

Children‘s self-directed learning is paradigmatic of their behavior being active, involved, open-minded, surprising, and wondrous; it leads children to be in control of their environment and gives them the tools that enable them to be more autonomous.

If people are extrinsically motivated, they strive for extrinsic incentives such as money, recognition, popularity, acceptance, or the prevention of negative events. Their conduct appears to be a means to some end. When people are extrinsically motivated, the pressure in¬creases and the id is less involved. Their emphasis is not just on the operation but also on the desired impact. Elderly learning seems more alien and is often viewed as a means of good ratings for teachers’ or parents’ approval or for fulfilling deadlines and demands. Curiosity and enthusiasm are no longer reflected in reading. The issues with extrinsically-motivated education, as Condry and Koslowski (1979) noted, are that teaching is less thorough and students seem to lose control of the state of learning.

People with amotivation tend to be passive and unresponsive. They seem to think they have no significant impact on their world, so they don‘t try. They feel helpless and alone and are easily interrupted. Their learning is slow and painful.

Most schools have kids who demonstrate the following standards. There are curious children who are interested in their work and who want to do something more. They seem inspired and interested in leading their own education. Other kids seem to do only what they‘re told to do and accept no responsibility. They are conformists and frequently high-ranking, but depend on guidance and affirmation from the teacher. They are extra motivated and depend on external contingencies for their behavior.

Clearly, the ideal classroom would have children who are intrinsically motivated most of the time. Yet the ideal class room is hard to find. Indeed, many classrooms are filled with children who have extrinsic motivation or amotivation. How does this come about, **and what are the possibilities for structuring classrooms that promote intrinsically motivated learning?**
To answer these questions we turn to an exploration of the effects of the environment on people‘s motivation.

Interestingly, a second type of behavior (i.e., rebellious or defiant behavior) is dependent upon external contingencies. Such children are socially focused, so they can do the oppo¬site of what is expected. Last but not least, we will consider the many kids in most schools who tend to be inactive or silent. They do not work very well because it seems like too much for them and because they are intimidated by the content.

In the perfect school, of course, we would find children who are naturally inspired most of the time. They appear to be powerless. Nevertheless, it is difficult to find the proper classroom. In reality, most schools are full of extrinsic or non-motivated kids. How does that happen? **And what are the possibilities for structuring classrooms that encourage intrinsically motivated learning?**

We will examine the effects of environment on human motivation in order to answer these questions.

CURIOSITY

Curiosity is an underlying stimulating factor that has tremendous potential to increase learners' learning. This section reflects on cognitive and pedagogical research related to adult education and on the concept and facts that explain interest.

Curiosity is an intrinsic motivating element that can improve learning. This section deals with philosophy and proof of inquiry, concentrating on the academic literature in psychology and pedagogy regarding adults.

Curiosity and psychology

Researching various approaches to the topic that have originated from psychology is important for understanding the relationship between curiosity and education because it is this philosophical framework that usually forms the basis of pedagogy. The emphasis on interest, as noted earlier, is not recent, as it has been able to be perceived as being of primary importance in reading (James, 1890). The eminent child psychiatrist, Jean Piaget stressed the importance of imaginati¬on in the creation of childhood cognitions in the early 20th century. He used different terms to refer to curiosity and exploration behavior, especially linking them with the assimilation process and referring to the two ways that the children adapt or learn about the world together with accommodation (Gorlitz, 1987). Additionally, Russian psychologist Lev Vygotsky stressed the role that adults play in promoting children's exploratory behavior (Henderson, 1984). Vygotsky suggested that cognitive abilities for children should not be set, but exist in collaboration with adults, from independent performance to what can be achieved. This means investigating and increasing childhood interest will improve intellectual abilities (Vygotsky, 1978).

In the field of child psychology and applied aspects in education, both Vygotsky and Piaget have had enormous effects. Yet theory exists in particular to explain the development of cognitive processes in the early years and understands adult curiosity, such as can be evoked through university studies, to be less useful for academic information. However, the importance of curiosity and exploration as research topics by two major names in the history of psychology should be noted. Most schools have kids who demonstrate these standards. There are curious children who are interested in their work and who want to do something more. They seem inspired and interested in leading their own education. Other kids seem to do only what they're told, but they don't accept responsibility. They are conforming and frequently high-ranking, but depend on guidance and affirmation from the teacher. They are extrinsically motivated and depend on external contingencies for their behavior.

Curiosity and Pedagogy

Curiosity generally increases scholarly learning and is almost axiomatic. In fact, two authors (Schmitt & Lahroodi, 2008) are at this point; they have reported teachers to also favor learning approaches that promote interest and have found inquiry to be instrumental to and even necessary for training, examination, and information. As seen, different approaches are found on the study of motivational attitudes, such as interest from psychology. Most of the special educational research has traditionally been linked to curiosity as a psychometric property and has almost always focused on school aged children (Gorlitz, 1987; Henderson, 1984; Martin & Saljo, 1976). Ironically, interest that has been assessed as an attribute is closely linked to intelligence (Day, 1968) and has originated from this body of research. However, while Friedmans stated interest to be more essential than intellect at the start of this post, testing school children has shown IQ to actually be more important in determining grades (Gentry et al., 2002). However, no similar studies on adult learners are found to provide proof of this interaction.

A variety of general knowledge questions and a range of questionnaires relating to interest, anxiety, and poverty have been posed by a sample of university students. The students were unable to answer questions on general knowledge but did have a feeling of knowledge, connection with tension, and curiosity to find out about the answers (Litman, Hutchins, & Russon, 2005). The way information is presented may influence people‘s curiosity, and therefore has relevance for education and training. A study by Berlyne (1954) over 50 years ago in fact established a direct link between curiosity and learning. He found that answers to questions initially classified by test participants as more confusing would be better remembered later.

These findings indicate that engagement in learning can increase by encouraging people to think more about the given content and to have consistent associations with theories and imply discrepancies between deep and surface learning (Marton & Saljo, 1976), as well as cognitive approaches to deep information processing that lead to increased learning (Craik & Lockhart, 1972). According to the concept of information gaps, learners can find answers and have to explore the subject aggressively in order to solve their interest when posed with knowledge gaps. These ideas overlap with modern instruction, curricula, and education as based on student curiosity, although from academic research. These include a variety of similar academic and teaching strategies that include terms such as accessible enquiry training and leaning on inquiry (Brew, 2003). Different instructional approaches stress the learner and having learners discover their own research methods and concerns. Considering the above mentioned findings and theories on human curiosity, such methodologies can be seen to help increase students’ learning. Curiosity plays a key part in the progress of inquiry based education, and is evidently a driving force for a complex study of student education (Zion & Sadeh, 2007).
Results from curiosity psychology can be effectively used to guide teaching practices and to encourage students to search for information in a wide range of educational contexts. In particular, investigative approaches like problematic learning seem to be consistent with theories and proofs on effectively stimulating students’ curiosity. Simple tools, such as daily input and reviewing current knowledge from learners may help teachers raise students’ interest even without shifting paradigms.

The crow has flown away:
swaying in the evening sun,
a leafless tree.

Haiku by Natsume Soseki (1867-1916)

EDUCATION

OVERVIEW OF THE EDUCATION SYSTEM IN TURKEY

The education system in Turkey has undergone many changes since the foundation of the Republic in 1920. On the 1st of November 1928, “the Alphabet Reform” took place and the Latin alphabet superseded the Arabic alphabet in Turkish that is the official language of the Republic of Turkey. For Turkey, which was in the foundation period at that time and was generating new policies in all areas, this situation had effects on the educational policies and caused re-establishment of the Alphabet Reform educational policies independent of the past.

The Turkish school institution gained its main form today at the end of World War I, mainly within the framework of Atatürk reforms between the years of 1923-1930 and has continued its development without any significant change until today. Today’s school system, reconstituted together with the establishment of the new Republic of Turkey, is completely different from the traditional school institution of the Ottoman Empire, which was in a separate social, economic, political and cultural order.

We can evaluate the Ottoman Empire’s school institution in two separate periods. The school institution until 1839 represents a feudal-theocratic order in broad strokes. There were “Sıbyan Schools (Ottoman elementary-primary school)” where people from all strata could have education and “Madrasahs (Moslem theological schools)” which had primary, secondary and higher education levels. The common feature of these educational institutions was the fact that both religious education and science education were provided. Moreover, there were “Enderun Schools (special school in the ottoman palace)” where people called “devshirmeh (Christian conscripted to brought up for the janissaries) had education and high-level state people were raised in these schools.

After the Europeanization movement that began with the Tanzimat (the political reforms made in the ottoman state in 1839) in 1839, European-style secular schools were established in addition to these schools. These are: Primary schools: „Mekteb-î iptidaiye“. Secondary schools: „İdadiye“ „Rüştiye“ and „Sultaniye“. Higher education: „Darülfünün“. The dominant factors that played a role in shaping the education policy pursued since this century are of Western origin. The “terakki (development)” anxiety that became apparent in Selim the III‘s time when the Ottoman Empire started intensive relations with the West and that was the basis of the westernization process, gained a new dimension with the idea of “civilization” during the Tanzimat period (1839 - 1876). After this date, the innovations made in the field of education in the Ottoman Empire were realized by taking the Europe as an example. When we examine this restructuring historically, it is divided into four separate periods:

1. First renewal movements (1773 -1839)

2.Tanzimat period (1839 – 1876)

3.Mutlakıyet (autocracy) period (1878 – 1908)

4.Meşrutiyet (constitutional monarchy) period (1908 – 1918)

This reform movement, which started in 1839 in the 600 years old established education system, became even stronger with the Republican period. In the new structure established by Atatürk, only sciences would be involved in education and education at all levels would be accessible free of charge. With the school reforms between the years 1924-1926, the current Turkish school system was established. The most important features in this newly established system are; education is linked to a centralized system, that is, schools are under the suzerainty of the single center which is the Ministry of National Education. Public schools at all levels of education are free of charge. The compulsory teaching period is 7 years that is between the ages of 7-14.

The most important regulation on the structure of the Turkish education system at the beginning of the Republic is the Law of Tevhid-i Tedrisat (Sameness in Education) which was enacted on 3 March 1924. The Law of Tevhid-i Tedrisat is a short law consisting of four articles and defining the foundations of the education system of the Republic.

After the Law of Tevhid-i Tedrisat was enacted, significant structural changes were made in educational institutions. During this period, while trying to improve the old institutions on one hand, on the other hand, new educational institutions in the modern sense were opened and new searches were made. The most important of the new searches and trials were the Village Institutes.

The Village Institutes are a different school model established in 1940 by law no. 3803. The most important reason for the formation of this school model is education problem of the villages that made up 80% of the country‘s population in the second half of the 1930s. In the course of this trial, the Village Institutes model developed in 1940 and this model continued its existence until 1954 with the changes made after 1946-1947.

In order to equalize the disturbed balance between rural people and urban residents in the field of education and to give practical information to the village people, the Village Trainer project was started to be implemented in 1936. The aim was to provide the village with both a teacher and modern means of production and agricultural methods and to alleviate the financial burden of education. This education practice for rural areas undoubtedly created favorable conditions for the later Village Institutes and facilitated the transition to the Village Institutes. The Village Institutes whose number reached to 21 in time started to graduate 2000 teachers per year on an average as of 1944.

Problems of Turkish Education System

Today, education is one of the most discussed topics and there is no country that does not attach importance to education. Both the studies observed in the United States of America and European Union countries' reform studies in all areas of education are proceeding. Within the framework of the Bologna process, Europe has accelerated its efforts to create a common higher education area. In the United States, this process began in the 1980s. In this period, it is seen that reports aiming to improve the relations between American education system and economy like In A Nation at Risk, the National Commission on Excellence in Education (1983), The Carnegie Forum's (1986), A Nation Prepared: Teachers for the 21st Century, and the National Governors' Association's (1986), A Time for Results have been published (Murphy, 1992).

Despite the importance of education in economic and social development, today the Turkish education system faces a number of problems arising from both its structure and its management and functioning. The system has become more ineffective and inefficient with the new needs and globalization phenomenon that emerged as a result of the rapid changes and transformations experienced in science and technology in the 21st century as well as various problems that have been going on for years but cannot be solved (Gedikoğlu, 2005).

Turkey, which is an official candidate for the European Union, has implemented various reform movements in the field of education as well as in many other fields since the Helsinki Summit in 1999. However, these practices were insufficient and the required standards could not be reached. The Turkish Education System is a very large system with approximately 17.5 million students and 650 thousand teachers and teaching staff. Efforts are under way to solve problems and achieve standards.

For a society, education has two primary functions. The first of these functions is the fact that society educates "People" in accordance with its own systematic of values through educational institution. The second is the fact that the person raised according to the socially agreed value judgments follows and understands the developments and problems in the world and directs the development in favor of his own society by producing original, applicable solutions. Undoubtedly, for both functions to be realized, education should be realized based on sociocultural values of society. The Western civilization that educates qualified persons who can use information and technology at high levels together with the continuous development of industry and technology since the 18th century, has become "Industrial society" level first and then "Post-industrial" society level. In this development process, Western societies have formed their understanding of economics, politics and education according to the concepts produced by their own socio-cultural values to the world.

The education methodology tried to be applied in Turkey is human-centered and it aims to raise open-hearted, solidarist, and fair persons who have high sense of social conscience, who teaches to act within the framework of common human values and who are in cooperation with cultures and people outside their own cultural background. Thus, yje cultural person type having the civilization manner of the Turkish education system which strives to build a balanced education methodology within the framework of substance-meaning association bears differences in this direction since it has quite different content from the Western socio-cultural system's liberal education system with positivist-capitalist content.

Educational sciences, like all other sciences, show various developments and diversify their scientific approaches. In this context, the classical expectations such as ensuring the attendance of the students to lessons, student behaviors in accordance with the disciplinary rules during lessons and students' fulfillment their responsibilities in a timely and complete manner have been left behind; instead of these, effective learning, increasing self-efficacy and creativity through increasing activity and sociality have come to the fore.

In this context, what the student really needs is the first question to be answered. In such a period in which technology has permeated all individuals' lives regardless of age, and activities that required significant amounts of financial resources beforehand has become widespread in individuals' daily lives, it is not a surprising outcome that a narrow, lightless, crowded school environment that is disconnected from technology and nature does not attract students. Generations that can witness the conditions under which their peers live, and have a wider knowledge of what they can achieve, express their demands more clearly and persistently than before and choose a more powerful way to stand against things that are desired to be done by pressure and various forms of coercion.

In this context, although it is a good step to timely follow the innovations that are being followed in the world and ensuring the needs students may need to increase productivity in their learning, it is also possible that a changeable education system, where these innovations are frequently implemented, can lead to serious and irreparable problems. For this reason, despite its burden, developing and implementing an innovative education system that will not diminish its impact for many years, directly addressing the essence of the subject and the needs of the society, and which is directly suited to the characteristics and living conditions of the youth of our country is the best option.
If some of the core problems in the educational system in Turkey to be categorized, we can see that a few titles come to the fore.

In 1946 this initiative was stopped and in the following years it was eliminated without any solidarity. The reason for this was the fact that the rural population was not sufficiently prepared for the necessity of such an institution. Thus, the project could not develop dynamism and could not turn into a self-running process.

One of the important innovations in the field of education in the Republican era was the "university reform" made in 1933. At the beginning of the Republic, the only university in the country was Dârülfünun. Its establishment dates back to the 1846s. The Dârülfünun which was like a roller coaster gained "ilmî muhtariyet (scientific authority)" with 1919 Regulation and "legal entity" in 1924.

With the Law on Universities No. 4939 enacted in 1946, autonomy was given to the university again and it was emphasized that the main task of the university was scientific studies. In the following years (1961, 1971, 1982) important constitutional and legal arrangements were made on the universities.

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In the 21st century, which has been described as the information age, education has become the main actor of change and transformation. Today, it is widely accepted in the international community that primary education is inadequate and that the entire population should receive at least high school education. From the 1970s onwards, some policies have been developed in OECD countries to extend the high school education to the entire population of the time and to extend the period of pre-university education to make the young population have education as long as possible. Moreover, when we look at the practices around the world, it is seen that instead of organizing the basic education process in a single stage, it is preferred to have a staging based on the age groups and physical characteristics of the students. In this context, since it is not possible to equip the young population, which is the most important wealth of our country, with the knowledge and skills required by the information society with eight years of continuous education which does not take into account the age groups and individual differences of the students, a new structuring has been made in the Turkish education system.

With the law, which is known as 4 + 4 + 4 in the public arenas and that extends compulsory education to 12 years, one of the two main aims of the new period in the education system is to increase the average education time of the society, and the other is to arrange the education system in such a way as to make the direction that individuals' interests, needs and abilities require possible.

The last system used in Turkey is the 4 + 4 + 4 education system model. This model requires 4 years of primary school, 4 years of secondary school and 4 years of high school. After preschool education, children must start at the first grade of primary school when they are 57 months at the earliest and 68 months at the latest.

The Negative Effects of Turkey's Population Structure on Our Education Problems

Turkey's population structure has a fairly young nature as different from many European and neighboring countries. According to TSI data, 52 percent of our population is under 25 years of age. Every year 1.4 million new students begin primary education. These figures show the high demand for education. This high demand makes the present educational services fall short to satisfy and exacerbates problems. When the high school graduates at the university gates are added to the fact that basic compulsory education is not aimed at providing with occupation, it is faced with an army of jobless and unemployed young people.
The literacy rate also varies considerably between regions. While the literacy rate is 92.4 percent in the Marmara Region, where per capita income is the highest, it decreases to 77.7 percent in the Eastern Anatolia Region and 73.2 percent in the South East Anatolia Region. 88.1 percent literacy rate of women in the Marmara Region declines to 66 percent and 60 percent in the East and South East Anatolia regions, respectively. While schooling rate in vocational and technical high schools is 29.3 percent in the Marmara Region, the same rate declines to 9.3 percent in the East Anatolia Region and 6.6 percent in the South East Anatolia Region. (Akın, 2017)

The Problem of Access to Education

Ensuring the students with low economic opportunities to use their right to education is one of the basic requirements of being a social state and principles of social justice and equal opportunity. Schooling rate in Turkey's rural areas is quite low and continues to decline. As another important problem in rural areas, we face with mobile teaching. Due to the lack of schools in every neighborhood, schools generally carry out mobile teaching, and students go to kilometers every day for compulsory to get basic education. This can sometimes be challenging and also have a significant impact on students' school motivation.

Gender Inequalities in Education

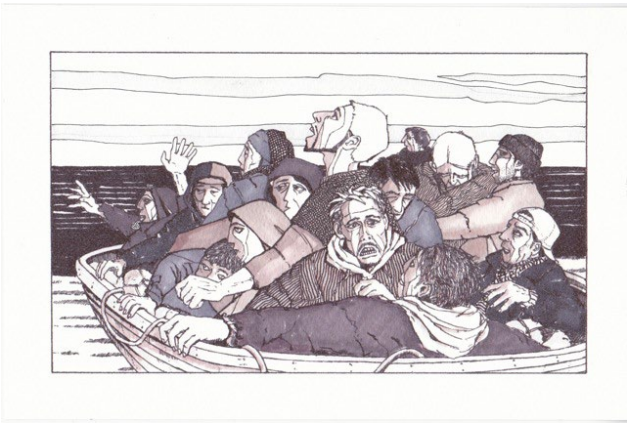
Gender inequality is also one of the important problems of education in Turkey. Giving importance to the education of women and girls and eliminating the inequalities in access to education for men and women should be the priority of a modern education approach. The ratio of female students decreases while graduating to secondary education. This low rate of female students in secondary education has naturally a negative effect on upper levels of education and the position of women in working life and public life and increases the inequalities between men and women in social and economic life.

Poor Qualities in Education

In general, there is the problem of not being able to provide quality in education due to continuing high demand from primary school to university, or to developing curricula appropriate to the requirements of the age, society and economic sectors and not being able to provide quality education. One of the main reasons of this situation is related to the curriculum, the understanding of education and the way education is given. In a contemporary education approach, the aspects which enhance human character and human capacity, builds talent, promotes creativity and innovation, highlight cooperation and teamwork, nurtures tolerance and peace culture, not emphasizes memorization but comprehension, analytical thinking, questioning and practice, not base transferring old information but research, self-learning and generating new information should be developed. In addition, other basic qualification problems can be listed as follows: The quality and quantity of teachers, inadequacy of teaching staff in many newly opened universities, inadequacy of vocational education, students' being obliged to private teaching institutions and unemployment due to diminished social reputation of vocational education, exam-oriented education instead of skill-building education, competitiveness, memorization, rote learning based education which is not oriented towards production and creativity, distancing education from universal and national norms, lack of workshops and resources in vocational high schools, etc.

The Problem of Vocational Education

The disgrace approach beginning with the process of making Vocational High Schools of which names come with February 28 coup in Turkey disadvantageous in higher education compared to other high schools, in the medium term, has resulted the lack of proper attention to vocational and technical education by society and the state accordingly. Inadequacy in vocational guidance in primary and secondary education is a serious problem in itself and causes many other problems too.



Secondary education, which focuses on preparation for higher education and university entrance examination, is inadequate in the function of providing occupation. This leads to the transfer of the task of training intermediate staff required by the markets to higher education. Young people who do not acquire professional skills in also these institutions become unemployed after graduation. This is one of the main reasons why youth unemployment is so high. In order to solve these problems, it is necessary to improve the quality in vocational schools, to establish the relationship between education and employment, and to support the graduates' entering into the business life by cooperating with employers and employer organizations and to open the way for higher education in vocational education.

Child and Labor

There is a high increase in the number and rate of child workers (18 years and under) in Turkey, especially with the entrance of Syrian refugees and migrants to the country. While children working in various workplaces with low costs cannot be included in the basic and compulsory education system, they have also entered a life order that will affect their adulthood. This situation sometimes happens with children's own will and sometimes with family pressure.
Integration of Refugee Children into Turkish Education System.

A strong wave of immigration especially from Syria has affected Turkey in recent years in many respects. Some of the main problems have arisen with the children of immigrants starting to receive education in Turkish schools. Syrian children who are trying to integrate into a different culture, have been alienated at schools and could not integrate healthily into social settings.

Educational institutions specially designed for refugees were established by the state. But these institutions are also not yet established on solid foundations. These institutions, which have been created for Syrian students and given education in their mother tongue, are often located in temporary education centers or Syrian students take evening education through the shift system in the existing educational institutions.

Unfavorable Physical Conditions of Schools

One of the problems in the education system of Turkey is that schools don't have the needed equipments for basic education. Education cannot go beyond theoretical education since students cannot access technical materials and consumables.
In some schools, the basic physical conditions are also quite unfavorable. Due to the low school and the high student ratio, classrooms with 40 and above students are frequently seen.
While the physical conditions of the schools are more suitable and convenient for education in big cities, the conditions worsen toward rural areas. In this context, it is possible to say that there is an inequality in terms of educational structures and technical infrastructure.

The Relation Between The Urban and Child

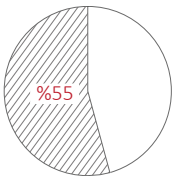
The lack of adequate fields for living spaces in urban architecture is a serious problem for adults and young people as well as for children. While the effect of playing on the physical and mental development of the child is an indisputable fact, inadequate playgrounds which are far from meeting the needs of children will not help to realize this development and cause the children to prefer technological alternatives as a means of entertainment.
Although it has been many years for the people living in cities in developed countries, the cessation of direct interaction with the nature for the majority of the population in Turkey has a history of 2-3 generations. With the knowledge that this transition is gradual, we can say that the first generation that did not interact directly with nature is the generation that is currently in education. On the other hand, with the rapid urbanization and rapid destruction of natural areas, it is undeniable that young people and children are trapped within the urban structure and that their access to nature is quite difficult.

Modern School Architecture

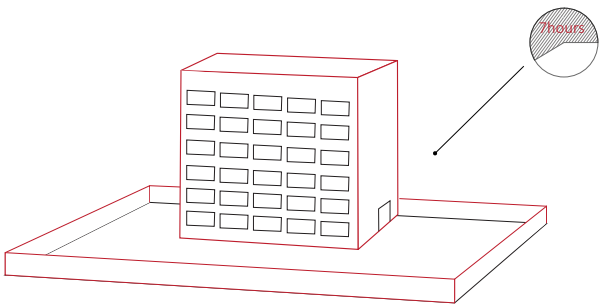
Many solutions can be considered in order to meet these needs. However, there are very few solutions that are as effective as the integration of school in which children and young people spend most of their time with nature. It is possible for young people and children to have access to natural activity areas that are not found in rapidly developing cities only on weekends and holidays. In fact, it cannot be said that all young people and children have the possibility of access, since this access may sometimes require significant financial resources. Therefore, transforming the school environment into a structure integrated with nature will be more effective than other solutions.

It is well known that modern-day school architecture is far from meeting this need. The classroom environment with low ceiling, inadequate light, jammed and crowded and education and management approach with non-student-centered characteristics is like fuel added to the flames.

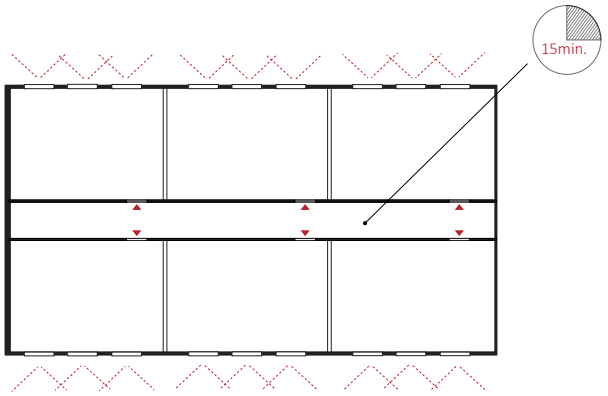
How is designed a standart school?



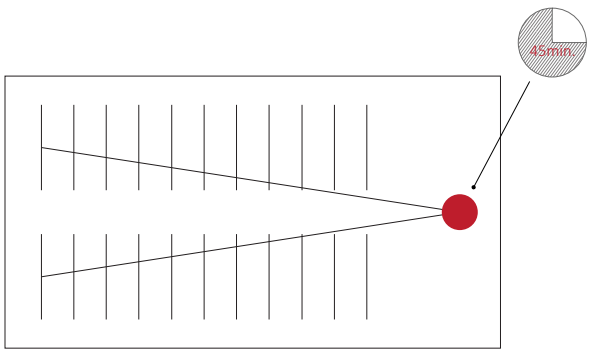
Hours spent at school per day



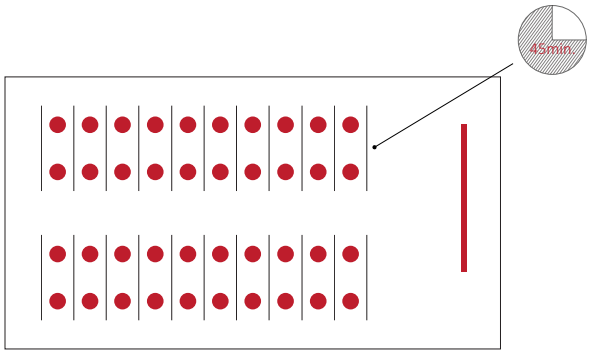
Garden: bordered outdoor area
A box-like building : bordered indoor area



Hierarchical sequencing in construction
Flatness in the structures of doors, windows and classes
Single connection between the windows and the outdoor



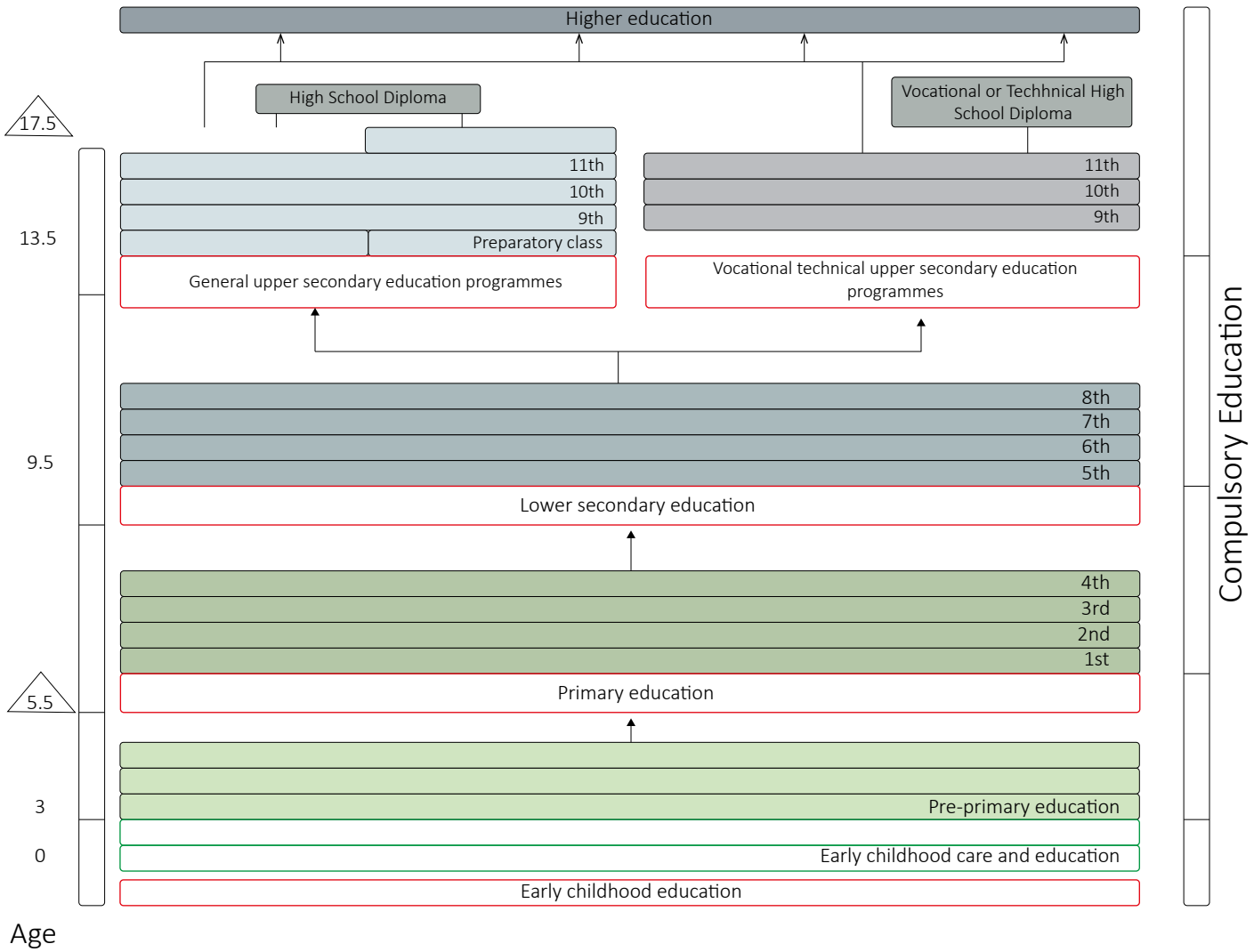
At least 30 kid
Teacher is the focal point of all



Consecutive alignment
Focusing on one direction

*Across OECD countries, students reported spending 44 hours per week learning. This represents approximately 55% of students' available time, excluding weekends and eight hours of sleep per day.

The last system used in Turkey is the 4 + 4 + 4 education system model. This model requires 4 years of primary school, 4 years of secondary school and 4 years of high school. After pre-school education, children must start at the first grade of primary school when they are 57 months at the earliest and 68 months at the latest.



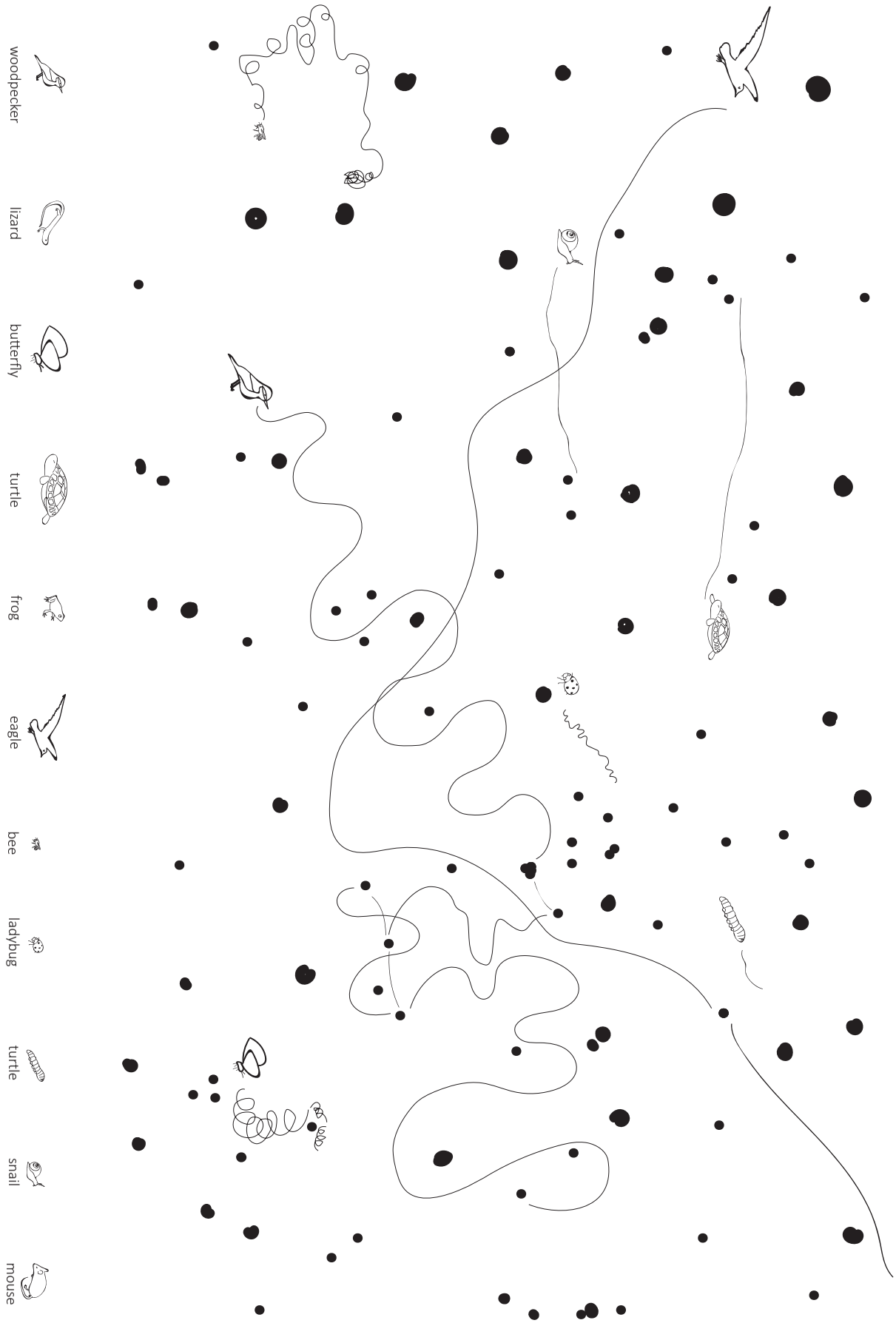
An old silent pond...
A frog jumps into the pond,
splash! Silence again.

Autumn moonlight-
a worm digs silently
into the chestnut.

Haiku by Matsuo Bashō (1644-1694)

NATURE

Without the ability of move, there would be no life on Earth.
Moving around is essential to many animals for finding food and keep alive.
Even plants move, by spreading themselves with the help of seeds and their direction changes for the light.
People also havemany kind of movements .
They experience the moving with physical, emotional and intellectual components.
In case of physical movement, all creatures has their own ability and tells us something. What is this?

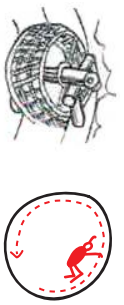


Study of loco-motion / how animals move in the forest

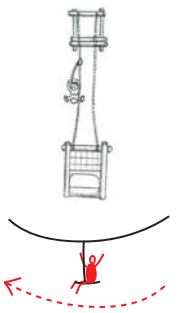
40 motions in Tsukushino Park

A research on children and their movements in Tsukushino Park - Tokyo, which is one of the most enjoyable places.

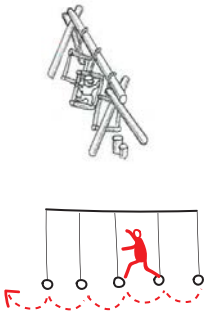
In this research carried out with 3 children whose are 6,10 and 11 years old, children's activities like circular movement, swinging, going up and down, climbing, wading was observed. While sometimes these activities done for a purpose, mostly children had an everlasting motivation for movement because of secretion of dopamine and adrenaline and they were not getting tired.



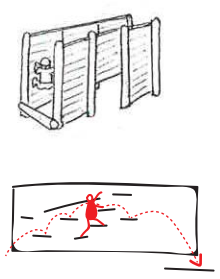
1. Climbing up spirally on rope net meshed circle.



2. Log tied with ropes; try to float on water across sides

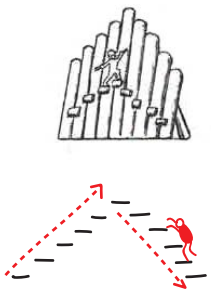


3. Crossover by jumping on wooden rings without falling.

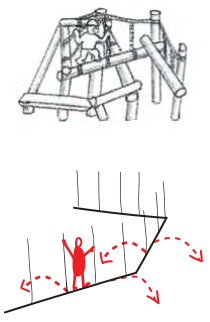


9. Between two wooden walls, walking by stepping on stairs with different angles and heights on each sides.

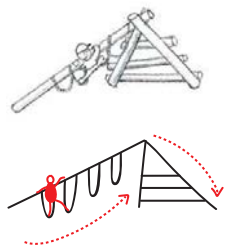
10. Crossover by stepping on ropes hanging on logs and standing in balanced.



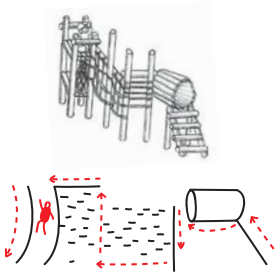
11. Arriving to the peak by stepping on small stairs on wooden platform.



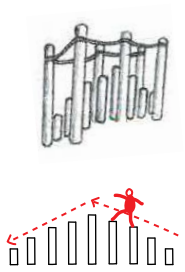
12. Moving by stepping on logs that aligned with irregular angles, and by stepping on ropes.



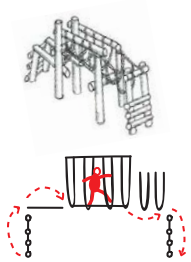
13. Moving by stepping on ropes and holding logs.



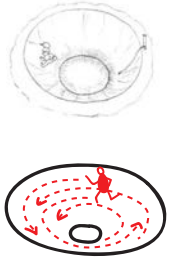
19. Climbing to the peak than moving by swinging on rope, climbing on rope, tunnel, stairs.



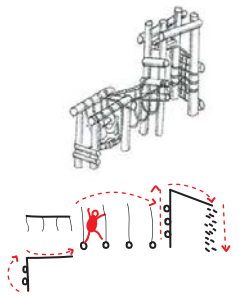
20. Walking on upright logs that is first rising than lowering.



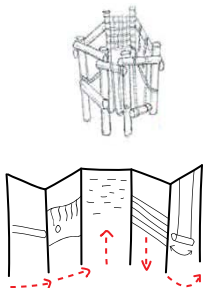
21. Climbing stairs, walking on logs by holding ropes; unfixed ropes.



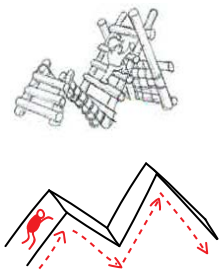
22. Running down with a circular movement and then running up with a circular movement again.



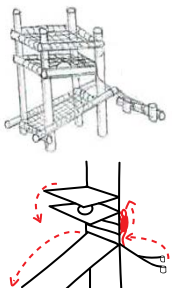
23. Walking by swinging on the woods, stairs, come down by hanging ropes.



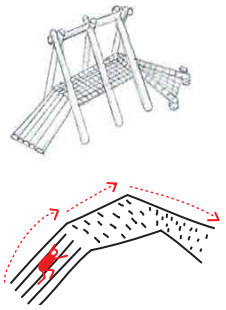
30. Aimed different moves for every corners; swinging, climbing, standing in balance.



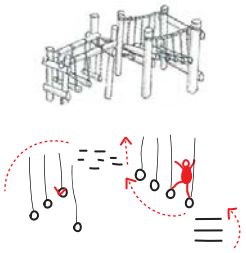
31. Walking on the platform which is rising and descending from place to place.



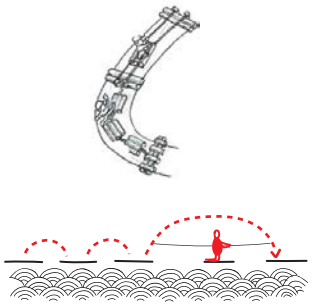
32. Climbing to rope netted frames in different stages, go down by jumping.



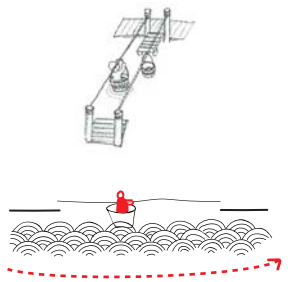
33. Climbing to rope netted frames in different stages, go down by jumping.



34. Climbing with different angles on wooden fields and rope.

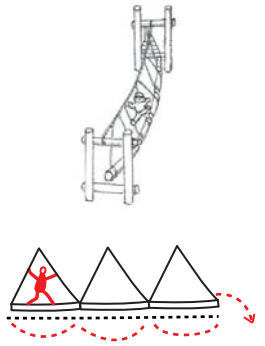


4. Wooden plates floating on water; crossover by pulling the rope with muscle strength.

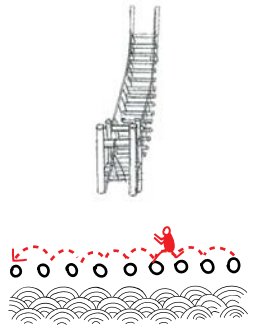


5. Crossover by sitting in a wooden bowl on the water, try to stay in balance and pulling the rope.

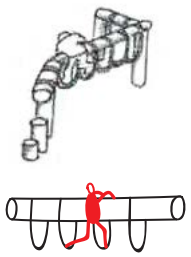
6. Floating to the other side by the help of pulley on the rope, trying to stand balanced on log with body mass.



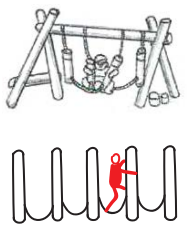
7. Crossover on the swinging logs tied with ropes without falling.



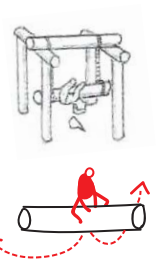
8. Crossover on the swinging logs tied with ropes without falling.



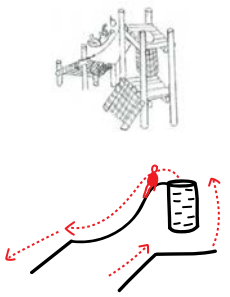
14. Climbing up by stepping ropes hanged on woods and hugging the log, going down with stairs.



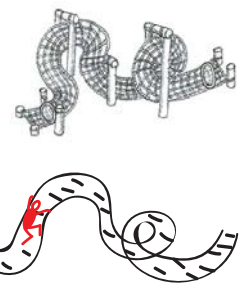
15. Trying to stand in balance by holding logs on the swinging ropes hanged between logs.



16. Turning down and swinging with body mass by hugging an unfixed log.

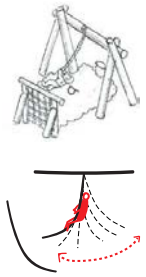


17.Climbing up on rope tunnel and slide down on slippery fabric, walking on the rope and going down.

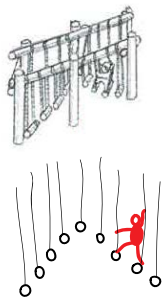


18. Climbing and moving in rope tunnel; fixed net shaped in a spiral form, high and low climbing.

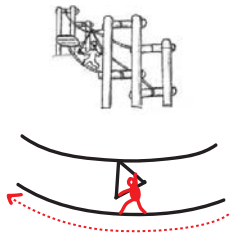
24. Walking by hanging ropes and woods those are high and low height position.



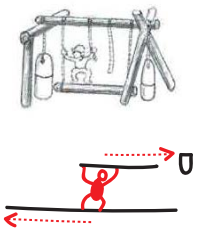
25. Swinging on a high log and ropes then jumping to the rope nets.



26. Walking first up then down on the logs hanged with ropes.

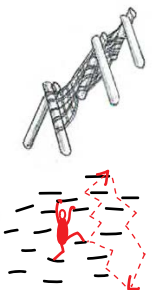


27. Walking on the rope by holding the log that bound a pulley with a rope.

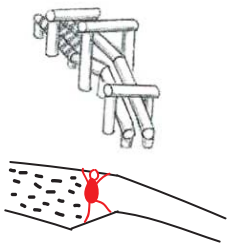


28. Moving body's upper and lower parts to the right and left, clapping woods to metal plates.

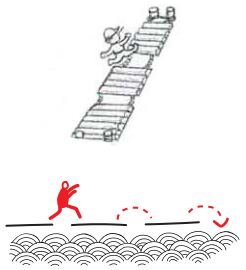
29. Climbing the rope thereby jumping down through hole.



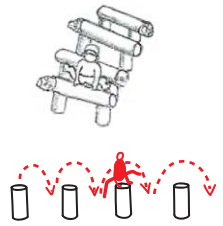
34. Climbing on rope nets.



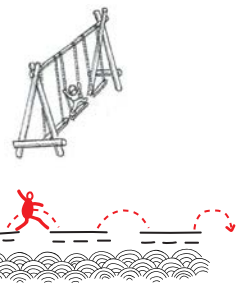
36. First hanging than walking on the woods and partially meshed woods.



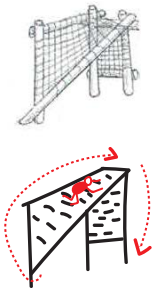
37. Standing and stepping in balance on wooden panels floats on the water.



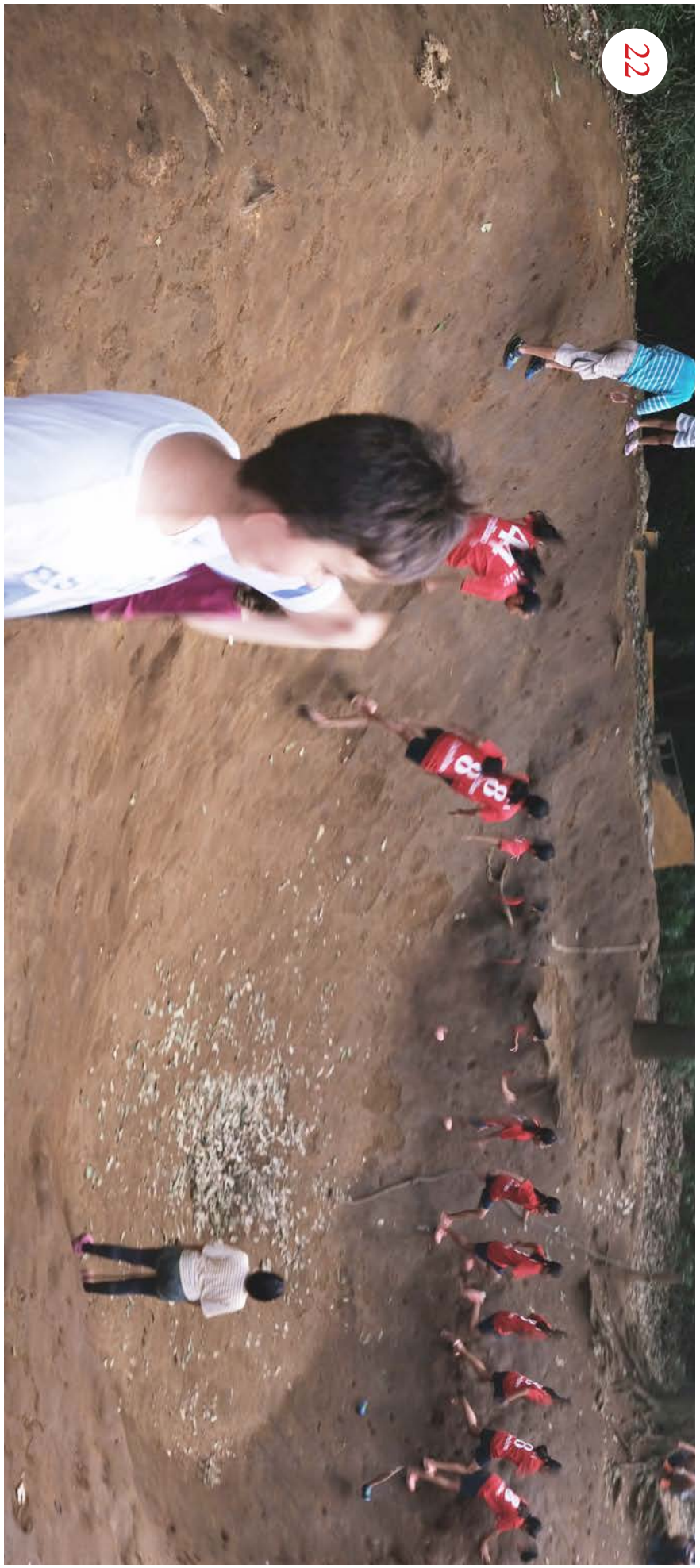
38. Jumping over logs by stretching legs.

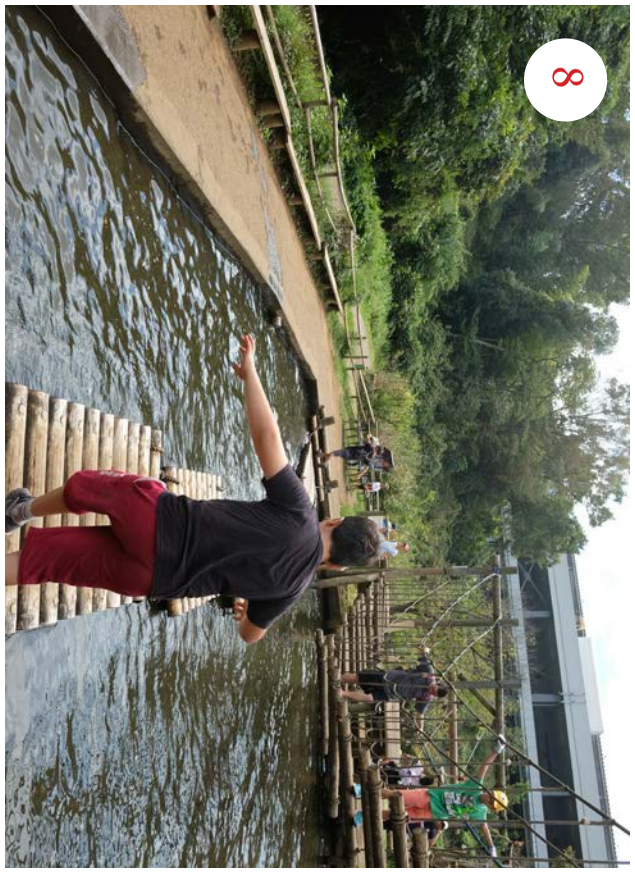


39. Standing and stepping in balance on wooden panels floats on the water.



40. Climbing down and up on rope nets with different angles.

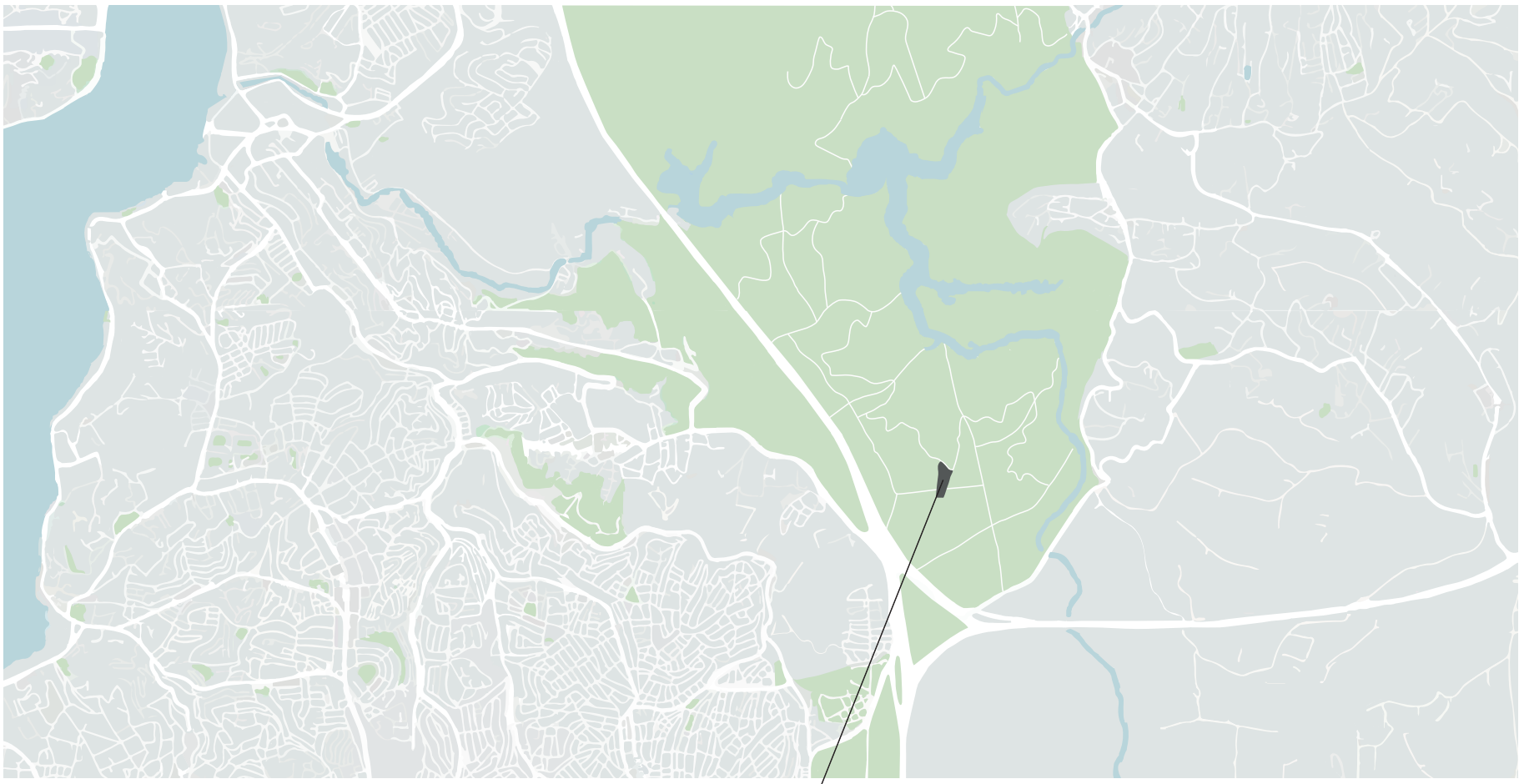




Even with insects—
some can sing,
    some can't.

Kobayashi Issa, 1763

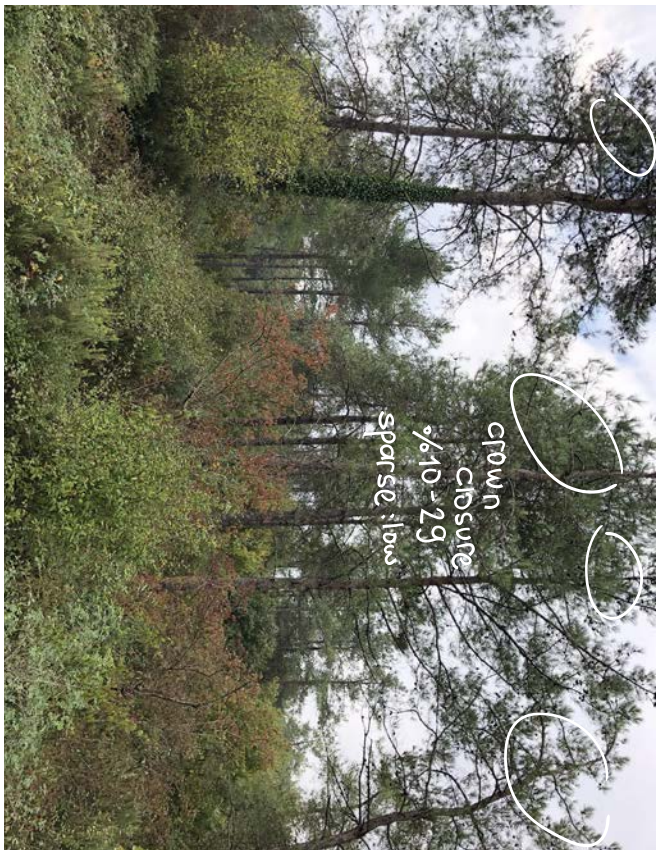
SITE



Site is located near to Elmali Dam in the Anatolian side of Istanbul. The area is known for its rich endemic vegetation cover and supplies approximately 5 percent of Istanbul's total water demand.

Elmalı Dam

In 1893, the Üsküdar-Kadıköy Water Company built the Elmali Dam on the Elmali Creek to meet some of the water needs of the Anatolian Side. Elmali 2 Dam was built on the Cavusbasi River in 1950. It has an annual capacity of 15 million cubic meters and a basin area of 81 square kilometers.



Istanbul and the forests around the city which are significant in terms of having a great biological diversity host hundreds of thousands different bird species such as water bird, predatory birds and oscine birds besides being among the most important bird migration regions.

*This map is quoted from the article with the title of ”10 Important Natural Fields of Istanbul ” published in 1999/December issue of The Journal Atlas.

1. This area creates a tessellation with its wetland forests, shrubberies, grasslands, marshy areas and dunes.Terkos lake biologically is a centre in many sense. The well known Anastasius Wall, Istranca Roman Waterway and the ancient ruins of Byzantium which is 1500 years old are seen in this region. The biggest populations of Centaurea hermannii and Isatis arenaria are found here.

2. Ağıl River and Ağaçlı Dune
This high, golden sand heights is a home for Aurinia uechtritziana which is important internationally,
Isatis arenaria and the most significant popülations of Linum tauricum.

3. Kilyos Dune
It is the second richest dune on the Black Sea shore in Turkey.

4. Upside Bosphorus
Bosphorus is on the immigration way of shearwater, migratory stork, hawk, kite and eagles.

5. Büyükçekmece Lake is identified with the bridge which is built by architect Sinan and known with its four ached bridge as one of the most beautiful bridges in the world. This wetland
is a shelter for the animals such as Red-crested Pochard, Common Pochard, Red Breasted Goose, Little Gull and Mediterranean Gull which live around this area in winter.

6. Küçükçekmece Lake
During winter, a great number of aquatic bird are gathere in this region.

7. The plants between Hadımköy and Kemerburgaz
These regions host the biggest communities of snowdrops which are seen toward the spring and Cyclamen hederifolium besides Linum tauricum ssp. Bosphori, Erysimum degenianum and Veronica turilliana.

8. In this region where this project is located, vast plantation fields are seen in the south while there are mostly copse of oak in the north areas. Ömerli Dam basin and heights in the south are privileged areas with their vegetation and endemic species.

9. With the forest all along its costline, it has rich vegetation for miles and miles. Asperula littoralis (inula helenium) and coast ivy (Convolvulus persicus) are examples of the species seen throughout the region.

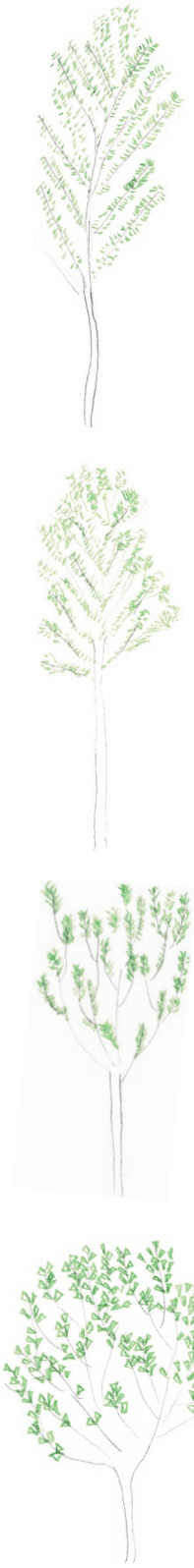
10. Common shag which happens to be situated at the entrance of the Şile harbor and reproduce in four islands is the highest population (175) in Black Sea.

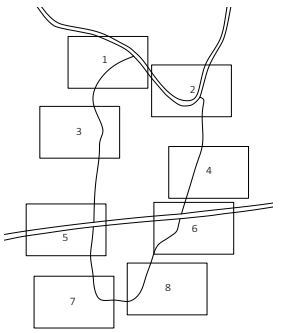
Black pine | *Pinus nigra*
It is seen in almost every region of Turkey. Its smooth cylinder body can reach 40 meters length and more than 1 meter diameter. Although its top structure has a tendency to be overgrown, black pine is small and narrow in the high hills and dense stands. It grows fast in its bloom period. It is very abstinent in terms of soil demand. Black pine creates taproot system in deep soil and fibrous root system in shallow and harsh soil. It grows up well in moist deep mud, sandy slime and slime areas. Fire and snow threatens the pristine forests of black pine. Damages caused by storms are dangerous for black pine in shallow fields and in the areas where black pine is rare. Black pine endures frost and drought.

Red pine | *Pinus brutia*
Its spread is largely toward Mediterranean coastline, the areas close to coastline and Southeast of Turkey. It can be seen up to 1500 meters in these areas. Red pine is the most spreading pine species. It is a very important forest tree which can reach 20 meters in height and 60 centimeters in width. It is in the shape of a pyramid in the beginning but as it gets old, its top starts to get larger. While Red pine's bark is smooth and looks grizzly, the bark is seen to be dark red and thick as it gets older. New sprouts are happens to be in red. That's why it is called as "Red pine". It excessively demands hot weather. It can grow up in the areas where winters are warm, summers are hot and dry and in the sandy or lime-rich soil which is infertile and full of rocks; in addition, it can vegetate very well in efficient climate and fertile lands. It creates taproot which goes quite deep in soil. It is a pine type that naturally grows up in Turkey. It is the fastest growing up pine type. Red pine's resistance to the wind is very poor. Wind has an important role on the shape of its top and trunk of this type of pine. It is sensitive against frost. Ground fire damages ponderosa slightly.

Stone Pine | *Pinus pinea*
Stone pine grows up mostly in Anatolia. It can reach up to 25 meters in height and has a smooth trunk and vast round top which looks like an umbrella. The bark of the stone pine looks decent in the beginning but in time it turns out to be cleaved and its color turns out dark red. Rather than its wood, people take advantage of its old seed which is called as "pea nut". Additionally, it is a precious ornamental tree. Its root system is strong. In fertile land, it grows taproot which goes deep into the soil.

Gürgen: Carpinus betulus:
It is generally found in the mixed forest of the North and South coast areas in Turkey. It is in the forms of deciduous tree or long bush in winter. Its branches are fragile; bark is decent, grey and yawned in slit. It creates taproot which goes to deep in soil or splayed root system depending on the soil. It is pleased with heavy and damp soil. It endures flooding and it grows up very efficiently in limestone lands where the soil is warm and rich in humus.





Plants around the land were listed and examined according to their species, thickness and length.

There are 4 dominant tree species in the region: black pine, European hornbeam, stone pine and Turkish pine.
Species have a direct neighbor relations with each other and occasionally one species which is common in the region allows healthy growth of another species that proliferated by wind or by animal transporting from the environment.

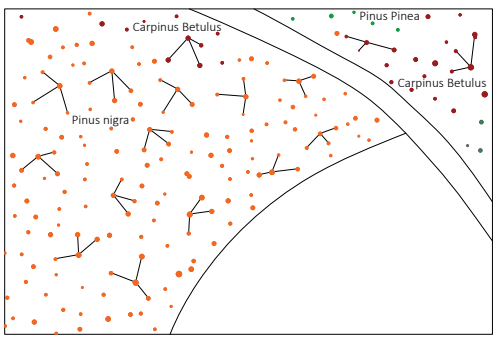
1. The black pine (pinus nigra) in the northwest of the land is located in interaction with the European hornbeam (carpinus betulus) spreading on the north side of the road. The body thicknesses of the black pine trees and hornbeams in this section are varying between 40 to70 cm, black pine is about 15 meters and young hornbeams trees are between 15 to 20 meters high.

2. The stone pine (pinus pinea) is clustered in the northeast, some of the black pines are partnering with the dominant black pine in the region.

3. The northeast is completely covered by black pine.

4. Stone pine and Turkish pine (pinus brutia) become neighbors in the northwest. The region is dominated by the two tree species both.

1.



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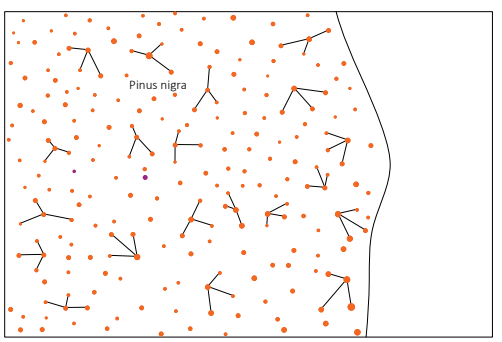

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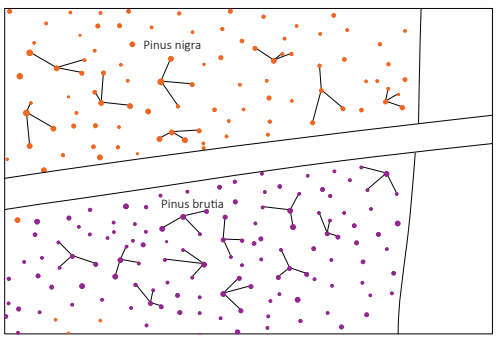

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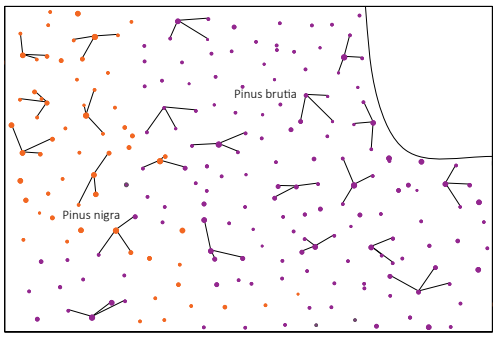

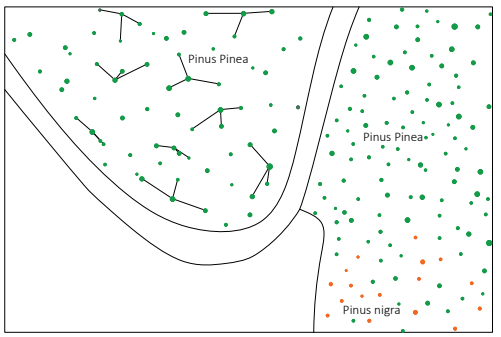

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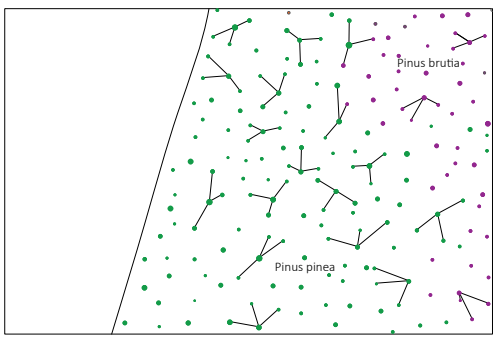

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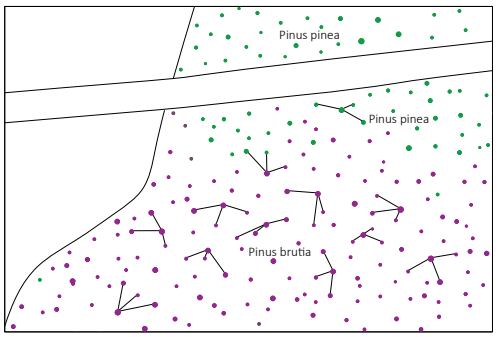

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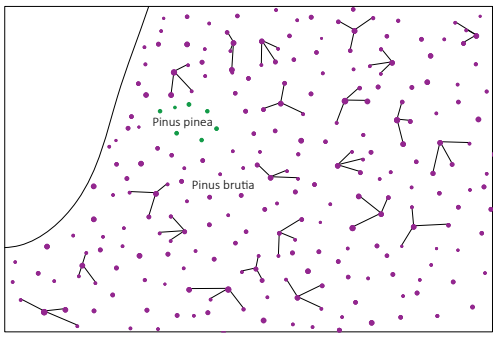


8.

5. The nothern part of the lower road on which the land is located continously dominated by black pine while Turkish pine tree spreads to the other side of the road.

6. Stone pine trees are concentrated in the east of the land and north east of the road while Turkish pine trees dominate the south of the road.

7. In the southwest, in the majority of the southern region is dominated by Turkish pine and continues with the black pine towards the west.

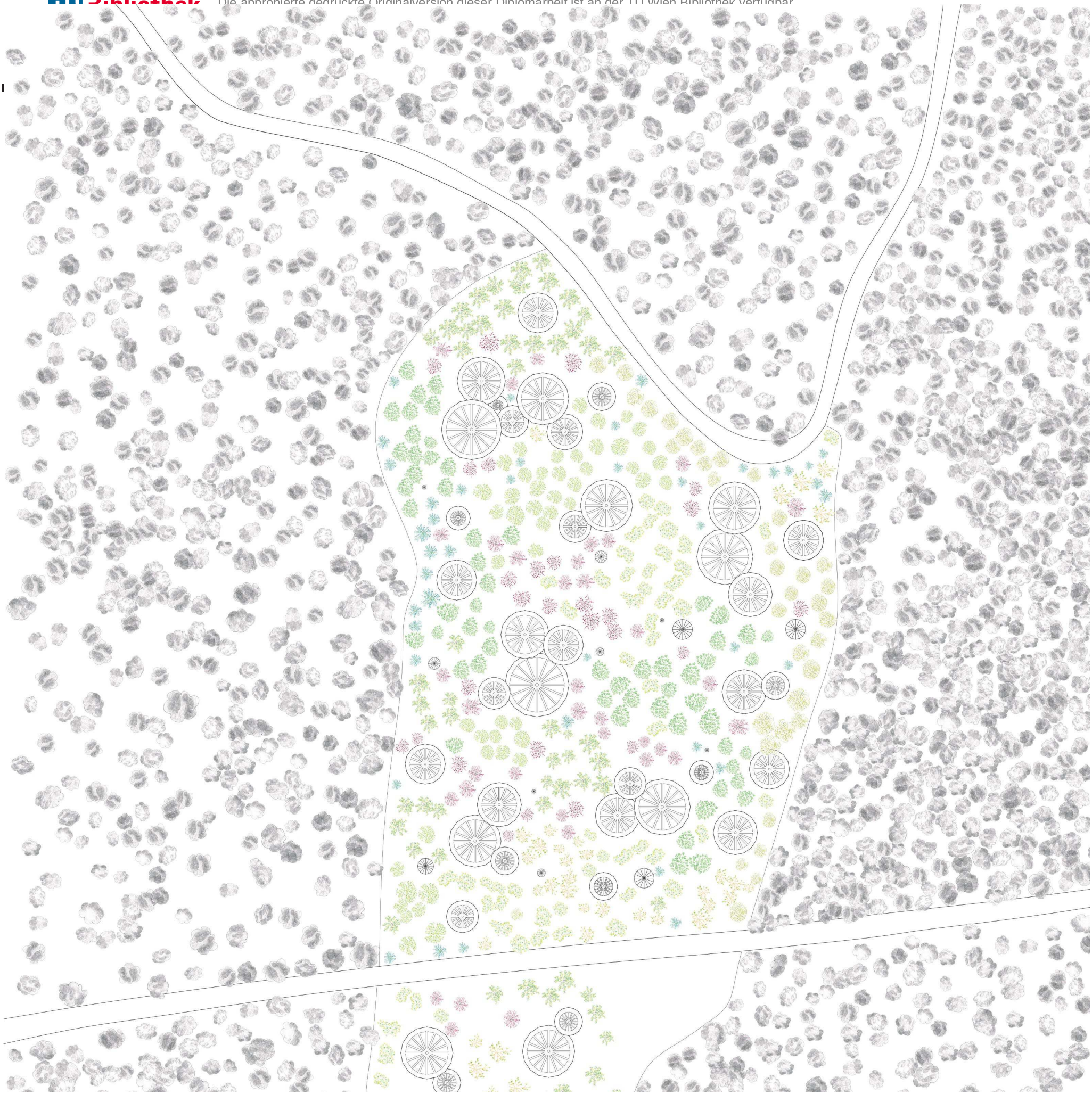
8. The southern part of the land is covered by Turkish pine trees and sometimes black pine or stone pine trees that grow into small groups.

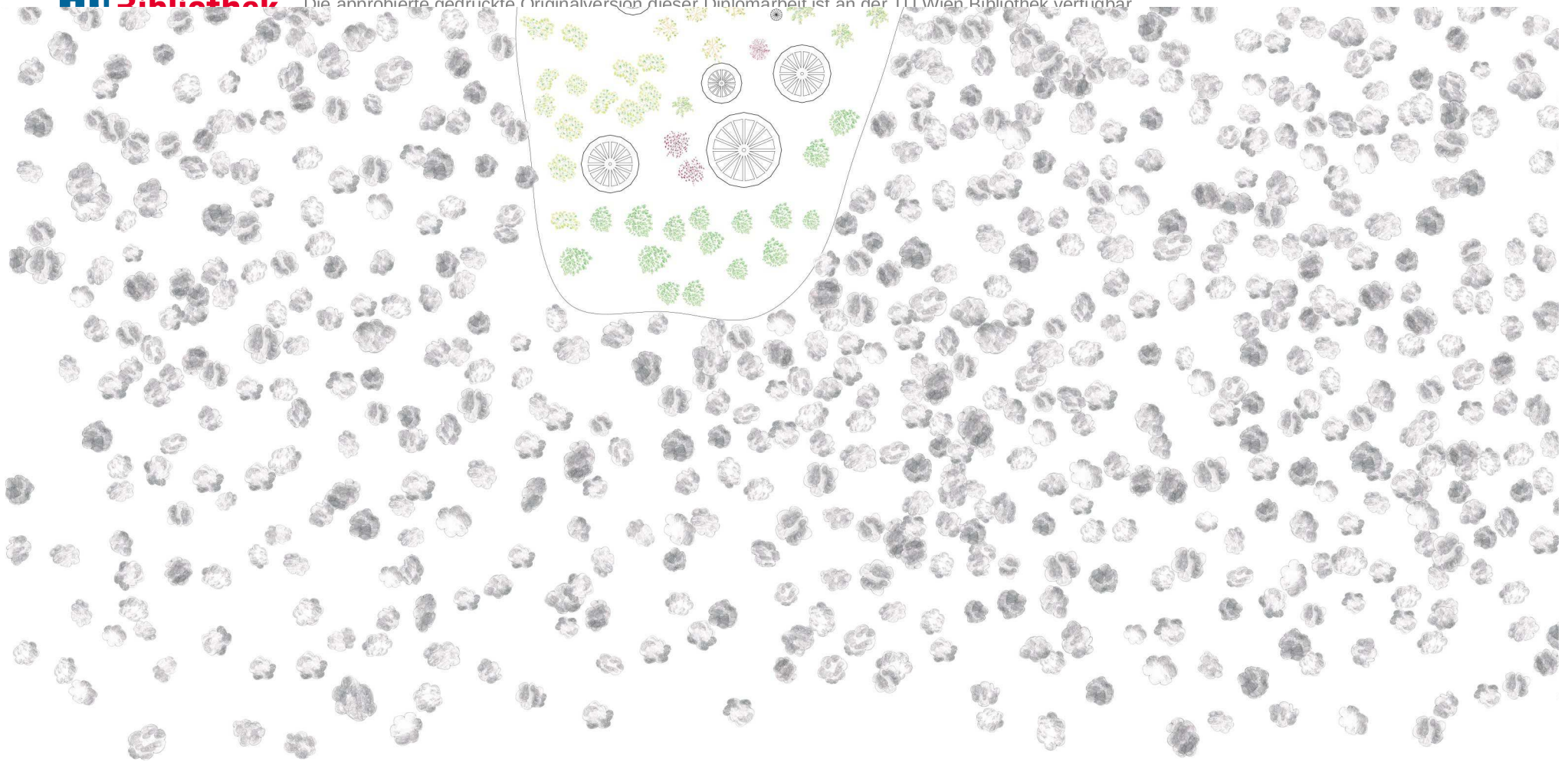
On a branch
floating downriver
a cricket, singing.

Kobayashi Issa, 1763

DESIGN

Pieter Bruegel, 1560
Die Kinderspiele





List of tree species on the site

1. *Sweet chestnut tree*
Botanical name: Castanea sativa
Size Range: Large tree (20-35m.)
Mature height:
Light Exposure: Full sun (6 hrs direct light daily), Partial sun/shade (4-6 hrs light daily)
Soil Preference : Acid soil, Moist, well-drained soil
Poor Drainage: Intolerant
Flower Color & Fragrance: White
Season of Interest: Mid summer, Early fall, Mid fall
Growth Rate: Moderate, Fast
Transplants Well: Moderate

2. *Japanese maple*
Botanical name: Acer palmatum
Size Range: Small tree (4-7m.) Mature Height: 4-7m.
Light Exposure: Partial sun/shade (4-6 hrs light daily)
Soil Preference: Acid soil, Moist, well-drained soil
Poor Drainage: Intolerant
Ornamental Interest: Fall color, Attractive bark
Season of Interest: Late spring, Early summer, Mid summer, Late summer, Early fall
Growth Rate: Slow
Transplants Well: Moderate

3. *Silver linden tree*
Botanical name: Tilia tomentosa
Size Range: Large tree (20-35m.)
Mature Height: 15-21m.
Light Exposure: Full sun (6 hrs direct light daily), Partial sun/shade (4-6 hrs light daily)
Soil Preference: Moist, well-drained soil
Poor Drainage: Intolerant
Ornamental Interest: Summer blossoms, Fall color, Fragrant flowers
Season of Interest: Late spring, Early summer, Mid summer, Late summer, Early fall, Mid fall
Growth Rate: Moderate

1. *Cherry blossom tree*
Botanical name: Prunus serrulata
Size Range: Small tree (4-7m.) Mature Height: 4-6m.
Light Exposure: Full sun (6 hrs direct light daily)
Soil Preference: Moist, well-drained soil
Poor Drainage: Intolerant
Ornamental Interest: Spring blossoms, Fall color, Fragrant flowers, Showy flowers, Attractive bark
Season of Interest : Early spring, Mid spring, Early fall
Growth Rate: Moderate
Transplants Well: Yes

1. *Hornbeam Maple tree*
Botanical name: Acer carpinifolium
Size Range: Medium to large tree (up to 15m.)
Light Exposure: Partial sun/shade (4-6 hrs light daily)
Soil Preference: Normal to moist, Well-drained soil
Poor Drainage: Intolerant
Flower Color & Fragrance: Green- yellowish leaves
Season of Interest : Early spring, Mid spring,
Growth Rate: Moderate
Transplants Well: No

1. *Judas tree*
Botanical name: Lilium martagon
Size Range: Small tree (5-7m.)
Light Exposure: Full sun to part shade
Soil Preference: Well-drained, fertile soils
Poor Drainage: Intolerant
Flower Color & Fragrance: Spring blossoms, Showy flowers
Season of Interest : Early spring, Mid spring,
Growth Rate: Moderate
Transplants Well: No

1. *Lebanon cedar tree*
Botanical name: Cedrus libani
Size Range: Large tree (30-40m.)
Light Exposure: Full sun (6 hrs direct light daily)
Soil Preference: Moist, well-drained soil
Poor Drainage: Intolerant
Flower Color & Fragrance: Flowers in autumun
Season of Interest : Early fall, Mid fall
Growth Rate: Moderate
Transplants Well: Yes

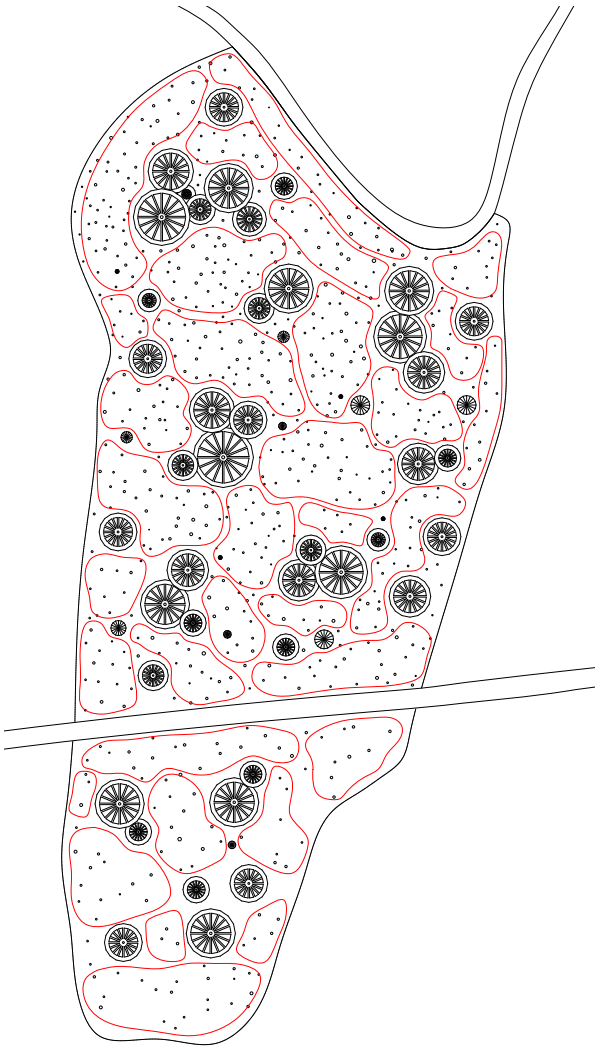
2. *Lilac*
Botanical name: Syringa vulgaris
Size Range: Large shrub (more than 2m.), Medium shrub (1,5-2m)
Light Exposure: Full sun (6 hrs direct light daily)
Soil Preference: Acid soil, Moist, well-drained soil
Poor Drainage: Intolerant
Flower Color & Fragrance: Fragrant, Pink, Purple, White, Other
Season of Interest: Mid spring, Late spring, Early fall
Growth Rate: Moderate
Transplants Well: Yes

3. *Ash tree*
Botanical name: Fraxinus ornus
Size Range: Medium tree (15-25m.) Mature Height: 18-24m.
Light Exposure: Full sun (6 hrs direct light daily)
Soil Preference: Moist, well-drained soil
Poor Drainage: Tolerant
Ornamental Interest: Fall color, Persistent fruit/ seeds
Season of Interest: Early fall
Growth Rate: Moderate
Transplants Well: Yes

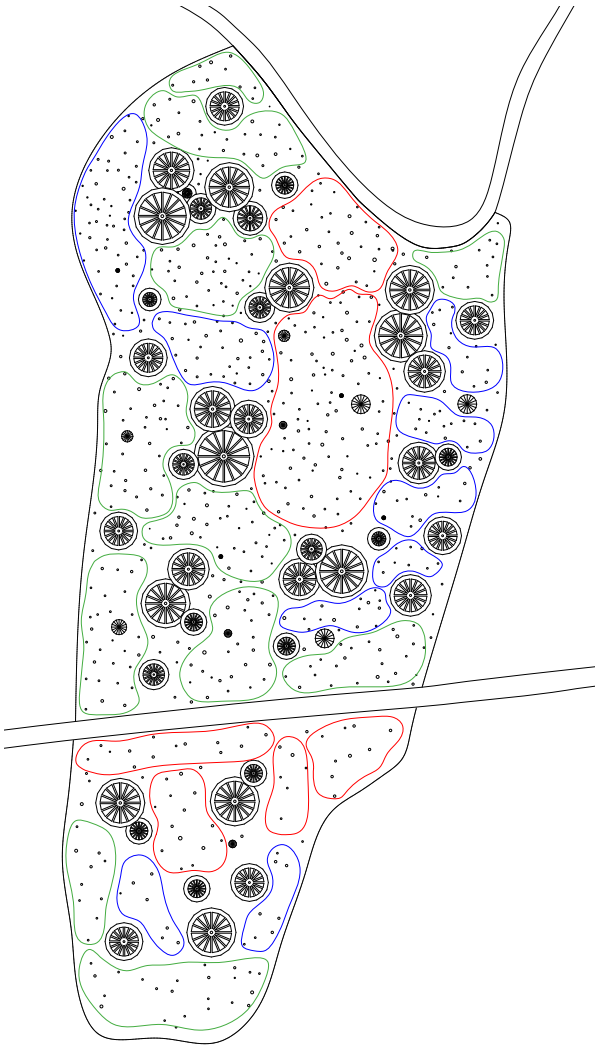
1. *Daffadownlilly*
Botanical name: Narcissus
Size Range: Small shrub (30-50cm.)
Light Exposure: Full sun (6 hrs direct light daily)
Soil Preference: Moist, well-drained soil
Poor Drainage: Intolerant
Flower Color & Fragrance: Spring blossoms, Fragrant flowers, Showy flowers
Season of Interest : Early spring, Mid spring
Growth Rate: Moderate
Transplants Well: Yes

2. *Turk's cap lily*
Botanical name: Lilium martagon
Size Range: Small shrub (1-2m.)
Light Exposure: Full sun (6 hrs direct light daily)
Soil Preference: Moist, well-drained soil
Poor Drainage: Intolerant
Flower Color & Fragrance: Spring blossoms, Fragrant flowers, Showy flowers
Season of Interest : Early spring, Mid spring
Growth Rate: Moderate
Transplants Well: Yes

3. *Liliales*
Botanical name: Liliacecae
Size Range: Small shrub (30-60cm.)
Light Exposure: Full sun (6 hrs direct light daily)
Soil Preference: Moist, well-drained soil
Poor Drainage: Intolerant
Flower Color & Fragrance: Spring blossoms, Fragrant flowers, Showy flowers
Season of Interest : Early spring, Mid spring
Growth Rate: Moderate
Transplants Well: Yes



Positioning of trees on the site by species



full sun
part shade
shade

Share Yaraicho is located in Kagurazaka near to Shinjuku-Tokyo, designed by Satoko Shinohara.

The project as a example of using semi-transparent waterproof plastic membrane on facade and the design thus connects the interior and exterior with a precise technique.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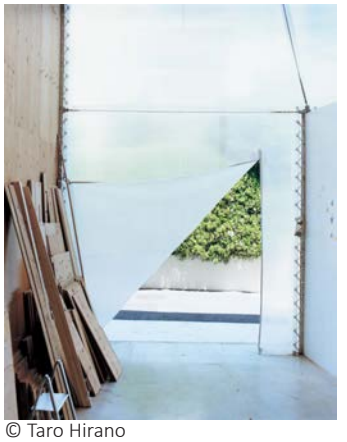
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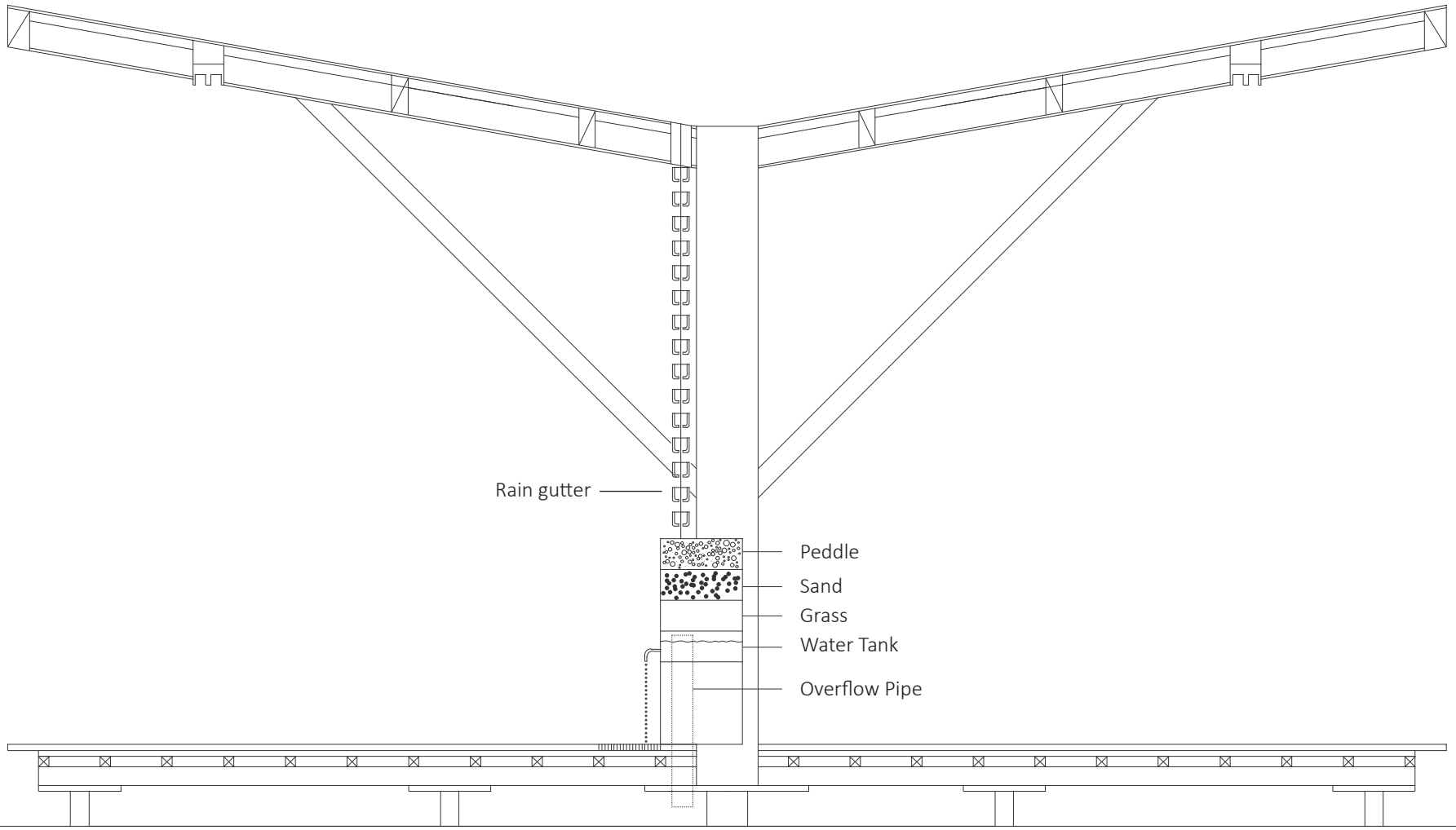
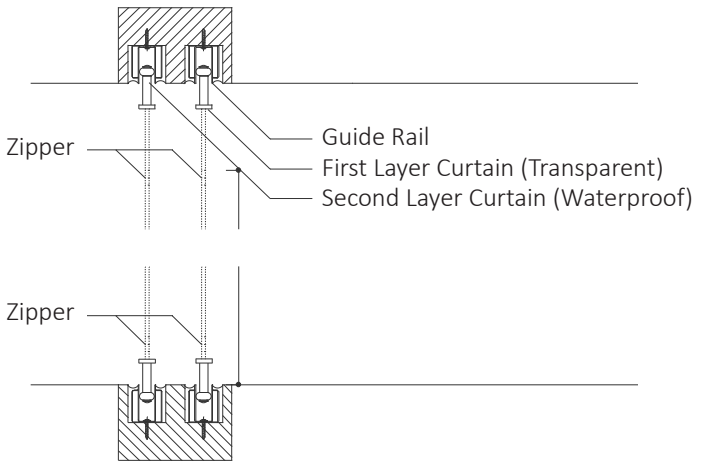
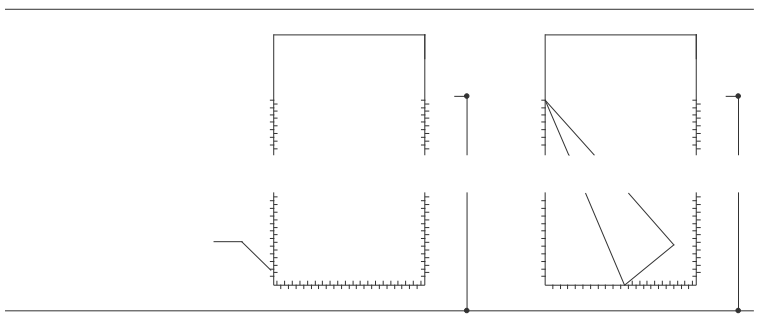
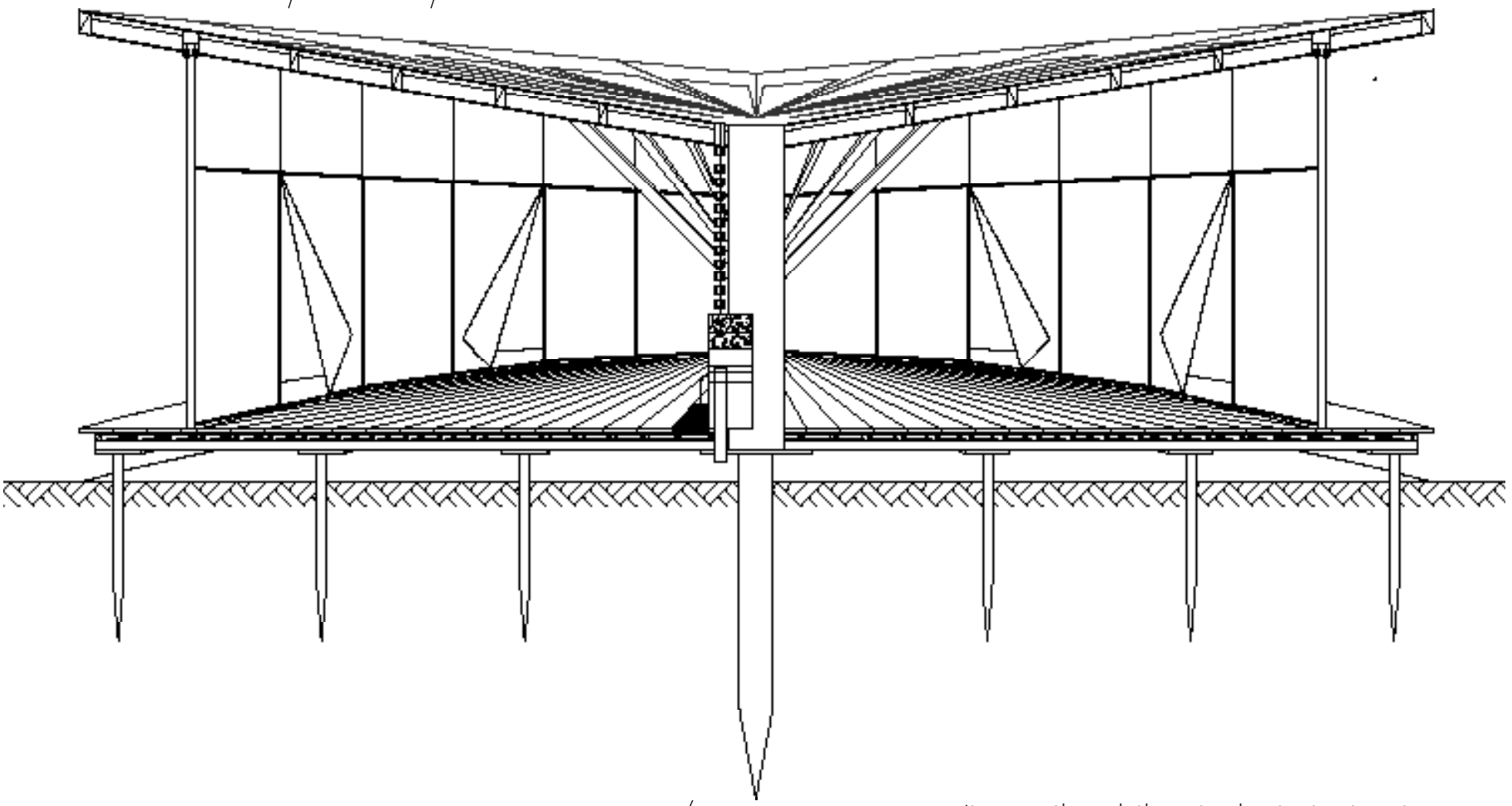






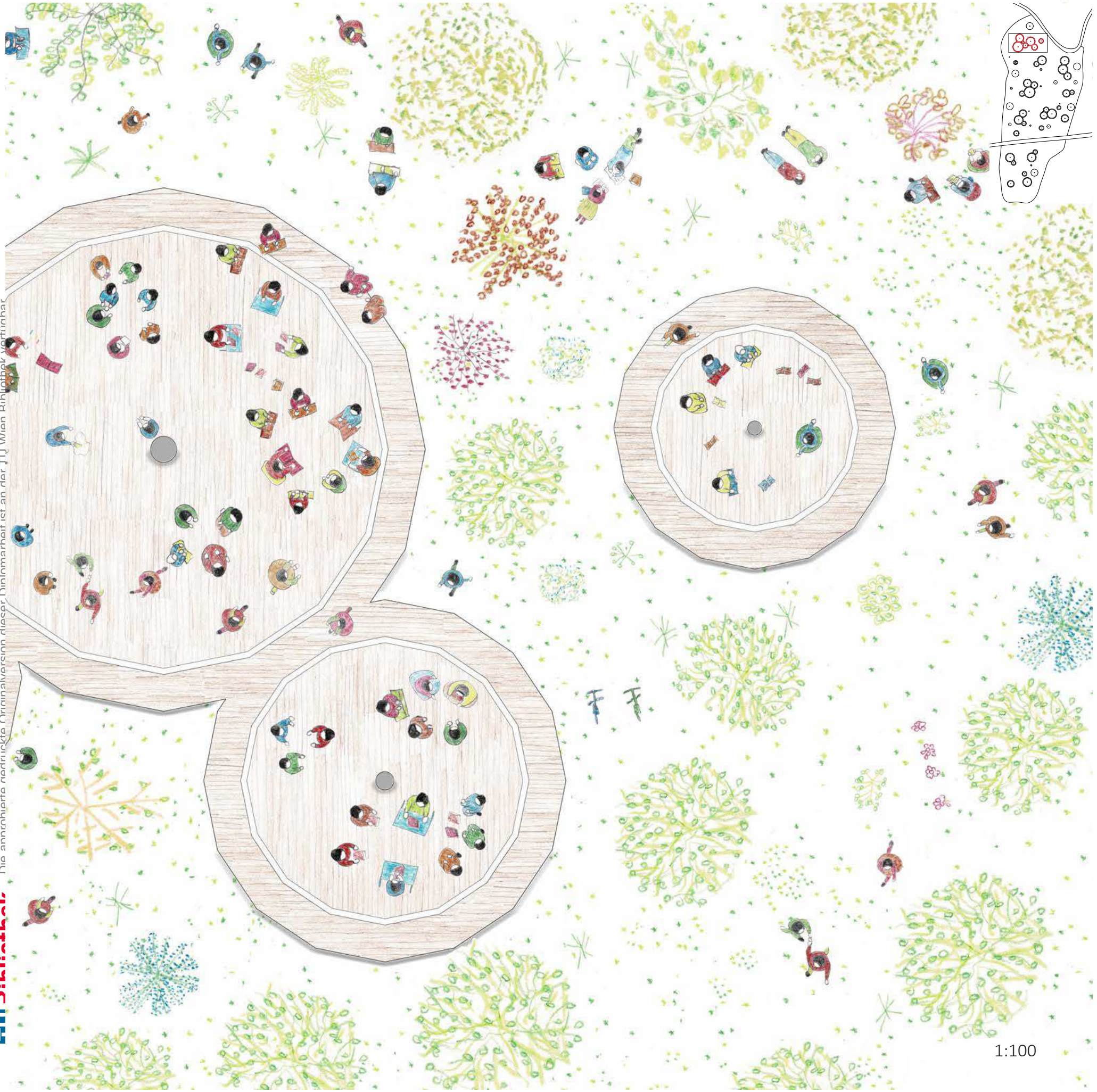
Double Sliding Curtain
Curtains were designed to be collected in a single point when it was not needed.

Zipper
Zippers were placed on the curtain to provide entry and exit to the building when the curtains were closed



It passes through the natural water treatment stages consisting of gravel, sand and grass and clean water is obtained.

Wooden Piles
It aims to avoid damaging the soil by lifting up the structure.
The piles are also designed not to obstruct the roots of the trees around the structure.



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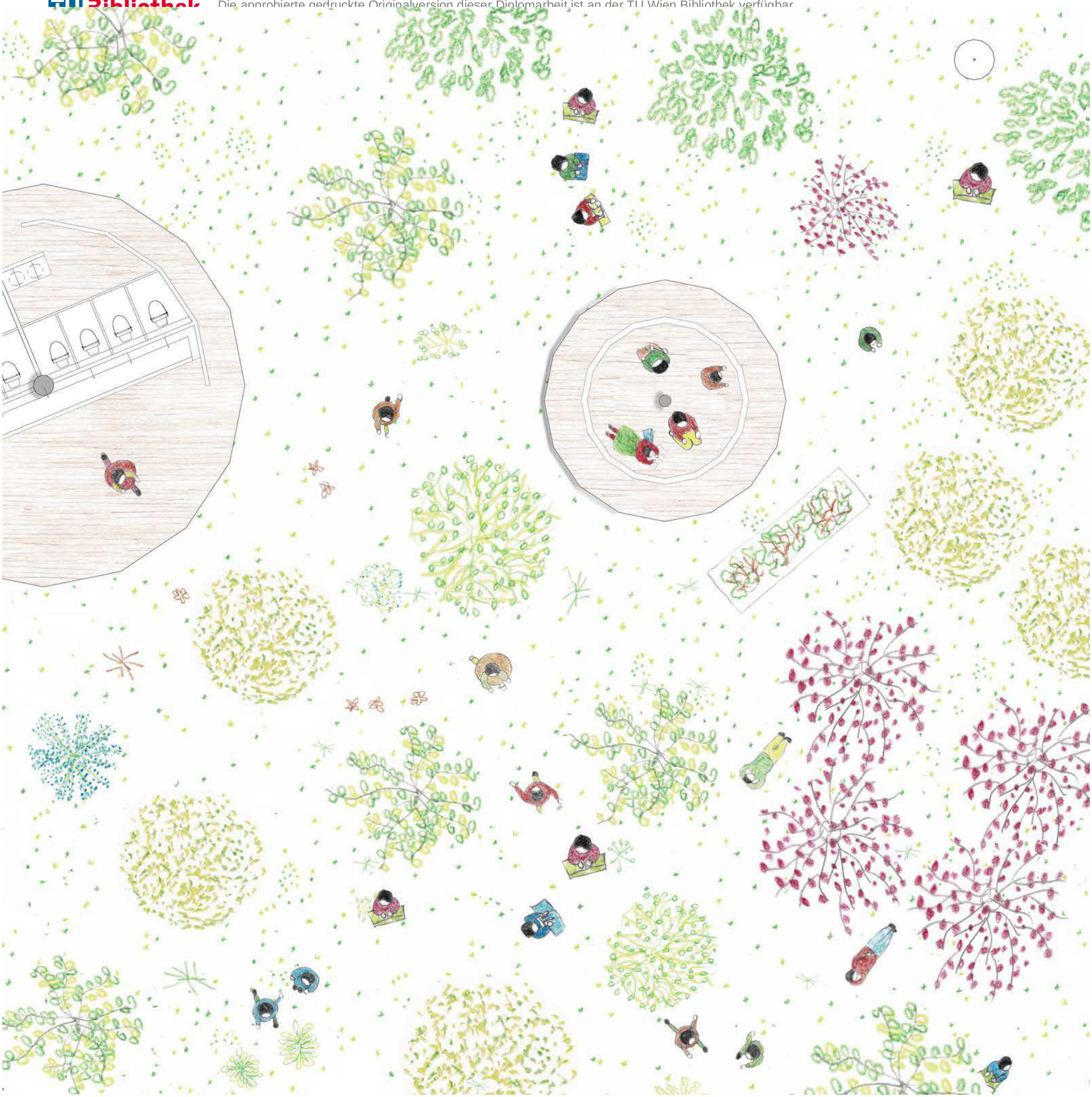

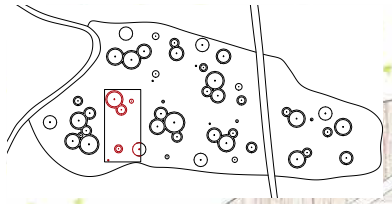

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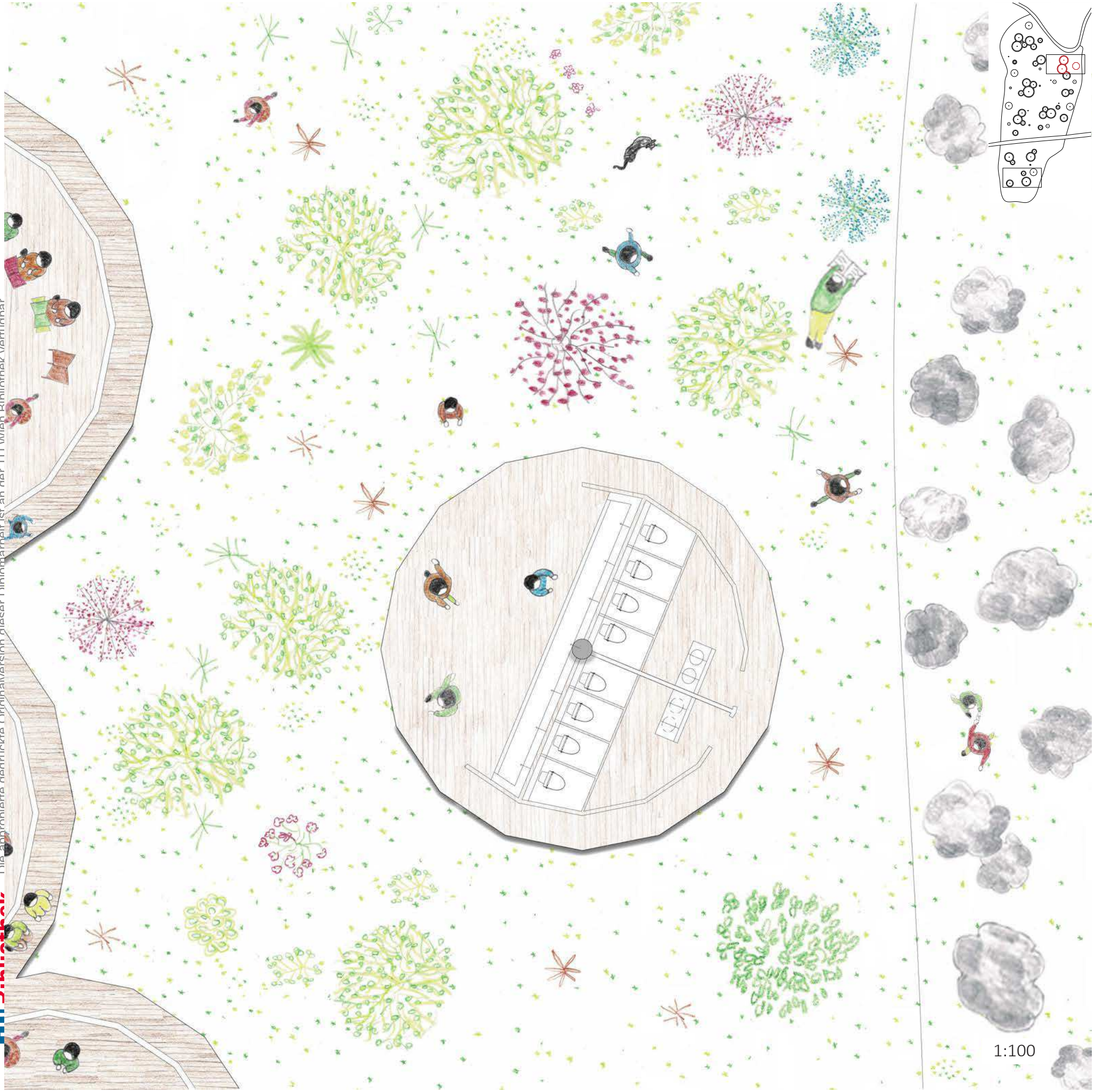

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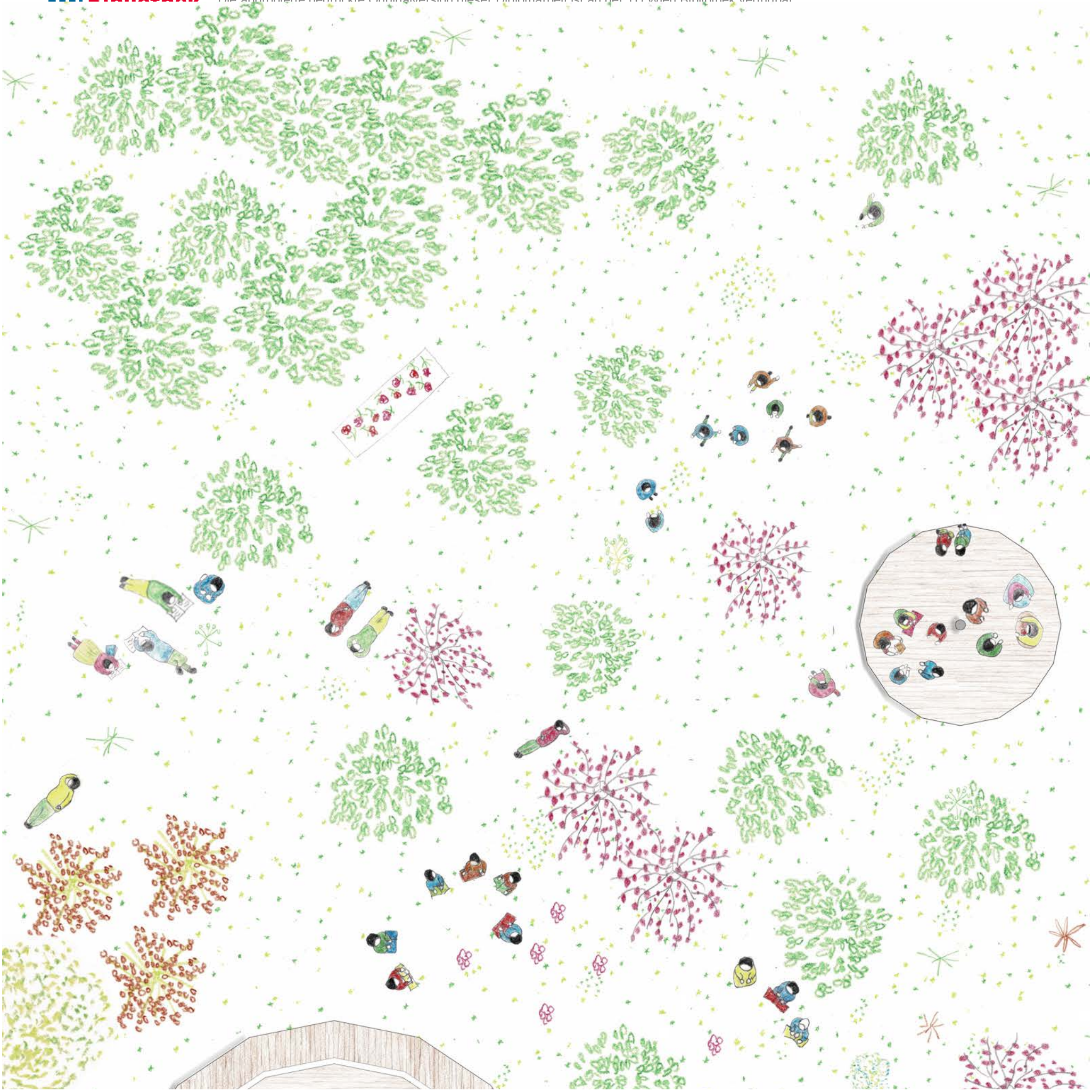

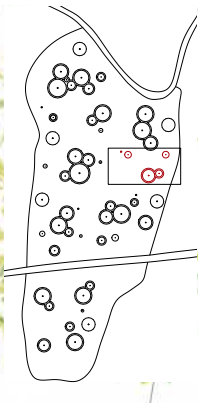

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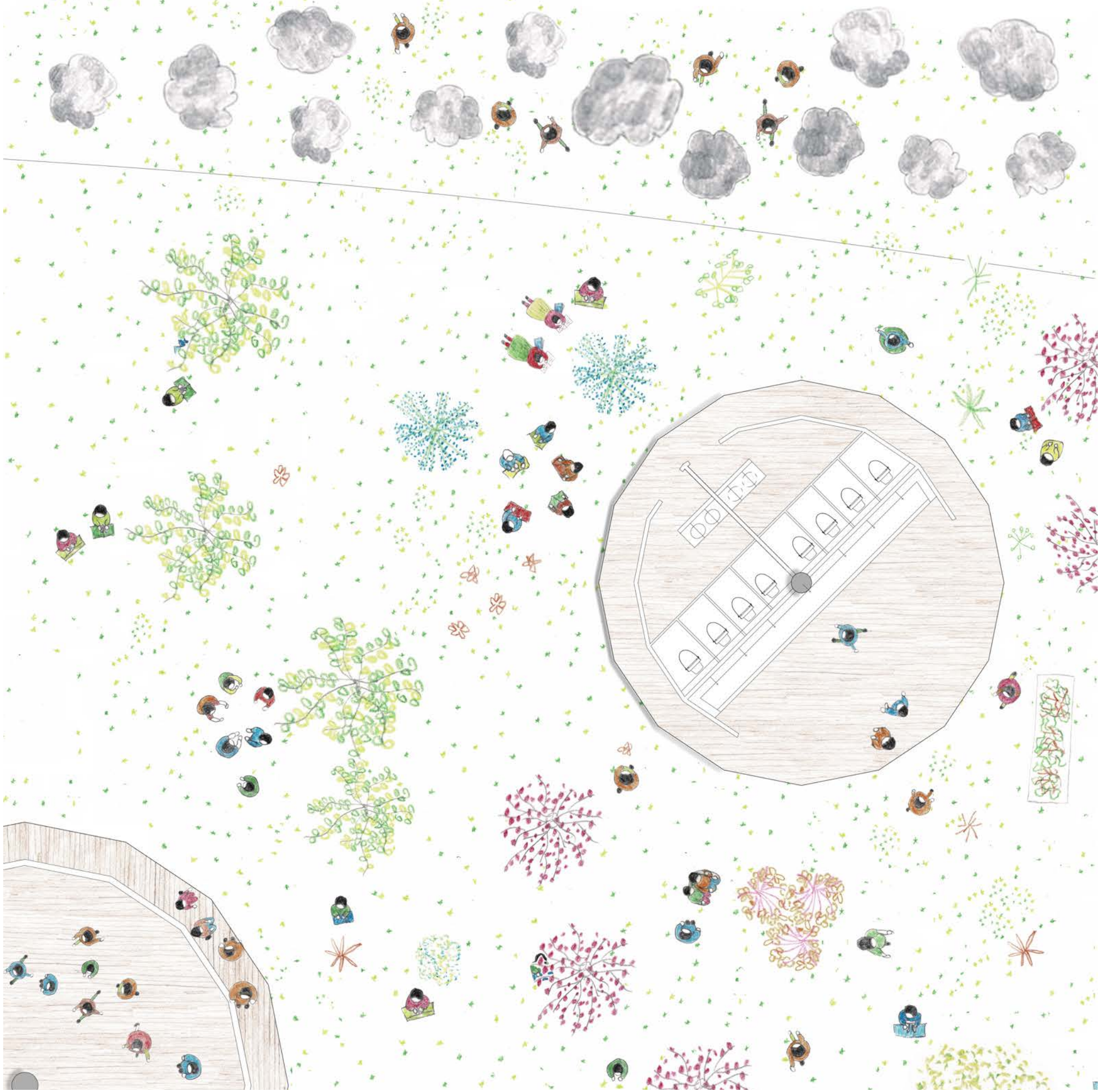

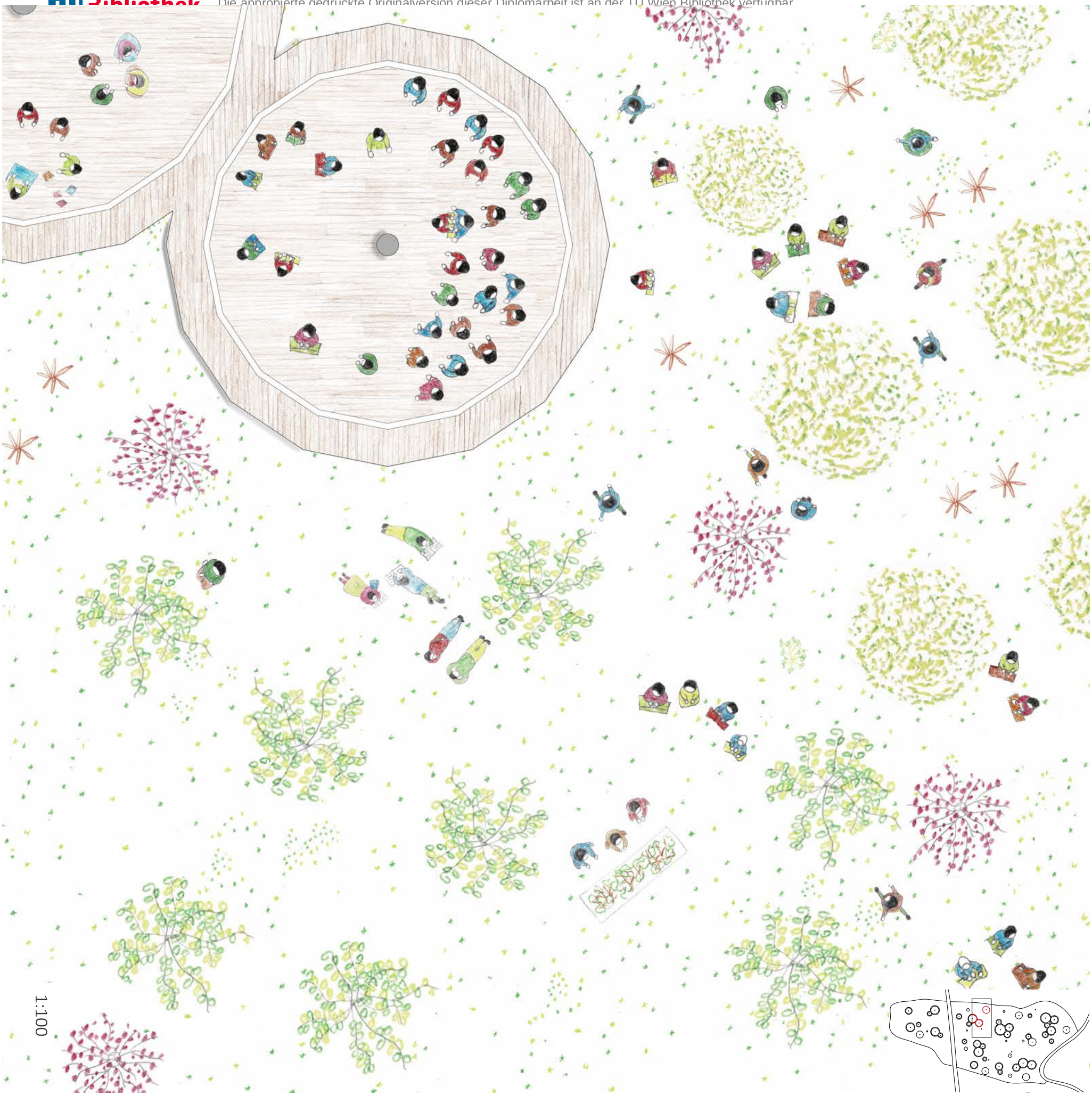

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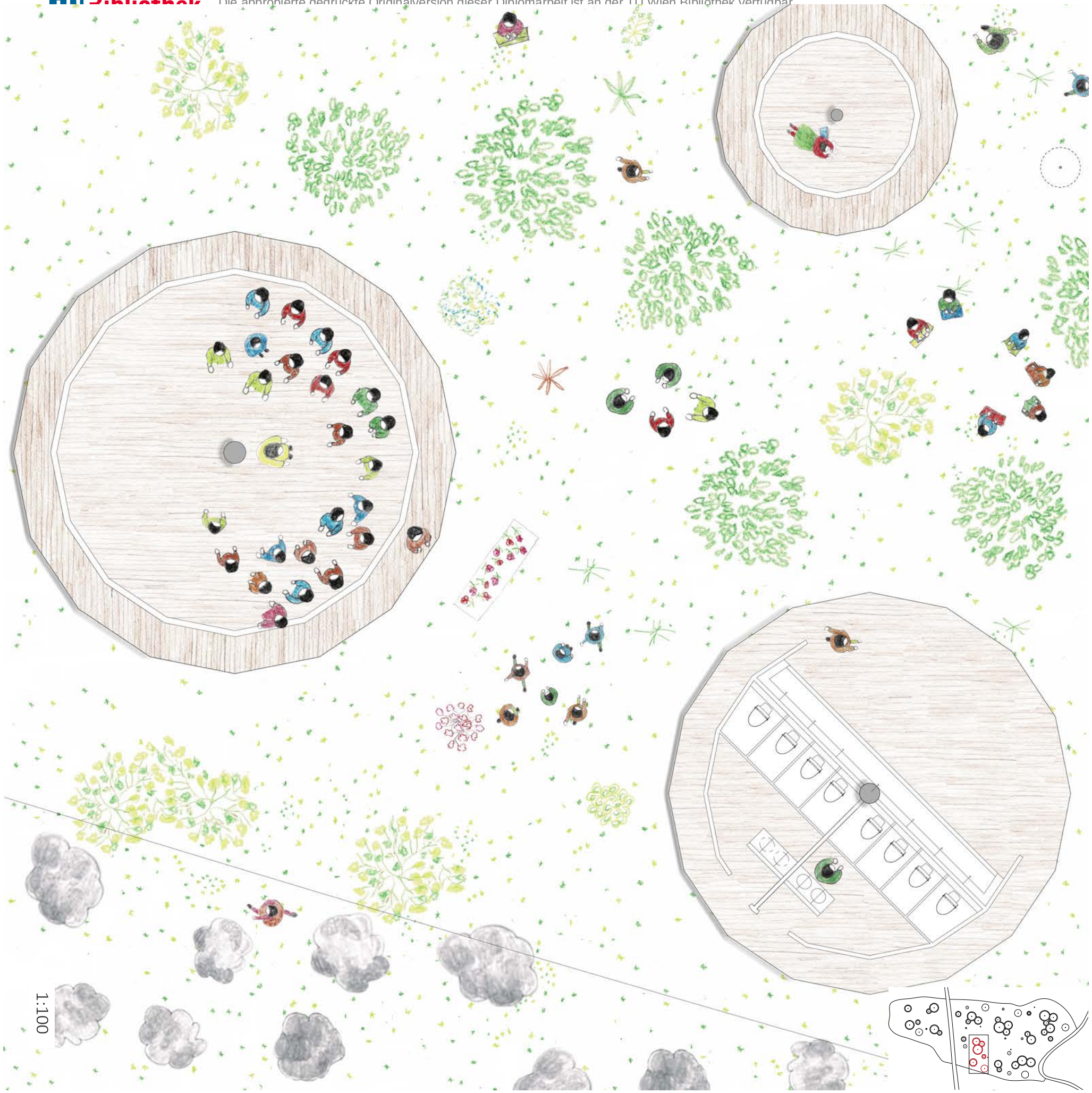

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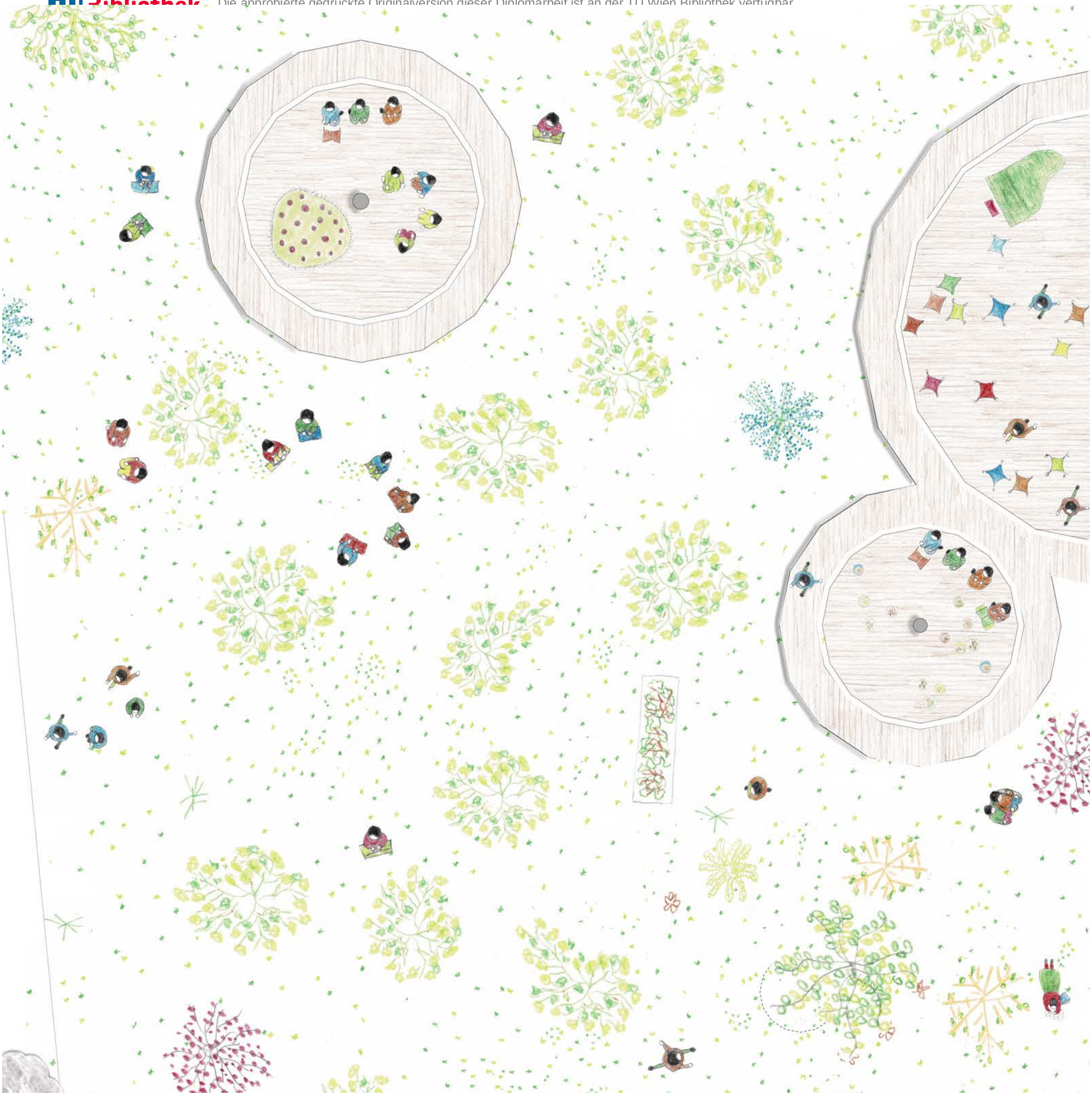

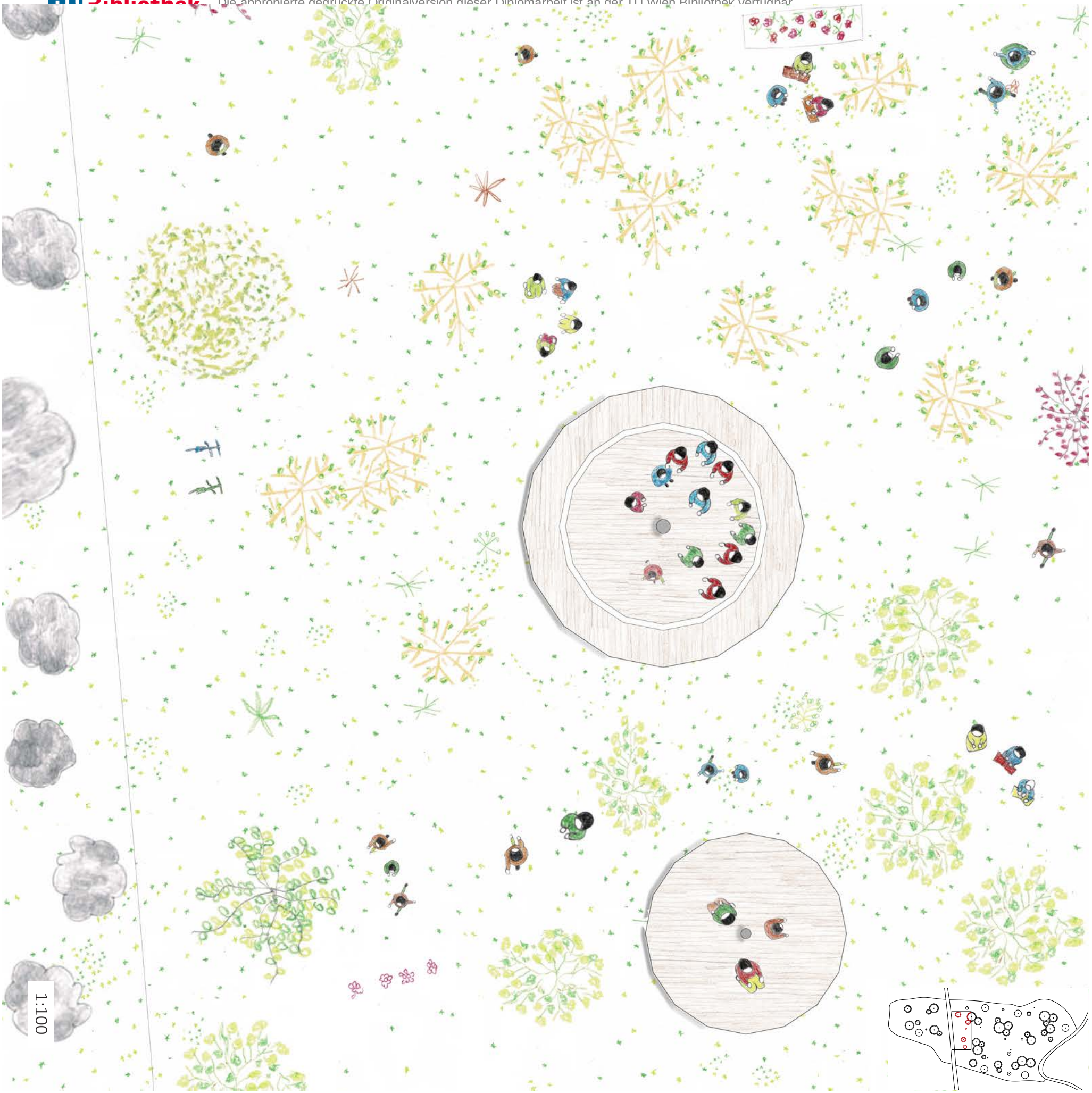

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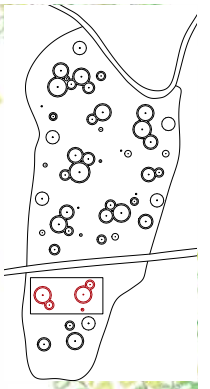

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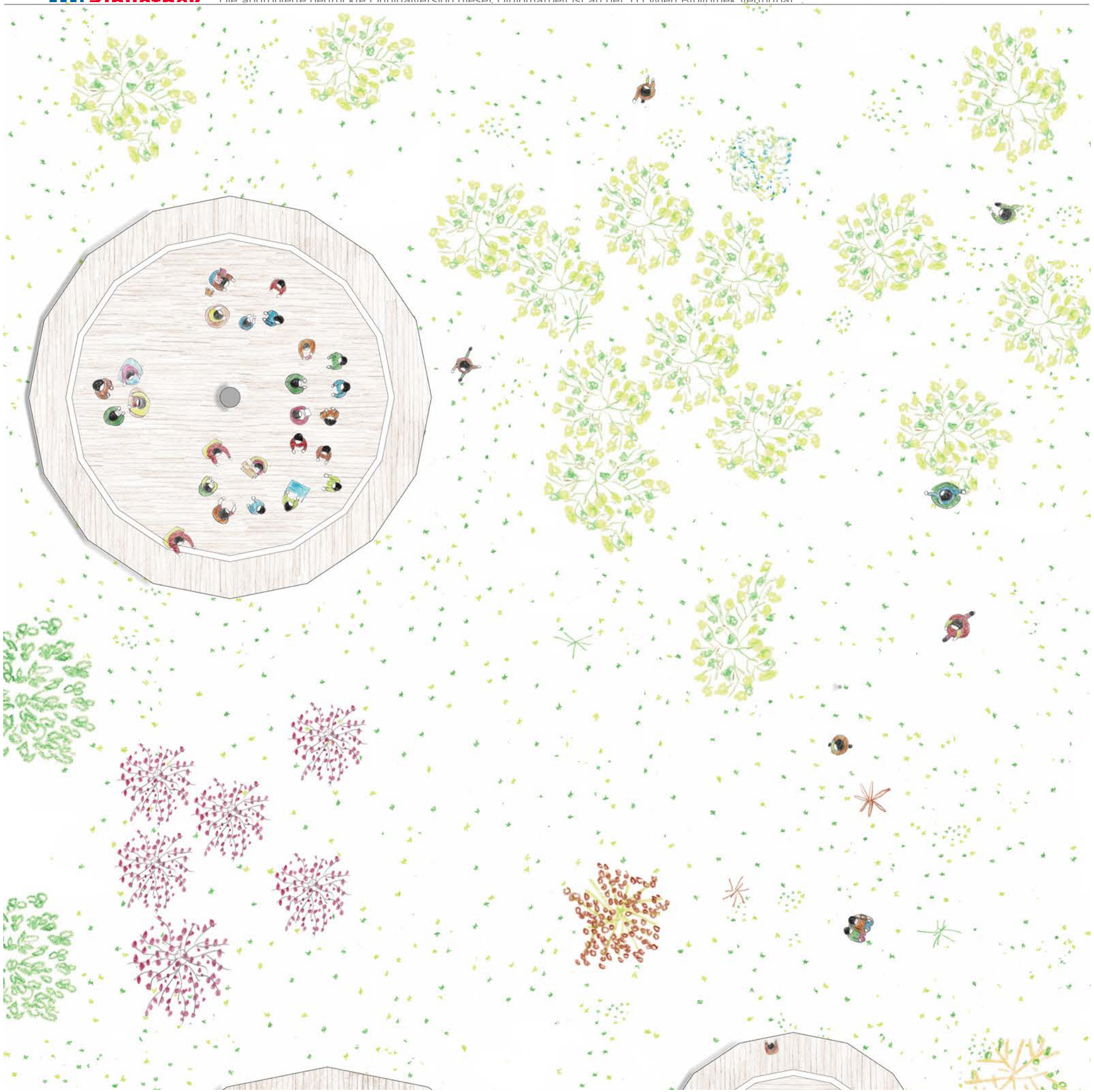

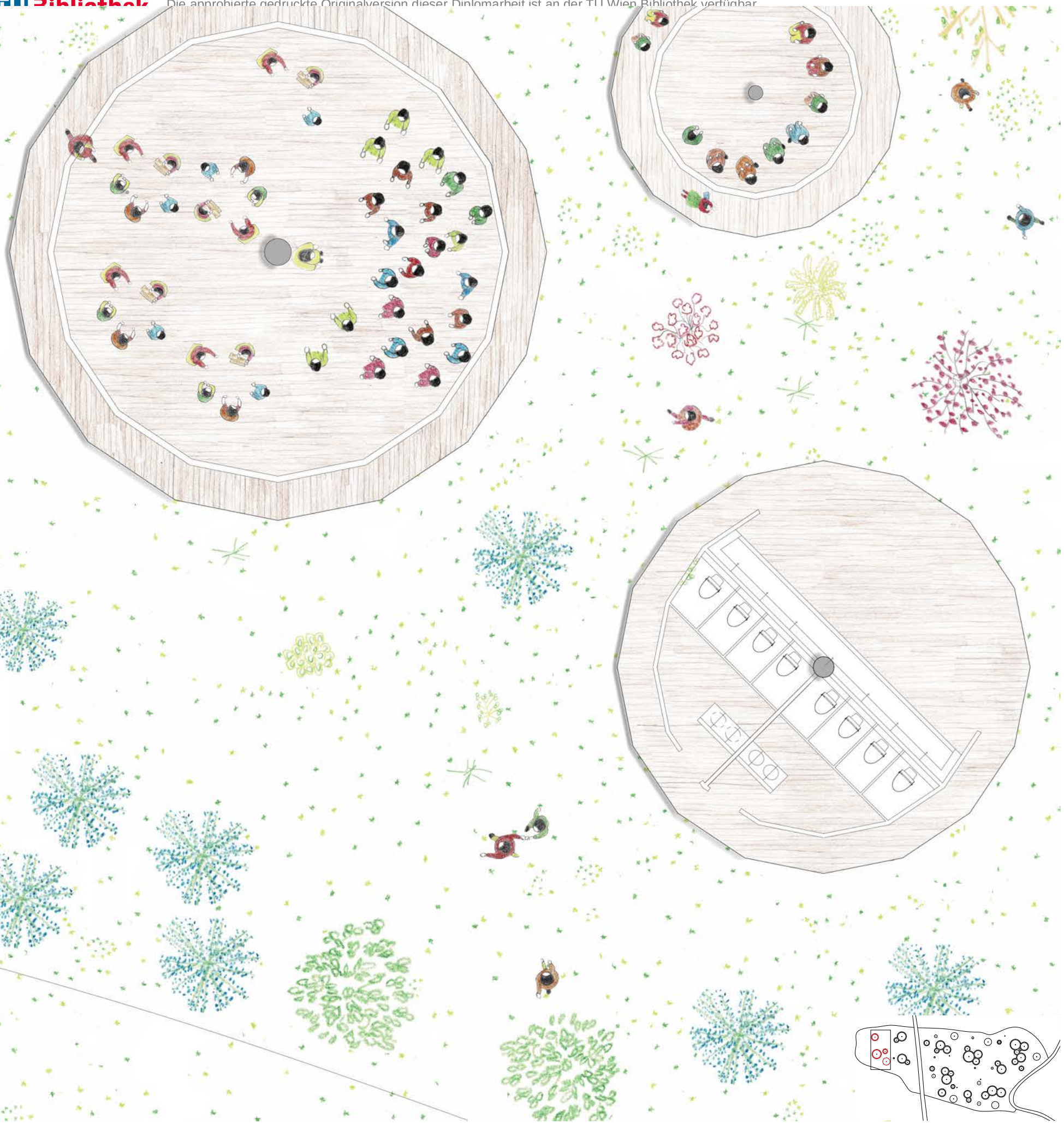

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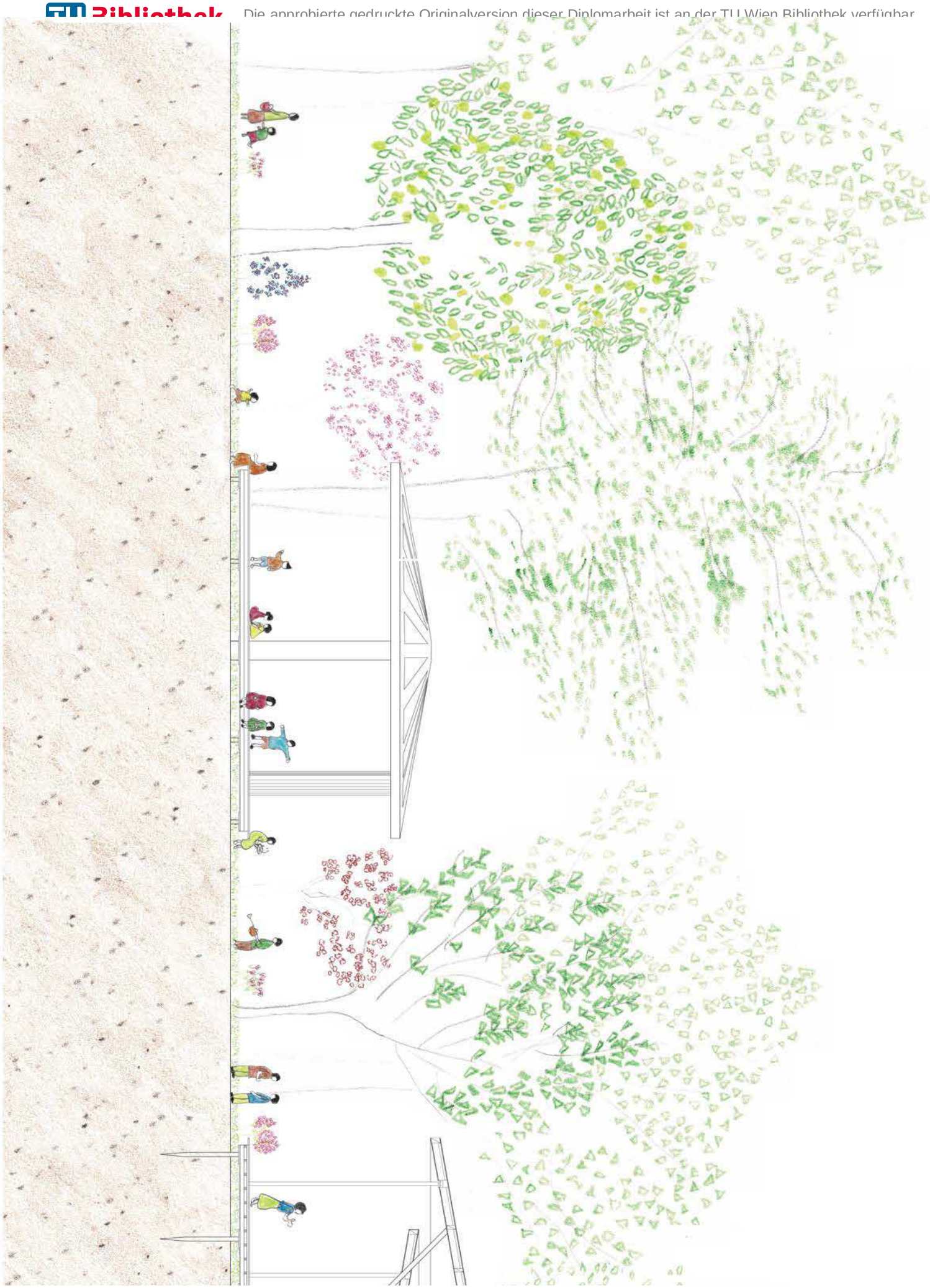

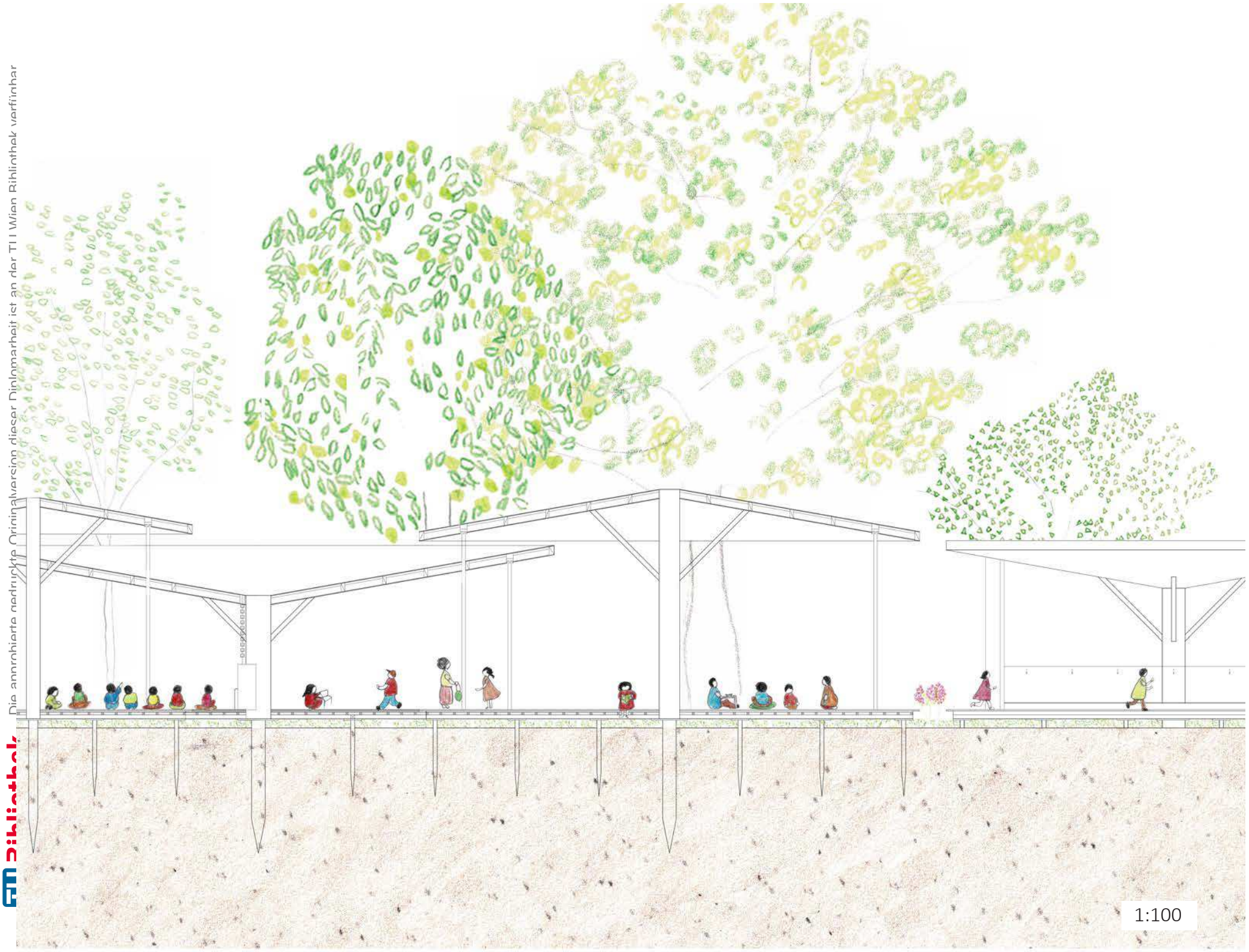

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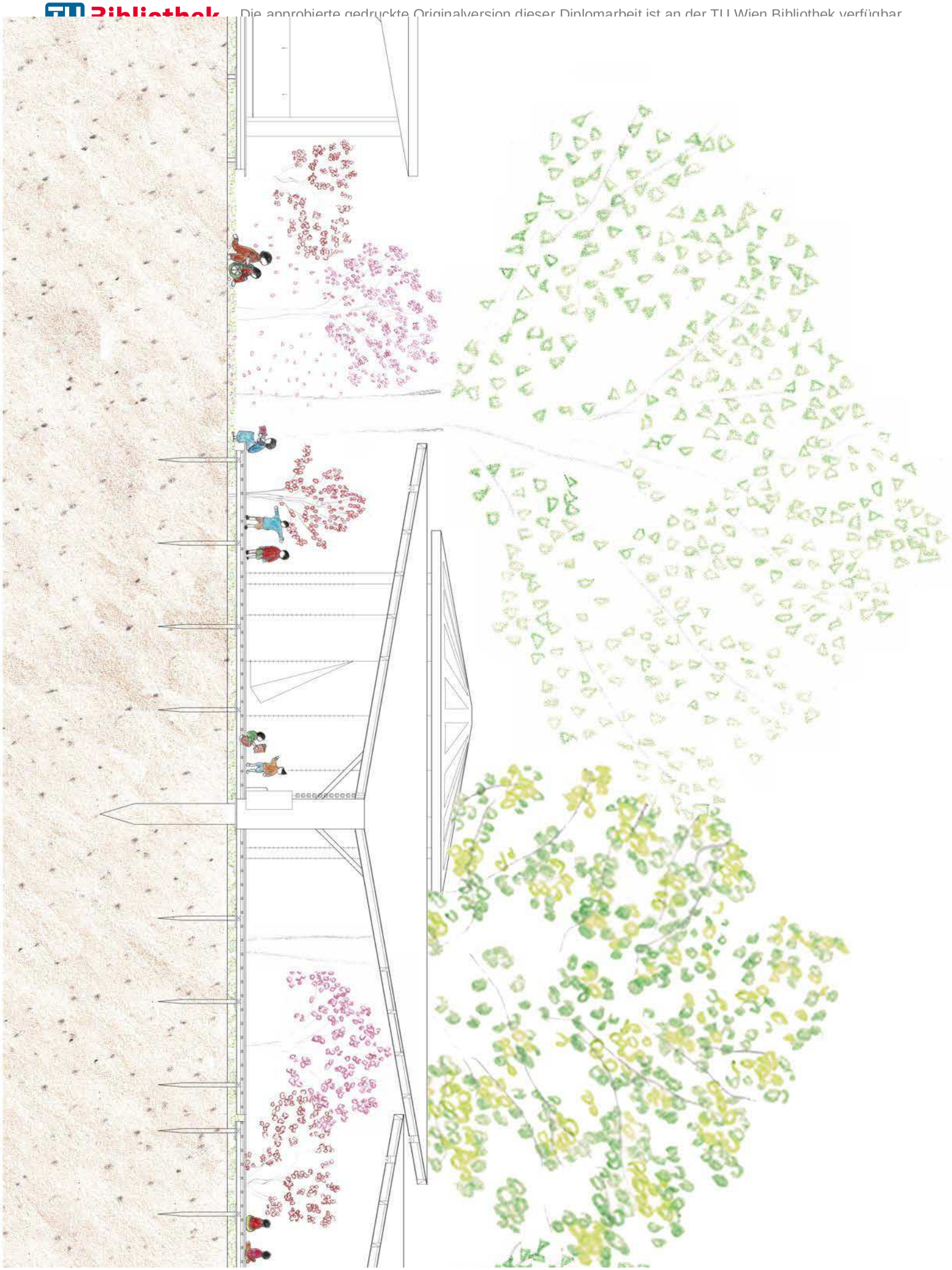

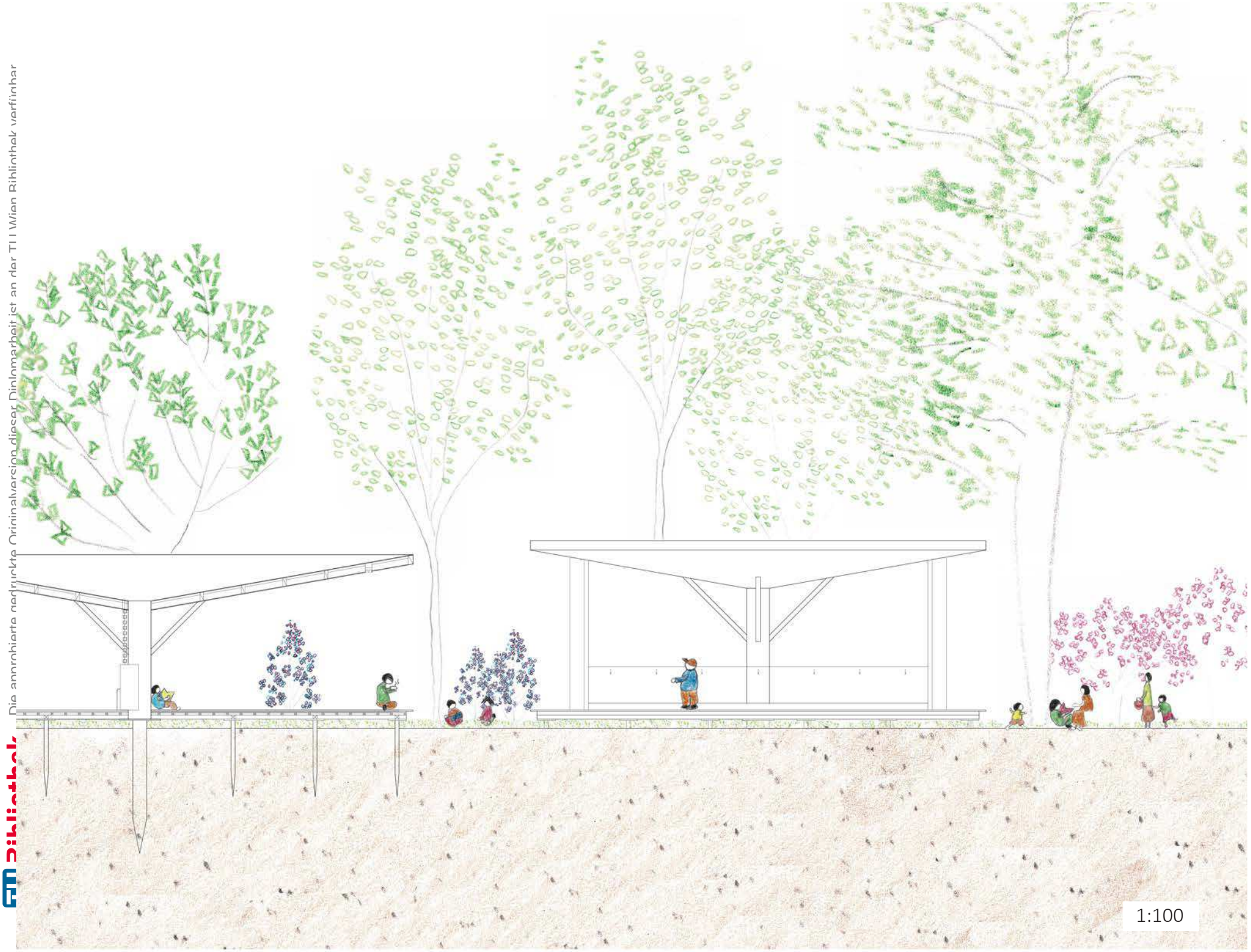

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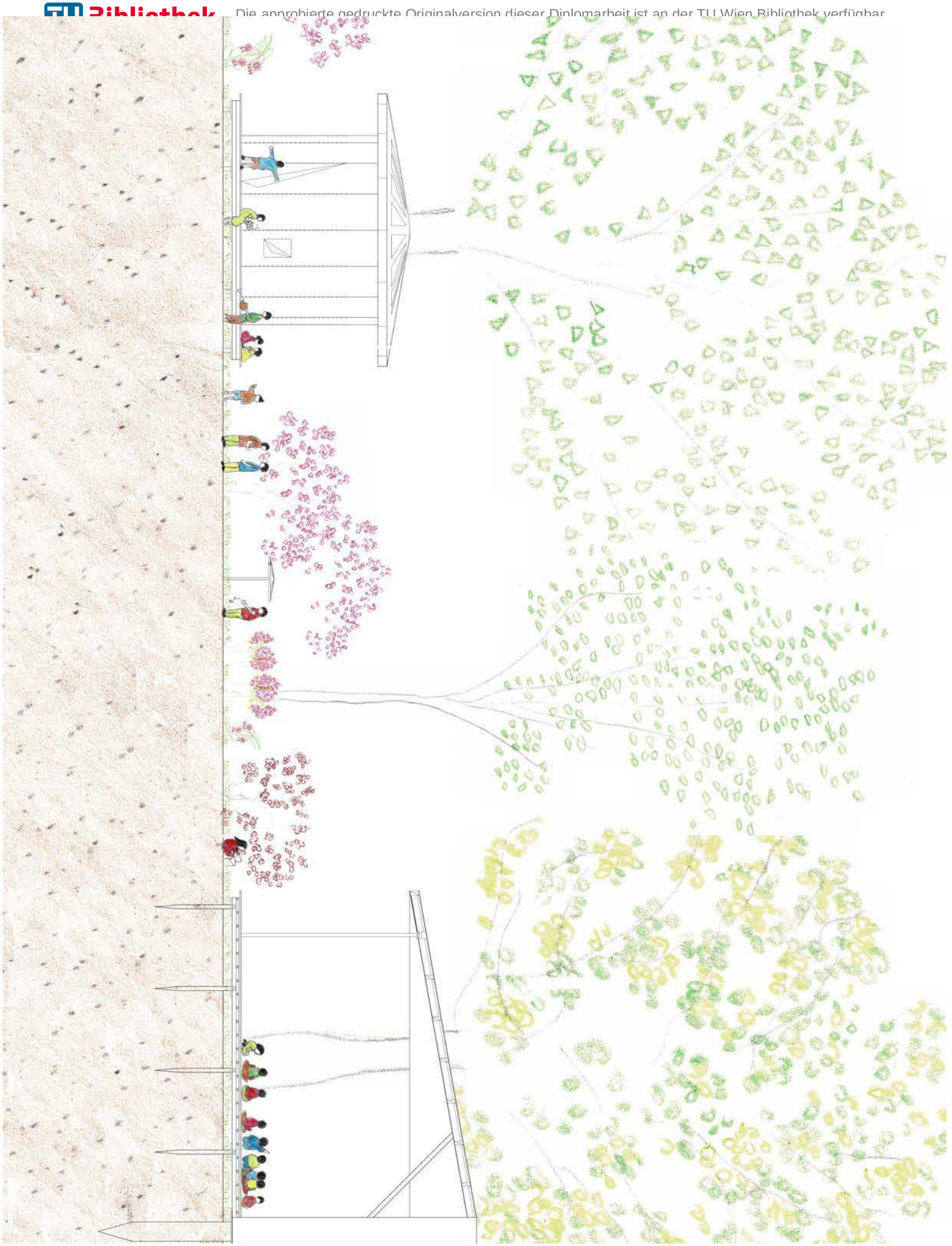

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