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**Interpreting Narratives of Nature at the 2025
Venice Architecture Biennale:
A Critical Analytical Framework**

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ABSTRACT

This thesis examines how the rights of nature are conceptualized and represented by participants in the 2025 Venice Architecture Biennale exhibition, *Intelligens. Natural. Artificial. Collective*. Positioned at the intersection of the environmental humanities and contemporary architectural discourse, the research investigates how participating projects perceive nature and translate these perceptions into design narratives and practices. The *Natural* section was divided into 53 “center” and 67 “wall” installations and compiled into a descriptive database. The “center” projects were examined in greater depth using a custom analytical framework designed to assess their conceptual, spatial, and performative interpretations of nature. The study employs a qualitative methodology that integrates discourse and visual analyses, along with a structured evaluation system comprising 15 questions addressing nature-focused, architecture-focused, and outcome-focused qualities. The findings reveal a persistent tension between progressive ecological rhetoric and the continued dominance of anthropocentric design ideas. Although many projects symbolically position nature as an active agent or co-creator, such gestures often remain speculative or aesthetic rather than constituting material claims to legal, political, or ecological agency. The Biennale nevertheless emerges as a powerful cultural site where environmental values are negotiated, normalized, and contested. This thesis argues that the Venice Architecture Biennale functions not only as a reflector of contemporary ecological concern but also as an influential function in shaping how nature is understood, valued, and designed by architects and planning professionals amid the current climate crisis.

STATEMENT ON THE USE OF AI TOOLS

Artificial intelligence (AI) tools were used in a limited and supportive capacity throughout this research process. SciSpace was used during the literature review stage to identify potentially relevant academic sources based on shared topics and themes. All sources suggested by the platform were independently reviewed, evaluated, and selected by the author. ChatGPT was used to assist with organizational tasks, including compiling recurring themes from Biennale participant biographies, developing thesis outlines and topic structures, and editing selected sentences for clarity and comprehensibility. However, all research design decisions, data collection, analysis, interpretations, results, conclusions, and arguments presented in this thesis were developed independently by the author and/or with assistance from associated professionals. Otter.ai was used during the validation study to record discussions and generate initial transcripts. The resulting transcripts were subsequently reviewed, corrected, and edited by the author to assure accuracy, clarity, and cohesiveness.

AI tools were used only for helpful organizational, transcription, and editorial support. They did not generate original arguments or conclusions. All analysis, interpretations, and substantive content presented in this thesis are the author's own.

TABLE OF CONTENTS

ACKNOWLEDGEMENTS.....	3
ABSTRACT	4
STATEMENT ON THE USE OF AI TOOLS.....	5
TABLE OF CONTENTS	6
LIST OF FIGURES	9
LIST OF TABLES.....	12
LIST OF ABBREVIATIONS.....	13
1. INTRODUCTION	14
1.1 THE VENICE BIENNALE // LA BIENNALE DI VENEZIA.....	16
1.2 HISTORY OF THE VENICE BIENNALE	17
1.3 VENICE ARCHITECTURE BIENNALE 2025: INTELLIGENS. NATURAL. ARTIFICIAL. COLLECTIVE	20
2. LITERATURE REVIEW.....	25
2.1 CONCEPTUAL AND CULTURAL UNDERSTANDINGS OF NATURE.....	26
2.1.1 External Nature.....	27
2.1.2 Universal Nature.....	30
2.1.3 Ecolinguistic Significance.....	31
2.1.4 Intrinsic Nature	31
2.1.5 Super-Ordinate Nature.....	34
2.1.6 Nature as a Perspectival Concept.....	36
2.2 EXISTING PERSPECTIVES AND REPRESENTATIONS OF THE RIGHTS OF NATURE FRAMEWORK.....	37
2.2.1 Determining the Personhood of Nature.....	37
2.2.2 Adaptive Applications and the Future of the RoN Framework.....	40
2.3 BRIDGING NATURE AND ARCHITECTURE	41
2.3.1 Dualisms (Hierarchical).....	42
2.3.2 Dualisms (Spatial).....	43
2.3.3 Dualisms (Material).....	45
2.3.4 Dualisms (Epistemic)	48
2.4 CRITICAL APPROACHES (CRITIQUES) AND GAPS IN THE RESEARCH.....	50
2.5 CONCLUSION	50
3. METHODOLOGY	52
3.1 RESEARCH APPROACH AND POSITIONALITY	53

3.1.1 Research Design and Approach	53
3.1.2 Researcher Positioning.....	55
3.1.3 Research Positioning	56
3.2 RESEARCH AND SAMPLING CONTEXT	57
3.2.1 Site Context.....	57
3.2.2 Sampling Context.....	58
3.3 DATA COLLECTION	60
3.3.1 Data Acquisition and Permissions	64
3.3.2 Data Collection Limitations.....	64
3.4 ANALYSIS FRAMEWORK.....	65
3.4.1 Framework Purpose	65
3.4.2 Framework Structure and Design	65
3.4.3 Category 1: Nature-Focused	67
3.4.4 Category 2: Architecture-Focused	67
3.4.5 Category 3: Results-Focused	68
3.4.6 Framework Scale and Anchor Descriptions	68
3.4.7 Nature-Focused Category: Questions, Qualities, and Anchors 1-5	69
3.4.8 Architecture-Focused Category: Questions, Qualities, and Anchors 6-10	77
3.4.9 Results-Focused Category: Questions, Qualities, and Anchors 11-15.....	85
3.4.10 Framework Development Process.....	90
3.4.11 Framework Application Process.....	92
4. RESULTS.....	96
4.1 NATURE-FOCUSED RESULTS	96
4.2 ARCHITECTURE-FOCUSED RESULTS	99
4.3 RESULTS-FOCUSED RESULTS.....	101
5 EXTERNAL VALIDATION STUDY.....	105
5.1 VALIDATION PURPOSE AND RATIONALE	105
5.2 PARTICIPANTS AND SAMPLING.....	106
5.3 WORKSHOP DESIGN AND PROCESS	112
5.4 EXTERNAL VALIDATION OUTCOMES	117
<i>Consensus and Majority Agreement</i>	117
<i>Not Applicable Responses</i>	120
5.5 FRAMEWORK FEEDBACK.....	121
5.6 VALIDATION STUDY LIMITATIONS	126
5.7 EXTERNAL VALIDATION CONCLUSION	128

6. DISCUSSION AND INTERPRETATION.....	130
6.1 NATURE-FOCUSED INTERPRETATION	130
6.1.1 <i>Conceptual Ambiguity of Terms</i>	131
6.1.2 <i>Roles, Rights, and Agency of Nature</i>	133
6.1.3 <i>Unpacking the Sole-Creator Role of Nature</i>	135
6.1.4 <i>Environmental Framing // Portrayal of Nature</i>	138
6.2 ARCHITECTURE-FOCUSED INTERPRETATION.....	139
6.2.1 <i>Environmentally Driven Approaches to Architectural Design and Planning</i>	139
6.2.2 <i>Green and Sustainable Design</i>	140
6.2.3 <i>Regenerative Design</i>	142
6.2.4 <i>Circular Design</i>	147
6.3 RESULTS-FOCUSED INTERPRETATION.....	153
6.3.1 <i>Explicit and Implicit Beneficiaries</i>	153
<i>(Future) Humans</i>	154
<i>Non-Humans</i>	157
<i>More-Than-Humans</i>	159
6.3.2 <i>Anthropocentric Bias</i>	162
7. CONCLUSION	166
8. BIBLIOGRAPHY	169

LIST OF FIGURES

FIGURE 1: “THE PRINCIPAL MEANINGS OF THE WORD NATURE IN CONTEMPORARY ANGLOPHONE SOCIETIES” (CASTREE 2014, 10).....	26
FIGURE 2: PHOTO TAKEN BY ME OF AN INTRODUCTION PLAQUE TO THE NATURAL INTELLIGENS SECTION (MAY 29, 2025).....	57
FIGURE 3: MAP OF THE ARSENALE VENUE (LA BIENNALE DI VENEZIA 2025A, 7).....	57
FIGURE 4: MAP OF THE ARSENALE VENUE, SPECIFICALLY THE INTRO AND BEGINNING OF NATURAL SECTIONS (LA BIENNALE DI VENEZIA 2025A, 8).....	59
FIGURE 5: DISTINCTION BETWEEN CENTER (LEFT “20”) AND WALL (RIGHT “20”) PROJECTS WITHIN THE NATURAL SECTION (LA BIENNALE DI VENEZIA 2025A, 9).....	59
FIGURE 6: PHOTO OF INITIAL PROJECT DATABASE, WITH INFORMATION SOURCED FROM THE OFFICIAL BIENNALE WEBSITE.	61
FIGURE 7: PHOTO OF DEVELOPING PROJECT DATABASE, WITH INFORMATION SOURCED FROM CLAIRE GORMAN HANLY.....	61
FIGURE 8: PHOTO OF DEVELOPING PROJECT DATABASE, INCLUDING PROFESSION DROPDOWN CATEGORIES, CITED PRIMARY OR SECONDARY SOURCES, PUBLICLY AVAILABLE PARTICIPATOR BIOGRAPHY, AND CENTRAL THEMES EXTRACTED WITH THE HELP OF AN AI PROGRAM (CHATGPT).....	62
FIGURE 9: PHOTO TAKEN BY ME OF THE PROJECT TITLED, CANTICO TIBERINO: CRADLE OF MORE-THAN-HUMAN INTELLIGENCES (MAY 29, 2025).	63
FIGURE 10: ANALYSIS FRAMEWORK QUALITY SCALE AND ANCHOR FORMATTING TEMPLATE (CREATED USING THE DESIGN PROGRAM CANVA).....	68
FIGURE 11: ANALYSIS FRAMEWORK “CENTRALITY” SCALE (CREATED USING THE DESIGN PROGRAM CANVA)	69
FIGURE 12: ANALYSIS FRAMEWORK “AGENCY” SCALE (CREATED USING THE DESIGN PROGRAM CANVA).....	71
FIGURE 13: ANALYSIS FRAMEWORK “ONTOLOGY” SCALE (CREATED USING THE DESIGN PROGRAM CANVA).....	72
FIGURE 14: ANALYSIS FRAMEWORK “FRAMING” SCALE (CREATED USING THE DESIGN PROGRAM CANVA).	74
FIGURE 15: ANALYSIS FRAMEWORK “INTENTIONALITY” SCALE (CREATED USING THE DESIGN PROGRAM CANVA).	76
FIGURE 16: ANALYSIS FRAMEWORK “SCALE” SCALE (CREATED USING THE DESIGN PROGRAM CANVA).....	77
FIGURE 17: ANALYSIS FRAMEWORK “LOCALITY” SCALE (CREATED USING THE DESIGN PROGRAM CANVA).....	79
FIGURE 18: ANALYSIS FRAMEWORK “INTERVENTION” SCALE (CREATED USING THE DESIGN PROGRAM CANVA).....	80
FIGURE 19: ANALYSIS FRAMEWORK “NATURE-BASED SOLUTIONS” SCALE (CREATED USING THE DESIGN PROGRAM CANVA). ...	82
FIGURE 20: ANALYSIS FRAMEWORK “SEPARATION” SCALE (CREATED USING THE DESIGN PROGRAM CANVA).....	83
FIGURE 21: ANALYSIS FRAMEWORK “FEASIBILITY” SCALE (CREATED USING THE DESIGN PROGRAM CANVA).	85
FIGURE 22: ANALYSIS FRAMEWORK “MUTABILITY” SCALE (CREATED USING THE DESIGN PROGRAM CANVA).	86
FIGURE 23: ANALYSIS FRAMEWORK “TEMPORALITY” SCALE (CREATED USING THE DESIGN PROGRAM CANVA).	87
FIGURE 24: ANALYSIS FRAMEWORK “MATERIALITY” SCALE (CREATED USING THE DESIGN PROGRAM CANVA).	88
FIGURE 25: ANALYSIS FRAMEWORK “BENEFICIARY” SCALE (CREATED USING THE DESIGN PROGRAM CANVA).....	89
FIGURE 26: FRAMEWORK APPLICATION FORMATTING TEMPLATE.	92
FIGURE 27: FRAMEWORK APPLICATION FOR ORIGIN, THE VENETIAN LAGOON, QUESTIONS 1-3.	93
FIGURE 28: FRAMEWORK DATABASE SPREADSHEET COMPILED IN GOOGLE SHEETS, PROJECTS 1-5.....	94

FIGURE 29: ANALYSIS FRAMEWORK RESULTS. DISTRIBUTION OF RATINGS FOR “CENTRALITY.”	96
FIGURE 30: ANALYSIS FRAMEWORK RESULTS. DISTRIBUTION OF RATINGS FOR “AGENCY.”	97
FIGURE 31: ANALYSIS FRAMEWORK RESULTS. DISTRIBUTION OF RATINGS FOR “ONTOLOGY.”	97
FIGURE 32: ANALYSIS FRAMEWORK RESULTS. DISTRIBUTION OF RATINGS FOR “FRAMING.”	98
FIGURE 33: ANALYSIS FRAMEWORK RESULTS. DISTRIBUTION OF RATINGS FOR “INTENTIONALITY.”	98
FIGURE 34: ANALYSIS FRAMEWORK RESULTS. DISTRIBUTION OF RATINGS FOR “SCALE.”	99
FIGURE 35: ANALYSIS FRAMEWORK RESULTS. DISTRIBUTION OF RATINGS FOR “LOCALITY.”	99
FIGURE 36: ANALYSIS FRAMEWORK RESULTS. DISTRIBUTION OF RATINGS FOR “INTERVENTION.”	100
FIGURE 37: ANALYSIS FRAMEWORK RESULTS. DISTRIBUTION OF RATINGS FOR “NATURE-BASED SOLUTIONS.”	100
FIGURE 38: ANALYSIS FRAMEWORK RESULTS. DISTRIBUTION OF RATINGS FOR “SEPARATION.”	101
FIGURE 39: ANALYSIS FRAMEWORK RESULTS. DISTRIBUTION OF RATINGS FOR “FEASIBILITY.”	102
FIGURE 40: ANALYSIS FRAMEWORK RESULTS. DISTRIBUTION OF RATINGS FOR “MUTABILITY.”	102
FIGURE 41: ANALYSIS FRAMEWORK RESULTS. DISTRIBUTION OF RATINGS FOR “TEMPORALITY.”	103
FIGURE 42: ANALYSIS FRAMEWORK RESULTS. DISTRIBUTION OF RATINGS FOR “MATERIALITY.”	103
FIGURE 43: ANALYSIS FRAMEWORK RESULTS. DISTRIBUTION OF RATINGS FOR “BENEFICIARY.”	104
FIGURE 44: PROFESSIONAL AND ACADEMIC EXPERIENCE OF EXTERNAL VALIDATION PARTICIPANTS.	106
FIGURE 45: PRIMARY BACKGROUNDS OF EXTERNAL VALIDATION PARTICIPANTS.....	106
FIGURE 46: EXTERNAL VALIDATION PARTICIPANT ENGAGEMENT WITH ARCHITECTURE OR SPATIAL DESIGN.....	107
FIGURE 47: EXTERNAL VALIDATION PARTICIPANTS’ EXPERIENCE IN SUSTAINABILITY, ECOLOGY, OR ENVIRONMENTAL DESIGN.	107
FIGURE 48: SURVEY QUESTION ASSESSING EXTERNAL VALIDATION PARTICIPANT FAMILIARITY WITH CONCEPTS RELEVANT TO THE STUDY.	108
FIGURE 49: SURVEY QUESTION RESPONSES ASSESSING EXTERNAL VALIDATION PARTICIPANT FAMILIARITY WITH CONCEPTS RELEVANT TO THE STUDY.	108
FIGURE 50: EXTERNAL VALIDATION PARTICIPANTS’ FAMILIARITY WITH ENVIRONMENTAL OR ECOLOGICAL THEORY.	109
FIGURE 51: EXTERNAL VALIDATION PARTICIPANTS’ FAMILIARITY WITH THE RIGHTS OF NATURE.....	109
FIGURE 52: SURVEY QUESTION RESPONSES ASSESSING EXTERNAL VALIDATION PARTICIPANT FAMILIARITY WITH CONCEPTS RELEVANT TO THE STUDY.	110
FIGURE 53: SURVEY QUESTION RESPONSES ASSESSING EXTERNAL VALIDATION PARTICIPANT FAMILIARITY WITH THE 2025 ARCHITECTURE BIENNALE THEME.....	110
FIGURE 54: SURVEY QUESTION RESPONSES ASSESSING VARIOUS CONTEXTUAL ENGAGEMENTS WITH THE 2025 BIENNALE PROJECTS.	111
FIGURE 55: SURVEY QUESTION RESPONSES ASSESSING EXTERNAL VALIDATION PARTICIPANTS’ ENGAGEMENT WITH ENVIRONMENTAL ISSUES.....	112
FIGURE 56: SURVEY QUESTION RESPONSES ASSESSING EXTERNAL VALIDATION PARTICIPANT VIEWS ON ARCHITECTURE AND NON- HUMAN AGENCY.	112
FIGURE 57: EXTERNAL VALIDATION PROJECT PHOTOGRAPH PROVIDED TO PARTICIPANTS.	113

FIGURE 58: EXTERNAL VALIDATION QUESTION EXAMPLE PROVIDED TO PARTICIPANTS.	114
FIGURE 59: EXTERNAL VALIDATION PROJECT OVERVIEW PROVIDED TO PARTICIPANTS.....	114
FIGURE 60: EXTERNAL VALIDATION STUDY DISTRIBUTION OF SCORES FOR P5, Q12.....	120
FIGURE 61: EXTERNAL VALIDATION STUDY FRAMEWORK FEEDBACK FOR QUESTION 1.....	121
FIGURE 62: EXTERNAL VALIDATION STUDY FRAMEWORK FEEDBACK FOR QUESTION 2.....	121

LIST OF TABLES

TABLE 1: EXTERNAL VALIDATION PROJECT AND QUESTION LISTS.....	116
TABLE 2: EXTERNAL VALIDATION STUDY FINDINGS OF PARTICIPANT CONSENSUS AND MAJORITY AGREEMENT BY FRAMEWORK QUESTIONS	119
TABLE 3: EXTERNAL VALIDATION STUDY FINDINGS OF PARTICIPANT CONSENSUS AND MAJORITY AGREEMENT BY PROJECT .	119

LIST OF ABBREVIATIONS

AI	Artificial Intelligence
CE	Circular Economy
EH	Environmental Humanities
NbS	Nature-based Solutions
RoN	Rights of Nature
TEK	Traditional Ecological Knowledge
WUI	Wildland-Urban Interfaces

1. INTRODUCTION

Using nature to find respite from nature

(Kahn et al. pg 61).

The introductory statement above captures one of the central implicit paradoxes within contemporary environmental discourse. This idea encapsulates the contradictory ways humans simultaneously depend upon, seek comfort in, and distance themselves from nature. This tension has long shaped environmental thought and continues to influence how nature is understood and represented today. The ways in which this relationship is understood reveal many conventional assumptions about the intersections between nature and the built environment.

Any introduction to the environmental discipline typically includes a meticulous dissection of the nature and human relationship. This thesis is no exception, although it explores this complicated interaction through the lesser-explored representation in the Venice Architecture Biennale exhibition. Despite the extensive research on various environmental narratives, the Biennale and other architectural contexts lack such complex interpretations. This thesis examines how nature is conceptualized and represented by participants in the 2025 Venice Architecture Biennale exhibition, *Intelligens. Natural. Artificial. Collective*. Positioned at the intersection of the environmental humanities and contemporary architectural discourse, the research investigates how participating projects perceive nature and translate these perceptions into design narratives and practices. These constructs profoundly change the relationships imagined and created between humans, non-humans, and our shared environmental systems.

As environmental crises and supporting dialogues continue to intensify, the considerations for nature need to cooperate effectively with the built world. The increasing ecocentric representations of nature frequently symbolize a pristine, aestheticized, and untouched view of our surroundings and fellow earth-dwellers. Ambiguous environmental concepts are frequently used to support underlying anthropocentric intentions, despite an outward ecocentric image. The concept of nature is often used within contemporary Architectural discourse to invoke ecological responsibility. The 2025 Venice Architecture Biennale and its incorporated projects similarly employ this technique, though they occasionally lack the critical and feasible considerations regarding non-human nature.

This thesis largely operates within the interdisciplinary field of the environmental humanities and, more specifically, examines the various ways in which projects conceptualize nature and its associated key concepts. This research is informed by the literature and underlying theoretical perspectives that explore the complex, intertwined relationships between nature and humans. These viewpoints are critically embraced throughout this thesis to confront conventional anthropocentric understandings and to explore relational, multispecies, and more-than-human approaches. An inclusive perception of the nature-human relationship provides an important foundation for the analytical framework utilized and interpreted in this research. In particular, the examined Biennale projects are evaluated for their conceptualization of the relationship between the built and natural environments, as well as how they assign agency, value, and responsibility between humans and nonhumans. Although the preceding approaches are frequently recognized within environmental discourse, they represent a fraction of the many ways nature-human relationships are positioned. Therefore, it should be understood as a guiding theoretical perspective rather than a neutral analytical position.

This research began as an interpretation of the Rights of Nature within the *Intelligens* exhibition, created by my thesis advisors, Alex Putzer, PhD, and Katja Schechtner. Putzer is a postdoctoral researcher at TU Delft's Faculty of Architecture and the Built Environment and a non-resident fellow at the NYU School of Law Guarini Center on Environmental, Energy, and Land Use Law. Schechtner is a senior urban scientist and research affiliate at the MIT Senseable City Lab and the MIT Leventhal Center for Advanced Urbanism. When my primary advisor, Daniele Brombal, an associate professor in the Department of Asian and North African Studies at Ca' Foscari University of Venice and head of the MA Programme in Environmental Humanities, and I joined this project, it expanded its perspective on the narratives of nature. This collaborative process evolved due to a lack of overt references to the RoN within the exhibition. The analyses of these topics include implicit RoN and other themes concerning nature and its presence or absence in the built environment. This research focuses on the contributions presented at the 19th International Architecture Exhibition, titled *Intelligens. Natural. Artificial. Collective*, curated by Carlo Ratti and organized by La Biennale di Venezia in 2025 (from hereon: Venice Architecture Biennale 2025).

1.1 THE VENICE BIENNALE // LA BIENNALE DI VENEZIA

This section will deliver comprehensive information and historical context about the Venice Biennale, also known in Italian, its native language, as La Biennale di Venezia. The foundation of this project is rooted in the themed projects of the 2025 Venice Architecture Biennale. To explore the concepts and topics presented in the exhibition cohesively, I will demonstrate the event's global reach and scope of influence. The Biennale consists of several distinct programs, including events dedicated to dance, theater, and music, a cinema exposition known as the Venice International Film Festival, and alternating annual exhibitions of art and architecture. This thesis specifically examines the components of the architecture exhibition in terms of their thematic relevance to the current environmental discourse. The following paragraph will explain the roles, events, and attitudes of the Biennale as a whole, and as they pertain to my research.

The Venice Biennale is one of the world's most prominent and influential cultural organizations. They are responsible for organizing annual exhibitions that showcase various artistic disciplines and honor notable participants. Originating as a city council ordinance in 1893, the Biennale has expanded into a range of globally recognized events that feature contemporary developments in art, architecture, cinema, dance, music, and theater (La Biennale di Venezia 2017a). The institution maintains a strong research presence and actively works together with academic institutions and community organizations. The exhibition is renowned for showcasing unique and thought-provoking art. It is often equated with “the Olympics of the art world” for its competitive nature and prestige (Russeth 2024). Along with fostering innovative new ideas, the organization invests heavily in the archival and documentation of exhibition-related materials.

The influence of the Venice Biennale reaches beyond the boundaries of the art world, intentionally engaging with social and political issues. This widespread visibility provides participating artists with a unique platform to communicate their ideas to an extensive, international audience. In 2022, the art exhibition drew a record 800,000 attendees, following a similar turnout of approximately 700,000 attendees in 2024 (La Biennale di Venezia 2024). These numbers demonstrate the exhibition’s considerable international appeal, with 59% of visitors coming from abroad and the remainder from Italy (La Biennale di Venezia 2024). The Biennale functions not only as a platform for artistic ideas but also as a forum for critical

viewpoints and influence. The 2024 Art Biennale, curated by Adriano Pedrosa, employed the provocative title "*Foreigners Everywhere*," which explicitly challenged the circulating anti-immigration discourses in influential countries such as Italy, Hungary, and the United States (Russeth 2024). Given his curatorial position and the Biennale's backdrop, Pedrosa highlighted several crucial social issues within the narrative of the 'foreigner'. This exhibition framework is a vital and significant tool for shaping visitor perception, stimulating thought, and inspiring social change. The Venice Biennale is not simply an art exhibition but a "significant force in the globalisation of the arts," serving as a cultural platform that amplifies artists' voices and engages critically with global issues (Johanson et al. 2022, 3). The projects and artworks are displayed each year on a broadly influential international podium.

As its name suggests, the Venice Biennale is organized on a biennial cycle, with thematic exhibitions alternating between art and architecture. Each rotation typically displays for approximately six months, from May to November, before making way for the preparation time for the incoming projects for the remainder of the year. Both the Art and Architecture Biennale consist of a central exhibition developed by the nominated Biennale curator of that year, National Pavilion exhibitions, each produced by a curator, and additional collateral events (La Biennale di Venezia 2017b). The exhibitions feature numerous participants to showcase emerging practices, support critical engagement, and platform underrepresented voices. It is essential to note the physical scale of the Biennale, which spans multiple venues in the Giardini and Arsenale, as well as sites throughout the city. Its expansive scope encompasses not only the exhibition in the physical sense but also its cultural dimensions. The Venice Biennale has grown to support the expression of creativity through its many expositions, venues, and collaborators.

1.2 HISTORY OF THE VENICE BIENNALE

Enduring global conflicts, the rise and fall of fascism, and the persistent progression of the art landscape, the organization has a rich and deep history in the Venice Lagoon. As mentioned previously, the Biennale has matured substantially since its conception. Historical events have considerably impacted the exhibition and played a key role in sparking cultural discourse. The exhibition has pioneered various political ideas over the years; for example, in 1930, control of the Venice City Council shifted to the Italian Fascist state, which introduced key multidisciplinary events due to a substantial influx of funding (La Biennale di Venezia 2017a).

This historical moment highlights the Biennale's sustained influence in the midst of significant political change in Italy.

Throughout the Biennale's existence, numerous moments have demonstrated its profound impact on public perception by platforming culturally relevant discourse. During the 1990 exhibition, the art collective Gran Fury displayed posters criticizing the Roman Catholic Church's stance on sex and contraception during the deadly AIDS crisis (Kimmelman 1990, 11). This attitude and public presentation of these works were highly controversial at the time, and the Biennale served as a central platform for raising awareness and voicing criticism of a powerful organization. Another thematically relevant and culturally significant opportunity worth acknowledging is the theme titled '*How Will We Live Together?*' from the Architecture Biennale in 2021. The curator, Hashim Sarkis, urged architects to reimagine living spaces because, as he quotes, "they have the ability to present more inspiring answers than politics has been thus far offering in much of the world" (La Biennale di Venezia 2020). The theme as a whole encouraged participants to challenge societal norms and innovate traditional designs to address the community's needs. Many Biennale projects provide crucial solutions or alternatives to contemporary concerns. One such project surpassed the bounds of the exhibition, becoming a public demonstration of functional environmental infrastructure. The project, titled "*Future Island in Venice: The Time of Stone*," was exhibited at the Architecture Biennale in 2021 and subsequently commissioned by the Public Art Agency Sweden. The project was designed as a self-sufficient microclimate that hosts plants and animals capable of adapting to climate change with limited human intervention (OOZE 2023). The *Future Island* incorporates site-specific ecology, utilizing an existing stream to improve its structure and allow the site to mature and evolve as a cohesive whole. This is an example of a significant design that had a lasting effect beyond its time at the Biennale.

The Architecture Biennale in 2021 hosted another thematically relevant project that referenced inclusive perspectives and participation. The project, titled *Future Assembly*, imagines a congregation comprising "more-than-human stakeholders from anywhere in the world" involved in validating the rights of nature (La Biennale di Venezia 2021). The participants emphasize the inclusion of non-human species and elements by granting them agency in shaping future architecture. This collection of stakeholders was inspired by the United Nations' multilateral assembly (McTernan, n.d.). By including unconventional voices, this

project legitimizes non-human entities as valuable co-designers. As a result, *Future Assembly* has contributed to the RoN discourse by reimagining architectural collaboration and challenging traditional anthropocentric views of the world.

The many projects, participants, and exhibition themes can influence visitors beyond their brief time in Venice. The Biennale has been consistently altered by global and cultural factors throughout history, such as the rise and fall of the Italian Fascist party, the deadly AIDs epidemic, and most recently, the international climate change crisis. All of which have also affected social and architectural discourse and further contributed to a collaborative and inclusive view of nature. As in the previously mentioned projects from the Architecture Biennale in 2021, participants have been inspired to transcend the boundaries of the exhibition and implement their designs and ideas in the real world. *Future Island* is currently functioning as beneficial environmental infrastructure in Sweden, while *Future Assembly* has provoked environmental discourse to comprehensively platform non-humans. This reactivity over time is why the Biennale is a pivotal lens for examining the evolving intersections of art, architecture, and social discourse.

The Biennale has widespread effects, extending beyond the arts and architecture industries. According to a study by Johanson et al., “from a public policy perspective, participation in the Venice Biennale boosts a nation’s international profile and draws attention to the quality of its visual arts sector” (2022, 2). Not only are the participating countries globally recognized, but their involvement in the Biennale also provides strategic opportunities for their governments and cultural institutions. The same study recognizes how “extensive literature on the Venice Biennale highlights its role in driving national reputation and diplomatic efforts” (Johanson et al. 2022, 2). By participating in the exhibition, countries can showcase their cultural and artistic capabilities and enhance their international standing. Despite the study finding minimal or no benefits for the participating artists and their careers, the impact of the event on a larger scale is vast (Johanson et al. 2022, 12). Overall, there is a substantial body of literature that supports the Venice Biennale's prestigious reputation.

1.3 VENICE ARCHITECTURE BIENNALE 2025: INTELLIGENS. NATURAL. ARTIFICIAL. COLLECTIVE

Although the Architecture Biennale is significantly younger than the Art Biennale, it showcases projects and participants of equal prominence and innovation. The architecture exhibition focuses less on artistic expression and more on exploring new ideas for the built world. Each year, the curated themes vary conceptually, although they frequently engage with culturally relevant discourse, supporting the Biennale's role as an "integral part of contemporary architectural culture" (Levy and Menking 2010, 7). The curator for the 2025 Architecture Biennale is named Carlo Ratti, and his theme is *Intelligens. Natural. Artificial. Collective*, which in his own words "invites different types of intelligence to work together to rethink the built environment" (Ratti 2024). This theme emphasizes the crucial need to mitigate climate change impacts through the integration of heterogeneous knowledge. He explores various forms of intelligence, integrating them through alternative technologies, architectural reimagination, and ecological design across disciplines. Ratti emphasizes the need for adaptation within the built environment, not to outcompete climate change, but to interact with it using interdisciplinary design.

The theme of *Intelligens* encompasses natural, artificial, and collective intelligences while underlining 'gens', referring to people. Ratti highlights the importance of intergenerational and intersectional collaboration and insists, "architecture must become as flexible and dynamic as the world we are now designing for" (Ratti 2024). He believes that architectural innovation cannot remain rigid or bound to mitigating the surroundings. Within this broad theme, Ratti sections the exhibition into three thematic worlds or intelligences: natural, artificial, collective, and an additional section titled *Out* (Ratti 2024). Each world comprises small- to large-scale projects, all connected by an overarching theme. Within the "Natural" section, participants have reimaged architecture's initial primary function: protecting humans from external forces. Much of my research for this thesis has focused on this theme to understand what planning professionals who participate believe about nature.

As visitors are guided through the exhibition space, they are immersed in projects and designs that explore how architecture and the built world will adapt to a changing world. Although my research has not focused on the remaining sections, their impact on the concept of nature is not lost. To briefly describe each section, the projects within the "Artificial" section

have challenged the idea of AI as a conquering force and have repositioned it as an adaptive resource for the architecture field. For many industries, AI has been both destructive and beneficial, replacing crucial work from people while also establishing itself as a necessity for future innovation. This section examines how architecture can collaborate with AI to evolve into an enhanced field of study. The “Collective” section comprises participants and projects that engage in collaborative discourse to create the built future, spanning from the local to the global scale. In an increasingly individualistic world, the collective work of humans has been pushed away, and with it, the support needed for adaptation and resilience. This section uses collective intelligence to build and thrive. Lastly, the “Out” section makes a statement about the unrealistic outlook of space as a solution to climate change on Earth. This section emphasizes that beyond our planetary bounds can be a source of inspiration and innovation, as long as it is not an escape route for not dealing with consequences. These sections highlight the necessity of diverse types of knowledge, the current state of AI, and its potential as a valuable tool.

The introduction of the Arsenale exhibition acquaints visitors with the overall message of the 2025 event. All visitors are initially exposed to a loud, humid, dark, heated, narrow walkway surrounded by water, with towering structures above and the sound of air-conditioner exhaust. The question Ratti poses to the participants, “What will tomorrow’s climate look like?” is answered through an uncomfortable sensory experience that represents a warming planet. The project, titled *Terms and Conditions*, demonstrates the physical reality of climate change and its devastating future consequences. The creators of this project have described the installation using the following terminology: “Discomfort. Thermal Stress. Externalized Costs. Non-Compensable Heat. Path Dependency. Luxury vs. survival emissions. Sacrifice Zones. Sufficiency.” all to describe the specialized language used in architecture rooted in climate awareness (Transsolar et al. 2025). *Terms and Conditions* uses an immersive experience to raise awareness of the often-invisible costs of comfort. This project is just one example within this year’s theme, which places visitors face-to-face with an unsettling future.

The architecture biennale is a significant platform for exploring new ideas and concepts that shape the built world, and Ratti’s 2025 theme specifically unpacks architecture’s capacity to adapt to a changing climate. The exhibition is open to diverse critiques and commentaries by identifying central, topical themes within the built world and its associated relationships. According to Oliver Wainwright, a writer and architecture and design critic for *The Guardian*,

“you might need to bring your scientific dictionary to this year’s exhibition, along with a good deal of patience” (2025). The author notes that much of the exhibition contains complicated language, resulting in many difficult-to-understand projects. He mentions a project description as an “opaque caption,” referring to its narrative ambiguity (Wainwright 2025). This observation of the projects aligns with my findings of consistent project obscurity and conceptual confusion. The critic continues, “Don’t fear the climate crisis, the exhibition seeks to reassure visitors: a harmonious union of technology and nature will save us” (Wainwright 2025). Although not the exact intention stated by Ratti, Wainwright affirms this as a major takeaway from the exhibition. Wainwright is critical of the use of robotics and AI, specifically noting their mediocre results, especially when compared with humans’ hand-carving an intricate wooden beam. One project mentioned by Wainwright is *Domino 3.0: Generated Living Structure*, an installation in the Natural section. The project is constructed of felled trees and 3D-printed joints using AI technologies. As described by Wainwright, “the result is a wayward pile of tree trunks connected with clunky white nodes, far less efficient (or beautiful) than using conventional carpentry techniques” (2025). The critic sees this use of AI as unnecessary and aesthetically unpleasant compared with conventional craftsmanship.

For the 2025 exhibition, Ratti decided to alter the typical method for selecting participants and projects. The curator instead used an open call to find installations; he states, “I wanted to inject a more bottom-up approach into what is usually a top-down process” (Wainwright 2025). Although this method offers benefits by allowing various types of participants to contribute to their work, it has drawbacks. Wainwright critiques this approach, writing, “it is an admirable ambition, but one that resulted in more than 1,000 submissions, and little sense of quality control” (Wainwright 2025). The critic views this choice as a limitation on the quality and organization of the projects. Wainwright attributes these shortcomings to “the absence of a tight curatorial vision and judicious editing” and an expansive amount of works (Wainwright 2025).

An additional architecture and design critic for *ArtReview* magazine, Phineas Harper, similarly describes the exhibition as “a claustrophobic mess of bio and techno theatrics, relying on expensive machines to solve problems that didn’t need fixing in the first place” (2025). Harper’s critique concerns the exhibition layout and the excessive use of tech-heavy projects. Both critics identify certain aspects of the projects as unnecessary and mechanically extravagant.

Harper references Ratti's professional experience in robotics and the history of overengineering in architectural design to align with the curator's style (2025). When reviewing the projects, I came to a similar conclusion: both critics raised concerns about the overwhelming number of installations. A third party, *Volume* magazine, even created an AI-driven app to facilitate and tailor to visitors various interests (Wainwright 2025). Both writers present opinions that critically question the curator's role in such a prominent architectural exhibition as the *Intelligens. Natural. Artificial. Collective*.

Within the book, *Architecture on display: on the history of the Venice Biennale of Architecture*, ten Venice Biennale curators were interviewed about their experiences. Author William Menking notes that the most significant point former curators agree on is “– the impossibility of creating exhibitions on architecture” (2010, 203). The curators' previous experience has given rare insight into the operations and difficulties involved in creating the prestigious exhibition. The curator role is vastly challenging, and Aaron Betsky anecdotally states its significance, “when the huge wooden doors of the empty Arsenale are opened, and you are presented with a half a mile of medieval, high-vaulted, brick-columned space, you can't turn down the opportunity to fill that space” (Levy and Menking 2010, 203). The curation of the Architecture Biennale proves to be an overwhelming and ambitious task, though tempting given its large-scale spatial potential. Another potential draw for participants is that “the Venice Biennale is the one event where the entire architecture world – practitioners, critics, academics, students and others – comes together to present, look at and debate architecture” (Levy and Menking 2010, 203). This event is a unique and significant opportunity for architects, planning professionals, and other representatives to learn from one another.

The Architecture Biennale is an event not only for platforming architects and designers but also for communicating with and connecting people. Paolo Portoghesi stated that by offering people “only a statistical idea about the role of the citizen in the world is not useful, it's not indicative of the beauty of the biennale, which is about artistic culture” (Levy and Menking 2010, 205). He is arguing against the reductionist view of human participation in architecture down to data points and instead valuing its qualitative attributes. Portoghesi disputes the idea that architecture is for architects, “is wrong, and it breaks the continuity of architectural history,” he continues, “architecture is not for architects; it's for the public” (Levy and Menking 2010, 205). Instead, he supports the concept of architecture as an effective conduit for communication

between the general public and architectural professionals. The experience of the Architecture Biennale impacts not only architects and designers but also the public. Although it may seem obvious, it is crucial to mention that another major purpose of the Biennale is to communicate with the public. According to Menking, “the best exhibits are the ones that inspire without preaching” (2010, 206). The installations serve many purposes, one of which is to provoke their visitors and participants. Menking concludes, “this leaves us with a Venice Biennale that tumbles together not only the most radical, experimental and design-focused propositions, but also the kind of work most likely to speak to the public about everyday experiences” (2010, 206). The exhibition is a prestigious and complex event bringing together a wide array of audiences and participants. The Biennale combines a mix of installations without focusing on a specific style or function, instead communicating unique ideas and connecting people.

2. LITERATURE REVIEW

This literature review chapter will explore the relevant discourse by critically examining major thematic narratives and various contextual understandings of nature. This collection of literature will highlight knowledge gaps, identify crucial concepts, and, above all, support the research's purpose. Given the ever-evolving dialogue within the vast field of environmental studies, and specifically notions about nature, it was crucial to gather a broad range of sources. The goal is to present a meticulous scope of the conceptualization of 'nature' and the Rights of Nature (RoN). These ideas are notoriously vast, as they contain a multitude of definitions, ambiguities, and perspectives. A fundamental element to acknowledge about the concept of 'nature' is that there is not one singular definition. The use of the concept is deeply contextual, even more so across disciplines, as its meaning ranges from hyper-specific to theoretically vague. Therefore, unpacking and examining the RoN is complex and similarly follows this expansive range of meanings.

Additionally, the concept of 'nature' has been widely explored and researched, resulting in a large body of literature on the subject. The discourse spans time periods, disciplines, and human societies, each with varied goals and expected outcomes. The literature I focus on in this chapter comprises contemporary explorations of nature, drawing primarily on the natural sciences, environmental humanities, architecture, and design. Many works span and overlap disciplines, although, for the most part, analysis of the architectural understanding of nature and its associated narratives is missing from the available material. This thesis works to bridge the gap by developing a critical framework and emphasizing the deeper meaning behind each built project.

My method of literature research includes the use of various additional programs and approaches that center on specific themes. The majority of my sources were found by using research websites and academic databases, such as Google Scholar and ScienceDirect. By finding a helpful resource, I would follow the citations in other works to continue my search. This proved extremely helpful as there is a vast number of sources and authors contributing to these themes. Additionally, I used the AI-powered research platform Scispace to find and group sources on a single concept, such as "post-humanism." The platform also provided a valuable tool for organizing certain subsets of my research in a matrix and for providing each paper's

abstract to compare against the others within the subset. Being able to compare sources easily facilitated the extraction of the most relevant information from the wealth of sources.

2.1 CONCEPTUAL AND CULTURAL UNDERSTANDINGS OF NATURE

The following subsection explores the concept of nature and, specifically, who or what is classified as nature under various definitions of the term. Depending on the source and goal, the definition of nature is variable. The concept is multifaceted and fluid due to its influence from historical, philosophical, scientific, and cultural narratives. Author Noel Castree refers to nature as being “promiscuous in a real (or ‘ontological’) sense,” meaning that “it seems to be a large and diverse phenomenon that is literally everywhere – *in* us, as well as all *around* us” (2014, xxii). Despite the concept's widespread use and function, there are boundaries to what can and cannot be considered nature. As already emphasized, the use of ‘nature’ is contextual, depending on its disciplinary perception and representation. The book, *Making Sense of Nature*, evaluates the ranges of meaning and structures them, although “the topic of ‘nature’ does not respect disciplinary boundaries, in either the academic world or the wider world” (Castree 2014, xxiv). Nature seems to transcend all limits with its promiscuous and extensive capacity. The author continues by describing the reason for exploring keywords like *nature*, and “because their various meanings become normalised, they’re able to govern (i.e. steer or direct) not only our thinking but also a wide range of practices resulting therefrom” (Castree 2014, 9). When words like *nature* become widely used, the unchallenged or assumed meanings shape and influence the decisions and actions of the people using them, whether it’s intentional or not.

Despite this distinct challenge, Castree loosely organizes definitions into four categories. The principal meanings of nature can be divided into *external*, *universal*, *intrinsic*, and *super-*

NATURE			
The non-human world of living and inanimate phenomena, be they ‘pristine’ or modified.	The physical world in its entirety, including human beings as both products of natural history and present-day biological organisms.	The defining features or distinguishing quality of living and inanimate phenomena, including human beings.	The power, force or organising principle animating living phenomena and operating in or on inanimate phenomena.
‘EXTERNAL NATURE’	‘UNIVERSAL NATURE’	‘INTRINSIC NATURE’	‘SUPER-ORDINATE NATURE’

Figure 1: “The principal meanings of the word nature in contemporary Anglophone societies” (Castree 2014, 10).

ordinate nature, as depicted in Figure 1 (Castree 2014, 10). The author differentiates among the definitions by the degree of human inclusion, non-human agency, behavioral determination, and governing force. To compare these definitions and avoid outlining a strict concept of nature, I will use Castree's four principal meanings to expand on and unpack themes and related implications. The author affirms that although each quality's usage depends on its context, the qualities can be used simultaneously (Castree 2014, 10). However, Castree cautions that while they can practically coexist, they cannot be combined without caveats, as "not all the meanings of 'nature' can be used without contradiction" (2014, 10). This quote highlights the concept's complexity and provides additional reasoning to support the explanation.

2.1.1 External Nature

External nature definitively excludes humans from the explanation and frames nature as fragile or pure (Fig. 1). This definition reinforces a separation between nature and humans, depicting humans not as part of nature but rather as external observers or managers. This categorization of nature is commonly observed and depicted through the concepts of *wilderness* and the *pristine nature myth*. One author abides by this definition of external nature by recognizing wilderness as "an area where the earth and its community of life are untrammelled by man, where man himself is a visitor who does not remain" (Pyra 2002, 331). Despite this concept being widely contested, they view wilderness as a place void of human domination and even existence. Pyra continues, "There really seems to be any — or at least scarcely any! — pristine nature left, because anthropogenic activities have changed the world almost globally, there still remain in the world some wild areas in which we should let nature take its course" (2002, 331). This view of nature assumes that *pristine nature* is a limited resource, as human contact and associated anthropogenic activities diminish its presence in the world. This literature, among others, follows Castree's definition of external nature by viewing humans as an 'other' rather than as a contributing member of nature or within natural systems. Despite many arguments against this dichotomy of human-nature, it is a prevalent theme in the discourse, nonetheless.

The concept of 'nature' can be open to interpretation due to the lack of a universally accepted definition. Within the field of biology alone, there are many definitions of the term that conflict with one another. A prominent and ongoing debate is whether nature is a "fragile set of equilibriums that need to stay balanced for life to exist," as many conservationists believe, or a dynamic system of interconnected relationships, as detailed by ecologists (Ducarme and Couvet

2020, 5). The traditional goals of conservationists are to safeguard a natural, often fragile baseline that portrays nature as a static system that needs to be sheltered from humans and restored to its pre-anthropogenic state. This construction of *external nature* is frequently referred to in the common literature as the *balance of nature*. The core belief of this view is that non-human nature is at a consistent equilibrium or harmony without human interference. Humans, in this sense, are separate from nature and need to remain a part of it for nature to flourish and succeed. One source argues that as humans, the “realization that we have the power to destroy a world that we have not created should come with a certain responsibility that involves care and restraint” (Deplazes-Zemp 2022, 115). The conclusion being that humans have had no part in creating the world and yet contain the power and ability to devastate it. This idea, the author explains, is reason enough to safeguard the environment.

When viewing *pristine nature* as a static, balanced system, absent of humans, there are biological discrepancies. Though, scientifically, humans are “biological being and a product of natural evolution,” like other natural entities, they are also responsible for creating and contributing to non-natural objects (Deplazes-Zemp 2022, 102). Regardless of this biological reasoning that opposes the underlying nature-human dichotomy, in certain contexts, this dualism and the *balance of nature* are helpful constructs. As stated by Casetta, without these ideas, “the distinction between natural and artificial would collapse and the idea of conserving nature would make no sense at all” (2020, 18). If the conceptualization of nature includes humans and non-humans together rather than as distinct entities, then conservation of nature would lose much of its meaning. The discipline relies on a certain amount of nature-human distinction to recognize who or what exactly they are aiming to protect and discuss. From this point of view, *external nature* is a necessary definition to utilize, despite its conflicting aspects within other scientific disciplines. This is one example that affirms Castree’s caution about coexisting yet contradictory definitions by demonstrating the overarching theme of conceptual flexibility. One author argues, “it is unproblematic to say that we have a different relationship with entities that we designed and generated ourselves compared with entities (including other humans) that evolved naturally” (Deplazes-Zemp 2022, 103). This quote acknowledges the reasonable differences humans notice among us, our byproducts, and non-human entities that coexist with us. Recognizing this difference clarifies not an absolute truth about nature but rather the various nature-human relationships.

The overarching theme of *external nature* and relating theories is that humans separate themselves from nature to conceptualize it and their role in it more effectively. By removing humans from the interpretation of nature, it effectively distances connections between humans and non-humans. One author states that “the systematic distance created between humanity and nature promotes a worldview in which natural resources are seen as mere commodities” (Mwakasumba 2025, 140). The commodification and revaluation of nature are broad and persistent issues due to the high demands of human consumption. Rather than viewing natural entities and processes as interconnected with human well-being, commodification further widens the gap between humans and *external nature*. Under this view, nature is strictly treated as a resource and assigned a value for exploitation. These entities are valued for the services they provide to humans and are considered natural resources. One source denotes the biosphere or Earth’s surface as the location for “nature’s ‘free resources’ air, water, and land” (Anselm 2006, 196). By referring to these resources as free, the author is considering their availability and the general lack of cost associated with them. Clean water, fresh air, and accessible ground are all provided by complex natural systems and interconnected processes and considered free for human consumption. This framing of nature portrays it as a highly valuable, readily obtainable, and monetarily quantifiable asset.

The environment and non-human entities are valued for commodification, and therefore, their protection and respect come second to exploitation. Although some see these natural resources as ‘free,’ there is a lack of acknowledgement of the true cost and burden. In the words of Vandana Shiva, “commodities have grown, but nature has shrunk” (2016, 41). As the extraction of ‘free’ resources intensifies, so does the disruption of the environment and its productive capacity. Nature shrinking in this context refers to a reduction in ecological health and normal functioning due to human consumption. The overall theme and throughline in the commodification of nature is a separation and dichotomy of humans and nature. Since humans are not considered a part of *external nature*, they do not pay the ultimate price for the extraction and use of resources. This approach rejects the idea of humans and nature as biological partners and instead creates an anthropocentric power imbalance. Although these views help understand the underlying tensions within the concept of nature, this idea perpetuates a system that prioritizes human needs over nature.

2.1.2 Universal Nature

The next principal concept of nature is *universal nature*, as defined in Fig. 1, which acknowledges humans within its scope. As the title suggests, it encompasses the entire physical and biological world, acknowledging the interconnectedness of all systems and processes, both biotic and abiotic (Fig. 1). This definition aligns with the concepts of posthumanism, multispecies considerations, and systems thinking. All of these terms are valuable tools used in environmental ethics and for unpacking multispecies interactions and relationships. This quality serves as a guide to understanding various configurations of nature-human relationships.

The consideration of humans as natural entities is evident in the literature, reflecting a reframing of the nature-human divide. Authors Foggin et al. acknowledge that “recent years have witnessed a widening space for critical debates about how best to envision and develop nature conservation solutions in order to mutually reinforce ecological health and human wellbeing” (2021, 2). This quote incorporates nature and humans within a singular consideration of conservation. Rather than viewing nature as an entity to be protected from humans, the authors adopt a holistic view of the functioning. Within the dialogue of preventing environmental degradation, this paper rejects the separation between humans and nature. The authors further this discussion by crediting *systems thinking* as “increasingly influential across vast areas of sustainability science, practice, and activism, complementing the otherwise dominant role of technical and financial fixes to environmental problems” (Foggin et al. 2021, 2). The focus of this approach is to grasp the broader, systemic consequences of climate change and use these insights to inform holistic solutions. As opposed to Pyra, Foggin et al. reject the idea of a ‘wilderness’ without humans when discussing the conservation of nature (2021, 2). By emphasizing systems thinking, the authors frame conservation as a collaborative relationship where both ecological and human well-being are intertwined and dynamic.

Another concept that perpetuates the qualities of *universal nature* is posthumanism, along with the movement away from anthropocentrism. Posthumanism was “developed from within the humanities themselves as a critique of their own inherited traditions, especially the notions of autonomous human agency, the self-determined personal subject, the hierarchical separation of culture from nature, and of human exceptionalism in relation to other life forms” (Zapf 2022, 6). This discourse shift aims to counter the belief that humans are separate from all external entities

and thus play a dominant and oppressive role in the world system. This perspective further exhibits the concept of universal nature and human inclusion without perpetuating a hierarchy.

2.1.3 Ecolinguistic Significance

A systemic and multispecies perspective on nature is sustained across various disciplines through specific linguistic choices. The ecolinguistic discipline accompanies a *universal nature* definition by demonstrating the innate connection between humans and nature. According to Zhou, ecolinguistics contributes to the life sciences by showing the “interdependency of language, mind, and the living world” (2017, 125). This author is specifically referring to human language and advocates for its holistic capabilities. As opposed to *external nature*, this approach values the reciprocal association between humans and nature. Steffensen advocates that practitioners of ecolinguistics “become sensitive, responsible and active sharetakers—i.e. participants in the local, global and universal communities of humans and non-humans-whose point of departure is patterns of language and communication” (2007, 14). The author emphasizes a shared responsibility and active participation between humans and non-humans facilitated by ecolinguistic dialogue. The goal of this discipline is to use intentional ecological language to positively reframe these disjointed relationships.

Ecolinguistics represents an argument against a dualist perspective of nature and humans’ role. To further combat this framework, Steffensen proposes to “view nature and culture as inseparable aspects of a complex and dynamic system with certain self-organizing characteristics” (2007, 9). In the context of human culture, the author advocates proper acknowledgment of the intertwined collaboration between humans and nature. Nature plays an integral and necessary role in the well-being of humans, as Steffensen states, language depends on the existence of humans just as “without oxygen there would be no human beings” (2007, 9). Due to the complex, interdependent connections among all entities, it is inconceivable to separate the system into distinct categories of nature and humans, as Zhou and Steffensen demonstrate.

2.1.4 Intrinsic Nature

As defined by Castree in Figure 1, *intrinsic nature* consists of the inherent value, moral significance, and defining qualities of an entity. Similarly to *universal nature*, the meaning of *intrinsic nature* is inclusive of humans and additionally defines the intrinsic or driving behaviors

of an entity, human or otherwise. This quality uniquely asserts the intrinsic value of nature, regardless of its moral status, cultural meaning, or economic significance and service. *Intrinsic nature* is a fundamental aspect of *regeneration* and the broader *regenerative paradigm*. This idea has interdisciplinary applications, including those related to this thesis, across the broad fields of environmental and architectural studies.

Although *regeneration* can be associated with various disciplines, its foundations remain comparable across them. According to Foggin et al. considers “the ‘regeneration’ of nature (rather than its commodification) as a valuable societal goal, based on an appreciation of the intrinsic or inherent value of nature and our human responsibility” (2021, 3). The authors attribute the regeneration of nature to the given opposition to the commodification and exploitation of natural resources. They outline a perspective perpetuating nature as innately meaningful, along with “the recognition that humans not only can and must coexist with nature, but are in fact an integral part of it and should actively sustain its flourishing and protect its ‘integrity, stability and beauty’” (Foggin et al. 2021, 3). Every natural entity, biotic or abiotic, is valuable in its own right, regardless of benefit or proximity to humans. In the specific context of the human species, Foggin et al. affirm that, since humans are part of nature, cohabitation and collaboration are not only crucial but also an ethical obligation.

The regenerative paradigm shift prioritizes an inclusive, *systems-thinking* view of the universe rather than a separatist, anthropocentric one. The architecture and planning disciplines that aim at sustainability use this perspective to adapt design processes and building practices to work with nature rather than against it. The regenerative design process focuses a holistic system by “engaging all the key stakeholders and processes of the place – humans, other biotic systems, earth systems, and the consciousness that connects them – the design process builds the capability of people and the ‘more than human’ participants to engage in continuous and healthy relationship through co-evolution” (Reed 2007, 677). Rather than focusing on solving relational issues, regenerative design aims to broaden its scope to engage and satisfy entire networks of stakeholders.

In addition, du Plessis states that “the regenerative sustainability paradigm represents a shift to the holistic living systems worldview... as a necessary point of departure for engaging with the problems of sustainability” (2012, 9). Not only does this author agree with Reed in actively involving more-than-human entities and systems, but they state that these shifts are

crucial for sustainable development. To solidify this position, Reed explains how this “process draws from and supports continuous learning through feedback, reflection, and dialogue, so that all aspects of the system are an integral part of the process of life in that place” (2007, 677). This framework values *intrinsic nature* for its ability to respond to change and to co-evolve dynamically with the system. These aspects differentiate regenerative design from other sustainable design strategies by acknowledging nature’s inherent qualities and capabilities.

The incorporation of *intrinsic nature* takes various forms depending on intention, understanding, and underlying goals. Although the basis of this definition depends on an inherent connection between humans and nature, this relationship is consistently in flux. Globally, there was a historic shift in worldview developing when humans were “seen as an integral part of nature and partners in the processes of co-creation and co-evolution instead of being merely users or clients of various ecosystem services” (Du Plessis 2012, 15). This dramatic change has been referenced previously within this thesis, although without the deeper context of human understanding and intention. The comprehension of and beliefs about this framework have varied in significance. According to du Plessis, this led to “the understanding that to be sustainable, it is necessary to move towards a developmental ... approach based on how nature works, not on how humans would like the world to work” (2012, 15). The author argues that human development should adapt alongside nature and distance itself from anthropocentric demands.

This idea opposes the traditional attempts to impose building and design methods (which prioritize human well-being) onto nature. To decenter human demands and have a view of the world “as an ever-changing, impermanent and inherently unpredictable set of processes is shifting the interpretation of how sustainability should be defined” (Du Plessis 2012, 15). This quote demonstrates that acknowledging the world as dynamic and uncertain requires sustainability to be flexible and adaptable. Du Plessis writes, “earlier variants of sustainability envisioned a change from a current ‘unsustainable’ state to a future ‘sustainable’ state that can be achieved by following a specific set of rules” (2012, 16). Although due to the unpredictable nature of nature, du Plessis argues that the notion of maintaining a universal set of sustainability requirements is meaningless (2012, 16). This movement toward sustainable guidelines is not as simple as reaching a fixed goal or clear endpoint. The author provides an alternative perspective on viewing a sustainable human society as adaptable, noting that “an increasing number of scientists are suggesting that resilience is central to determining sustainability in social–

ecological systems” (Du Plessis 2012, 16). A sustainable system does not depend on a set of ideal conditions and an endpoint, but rather on a resilient process. Regenerative sustainability relies on robust, non-specific adaptation in collaboration with nature, thereby leaving some room for external interpretation.

2.1.5 Super-Ordinate Nature

The fourth definition outlined by Castree in Fig. 1 is *super-ordinate nature*, or the overarching force and power governing all entities, biotic and abiotic. This framing positions nature as an active and authoritative agent or system that operates independently of human intervention and control. This definition of nature is more abstract than the previous explanations and uniquely positions human agency as subordinate. As described by Weinert, “to treat Nature as a physical agent is not to provide a physical explanation of the natural process under scrutiny” (2005, 14). The author describes *super-ordinate nature* by recognizing that it can be more complex and influential than its physical qualities. This distinction allows for a broader understanding of nature as a process, system, and significant force.

This categorization of nature includes notions of unpredictability and of humans' ultimate inability to assert authority. *Super-inordinate nature* is described as a complex, controlling force that shapes various disciplines. The contemporary ecological design field demands “planning, design, decision-making and delivery systems that can respond to uncertainty and the non-rational and qualitative aspects of the world” (Du Plessis 2012, 16). The author is describing the need for traditional methods to adapt or change altogether so that they can manage nature's irrational aspects and unpredictable circumstances. Nature in this context is uncertain and powerful enough to override anthropocentric systems. An additional reference to *super-inordinate nature* is understood as unmoving. Du Plessis describes “mutually beneficial and life-supporting relationships between built and natural environments, with the built environment following the ‘non-negotiable laws of nature’” (2012, 16). The governing laws of nature are ultimately unable to be altered or changed; they are not fixed.

Humans are not entirely exempt from this categorization, as human nature is similarly a dynamic and ruling force. Continuing in the context of design, du Plessis requires ecological design to invite “the qualitative, the uncertain and the non-rational aspects of human nature” (2012, 16). Human nature is defined as *super-inordinate nature* by the author due to its anecdotal complexities and unpredictable qualities. Although a significant theme within this definition is

the authority over humans, humans are still included and guided by its pressures. *Super-inordinate nature* is the most temporally flexible of Castree's, due to the ability to operate freely of human constraints. This definition does not adhere to the limits of human lifespans; instead, it can explore long temporal scales and feedback cycles. This framing positions nature as an active, authoritative, and adaptive force, aligning with the universe's nonlinear, unpredictable aspects.

Super-ordinate nature positions nature as a flexible but somewhat ambiguous power with a broad range of applications. In alignment with this underlying notion, Ducarme and Couvet state that nature "is not such an easy word, and it actually fits the definition of an abstract concept, hence a mental construction rather than a concrete notion, which is situated both historically and geographically, and needs definition in context" (2020, 1). Nature, in this sense, does not always exist as a physical or tangible entity; it can be theoretical or abstract. Additionally, the term can encompass multiple perspectives across temporal and geographical scales. Despite this broad and intangible connotation, *super-ordinate nature* remains a significant influence transcending various disciplines and contexts. Ducarme and Couvet conclude that nature has been "deemed vague and ambiguous since its most ancient uses, overwhelmingly changed in meaning several times in its history, which is at the basis of its current vagueness and ambiguity" (2020, 2). The authors credit this ambiguity to the term's tumultuous historical understanding and repeated changes in meaning.

The fluidity of meaning makes it challenging to establish a single, universally accepted definition that all disciplines agree upon and may well be the root of many ecological debates (Ducarme and Couvet 2020, 2). For this reason, discussions and references to nature across specialties can be complicated and require more specific context. As the previously definitions have outlined, nature can refer to everything, ranging from the physical to the metaphysical, allowing for various interpretations and uses. According to Ducarme and Couvet, "as scientific knowledge of nature is (and will always remain) incomplete, scientists have to rely on mental representations and theoretical concepts, but these must be identified as such, and clearly defined" (2020, 1). The authors advocate for including a contextual frame of reference as an essential aspect for exploring the concept. This has been a point of contention and a legitimate subject of critique among many researchers and professionals, each of whom approaches it differently.

2.1.6 Nature as a Perspectival Concept

Although there is no universally accepted, concrete definition of nature, the concept is widely used to describe a range of topics and frameworks, all of which are perspective-dependent. The term has historically always been an ambiguous concept, and the common lack of clarifying context greatly contributes to shaping the nature-human relationship. To understand what humans believe about nature is to consider that “what falls into *our* category of ‘nature’ depends on *our* perspective, as humans, on *our* environment” (Deplazes-Zemp 2022, 102). Under this view, nature is not an objective and absolute entity, but rather a subjective thing that reflects the individual interpretation and context.

Deplazes-Zemp refers to this alternative understanding of nature as a perspectival concept, which explains the differing beliefs that drive human language. The author explores this notion in detail: “When we describe an entity as natural, we say something about our relationship as humans to this entity. With such an understanding of ‘nature,’ we, as humans, simultaneously can be part of nature and counterparts to it. We are insofar part of nature, as we are part of the world that we perceive as given, i.e., that which other humans did not design nor produce. Humans have nature in themselves, as being natural is an essential part of being human” (Deplazes-Zemp 2022, 103). Rather than placing importance on categorizing or labeling nature, the greater focus should be on what the perspective reveals about the nature-human construction. Such labels expose underlying conceptions humans have about the external world, regardless of the inherent bonds.

Ultimately, Deplazes-Zemp substantiates the claim that nature is a perspectival concept that accommodates various opinions. Ambiguity and vastly differing applications of nature leave gaps in understanding and consideration, regardless of intent or discipline. This contextual factor crucially reveals the driving beliefs behind humans’ conceptualization and articulation of nature as an entity defined through perspective rather than objective reality.

This background understanding of the concept of nature is crucial when critically exploring the Rights of Nature (RoN) framework. Divergent accounts and beliefs about nature emphasize the importance of specifying who or what is being granted rights or protections, as there are many possible meanings. Since the nature of rights recognition relies on clear boundaries, it is crucial to define them in accordance with their relational context. The

conceptual history of nature justifies the RoN framework as a necessary tool in combating anthropocentric demands.

2.2 EXISTING PERSPECTIVES AND REPRESENTATIONS OF THE RIGHTS OF NATURE FRAMEWORK

The Rights of Nature (RoN) framework, similarly to some aspects of nature, does not have a static definition. Many sources claim that RoN “offer an alternative to conventional anthropocentric environmental rights, such as human rights to a clean and healthy environment” (Weis and Mullins 2025, 2). This framework can be viewed as replicating the rights afforded to humans and applying them to nature. These structures “seek to reorient legal systems towards valuing nature for its own sake and not merely for its contribution to human well-being” (Weis and Mullins 2025, 1). The RoN reframes nature not as a commodity for human consumption but as an entity and complex system possessing innate value regardless of its proximity to or benefit to humans. This shift challenges the human-centered beliefs that have historically justified harmful behaviors by advocating for coexistence and mutual responsibility.

2.2.1 Determining the Personhood of Nature

Building on these conceptual foundations, the following authors critically explore the positioning of nature through the rights-based framework. Weis and Mullins determine the RoN to “recognise ecosystems as rights-bearing legal subjects” as a “promising alternative to anthropocentric environmental rights” (2025, 1). This idea reconfigures not only the conceptual understanding of nature, but also the legal systems responsible for determining who or what is considered a “legal subject.” This reframing of legal personhood is intended to decenter humans as the default agents and beneficiaries within society. Weis and Mullins further critique this intention, suggesting that “although ‘rights’ and ‘legal personhood’ are devices used in many of these legal regimes, they are neither central to how they advance green normativity in practice and nor are they particularly effective perspective” (2025, 2). This viewpoint presents a critical assessment of the effectiveness of the RoN discourse, particularly within the legal system. Their perspective suggests that codifying nature’s rights within existing human legal structures risks re-centering humans. This tension between anthropocentric systems and the agency of nature further underscores the complexity of rethinking post-humanist progress. Weis and Mullins

advocate for a more ecocentric lens, which “focuses on the attribution of rights rather than legal personhood” (2025, 14). This distinction aims to recognize nonhumans as intrinsically valuable, regardless of whether they fall within the anthropocentric framework of “personhood.” The authors emphasize accountability and systemic transformation over merely extending human legal categories to encompass nonhuman entities.

This perspective is significant because it mirrors the conceptual complexity of ‘nature’ as an idea that rejects a single definition and shifts across cultural, legal, and interdisciplinary contexts. According to Maldonado, the RoN are representative of a paradigm shift from viewing nature as an ‘object’ to instead as a ‘subject’ capable of autonomy, agency, and intrinsic value (2025, 2). This distinction between object and subject is central to understanding the linguistic and ethical shift that the RoN commonly seeks to execute. An object is a passive entity, not afforded agency or adaptability; therefore, it is not typically granted moral consideration. By contrast, a subject is bestowed with self-governance, inherent worth, and the ability to evolve naturally. Maldonado further describes that, “with the rights of nature, an inorganic entity is reinterpreted as a living being, which is, in turn, a source of life; an entity without agency is redefined as a subject that makes decisions and acts; an object without rights is reconceptualized as a subject with rights that can exercise them through its representatives.” (2025, 11). This statement summarizes the overall ethical and legal reorientation at the core of the RoN framework. This idea transforms the passive conception of nature into one with the potential for legal personhood and self-determination.

By expanding the representation mechanisms to incorporate nonhuman entities, the RoN framework combats an anthropocentric construction, which prioritizes human well-being and demands over all else. This concept further envisions a legal system where multispecies actors are afforded rights, agency, and the ability to pursue justice. The author further writes that “the rights of nature undermine one of the premises on which Western law is based: the concept of the autonomous and rational subject that generally fills the idea of “human nature” with content” (Bonilla Maldonado 2025, 10). This conceptual paradigm challenges the constructed divide between humans and the nonhuman world, positioning nature as an active and willing participant rather than a secondary exploited entity.

By aligning human and nonhuman interests, the RoN creates an opportunity to achieve ecological justice both within and beyond judicial systems. However, the RoN movement has

proven to be a complex, nonlinear notion rather than a simple grant of legal personhood. According to Tănăsescu, “the idea of legal personality has both moral and legal components... morally speaking, a legal person is a subject; legally speaking, a legal person is a place holder for the capacity to enforce rights” (2022, 36). These distinct points are conflated in the idea that nature should be granted the same rights as humans, despite the broad difference between moral and legal rights. Tănăsescu argues that the “most useful frame for understanding the rights of nature is political, not legal” (2022, 16). Rather than defaulting exclusively to legal boundaries, RoN takes into account existing power structures and their role in shaping practical implementations. Regan explores a critical example of this by asking, “how the moral status of animals has been understood by thinkers who deny that animals have rights” (2008, 180). The author is demonstrating the significance of questioning the perspectival accounts and cultural beliefs of people in determining these rights. This example helps emphasize that moral recognition alone is not enough to ensure protection for animals and, by extension, for nature as a whole. There is a gap between decision-makers' ethical and legal processes, and the right of nature can provide a crucial solution.

This framework is a complex system of legal and ethical considerations, and it cannot exist in isolation within society. RoN is not a self-implementing concept, and “simply granting rights to an entity that cannot defend them on its own is useless unless the necessary aspect of representation is given a practical outline” (Tănăsescu 2022, 139). Acceptance of legal consideration does not constitute a comprehensive system of protection. Regan’s question applies here as well: how does the moral status of nature impact decision-makers' application of laws? If there is “no mechanism of representation mandated by these laws, ... anyone can bend them to their particular interest,” as demonstrated by particular cases in Ecuador and Bolivia (Tănăsescu 2022, 139). This varying representation of rights does not automatically guarantee the best interests of the rights-holders, but rather the interests of whoever or whatever (government, organization, etc.) is in power.

The framework is inclusive beyond legal codification; the RoN movement reflects a broader cultural transition that actively considers nature's moral and ethical standing. Tănăsescu advocates for a useful categorization of RoN cases into advocating for a right to life (ecothology) or cases focusing on legal personality (2022, 147). The first cases are representative of moral rights, and the second lean towards recognition of legal personhood.

Although these RoN categorizations within the framework are associated with ethical and legal dimensions, the movement represents a broader cultural and societal shift. Yet, as Tănăsescu notes, despite the “catchy and concise” appeal of the term, “the rights of nature are not primarily about nature” (2022, 151, 17). Nature is often misrepresented as being the singular concern or cause for protection under this framework. Instead, these rights are “not primarily about the environment at all, but about creating new relations through which environmental concerns may be differently expressed” (Tănăsescu 2022, 17). The RoN is not a universal solution to environmental issues, but rather a valuable method that decision-makers use to categorize, represent, and articulate moral and legal claims.

2.2.2 Adaptive Applications and the Future of the RoN Framework

Perspective is a core theme within this framework, as well as the concept of nature. As stated by Tănăsescu, “what ‘environmental concerns’ look like is entirely dependent on the power configuration that births them” (2022, 17). The rights-holders and entities are entirely dependent on the decision-makers' unique perspectives and priorities. This is due to the inherent power structures at play between humans and nature, which determine how harm and protection are defined and recognized. The humans in these positions of power reveal that all protections for nature are politically shaped, whether by governmental influence, Indigenous communities, organizations, or activists (among many others).

This understanding highlights a crucial reason why RoN cases vary widely in their outcomes and representation: they reflect the overarching power dynamics and contextual circumstances. Weis and Mullins quote a few critics of the movement, who argue that “natural entities such as trees and wilderness areas do not have rights, because they do not possess interests” or that since “nature is not sentient, nature does not have the ability to have its interests harmed from its own point of view” (2025, 15–16). These perspectives hold that sentience and self-interest are driving factors in determining whether an entity is worthy of rights. Many proponents of the RoN framework oppose these beliefs by acknowledging the inherent value of nature, regardless of a perceived lack of moral status. For example, *The Declaration of the Rights of the Venice Lagoon* “acknowledge the intrinsic value of the Lagoon’s natural and sociocultural entanglements” and “advocate for the formal recognition of its distinct character and global significance” (Iniziativa per i Diritti delle Reti d’Acqua (IDRA) 2025). This set of rights regards nature as inherently valuable for its natural qualities and its interactions with humans.

In addition to the consideration of perspective, no advocacy for nature-based rights is considered neutral or universally accepted. Tănăsescu writes, “the story of the rights of nature is being written, and will continue to be written for the foreseeable future,” and its evolutionary processes “are largely dependent on how theorists and practitioners reckon with the inheritance that seeps through the idea of rights for nature” (2022, 46). The author underscores the crucial role decision-makers play in shaping the framework's future uses, whether through intentional or unintentional representations. The RoN is an ongoing, dynamic system capable of aligning with a managing actor’s anthropocentric biases and harmful beliefs about nature. Since human influence is unavoidable in this realm, it is imperative “to always acknowledge one’s fundamental ignorance and to let one’s practice evolve in relationship with an enduringly mysterious enviroing world” (Tănăsescu 2022, 46). The RoN framework and its practitioners must be adaptive and open-minded because nature is not fully understood and cannot be controlled by humans.

To actively combat anthropocentrism and the prioritization of human well-being, RoN must be flexible and proactive in both theory and practice. Tănăsescu argues that this “is not simply a matter of theory applying to practice” and that “rather, thinking and doing are always intertwined, one making the other possible” (2022, 45). This is not a linear process in which the theory (thinking) is applied first and then followed by practice (doing), but rather both aspects are developed together and inform one another. Tănăsescu notes that “closely attending to practice means seeing one’s ideas play out in the world... it also means changing one’s mind, as the uncertainty of the world generates new ideas” (2022, 46). The author reinforces the significance of a decision-maker’s open-mindedness and ability to adapt to changing circumstances. RoN can be viewed as an interactive process rather than a system, due to its non-linear design, application, and amendment considerations. In conclusion, the RoN framework relies on practitioner self-reflection, ongoing experimentation, and practical real-world applications to effectively address environmental damage.

2.3 BRIDGING NATURE AND ARCHITECTURE

Now that a cultural and conceptual foundation for nature and the RoN has been established, it is crucial to explore them within the context of architecture. The curator argues, “Architecture has always been a response to a hostile climate. From the earliest "primitive hut,"

human design has been led by the need for shelter and survival, driven by optimism: our creations have always strived to bridge the gap between a harsh environment and the safe, livable spaces we require” (Ratti 2024). The curator portrays the creation of built spaces as a responsive human behavior, one that combats a dangerous and unforgiving environment. Not only is this behavior a response for survival, but it also situates architecture as a mediator between humans and nature. This statement offers insight into various perceptions of the architecture-nature-human relationship.

Various dualisms help bridge the gap in understanding between nature and architecture. The following section is separated into common and related binaries to organize the various patterns and perspectives of this relationship. Kahn et al. state, “patterns are not rigid molds...rather patterns embody an underlying unified structure that allows for infinite instantiations” (2010, 60). These viewpoints all share themes previously discussed in this thesis, despite their different contexts and uses.

The following dualisms are not absolute truths or definitive categories for each theme; rather, they serve as guides. According to Sahi, “life is full of paradoxes... where energies which seem contradictory work together in a complementary way” (1986, 117). This author generally invokes symbolic duality, and although this notion does not clearly apply to each binary below, it provides a foundation for viewing life as inherently paradoxical. The author emphasizes, “from ancient times, figures based on opposite or interlocking structures came to represent this principle of life through contrast or dichotomy” (Sahi 1986, 118). These seemingly opposing forces can be complementary, coexist, and represent many aspects of life. The constructed relationship between nature and architecture is often framed by these binaries, and adopting Sahi’s premise can help challenge this separation. Bridging nature and architecture allows opposing frameworks to collaborate in their complexities, ultimately benefiting everyone.

2.3.1 Dualisms (Hierarchical)

Superiority and Inferiority (Shiva 2016, 168).

The first dualism is taken from Shiva and refers to the hierarchical and power balance between various entities. This perspective presents a ranking between these aspects, with one as authoritative and superior and the other as submissive and inferior. Depending on the source and nature, humans are placed in either position; each is granted a range of power and agency.

Anselm provides an example of this by justifying that “since architecture contribute in making the built environment, ecology should then be employed as one of its vital tools or elements of architectural designs” (2006, 196). Nature here is conceptualized as an instrument in the creation and design of architecture. The hierarchy is implied, with architecture as the superior, powerful entity and ecology as the supporting, inferior element.

Architecture and the planning professions inherently help shape human interactions with the world. For some non-contemporary sources, architecture is seen as “an attempt to control our surroundings” and additionally, “to replace what nature or the previous generation of humans provided” (Simmons 1993, 115). This practice is motivated by a desire to supersede and bend nature to meet our anthropocentric demands. Aligning with this perspective, Simmons writes, “‘environmental planning’ is often a one-way process in which the planned get little say (even though they have advocates of a kind within most systems even if only via pressure groups) about their own future” (1993, 69). The ‘planned’ in this scenario refers to non-human nature, ultimately lacking agency in the decision-making processes regardless of the presence of advocates.

Additionally, “it is nearly always a way of translating ideas about power over nature into action, with a variable amount of concern for the pieces being rearranged on the board” (Simmons 1993, 69). The author highlights that environmental planning is frequently driven by human domination and control over the subject of concern. This source, although not recently published, positions humans on a dominant hierarchy, controlling and governing over nature.

An alternative approach to this dualism is to reverse nature and human roles. Clark describes the non-human world as “often far too powerful to be altered according to a plan or design” (Castree 2014, 147). This author acknowledges nature's superiority over human planning, arguing that humans are incapable of opposing this universal power. Non-human entities are vastly more powerful, despite being the product of human design and construction.

2.3.2 Dualisms (Spatial)

Urban and Rural, Countryside and City (Castree 2014, 24), *Inside and Outside* (Carlson 2002, 211).

The second category of dualisms involves spatial and geographical perspectives. This framing functions by separating aspects according to perceived location and distance from each

other, and by constructing a conceptual or physical boundary. Castree highlights the dichotomies of *urban and rural*, and of *countryside and city*, as common within western thought (2014, 24). Cities and urbanized areas typically consist of human-constructed development and artificial landscapes.

The countryside and rural areas, on the other hand, are associated with natural landscapes and non-human ecological systems. Gandy mentions that “conceptions of the modern city have often been framed in terms of degrees of deviation from a supposed “natural” mode of living or in terms of analogies made with the body of a living organism” (2006, 63). This idea portrays cities as unnatural entities or untraditional places to live. In addition, “the increasing association of the industrial city with the destruction of rural life sharpened the perceived antinomy between “city” and “country”” (Gandy 2006, 65). Not only are cities viewed from this perspective as unnatural, but they are also credited with the downfall of traditional rural living.

These concepts are positioned opposite one another along the divide. Gandy writes, “it is paradoxical that although modern cities were frequently evoked in organicist terms as bodies or organisms in their own right, cities were at the same time widely perceived to reside outside nature or the “natural order as parasites or monsters” (2006, 64). By framing cities as being separate from nature, this reference perpetuates the notion that ecological systems and entities do not contribute to the well-being of human habitats. Similarly, this idea fails to acknowledge that dense human habitats also affect and interact with nature.

An alternative perspective views nature and the external world as agents influencing humans and human behavior. Gehl writes, “we shape cities, and they shape us,” and, in this context, refers to the collaborative relationship between the two entities (2010, 32). Similarly to this theme, and in reference to historical cities, they “did not develop based on plans but rather evolved through a process that often took many hundreds of years, because this slow process permitted continual adjustment and adaptation of the physical environment to the city functions” (Gehl 2011, 41). The author describes the formation and adaptation of cities to their surrounding environments, positioning nature as an agent of change in urban areas. This view offers cities as collaborators with nature rather than separate entities.

The final dualist guide for this section includes the dichotomy between the *inside and outside*, as implicitly mentioned by Carlson (2002, 211). This perspective examines the constructed boundaries within architecture and the associated relationships outside of it. Carlson

references the insides of built structures as a “significant feature of architecture’s functional nature” (2002, 211). The functioning of architectural works relies on the presence of an inner area, or a sheltering aspect from the outside. According to this author, “if a structure has no inside either because it has no function of the relevant kind...or because its function is carried out exclusively on its outside,” and therefore “difficult to see the structure as a work of architecture at all” (Carlson 2002, 211). This definition relies on a physical distinction between the inner and outer aspects of a built structure. This conceptual framing positions architecture as a mediator and physical barrier between nature and humans.

2.3.3 Dualisms (Material)

Innate and Manufactured, Natural World and Built Environment (Castree 2014, 24), Natural and Unnatural, Person and Nature (Shiva 2016, 69, 76).

The third guiding set of dualisms closely aligns with the ontological separation between nature and humans by associating humans with the built environment and unnatural, manufactured entities. Carlson describes nature as not of our creation, setting the boundary between human-made and non-human-made (2002, 49). Although humans are a natural species, the products they make are often not considered part of nature. For example, “a house is a human construction, something made intentionally according to a design, it’s also constructed out of non-human things (bricks, mortar, etc.) without which the design would be mere wishful thinking” (Castree 2014, 141). Non-human objects like bricks and mortar originate from natural materials, but in this quote, they are not referred to as natural resources, nor are they human. Kellert asserts that “when we think of ordinary nature, we envision a potted plant, a backyard garden, a lawn,” or other green spaces and living species (2005, 10). The author continues this sentiment, asking, “Does this include domesticated creatures and habitats, or nature experienced in largely controlled or contrived ways—for example, a cultivated garden, a caged bird, a pet dog, a landscape painting, a television program” (Kellert 2005, 10). The same could be asked of bricks and mortar, are they ordinary nature despite their unnatural, manufactured qualities? These notions highlight the ambiguities in referring to items as natural or unnatural, and the extent to which answers depend heavily on perspective.

Not only does architecture shape human behavior, but it also shapes human identity. Relph describes the notion of *placelessness* as the “weakening of distinct and diverse

experiences and identities of places” and contributed by “transience, excessive mobility...urban sprawl, loss of open space, environmental and biological degradation and pollution, and an anonymous and alienating architecture” (Kellert 2005, 60). This sentiment of negative disconnection stems from various factors, all rooted in the underlying view that the built environment is separate from the natural world and that place is not innate but manufactured. Despite the boundaries outlined between nature and humans, *placelessness* is attributed by Sagoff as “a core characteristic of the contemporary environmental crisis,” and ultimately an unwelcome perpetuation (Kellert 2005, 60). The author continues writing, “much of what we deplore about the human subversion of nature—and fear about the destruction of [both the natural and human built] environments—has to do with loss of security one has when one relies upon the characteristic aspects of places and communities one knows well” (Kellert 2005, 60). Sagoff suggests that harm to both the built and natural environments affects humans’ feelings of security and place-based identity, fostering an interconnected perspective.

The fields of architecture and planning play an inevitable role in shaping perceptions of nature and human interactions with it. Kellert quotes Scully, “the relationship of manmade structures to the natural world offers . . . the richest and most valuable physical and intellectual experience that architecture can show, and it is the one that has been most neglected by . . . architectural critics and historians” (2005, 90). This idea argues that built and natural structures contain complex, meaningful interactions that have historically been ignored by the very discipline that aims to coordinate them. The authors reinforce the belief that architecture needs to deprioritize anthropocentric demands and instead focus on aligning humans and ecological systems.

The nature-human relationship will continue to adapt to incorporate new technologies and design features within architecture and planning. Anselm provides the ecological replacement solution as “an idea that discusses ecological solutions in a small or larger scale for the restoration of damages or injury caused by tampering with the natural (green) environment in the intent of building development” (2006, 197). This concept aims to restore or compensate for environmental harm that was caused by building development. The author writes, “this idea has been utilized in the past based on local knowledge or unconscious attempts to balance the immediate natural environment around the built environment” (Anselm 2006, 197). The intention of the ecological replacement solution is to rebalance the natural systems to

accommodate the built ones. This quote frames these environments as two separate systems ultimately requiring equilibrium. Architecture is also positioned as an anthropocentric discipline that traditionally disrupts the surrounding ecological landscapes and then consecutively attempts to compensate for this disturbance.

Haupt lays out a fundamental timeline of themes that architects have contextualized in relation to nature, beginning in the early twentieth century and the cultural shifts in art and literature that rejected nature's purely utilitarian role (2014, 38). Natural elements and materials were essential in traditional architecture, serving as ornamental objects and framing nature as an aesthetic resource. Haupt references its "Vitruvian roots, being understood as "a network of relations between man and nature" instead of a whole in itself" (2014, 38). Nature, in this sense, is connected to humans through architecture, which was considered a relational system rather than an independent discipline. Architects and related planning professionals have increasingly incorporated these natural elements into their designs. The author emphasizes that natural materials, "so far desired mainly due to their aesthetics, have now become useful elements, necessary for gaining energy, saving water, and improving air quality" (Haupt 2014, 38). This point highlights the idea that the built environment adapts to various cultural trends and functional abilities of natural elements.

The concept of nature, as previously outlined, is understood as both a philosophical and cultural construct that plays a significant role in shaping architectural discourse. Scholars such as Morton critique the traditional idea of "nature" as a pristine entity and instead argue that ecological relationships are deeply intertwined with human activity and design (2007). Within architecture, this perspective challenges the traditional anthropocentric divide between built spaces and the natural world. Anselm emphasizes that "designing and building with or in harmony with nature is the one efficient concept which works towards integrating the elements of balance between the built environment and nature" (2006, 196). Sustainable and ecologically centered design is positioned as a functional and necessary aspect of future architecture. Zhou similarly incorporates the concept of harmony with nature, employing a Chinese ecolinguistic lens to critique the Eurocentric distinction between the built and natural environments (2017, 125). Both scholars challenge the notion of a separatist relationship between humans and nature, using interdisciplinary perspectives and advocating for harmony. These narratives perpetuate a unified view of nature and humans rather than a strict dichotomy.

2.3.4 Dualisms (Epistemic)

Society and Science (Shiva 2016, 68), *Ecomimesis* (Morton 2007), and *Mimesis*.

The final category centers around knowledge-oriented dualisms and epistemic beliefs. These ideas place society and science as divided representations of knowledge and opposing representations of the world. Shiva highlights the dualism between society and science, which separates these ideas into either realistic or abstract notions (2016, 68). The author writes about how “meaning and validity were controlled by the social world of scientists and not by the natural world” (Shiva 2016, 67). This quote compares the use of modern scientific theory to confirm ideas to the social constructs of nature, which were traditionally validated by lived human experience. The various nature-human relationships in this sense were in conflict due to unique epistemological beliefs.

The tension between the abstract and the practical is similarly evident in architecture, showing that the discipline is not so straightforward. Mitchell writes that even architects “do not work purely in the realms of the imagination, numbers or discourse before their designs are realised in practice...all architects must examine the planned construction site and consider the metals, plastics and other materials that will ‘work’ if their design is to be practicable” (Castree 2014, 147). The imagined must eventually connect to the design's realistic implications. Castree argues that “‘unrealistic’ forms of representation can present a useful space in which to comment in creative or critical ways on what passes for fact, truth and common sense – they can unsettle that which appears to be their very antithesis” (2014, 58). The author advocates for the value of speculative work in this space to critique and challenge cultural constructions or norms. These ideas represent the complex balance of epistemological beliefs among architecture and planning professionals and demonstrate that bringing nature and architecture together is not merely technical or logical.

Additionally, this category includes aesthetic and symbolic representations of nature and the conceptualization of ecomimesis—which is a “rough Greek translation for “nature writing” (Morton 2007, 78). According to Morton, human perceptions of nature either “as an environment, or as other beings (animals, plants, and so on)...keeps collapsing either into subjectivity or into objectivity” and comments, “it is very hard, perhaps impossible, to keep nature just where it appears—somewhere in between” (2007, 61). The author emphasizes that this dualistic categorization of nature is a challenging task for humans to avoid. Morton critiques

environmental writing and its overuse of literary illusions of nature and, alternatively, introduces a device—*ecomimesis*—that attempts to transcend the aesthetic dimension altogether (2007, 47, 48). The author describes these devices as “authenticating device” in which the reader “glimpses the environment rather than the person” (Morton 2007, 50). This is a method of removing the human from the center of the narrative and focusing instead on nature. Ultimately, *ecomimesis* is a representational device or strategy that aims to alter human perception of nature within and beyond literary commentaries.

Despite Morton’s attempt at transcending aesthetic representations, “an *aesthetic* value reveals the natural world as a source of beauty and attraction” (Kellert 2005, 54). The author asserts the significance of highlighting the value of aesthetics. Kellert notes, “people are aesthetically drawn to environmental features that have proven instrumental in human survival—for example, clean flowing water, promontories that foster sight and mobility, areas that offer refuge and shelter, and bright flowering colors that frequently signify the presence of food” (2005, 55). Humans have not only a superficial preference for aesthetic nature but also a crucial biological and evolutionary reason for it. This attraction has many implications for the nature-human relationship, and specifically for the nature-architecture relationship. According to Kellert, humans are deeply influenced by order and unity, and “these features in the natural world can serve as models or prototypes that inspire people to capture similar features in their own lives through mimicry and invention” (2005, 55). Humans replicate these attractive aspects of nature to channel structure, safety, and survival.

Representations of nature vary significantly depending on the architectural context. Gandy references renaissance scholars as asserting that “beauty in architecture was derived from the mimesis of nature” and adds that “urban design becomes an extension of beauty in nature whether reflected in the geometric arrangement of space or the embellishment of urban life through gardens, fountains and other meticulous appropriations of nature within the fabric of the city” (2006, 65). This idea acknowledges nature as the original inspiration for architecture and due to this reason, urban design is considered a part of nature. Alternately, Castree writes, “there are many kinds of representation that, while not claiming to be ‘realistic’, are most certainly intended as considered commentaries on ‘reality’ as it appears to those doing the representing” (2014, 57). Not all representations of nature can be strictly construed as attempting mimesis but rather are commentaries on it. As Morton confirms, “the rhetoric of nature depends upon...a way

of conjuring up a sense of a surrounding atmosphere or world” (2007, 35). The ways humans construct and represent the surrounding world depend deeply on contextual perception.

2.4 CRITICAL APPROACHES (CRITIQUES) AND GAPS IN THE RESEARCH

The literature on architecture and nature as independent variables is extensive; however, gaps remain in the nature-architecture relationship. The interdisciplinary interactions are highly specific to common themes such as sustainable architecture, legal rights of nature, and nature as a resource. What is lacking in these frameworks is an inclusive interdisciplinary integration and a comprehensive analysis of the influence of global architecture exhibitions, such as the Venice Architecture Biennale. Many explorations of the RoN framework fail to incorporate boundaries beyond legal or political parameters and rarely overlap with architectural and design aspects. The majority of current architectural discourse fails to meaningfully integrate insights from environmental humanities, ecology, and social sciences, resulting in a narrow approach to nature. This approach to nature and the gap between disciplines perpetuates strong literature on sustainability, green design, and biodesign, but very little on the role of nature beyond these categories. There is a missing analysis of how these narratives and various perspectives of nature influence the misuse of environmental trigger words and other jargon. Additionally, few data sources explore the Venice Biennale as a cultural platform, despite its global significance. The exhibition’s role in shaping architectural narratives about nature remains underexplored within academia.

2.5 CONCLUSION

In conclusion, each of these perspectives reflects common beliefs about the nature-human relationship by perpetuating certain narratives. The overarching theme is that humans use various strategies to understand our role in the world, specifically the role that architecture and planning professions play in the greater scheme of life. Humanity’s relationship with nature has long been mediated and impacted by architecture. This relationship has evolved throughout history, ranging from symbolic, cultural, and physical implications.

References to integrated ecological strategies that emphasize sustainability and regeneration. Although the planning and architectural fields have undergone significant shifts in discourse over time, perspectives on the role of nature within these disciplines remain diverse

and often conflicting. By bridging architecture and nature, many of these viewpoints simultaneously overlap and contradict one another, despite the human urge to categorize in binary terms. Dualisms often highlight recurring themes throughout environmental discourse and the nature debate. Many of these concepts are reflected throughout the literature review section and ultimately contributed to the creation of the analysis framework.

As the architecture and planning disciplines increasingly advocate for collaboration between the built environment and natural systems, it is crucial to examine varying conceptions of nature. The preceding literature has outlined various philosophical, cultural, and linguistic foundations for understanding common constructions and narratives involving humans and nature. The sources discussed in this section have been selected for their distinct perspectives on this collaboration and for providing further insight into their architectural and planning practices. The guiding dualisms provide fundamental insight into the structure of the analysis framework in this thesis. These overlapping, contradicting, and occasionally ambiguous ideas accurately portray the complexities involved in this work.

3. METHODOLOGY

The purpose of this chapter is to outline this thesis' analytical approach, data sampling strategies, and collaborative framework development to provide greater context for my research methodology. This methodology examines the development of a unique research approach to cultural architecture exhibitions, specifically the Venice Architecture Biennale 2025. The investigation into this exhibition and its installations is to determine the beliefs and conceptualizations that architects and planning professionals have about nature. By analyzing the participant's projects, this research aims to uncover their viewpoints on this idea. The project creators and my thesis advisors, Alex Putzer and Katja Schechtner, were initially interested in examining the exhibition projects and the pavilions for explicit mentions of the Rights of Nature. Their preliminary research goal was to understand the perspectives of architects and other planning professionals as they incorporated the RoN in their work.

During the early research stages within the Biennale website and in person at the exhibition, I realized that none of the projects in the Natural section explicitly mentioned the RoN. For this reason, the collaborative research goal was revised to encompass more general narratives of nature. The RoN as a concept was not entirely eliminated from the research, as I found many implied uses and connections throughout the exhibition. This thesis research process has uncovered the many complexities of interpreting participants' intentions stemming from interdisciplinary knowledge and the large event size. There were just over 300 projects on display, and a total of 758 architects were invited to participate in the international exhibition (Biennale Architettura 2025 2025). The numerous projects and participants were beneficial, providing large amounts of data for analysis, although inevitably time-consuming. The number of projects was both a benefit and a limitation for this project. The following subsections will cover the research approach and positionality, research and sampling context, data collection, and the analysis framework process.

3.1 RESEARCH APPROACH AND POSITIONALITY

Overall Research Question: *How do participating architects and planning professionals interpret, narrativize, and communicate nature through their 2025 Venice Architecture Biennale projects, and what perspective-based understandings of nature emerge from these representations?*

3.1.1 Research Design and Approach

As stated previously, the initial research approach considered including a broad range of projects and pavilions within the 2025 exhibition. I started the process by visiting the Biennale website and reading the limited summaries available for each project. Through consultations with the online material and in-person visits to the Arsenale exhibition hall, I realized that there were disparities. The website offered only brief overviews, while the physical project plaques provided critical in-depth explanations from each participant/team of participants. These early observations helped shape the research methodology and provided evidence for more comprehensive and diverse data collection.

Through various thesis meetings and discussions, the scope of the research shifted to focusing solely on projects within the Natural section of the IntelliGENS. This approach was concentrated on which projects would be the most likely to incorporate nature or the RoN into their designs. This section contains a total of 120 projects, which makes up for over a third of the total number of displayed projects at the exhibition. Given the number and diversity of projects, I conducted my research using an inductive approach. According to Woo et al., the best practice for utilizing an inductive research approach is to “start with a clear purpose” (2017, 259). The central purpose of this research is to understand how the participants (specifically architects and planning professionals) conceptualize nature and perpetuate perspectival narratives of nature through their installations at the 2025 Biennale Architecture Exhibition. This understanding comes from an analysis of their project’s descriptions and physical attributes as well as the architects’ professional and academic backgrounds. In particular, this study seeks to identify the lens(es) through which participants perceive and engage with nature and acknowledges the absence of such a lens.

Starting from the bottom up, my approach is qualitative and interpretive in nature, by analyzing project descriptions and the participants’ underlying messages. As determined by Woo

et al., “qualitative methods are often useful for discovering a new (structural and/or dynamic) pattern... which may go well beyond the current theoretical understanding and possibly lead to the development of a new theory” (2017, 261). It is crucial to explore qualitative research methods in this paper. Instead of focusing on an existing theory or concrete hypothesis, I allowed open-ended observations and themes to emerge throughout the process continuously. This inductive research process has been cumulative, starting with preliminary data collection and categorization of information about the exhibition, accompanied by theme identification and the development of a structured analysis framework.

Each stage of research has been built on the previous stage, with continual revisitation of the materials to enable flexibility in creating the framework. This method has enabled a reflexive and nuanced understanding of how the participants perceive nature through their work and prior interdisciplinary experiences. The emphasis of this research is placed on identifying emerging patterns and linguistic themes rather than testing hypotheses. Woo et al. explain, “inductive/exploratory methods are very much problem-focused, attempting to better understand what happens and why” (2017, 260). A goal of this thesis aligns with this description; the research aims to better understand the perspectives of architects and further explore why they might be the case. For all of the reasons outlined above, an inductive research method is the most beneficial tool for this work.

Although this design method does not adhere to a fixed theory or hypothesis, general discourse on the relationship between nature and architecture supports emerging patterns. Conceptual examples of this intersectional discourse are posthumanism, ecolinguistic communication, sustainable architecture, and regenerative design. My personal goal is to create a valuable thesis that both draws from and contributes to the broader academic field. The foundation of this research design is the interdisciplinary intersection of the environmental humanities and architecture. Given the responsibility planning professionals have for creating the built environment, it is crucial to understand what they believe about nature. Similarly, the Architecture Biennale is a critical collection of contemporary architectural design. This research employs a case study design, treating the 2025 exhibition as a bounded system given its six-month temporal scope. This case study enables detailed, contextual analyses of each project because they share a common spatial, temporal, curatorial, and thematic frame of reference.

3.1.2 Researcher Positioning

Firstly, this research topic and design are the result of academic interest and a collaborative opportunity with my advisors, Prof. Daniele Brombal, Katja Schechtner, and Alex Putzer, PhD. Throughout my academic career, I focused on a combination of environmental and educational curricula and therefore participated in the seminar *Tracing the Rights of Nature in Venice: Juxtaposing Nature, Tech, and People*, held by Alex Putzer and Katja Schechtner. In meeting Putzer and Schechtner, I was deeply interested in their ideologies and outlooks on the future of the nature-human relationship. Following the workshop, they offered me an opportunity to create my master's thesis and contribute to their ongoing research. Their research consists of an evolving analysis of theories and practices regarding nature in cities. The project focuses on the contributions presented at the 19th International Architecture Exhibition, titled *Intelligens. Natural. Artificial. Collective*, curated by Carlo Ratti and organized by La Biennale di Venezia in 2025 (from hereon: Venice Architecture Biennale 2025).

As a current master's student in Environmental Humanities at Ca' Foscari University of Venice, I am uniquely tied to both the thematic focus and geographical context of this research. As a graduate student living in Venice, I have direct and consistent access to the Biennale exhibition and its projects through my social and academic life. In addition, my educational and professional background spans both the environmental sciences and the humanities, providing an intimate perspective on the "great divide" between these fields as quoted by Ducarme and Couvet (2020, 3). My attraction to environmental ethics has stemmed from an early awareness of how environmental discourse and ecolinguistic jargon are used freely and frequently. This can often further reflect broad misconceptions of understanding and a lack of clarity regarding societal implications. My educational background and experience enable me to critically analyze and interpret complex environmental concepts, ideologies, and frameworks.

As a researcher, I aim to analyze the conceptual and narrative uses of nature while acknowledging the critical debate surrounding the divide between science and the humanities. My goal is to systematically explore the relevant environmental and architectural discourse and to provide an interdisciplinary framework for understanding various perceptions of nature. This work prioritizes thematic interpretation to reveal underlying narratives and values embedded within each exhibition project. My interest in this topic is rooted in contemporary concerns about climate change and a curiosity about the diverse cultural and artistic interpretations of nature.

Venice, Italy, is a notorious geographical backdrop and crucial to this project for several reasons. For one, the island is a prominent, tangible example of sea-level rise driven by climate change. Secondly, the structural foundation of Venice consists of a system of submerged wooden piles, “leveraging the forces of physics and nature” by utilizing the friction between the mud and the lagoon water to keep the island positioned above water (Bressanin 2025). This fascinating city is a product not only of ancient engineering and architectural skill, but also of local environmental knowledge and expertise. Both of these factors contribute to the unique relevance of my research and physical location in Venice.

As a researcher, I aim to be impartial and reflexive, as this work is highly interpretive. My approach to this thesis is informed by an awareness of my unintentional biases and an acknowledgment of the inherent subjectivity in qualitative and conceptual research. Although I lack formal training in the planning profession, the analysis is more so informed by interdisciplinary engagement with environmental discourse than by architectural critique. This research recognizes the diversity of ecological worldviews represented, as well as the accompanying complexities in interpreting cross-cultural projects and intentions. Furthermore, I remain aware that certain perspectives or concepts may not fully transcend cultural or linguistic boundaries.

3.1.3 Research Positioning

This research is continually informed by the relevant interdisciplinary narratives as described throughout the Literature Review (Chapter 2). Additionally, this thesis operates within a distinct theoretical framework that investigates anthropocentric perspectives on nature and multispecies/more-than-human approaches. Much of the environmental humanities, the Rights of Nature framework, and related dualistic philosophies fundamentally challenge the conventional, exclusive, and separatist viewpoints regarding the nature-human relationship. These various perspectives advocate for an inclusive, multispecies approach that underpins the analytical lens of this thesis. It is important to acknowledge that this ideological alignment reflects a specific theoretical position rather than a neutral analytical stance.

As a result, this analytical positioning informs multiple broader aspects of this thesis, including the selection of literature, the themes prioritized throughout the analysis, and interpretation of outcomes. This influence is also reflected throughout the analysis framework developed by Putzer and Schechtner. Mainly, several framework questions and evaluative

qualities emphasize the inclusion of nonhuman entities and the interconnectedness between built and ecological systems. Recognizing these underlying theoretical influences is crucial in understanding the framework’s strengths, limitations, and resulting interpretations. While these analytical approaches are increasingly prominent in the associated discourse, they are not absolute perspectives for understanding and exploring the nature-human relationship.

3.2 RESEARCH AND SAMPLING CONTEXT

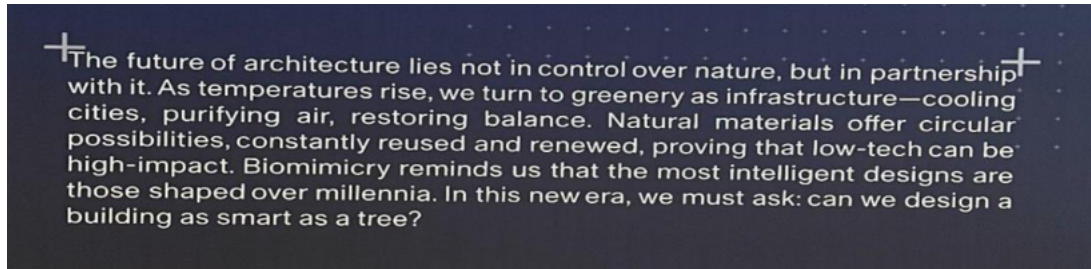


Figure 2: Photo taken by me of an introduction plaque to the Natural Intelligens Section (May 29, 2025).

3.2.1 Site Context

The above quote depicted in Figure 2 welcomes visitors to the expansive exhibition by introducing many of the relevant, present themes in the section. The statement positions architecture as a collaborator with nature rather than a human-devised tool to control it. This thesis explores many of the central themes and narratives of nature mentioned in the statement, examining how they are represented and/or overlooked by the participants and their projects.

The curation consists of five distinct installation locations: Intro, Natural, Artificial, Collective, and Out (as shown in Figure 3). The exhibition opens with Intro and leads into the “three thematic worlds: *Natural Intelligence*, *Artificial Intelligence* and *Collective Intelligence*” that visitors will travel through, ending with Out (Ratti 2024). The Natural Intelligence section is

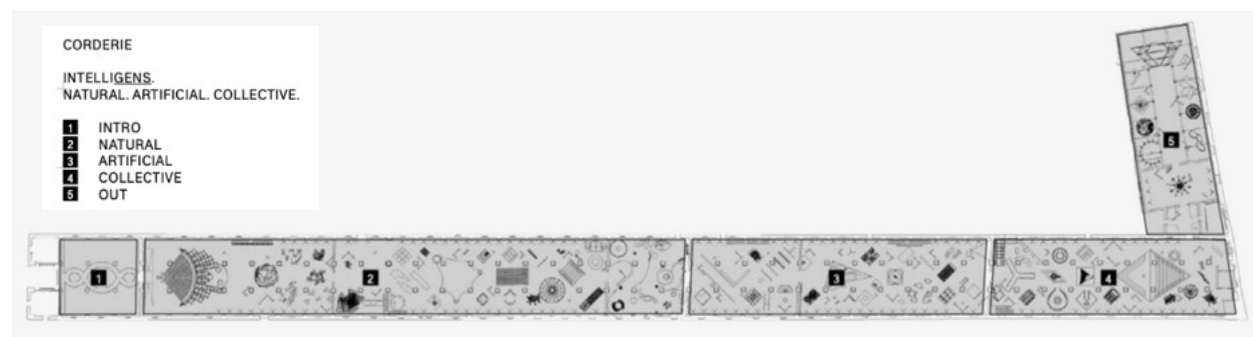


Figure 3: Map of the Arsenale Venue (La Biennale di Venezia 2025a, 7).

described: “architecture, whose original function is to shelter human beings from the natural elements, now relies on nature to reorient practice” (La Biennale di Venezia 2025b). This section contains projects that aim to reposition the existing relationship among humans, architecture, and nature. Ratti details the Artificial Intelligence section, writing “robotics, engineering, and data science converge to show us how technology can affect our built environment and our social systems” and that AI “is poised to destabilise the traditional role of architects” (2024; La Biennale di Venezia 2025b). This category of the exhibition explores the future of artificial intelligence and the changing role of an architect within this technological world. The Collective Intelligence section prioritizes human cooperation, building, and mutual learning as “fundamental to the formation of collective knowledge” (La Biennale di Venezia 2025b). The concluding section, Out, describes “the ultimate form of intelligence is a self-awareness: the precious fragility of our planet in the vast expanse of the universe,” Rees adds that instead of “escaping to the stars, we must focus our intelligence on adapting here, on Earth” (La Biennale di Venezia 2025b; Ratti 2024).

As displayed in Figure 3 and described above, the Natural section is physically the largest space, and most aligned with the interests of this thesis. The original goal of this research was to analyze all 120 projects within the Natural section and to include additional pavilions with similar or related nature-architecture relationships. Ideally, the included projects and pavilions would have explicitly mentioned the Rights of Nature, but my further research found this concept to be deficient, although not entirely absent. The Brazilian pavilion titled *Re(Invention)* relevantly explored themes “surrounding the intrinsic relationship between human and non-human infrastructure” (La Biennale di Venezia 2025a). Despite this, the Natural section became the research site, due to its position as a space where contemporary architectural discourse on nature is the most pronounced. This context provides a consistent setting for a comparative analysis, as it is bound temporally (May-November) and spatially (the Arsenale venue). Figure 4 shows the Intro and beginning of the Natural section, each number on the map corresponding with a project number and title in the description below.

3.2.2 Sampling Context

The Natural Section includes a total of 120 projects, categorized by the Biennale, as shown in Figure 3. Although the exhibition does not give these categories labels, for the sake of clarity, I have distinguished them between *center* and *wall* projects (Fig. 5). As displayed in

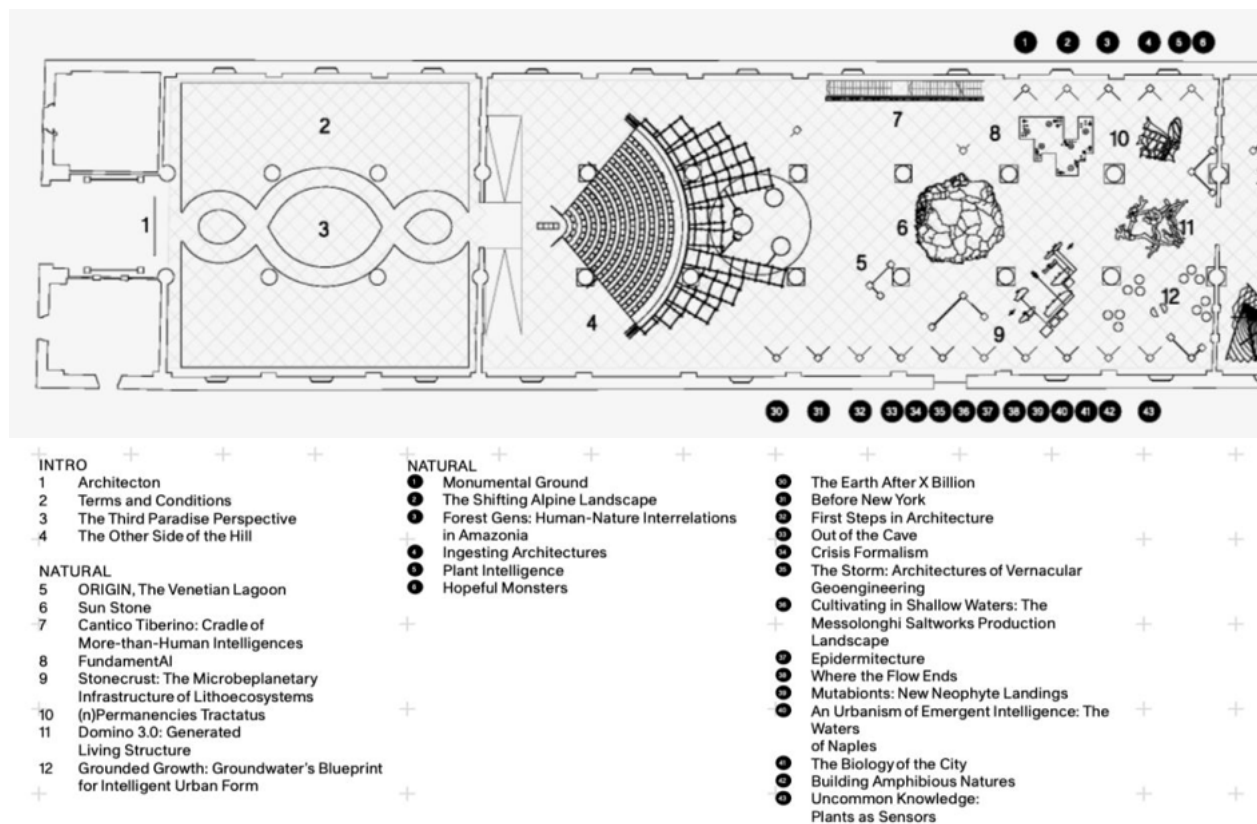


Figure 4: Map of the Arsenale Venue, specifically the Intro and beginning of Natural sections (La Biennale di Venezia 2025a, 8).

Figures 4 and 5, the center projects are labeled with a large number in the exhibition hall map, and the wall projects are depicted with a white font within a black circle. The center projects are typically larger and feature a physical structure or presence, while the wall projects are displayed along the Arsenale's walls as large displays. Unlike the center projects, most wall projects lack a physical or spatial presence beyond the display plaques. Many of these projects might have



Figure 5: Distinction between Center (left "20") and Wall (right "20") projects within the Natural section (La Biennale di Venezia 2025a, 9).

included built or designed structures, although they were not physically displayed at the exhibition.

There were 53 center projects and 67 wall projects within the Natural section. The section was chosen for its conceptual and thematic representations and was further narrowed to the 53 center projects, which were analyzed within the final framework. This choice was due to the large number of projects and the time it took to fully develop and apply the framework. The center projects yielded a more complex dataset due to their physical and material properties. This sampling contributed to a deep conceptual assessment of each project. The initial population of interest was Biennale projects that included at least one participant who was a planning professional or had relevant background experience, such as architects, designers, and professors. Through research into each participant's background, I found that an overwhelming majority of projects involved at least one participant who met this standard.

3.3 DATA COLLECTION

Preliminary data collection for this thesis focused on the physical site of the Venice Architecture Biennale 2025, as well as the exhibition's website. Once the full scope of the exhibition was assessed, the decision was made to focus on a single section of the *Intelligens* curation, with the option to include additional projects, pavilions, or collaborative events later. The Natural section was chosen for its relevant thematic focus on nature and architectural interpretations, making it the obvious starting point. This section comprises 120 projects and at least twice as many participating artists and collaborators. On-site at the Biennale, each project is showcased in the exhibition hall (Fig. 3), accompanied by a bilingual plaque (in English and Italian) that includes a project description, an AI-generated summary, and a list of participants and contributors. The brief AI-generated summary provides a concise 2-sentence overview of each project description. This addition is helpful for my research, as it allows me to further analyze how projects were curated and presented for public viewing.

During this stage, the comprehensive project descriptions, written by the participants, were collectively sourced from the Arsenale exhibition, the Biennale website, and the Biennale staff. Each project description generally includes information on the circumstantial and historical context, geographical and societal implications, and relevant materials and design concepts.

#	TITLE	ARTIST/S	BIENNALE WEBSITE DESCRIPTION	BIENNALE WEBSITE PHOTOS
5	ORIGIN, The Venetian Lagoon	Yann-Arthus Bertrand	The Venice Lagoon is a unique place that represents the quintessence of beauty. ORIGIN, THE VENETIAN LAGOON expresses a fascination for this unknown territory between land and sea. Seen from the sky, each island, islet, canal, shade	

Figure 6: Photo of initial project database, with information sourced from the official Biennale website.

Although data were initially collected from the texts provided by the Biennale, overlapping patterns and conflicting themes began to emerge, necessitating a comprehensive database.

I developed an easily adaptable spreadsheet to systematically organize large amounts of accumulated data. Using the official Biennale map and project list as a reference guide, I further categorized the works based on their spatial position, either as a *center* or *wall* project, and dedicated individual spreadsheets for both categories. For each project, I added descriptive columns that included the project number, project title, contributing artist(s)/participants, brief project description, and representative photo, all sourced from the official Biennale website (Fig. 6). It became apparent that the brief project descriptions from the website were not the full accounts of the participants' descriptions. During my research, the project description section of the database expanded to include digital copies of the full catalog project descriptions and AI-generated summaries, all of which assistant curator Claire Gorman Hanly kindly shared with us. This access enabled a more comprehensive database and consistent thematic analysis across the projects, as shown in Figure 7. To easily manage the developing thematic indicators, I

BIENNALE EXHIBITION DESCRIPTION	BIENNALE AI SUMMARY	KEY WORDS	INTERESTED?
The Venice Lagoon is a unique place that represents the quintessence of beauty. ORIGIN, THE VENETIAN LAGOON expresses a	A bird's-eye tribute to Venice's lagoon reveals its painterly patterns and delicate balance. This film encourages renewed	unknown territory, coexistence of man and natural forces, preserve nature	Yes Def... Maybe

Figure 7: Photo of developing project database, with information sourced from Claire Gorman Hanly.

periodically extracted relevant keywords from the project descriptions and incorporated them into a spreadsheet column (Fig. 7). I additionally included a column reflecting my initial level of interest in each project for future analysis in this thesis (Fig. 7). However, I soon realized that this early attempt to rank projects on a scale of interest, ranging from “yes definitely,” “maybe,” and “probably not,” was premature, as I was lacking the necessary information to sufficiently evaluate their relevance. The primary aim of this phase was to gather and structure information comprehensively, without making premature eliminations or developing preconceived bias.

To further develop the database, I extended my research to focus on the participants responsible for the creation and conceptual development of each work. It was crucial to Putzer and Schechtner’s research goal to verify the presence of architects and planning professionals within the participant dataset, as the focus relied on this discipline’s beliefs about nature. The expanded investigation draws on the background experiences of each individual participant and/or participating organization, including academic studies, professional fields, and other relevant factors. By including each contributor, I was able to visualize the scale and disciplinary diversity and further analyze the conceptualization of nature and the specific contexts represented. The large number of projects and participants resulted in a significant increase in both the scale and complexity of data collection.

To manage this information, I created categorical fields in the database, including a list of professions self-described by the participants¹ (Fig. 8). I searched online for each participant or

ARTIST/S	PROFESSION	SOURCE WEBSITE/S	ARTIST BIOGRAPHY	ARTIST THEMES AND PHILOSOPHY
Yann-Arthus Bertrand	Photographer Filmmaker Journalist Activist NON-PLANNING PROFESSION	https://www.linkedin.com/in/yann-arthus-bertrand-aao976223/ , https://www.yannarthusbertrandphoto.com/yab/	Born in 1946, Yann Arthus-Bertrand has always been passionate about the animal world and natural spaces. He quickly began	Environmentalism, focus on the state of the planet, humanism and social awareness, connection between humans and nature, visual

Figure 8: Photo of developing project database, including profession dropdown categories, cited primary or secondary sources, publicly available participant biography, and central themes extracted with the help of an AI program (ChatGPT).

¹ The terms “participant” and “artist” were initially used interchangeably in the creation of my databases. I eventually phased out the term “artist” because it became misleading and unclear. All mentions of the word “artist” in my databases refer to the Biennale participants.

participating organization to compile their professions and professional contributors from relevant disciplines (Fig. 8, column 2). However, my search concluded that such projects are minimal, with the vast majority of included professionals being in the architecture, planning, and design fields. Using a drop-down list to categorize the various professionals facilitated the grouping or exclusion of projects for future analysis. I grouped similar job titles while preserving the participants' wording, which is crucial for conveying an accurate sense of their professions.

Additionally, I included a brief biography for each participant, taken directly from their personal website, their organization's website, or their LinkedIn page, as a primary source. In the limited instances when neither of these options was available, I utilized reliable secondary sources, such as interviews or press articles. It was crucial to include a majority of primary sources, as they provide direct insights into the participants' conceptualization of nature and offer a deeper understanding of these complex topics. For each resource website I found online, I included the source link so that it could be easily revisited. A limited number of participants did not have a distinct profile or publicly accessible information about them. These contributors were labeled as such.

To facilitate the exploration of participants' conceptualization of *nature*, I used their biographies to extract key themes and philosophical perspectives. To assist with this data analysis, I input each biography into an AI program (ChatGPT) with the prompt, “extract main themes and philosophies.” From this output, I selected the most relevant and substantial topics and entered them into the database as demonstrated in Figure 8. These initial thematic profiles formed the foundation for an in-depth analytical framework and further nuanced exploration of *nature* throughout the exhibition. Lastly, while attending the exhibition in person, I documented my experience by taking photographs and videos of the physical structures and/or aspects of each project, as well as the project descriptions

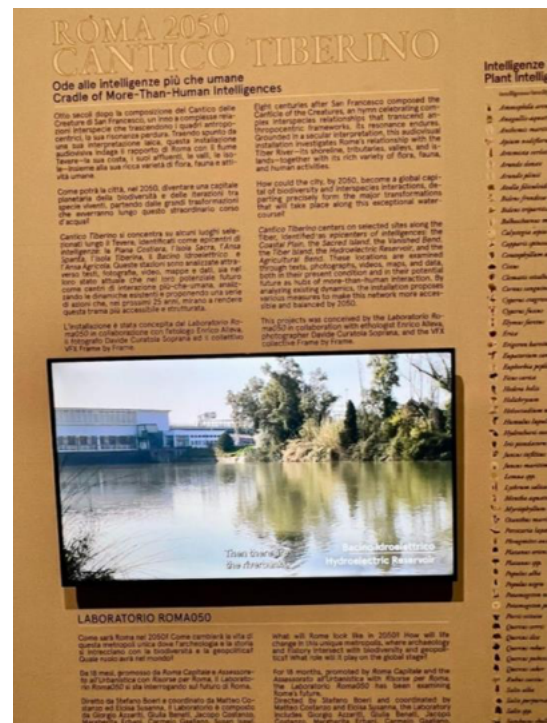


Figure 9: Photo taken by me of the project titled, *Cantico Tiberino: Cradle of More-than-Human Intelligences* (May 29, 2025).

and AI summaries. Figure 9 shows a photograph of the project Cantico Tiberino: Cradle of More-Than-Human Intelligences, created by Laboratorio Roma050, Enrico Allewa, Davide Curatola Soprana, Frame by Frame, and Federico Pastorelli. I used these photos and my sensorial experience as part of my dataset and research process. I frequently referred back to these photos when developing and applying my framework to each project. This data collection approach is layered and reflexive, improving my organization and categorization of information. By revisiting the photographic materials, I gained crucial insights into the varying environmental and design philosophies that inform the *Natural IntelliGENS* projects. I focused on the represented concepts and terms to better interpret their intended meanings and subtext. By drawing on the interdisciplinary lens of the environmental humanities, this thesis explores and critiques participants' narratives and perspectives about the nature-architecture relationship.

3.3.1 Data Acquisition and Permissions

Due to the inconsistencies between the Biennale website project descriptions and in-person descriptions, additional information was requested and interpreted. With the help of my advisors, we connected with Carlo Ratti's assistant, Claire Gorman Hanly. At request, Hanly provided a thorough spreadsheet listing all projects, participants, exhibition panel descriptions, and short summaries for each section of the *IntelliGENS* exhibition. The information was offered along with the stipulation that the participants should be credited for their contributions and that the content is owned by La Biennale. Additionally, none of the projects should be republished without the participants' consent. Hanly's assistance and access to the full spreadsheet provided crucial, enriched insights into the project participants' viewpoints and planning context that would have been difficult to obtain without her support. The data acquisition for this thesis was the result of collaborative effort and generous external support.

3.3.2 Data Collection Limitations

There were some limitations in the length of my data collection and the timeframe. The number of projects and the amount of available information in the Natural section exceeded my expectations and those of my thesis advisors. The exhibition consisted of hundreds of projects and expansive physical materials, with a temporal limit of 6 months. When sourcing information about the participants, I relied on publicly available personal data, which was not always accessible. The large number of participants was another challenge, due to a lack of detailed

information about every individual or organization. This factor made it challenging to find participants for my search, as not everyone has an online presence or an up-to-date website, and there were occasional mistaken identities due to common or popular names and a lack of profile photos in the provided Biennale materials or online.

3.4 ANALYSIS FRAMEWORK

3.4.1 Framework Purpose

The use of an analysis framework was a necessary addition to this thesis and overall project research. Putzer and Schechtner created an in-depth, systematic framework for analyzing the rights of urban nature, with a specific focus on the Venice Architecture Biennale. The purpose of this framework is to comprehensively evaluate the incorporated projects and assess how architects and planning professionals use nature in their designs. The lack of a standardized procedure for determining these facets, let alone in a context such as the Biennale, required Putzer and Schechtner to develop a unique, customized analytical tool. Additionally, there are no existing frameworks for analyzing and comparing the intersecting discourses of nature and architecture.

Given the interpretive nature of this thesis, it was critical to facilitate the interpretation of often complex qualitative project descriptions and designs. By incorporating this structured evaluation tool into my research, I was able to analyze each project and convert my findings into informative, conclusive, and semi-quantitative data. Furthermore, Putzer and Schechtner's analysis framework evaluated not only individual projects but also helped me identify emerging themes and patterns across the Natural section. Their original framework supplied the necessary foundation for my reflexive analysis as well as the capacity to adapt to new information and ideas. These goals are achieved through a structured set of questions and quality-specific anchor points detailed within the following section.

3.4.2 Framework Structure and Design

Putzer and Schechtner developed the analytical framework structure by combining a series of questions with corresponding concepts, resulting in a quantitative assignment for each question. I used this tool to systematically evaluate each project and eventually identify key patterns and themes. The 15 questions are divided equally based on three general categories:

nature-focused, *architecture-focused*, and *results-focused*. Each question response contains a five-point ordinal rating scale, with all unique qualities to the question and determined by the most accurate anchor point. Together, the three categories form the foundation for a structured, multidisciplinary analysis of qualitative and complex projects.

Understanding participants' conceptualization of nature is crucial to my research and this analytical framework, as it determines their level of engagement with the rights of nature. Notably, the definition of *nature* used within this framework is intentionally undefined. This allows for contextual flexibility within each project, enabling the determination of its specific parameters or lack thereof. Within this framework, the asserted colloquial uses of *nature* are drawn directly from within each project's own description and language. This is to avoid imposing a single, fixed definition or inaccurate representation. The fifteen questions negotiate complex relationships between architecture, multispecies, and shared futures. Together, these three categories form a comprehensive framework allowing for a nuanced and interpretive examination of the Biennale projects.

While Putzer and Schechtner comprehensively developed this analytical framework, they allowed for adaptation and flexibility on my part, consistent with reflexive research. During a series of thesis supervision meetings, it became apparent that the original framework required experimentation to ensure its practicality and applicability within varying project contexts. I initially applied the framework to a small subset of projects to assess these qualities, and this trial revealed a few areas for adjustment and refinement. This included revising and reconfiguring several questions, as well as substituting terms and adding clarifying qualities. Specifically, I simplified question 4, "should 'nature' be protected (e.g., extinction) or mitigated (e.g., climate change)?" because the associated qualities failed to broadly apply to the projects. Instead, I revised the question to ask, "How does project x frame 'nature'?", which largely maintained the intended objective while allowing for easier interpretation of the projects. Question 5, "does project x allow for 'natural' improvisation?" additionally required adaptation due to its somewhat ambiguous meaning. The revised question now asks, "how open is Project X to unintentional natural adaptation?" and simply clarifies what the "natural improvisation" is referring to.

During analysis framework testing, an outlier question proved challenging to answer across the project subset. Question 10 originally asked, "how accessible is project x (for

humans)?” This question repeatedly failed to elicit unique responses about the projects due to the exhibition’s inherent accessibility. This query could be applied to various other projects and designs, although it was not relevant within the context of the Biennale. I revised the question to instead ask, “to what extent does project x challenge the separation between the natural and built environment?” with the intention of exploring participants’ underlying assumptions about the connectedness of nature and architecture. The adapted question and its qualities help determine the degree to which participants and their projects actively challenge the conventional othering of nature.

3.4.3 Category 1: Nature-Focused

The questions in the *nature-focused* category explore a project’s engagement with and relationship to nature, examining its underlying perspective and proximity. This subsection of questions informs the interpretation of nature’s protections by determining the degree of agency granted to natural entities in each design. Additionally, this category encompasses contemporary environmental ethics and the overall conceptual framing of the environment.

The *nature-focused* category consists of the following five questions:

1. How essential is ‘nature’ to Project X?
2. Which role does ‘nature’ play in Project X?
3. Which relational aspects of ‘nature’ does Project X focus on?
4. How does Project X frame ‘nature’?
5. To what extent does Project X support unintentional ‘natural’ adaptation?

3.4.4 Category 2: Architecture-Focused

The *architecture-focused* questions consider the architectural implications of each project, analyzing the built and design aspects of each work. This category evaluates how the projects engage with nature and its surrounding environments. The questions assess the role of architecture as a mediator or a barrier between human-nature relationships. Rather than offering an architectural critique, these questions examine how the project’s design and planning choices either reinforce or undermine its stated intentions. This category aims to uncover the architectural role in shaping the framing and construction of nature.

The *architecture-focused* category consists of the following five questions:

6. At which scale does Project X operate?

7. To what extent is Project X context-oriented?
8. What degree of integration does Project X demonstrate?
9. How much does Project X integrate nature-based solutions (NbS) or technologies?
10. To what extent does Project X challenge the separation between the natural and built environment?

3.4.5 Category 3: Results-Focused

The final category of questions are *results-focused*, and they evaluate the temporal and material dimensions of each project. These questions address both the varying outcomes of the projects and participants' intentions following the Biennale. This category explores the implications of each project, extending beyond the exhibition's boundaries. A central feature of this category is the engagement with multispecies. Exploring intentional beneficiaries helps distinguish between projects that thoughtfully consider and integrate multispecies perspectives and those that prioritize humans alone.

The *results-focused* category consists of the following five questions:

11. How implementable is Project X?
12. How fixed is Project X?
13. What is the timeframe for Project X?
14. How physical is the 'nature' in Project X?
15. Who or what does Project X explicitly benefit?

3.4.6 Framework Scale and Anchor Descriptions

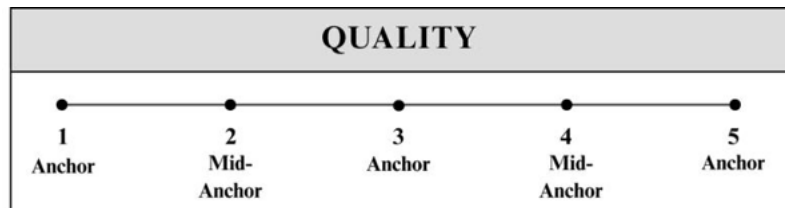


Figure 10: Analysis Framework Quality Scale and Anchor Formatting Template (created using the design program Canva)

The adapted and collaborative analysis framework uses distinct responses for each of the previously outlined question categories. The responses are scored on a five-point ordinal rating scale, as shown in Figure 10 above. The scales for all questions range from 1 to 5, with different

anchor qualities assigned to each number. This results in 5 unique anchors and mid-anchors per question. Every question contains a unique quality (stated in the title box of Figure 10) to summarize the question’s intent. Each quality is expanded by a rating continuum consisting of three explicit anchor descriptors for ratings 1, 3, and 5, and two supplementary mid-anchor descriptors representing the ratings 2 and 4 (Fig. 10). Additionally, there is a *Not Applicable* (N/A) rating for projects that do not fall under any of the anchors or mid-anchors. This necessary rating was included in the analysis to account for occasional outliers among projects. The responses to each question result in a quantitative number 1-5 and an accompanying anchor descriptor. This enables greater clarity and consistent evaluations without reducing each question’s complexity. The rating scale allows for flexible answers that can be quantified for use in an alternative, simplified data-collection strategy. This type of rating also eases pattern recognition, which is especially crucial given the large number and variety of projects. The following section examines each question and unique rating anchors, arranged into thematic categories as described above. Each question is followed by a graphic depicting the rating scale, an explanation for the question, and a description of each anchor.

3.4.7 Nature-Focused Category: Questions, Qualities, and Anchors 1-5

Question 1: How essential is ‘nature’ to Project X?

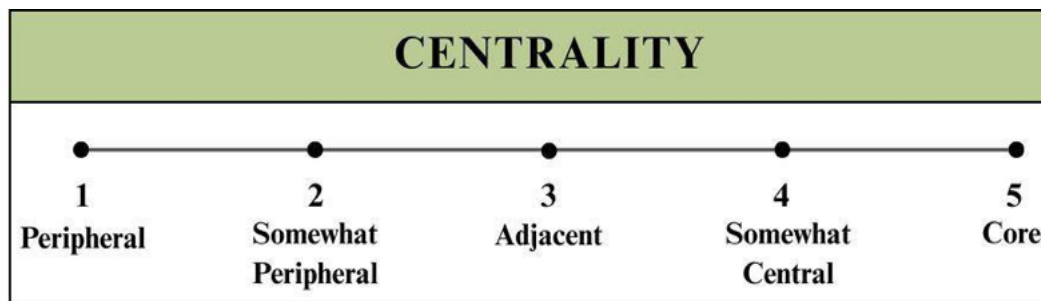


Figure 11: Analysis Framework “Centrality” Scale (created using the design program Canva)

This question evaluates the extent to which nature is regarded as an essential attribute of a project. As detailed in Figure 11, the ordinal anchors for this question range from nature as a peripheral, adjacent, or core aspect of a project. This question examines the degree of integration of natural components within a project’s concept, design, and configuration. The question provides a foundation for discerning not only the implementation of ‘nature’ but also its factual and thematic significance. Depending on the frame of reference, ‘nature’ may be regarded as either a superficial addition, a proximate function, a core value, or a moderate combination of

these conditions. Therefore, the centrality of ‘nature’ varies widely across project narratives and is highly context-dependent. In this framework, the concept of nature is interpreted through each participant’s articulation and incorporation, rather than through a detailed, specific definition. This allows for an interpretive, unrestricted view of nature, shaped by diverse disciplinary, cultural, and experiential knowledge. The following anchors and mid-anchors illustrate how this subject can be explored and subjectively interpreted.

Peripheral (1)

A project in which nature is *peripheral* incorporates natural elements only minimally, often as an independent or surface-level element. This determination refers to a project whose thematic integrity would remain essentially unchanged if all natural components were removed. In this instance, the value provided by nature is not central to Project X’s concept or design. For example, an installation that includes a few plants for aesthetic purposes but does not conceptually rely on them would fall into this category.

Somewhat Peripheral (2)

This mid-anchor descriptor is used to identify projects where nature is present, albeit marginal, and removing it from the project would cause only a slight loss of meaning.

Adjacent (3)

Project X would be considered *adjacent* if nature is a meaningful contributor although not entirely essential to the central theme or purpose. This distinction is made for projects that would lose substantial and conceptual depth if all of nature and natural components were stripped away. A project rated with an *adjacent* quality of nature references nature within the core narrative without substantially depending on it.

Somewhat Central (4)

This mid-anchor descriptor portrays nature as playing a significant role in the project. In this case, if nature was removed, the project would be considerably weakened.

Core (5)

A project in which nature and natural elements are rated as *core* aspects integrates them fully into its theme and design. This quality refers to nature as conceptual and foundational to the project's integrity. Removing nature from the design would fundamentally alter and deplete the project. For instance, in the *ACROS Fukuoka*

Prefectural International Hall project², I rated it with this anchor, deciding that nature is an essential component. The project building crucially incorporates garden terraces into its design; without them, it would be conceptually limited and physically unrecognizable.

Question 2: Which role does ‘nature’ play in Project X?

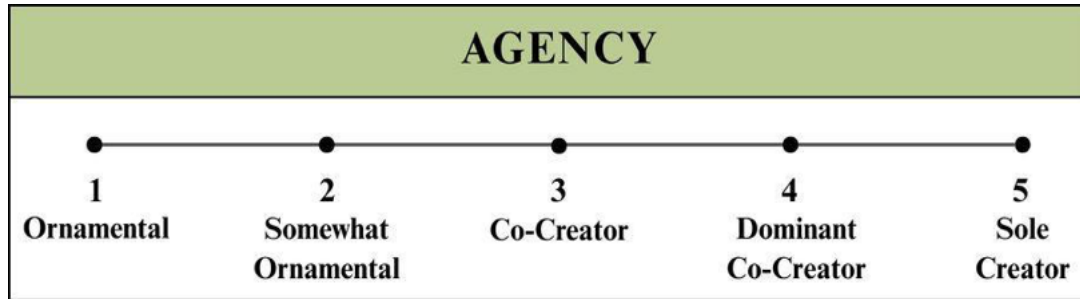


Figure 12: Analysis Framework “Agency” Scale (created using the design program Canva).

Across all designs, nature is attributed with varying degrees of authority and influence. This question evaluates the extent to which nature is granted agency within each project. The role nature plays is ranked from the least to most influential and capable of creation. The anchors and mid-anchors explicitly categorize nature as ornamental, somewhat ornamental, a co-creator, dominant co-creator, or as a sole creator (Fig. 12). For example, if nature is used as a decorative feature without any agency, the project is rated as *ornamental (1)*.

Ornamental (1)

A project is rated as *ornamental* when nature is used entirely in a decorative, non-instrumental capacity. This quality refers to natural components or entities incorporated for aesthetic purposes that only marginally influence the project’s design, central theme, or function. If all references to nature were removed from the project, its central concept would not be significantly affected.

Somewhat Ornamental (2)

This mid-anchor describes nature as playing a minorly functional role, while remaining secondary to human control.

Co-Creator (3)

The *co-creator* anchor portrays nature as actively and influentially shaping a project. This determination recognizes nature as a collaborator that contributes substantially to the

² ACROS Fukuoka Prefectural International Hall was created by the following participants: Emilio Ambasz & Associates.

concept and design process alongside human intervention. A key impression of this anchor is that humans and non-humans collaborate for a shared end goal or creation. Removing all aspects of nature from the project would considerably alter its function and conceptual theme.

Dominant Co-Creator (4)

This mid-anchor is used to describe a project in which nature guides most aspects and human intervention and support are limited.

Sole Creator (5)

This anchor frames nature as the primary creator, where natural components have autonomous agency. A project rated with this anchor enables humans to take a secondary or even a nonexistent role. This quality emphasizes nature and natural entities as essential agents, acting as independent architects and designers. The project is entirely reliant on nature and natural processes, and removing these elements would cause it to cease to exist as intended. Nature is not ornamental or for aesthetic purposes but rather the authoritative, generative force. For example, *The Only Flowering Plant in the Ocean*³, relies fully on the growth and presence of Mediterranean seagrasses, and without them the project would be obsolete.

Question 3: Which relational aspects of ‘nature’ does Project X focus on?

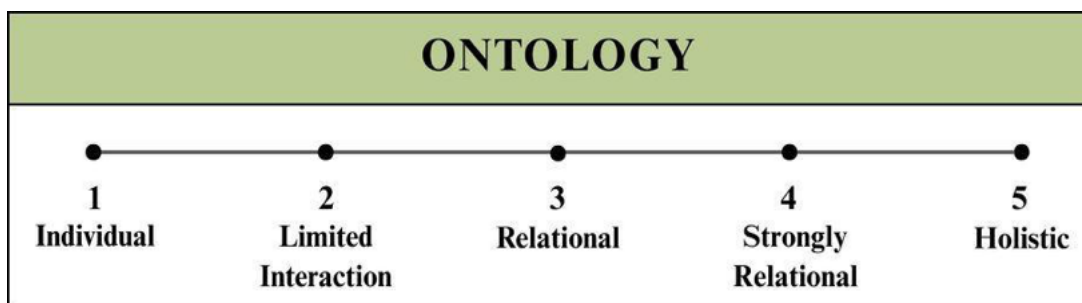


Figure 13: Analysis Framework “Ontology” Scale (created using the design program Canva).

This question and quality explore the relational capabilities of nature as presented in each project. These anchors range from a focus on individual entities to a comprehensive, interconnected view of nature. The projects encompass not only a wide variety of natural entities but also varying degrees of relativity between them. The anchors and mid-anchors are

³ *The Only Flowering Plant in the Ocean* was created by the following participants: Vessel.

categorized into individual, limited interaction, relational, strongly relational, and holistic aspects and interactions (Fig. 13). This distinction is important because it reveals whether a project focuses on specific organisms and interactions or on more comprehensive systems.

Individual (1)

Projects labeled with an *individual* rating focus on nature as a single organism, species, or narrowly defined natural element, without acknowledging interactions with other entities. For example, the project titled *Necto*⁴ isolates nature only in terms of its structural materials and therefore focuses on an individual perspective. This project incorporates *individual* nature as a component of its material creation.

Limited Interaction (2)

This mid-anchor descriptor acknowledges some relational interactions between nature within a project. While few interactions are referenced, they remain secondary.

Relational (3)

A *relational* project references a somewhat interconnected framing of nature. This anchor acknowledges specific interactions or connections between natural entities. This is a comparatively limited view, as it does not provide a comprehensive perspective on nature. This distinction encompasses projects that incorporate specific relationships, such as predator-prey interactions, symbiotic partnerships, or dynamics between trees and built structures. This rating is demonstrated in the project *Architecture as Trees, Trees as Architecture*⁵, due to its highlighted relationship between nature (trees) and the built environment.

Strongly Relational (4)

This mid-anchor refers to projects that emphasize multiple relationships and closely approach a systemic view of nature.

Holistic (5)

Projects that focus on a *holistic* interaction with nature identify and acknowledge interconnectedness among biotic and abiotic components and ecosystems as a whole. Projects of this quality demonstrate a comprehensive understanding of natural systems in

⁴ *Necto* was created by the following participants: SO – IL, Mariana Popescu, TheGreenEyl, Riley Watts.

⁵ *Architecture as Trees, Trees as Architecture* was created by the following participants: OLA Office for Living Architecture, Green Technologies in Landscape Architecture (Technical University of Munich).

which multiple forms of life and environmental processes are intricately interrelated. This approach emphasizes integration and interdependence, rather than isolating specific elements or relationships. The project *Biorock Pavilion*⁶ takes a *holistic* view of nature, referencing the interconnectedness of human evolutionary adaptations and the use of biomimicry in its design.

Question 4: How does Project X frame ‘nature’?

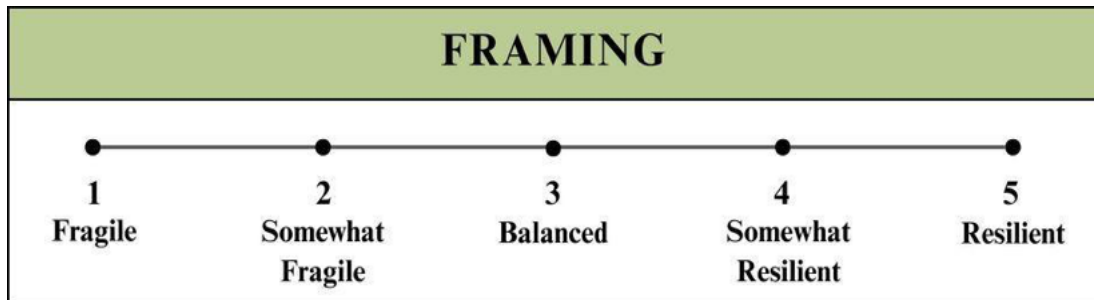


Figure 14: Analysis Framework “Framing” Scale (created using the design program Canva).

This question examines how each project conceptualizes and frames nature in relation to its perceived vulnerability, stability, or adaptive capacities. By analyzing whether nature is framed as fragile, balanced, or resilient, the question explores the underlying assumptions that shape each project’s relationship with the environment. The anchors and mid-anchors associated with this question scrutinize architectural interventions that view nature as something needing protection or as something capable of adaptation (Fig. 14).

Fragile (1)

A project that portrays nature as *fragile* depicts an entity that is easily damaged and requires protection and management. In this view, natural components are considered highly vulnerable to human disturbance, climate change, and other stressors. Typical themes within this anchor include preservation, conservation, and passivity. The overarching takeaway is that nature is weak and incapable of adaptation, requiring human intervention. A project meeting this description is *FRICKS: Upcycled Foamed Bricks*⁷, which frames nature as exploited and dependent on human interference to solve this problem.

⁶ *Biorock Pavilion* was created by the following participants: Kelly Hill, Michael Pawlyn, Adam Holloway, Karen Bird, Ed Clark, Andy Hayles, Jon Stevens.

⁷ *FRICKS: Upcycled Foamed Bricks* was created by the following participants: Juliana Mariz de Oliveira Simantob, Claudia Gowgiel, Pinelopi Filothei Karali.

Somewhat Fragile (2)

This mid-anchor depicts nature as capable of limited adaptability and ultimately dependent on human intervention.

Balanced (3)

A project with *balanced* framing acknowledges both the vulnerability and the adaptability of natural systems. Nature is viewed as capable to some degree of regeneration but still requires careful human stewardship to succeed. Projects with this quality often portray nature as both in need of protection and as a participant in its own recovery.

Somewhat Resilient (4)

This mid-anchor descriptor portrays nature as self-regulating and capable of adaptation, within the acknowledged limits.

Resilient (5)

A *resilient* anchor framing describes nature as a powerful, self-governing force, capable of repair and transformation with minimal to no required human intervention. This quality refers to projects that acknowledge nature's innate ability to adapt and position it not as a powerless victim, but rather as an active participant and functioning mechanism. Projects with this quality highlight explicit cycles of regeneration, ecological flexibility, or, for example, are "spontaneous and self-regulating," as detailed in the project, *Nature Trilogy*⁸.

⁸ *Nature Trilogy* was created by the following participants: Li Hu and Huang Wenjing (OPEN Architecture), Zhang Nan.

Question 5: How open is Project X to unintentional natural adaptation?

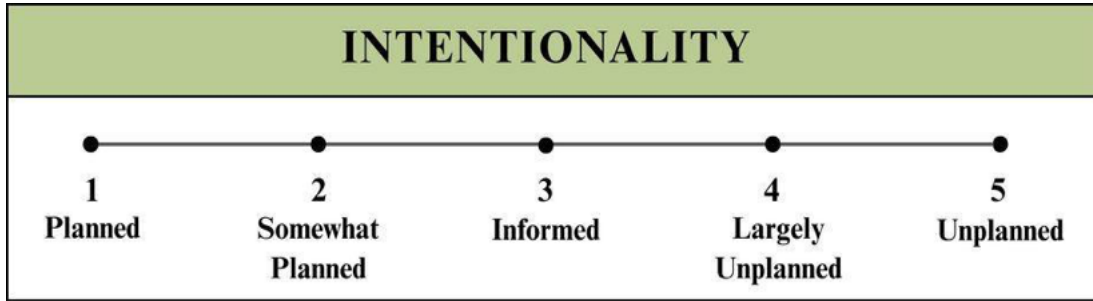


Figure 15: Analysis Framework “Intentionality” Scale (created using the design program Canva).

This quality and question investigate the extent to which projects allow for the continuation of natural growth, improvisation, and adaptation without external inputs or suggestions. The question determines whether projects fully incorporate open-ended ecological processes or instead limit and predetermine their outcomes. However, specific project designs and concepts help create conditions that allow for some educated natural adaptation. The anchors and mid-anchors range from planned, somewhat planned, informed, largely unplanned, and unplanned (Fig. 15). These descriptors reflect varying degrees of flexibility and agency afforded to nature by the participants and projects.

Planned (1)

A project that supports *planned* adaptation is a controlled, managed approach with outcomes predetermined by its design. Planned adaptation intentionally prevents any natural flexibility or spontaneity to achieve specific consequences or functions. Nature and natural processes are tightly controlled, and projects with this rating are often oriented toward predictability and precision. For example, the project *CONQ: Marine Biobased Building Materials*⁹ is a fully predictable adaptation due to the use of discarded oyster, clam, scallop, and mussel shells. The shells are crushed and combined with biopolymers to be used as predictable building materials that are not capable of self-adaptation.

Somewhat Planned (2)

This mid-anchor allows for limited flexibility, and adaptation occurs within specified design constraints.

⁹ *CONQ: Marine Biobased Building Materials* was created by the following participants: Angie Dub, Heidi Jalkh.

Informed (3)

This anchor describes projects that incorporate a determinate degree of natural adaptation and growth within the boundaries of a structured system. Natural entities and components within the project are granted a certain extent of flexibility while ultimately remaining shaped by human design principles and boundaries. This descriptor recognizes projects that anticipate natural processes and adaptation despite the presence of a finite or controlled growth system.

Largely Unplanned (4)

This mid-anchor applies to projects that allow nature to adapt and significantly shape its outcomes with limited external control.

Unplanned (5)

Unplanned natural improvisation within the context of a project embraces unpredictability by supporting natural processes to unfold freely without externally imposed constraints. Projects classified under this category intentionally leave or create space for open-ended dynamics, such as unintentional growth, ecological succession, or spontaneous shifts in abiotic systems. In these projects, the design concept creates conditions that allow nature to have agency and encourage open-ended, undefined outcomes.

3.4.8 Architecture-Focused Category: Questions, Qualities, and Anchors 6-10

Question 6: At which scale does Project X operate?

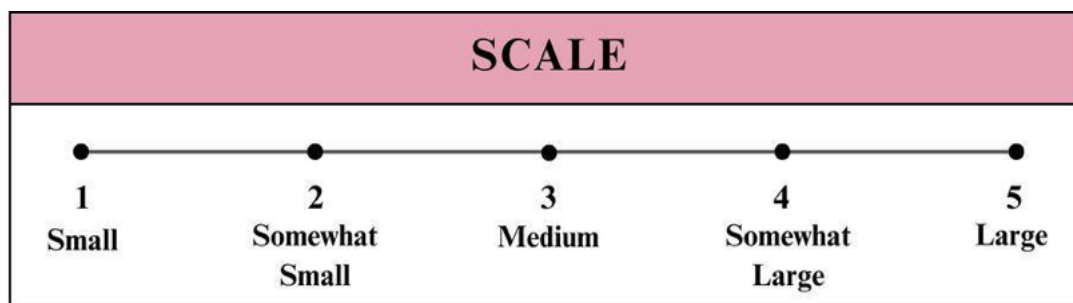


Figure 16: Analysis Framework "Scale" Scale (created using the design program Canva).

This question depicts the physical scale at which each project is situated, ranging from the microscopic to the planetary. Understanding scale is crucial in every project context because it shapes interactions and engagement with organisms smaller than humans, at the human scale, or larger than architectural or planetary scales. The evaluative scale for this question consists of 5

anchor and mid-anchor points, ranging from small, somewhat small, medium, somewhat large, and large (Fig. 16).

Small (1)

A *small-scale* project operates at or within dimensions smaller than the typical human body. Projects functioning at this scale include designs or themes centered on bacteria, microorganisms, insects, or otherwise invisible processes. Such projects highlight typically unseen or overlooked ecologies and microbial or cellular processes that reinforce larger, more complex systems.

Somewhat Small (2)

This mid-anchor describes projects that focus on micro-scale systems but represent or mediate them at a human scale.

Medium (3)

A *medium-scale* project is comparable in size to that of a typical human body or slightly larger. A medium-sized project typically includes objects, installations, or designs that are human-centered in their scale of interaction.

Somewhat Large (4)

This mid-anchor portrays projects that exceed the human-accessibility scale but remain spatially limited.

Large (5)

A project categorized as *large-scale* operates on dimensions that exceed the human scale. Examples of this quality include architectural structures, landscapes, forests, or even planetary systems. Projects in this category commonly engage directly with urban infrastructure, extensive ecological networks, or broad geographic areas.

Question 7: To what extent is Project X context-oriented?

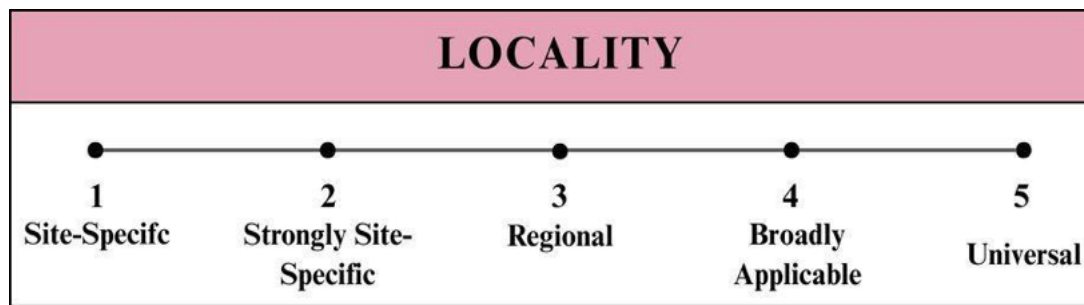


Figure 17: Analysis Framework “Locality” Scale (created using the design program Canva).

This question considers the degree to which a project depends on, adapts to, or transcends its specific locality. The question distinguishes between projects that are deeply tied or connected to their site and those that claim universal applicability. As depicted in Figure 17, this categorization indicates whether a project is site-specific, strongly site-specific, regional, broadly applicable, or universal. This rating refers to the projects’ specified or intended localities and their level of independence from them.

Site-Specific (1)

A *site-specific* project is distinguished by a unique, conditional, or highly context-dependent design that relies on a specific site, whether conceptually or physically. It is characteristically impossible to replicate in an alternative position or location without distinctly altering the project due to the cultural, ecological, or geographical conditions of its site. A project with this rating depends heavily on a unique site and cannot be transferred without fundamental changes. For example, a project with this rating is *Revival of Ordinary Trees*¹⁰, which focuses on a site “within the premises of a former porcelain machinery factory in Jingdezhen.”

Strongly Site-Specific (2)

This mid-anchor describes a project that is closely tied to its site, with adaptability limited to similar contexts.

Regional (3)

A project characterized as *regionally* context-dependent refers to its fluctuating capability to adapt to multiple local contexts in response to similar conditions. This quality is not

¹⁰ *Revival of Ordinary Trees* was created by the following participants: Dong Gong (Vector Architects).

entirely site-specific, and while the project collaborates with its immediate surroundings, the principal designs or themes can be scaled to other localities with comparable ecological or cultural regions.

Broadly Applicable (4)

This mid-anchor descriptor applies to projects that are contextually aware but designed to be applied in many settings (not all).

Universal (5)

A *universally* context-dependent project is widely applicable and designed for maximum flexibility. This quality describes projects that are operational and engaged across all systems and locations. Indiscriminately applicable projects are easily replicable or transferable across geographic and cultural settings. For example, *MycoMuseum*¹¹ is designed to operate on a global scale and can function regardless of location or context.

Question 8: What degree of integration does Project X demonstrate?

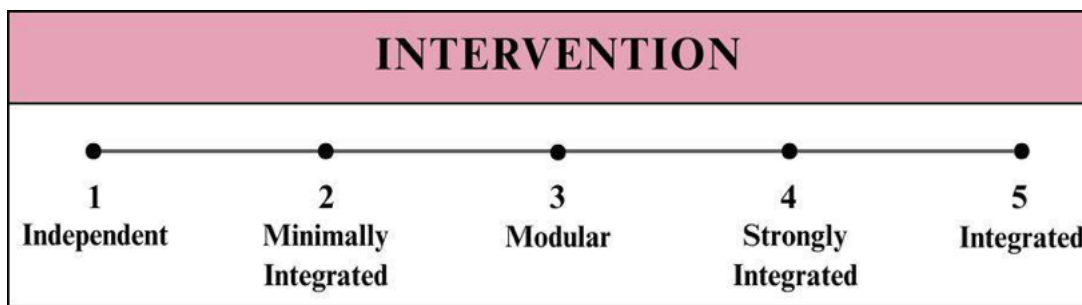


Figure 18: Analysis Framework “Intervention” Scale (created using the design program Canva).

This question examines the extent to which a project’s intervention is embedded within its surrounding systems. The projects are distinguished by their engagement with and reliance on the encompassing environmental and infrastructural systems. The degree of integration indicates whether the project’s implementation method operates autonomously, in partial alignment, or as a fully embedded component. The quality anchors and mid-anchors attributed to this question range from independent, minimally integrated, and modular to strongly integrated and integrated, as depicted in Figure 18.

¹¹ *MycoMuseum* was created by the following participants: Bhakti V Loonawat and Suyash Sawant (Anomalia).

Independent (1)

A project rated as *independent* is self-contained and functions without significant reliance on external systems. Projects with these types of designs are autonomous, often highlighting self-sufficiency, self-containment, or stand-alone functionality. This quality incorporates an intervention method that is largely independent of external forces, enabling a substantial degree of freedom and independence. For example, *The Refreshing Square*¹² consists of a square marble slab that can be integrated independently, as it does not rely on external systems.

Minimally Integrated (2)

This mid-anchor describes projects that interact minimally with external systems and remain largely independent.

Modular (3)

A project designed for modular integration can function collaboratively with its environment while retaining flexibility and adaptability. Projects can integrate within specific systems while still maintaining their independent integrity, allowing them to be detached or relocated without losing their autonomy. Some elements are pliable and can be adjusted or rearranged to accommodate varying circumstances. For example, *Metabolic Home: New Forms of Cohabitation and Decarbonization in the Dense City*¹³ is rated as a *modular* integration that demonstrates circular living as a closed-loop system within a domestic context. As described, “every part of the home is interconnected, transforming ‘waste’ from one space into a resource for another...enabling new forms of cohabitation and decarbonization in the dense city.” Although this project aims for a closed-loop system, there are ecological systems and aspects of the project that are dependent on an urban environment and infrastructure.

Strongly Integrated (4)

This mid-anchor refers to projects that rely heavily on the surrounding systems and environment while maintaining a degree of autonomy.

¹² *The Refreshing Square* was created by the following participants: Philippe Rahm architectes.

¹³ *Metabolic Home: New Forms of Cohabitation and Decarbonization in the Dense City* was created by the following participants: Lydia Kallipoliti, Areti Markopoulou, Post-Spectacular Office.

Integrated (5)

An *integrated* project is fully embedded within its surrounding systems to a degree that it cannot exist independently without losing function or congruity. This quality refers to a hyper-interdependence between all elements, modules, and aspects of a project, resulting in an inability to operate autonomously. On the opposite spectrum, an example of an integrated project is *Hyper Sponge*¹⁴, which employs flood mitigation interventions rooted within the surrounding hydrological systems and subterranean filtration properties. This project is fully embedded in its environment and cannot function independently.

Question 9: How much does Project X integrate Nature-based Solutions (NbS) or technologies?

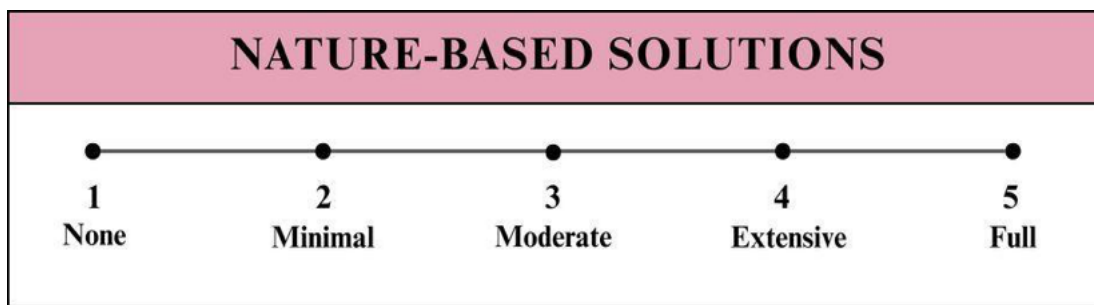


Figure 19: Analysis Framework “Nature-Based Solutions” Scale (created using the design program Canva).

This question evaluates how, and to what degree, projects incorporate Nature-based Solutions (NbS) or similar biomimetic technologies. The United Nations defines NbS as “actions to protect, conserve, restore, sustainably use and manage natural or modified terrestrial, freshwater, coastal and marine ecosystems” (IUCN 2025). NbS use ecological systems and natural processes to address contemporary environmental challenges. According to this definition, examples of nature-based solutions include forest restoration and management, coastal and river vegetation buffers, and the implementation of green infrastructure. The categories distinguish between projects that are void of these solutions, those that partially utilize them, and those that fully implement NbS. The evaluative scale is assessed using the following anchors as shown in Figure 19: none, minimal, moderate, extensive, and full.

¹⁴ *Hyper Sponge* was created by the following participants: Huang Jia Wei.

None (1)

Projects falling into this category use *little to no* nature-based technologies. The projects may rely entirely on conventional digital technologies and make no significant reference to ecological solutions.

Minimal (2)

This mid-anchor refers to projects that reference the use of NbS in a limited or minimal capacity.

Moderate (3)

Projects with *moderate* integration of NbS involve combining nature-based technologies with conventional solutions or approaches. The designs or concepts include these solutions or technologies to inform certain aspects of the design but are not the exclusive drivers of the project.

Extensive (4)

This mid-anchor descriptor applies to projects that use NbS to a significant degree, effectively shaping the project's functioning.

Full (5)

A project with *full* integration of NbS is entirely driven by technologies and solutions that collaborate with nature. Projects fully embedded with these solutions result in NbS at the core of their design and functionality. The projects do not use any conventional digital technologies in their design; if they do, it is only to a minimal degree.

Question 10: To what extent does Project X challenge the separation between the natural and built environment?

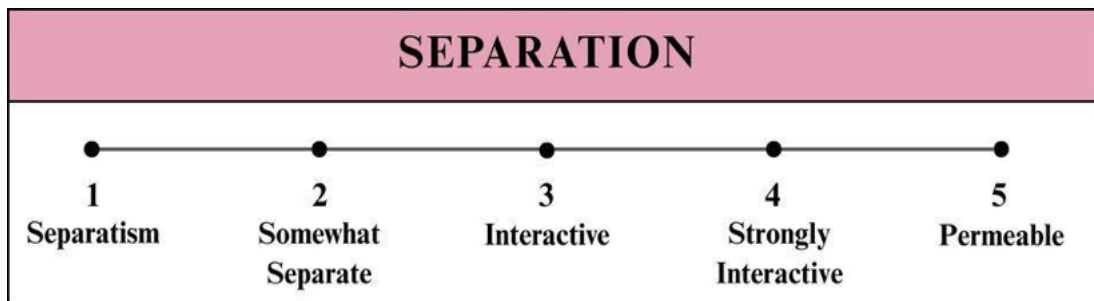


Figure 20: Analysis Framework “Separation” Scale (created using the design program Canva).

This question assesses how a project and its participants conceptualize the relationship between human-made structures and natural systems. It explores the misleading yet common

belief in the separation between the natural and artificial. Within the boundaries of these qualities, the question identifies whether a project reinforces separation, allows for limited interaction, or creates a fully permeable and unified system between the built and the natural. Figure 20 depicts the 5 evaluative anchor and mid-anchor points: separatism, somewhat separate, interactive, strongly interactive, and permeable.

Separatism (1)

A *separatism* rated project maintains a strict and impenetrable boundary between the urban and natural environments. Nature is intentionally excluded or directly governed, treated as distinct from human-constructed spaces. These projects perceive nature as ideologically dissimilar and external to built spaces and structures. This quality highlights a rigid and precise boundary between nature and the built environment.

Somewhat Separate (2)

This mid-anchor describes a project that allows limited interaction between these entities with a clear separation.

Interactive (3)

An *interactive* project acknowledges specific interactions between built and natural systems, while maintaining distinct or visible boundaries. Projects incorporating specific interactions reference nature and the built environment, associating them or placing them in a reciprocal relationship, while maintaining that a separation exists.

Strongly Interactive (4)

This mid-anchor descriptor applies to projects that blur the supposed boundaries between natural and built systems in almost all aspects.

Permeable (5)

A project that intentionally challenges separatism by designing *permeable* components for interconnection, fully blurring built and natural environments into a unified system. Architecture and ecological systems function in tandem, with natural and artificial boundaries that are invisible and dissolve into one another.

3.4.9 Results-Focused Category: Questions, Qualities, and Anchors 11-15

Question 11: How implementable is Project X?

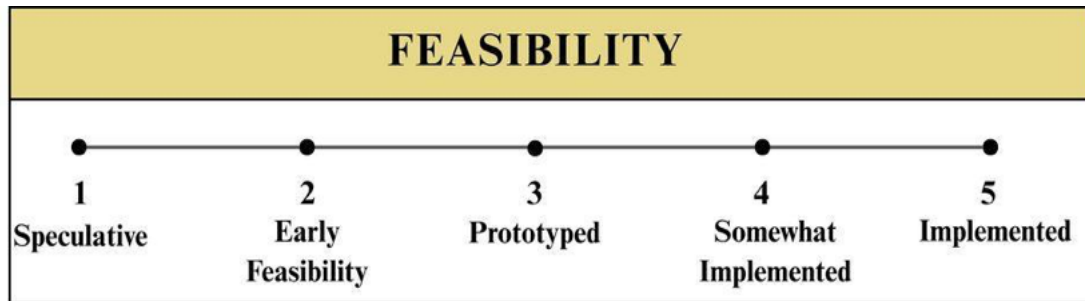


Figure 21: Analysis Framework “Feasibility” Scale (created using the design program Canva).

This quality and question determine the feasibility of a project, specifically whether it exists on the conceptual level, has been prototyped, or has already been fully implemented. Quality refers to a project’s feasibility of implementation. This question distinguishes the degree of viability of each project, as it varies widely from experimental speculation to practical applications. The framework assesses feasibility using the following 5 anchor and mid-anchor points: speculative, early feasibility, prototyped, somewhat implemented, and implemented (Fig. 21).

Speculative (1)

A *speculative* project exists strictly as a concept, proposal, or design narrative without material realization. Such projects often contain predictive models, theoretical designs, or inspirational ideas for reframing architecture, technology, and current systems or structures.

Early Feasibility (2)

This mid-anchor describes a project that predicts implementation with practical considerations or limited modeling, although it has not been fully tested or prototyped.

Prototyped (3)

A project that utilizes a *prototype*, created and materialized an experimental design to test ideas while maintaining an amount of adaptability. Projects with this quality describe certain aspects within the narrative description, such as ‘prototypes’, ‘models’, or ‘archetypes.’ A common goal for this anchor is to eventually expand the design to a broader implementation.

Somewhat Implemented (4)

This mid-anchor descriptor applies to projects that are feasible, with minor barriers remaining, or have been implemented, but only certain aspects.

Implemented (5)

An *implemented* project refers to a material design that has already been fully built or executed. These projects demonstrate a functioning concept and potentially provide measurable outcomes or case studies of impact.

Question 12: How fixed is Project X?

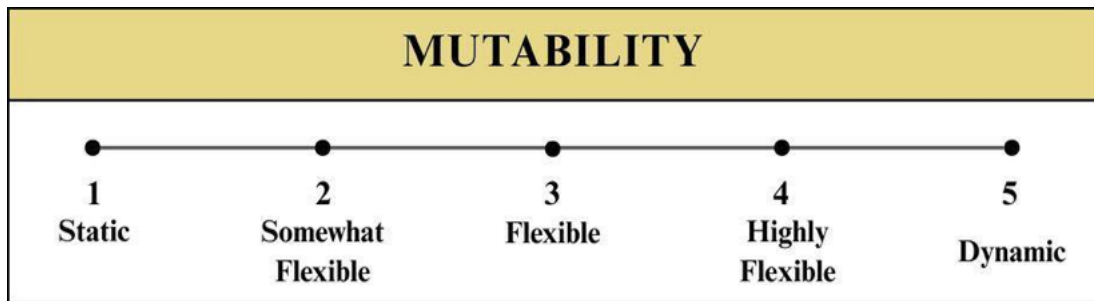


Figure 22: Analysis Framework “Mutability” Scale (created using the design program Canva).

This question addresses the mutability of a project, or the degree to which it is designed to remain static, allow for some flexibility, or actively adapt to changing conditions. By examining the structural and spatial adaptability described or demonstrated by participants, this question reveals whether a project is imagined as a permanent, adjustable, or dynamic design. The 5-point anchor rating scale ranges from static, somewhat flexible, flexible, highly flexible, and dynamic, as shown in Figure 22.

Static (1)

A *static* project is permanent and fixed in place. It is not designed to change or be modified in any way, spatially, structurally, or functionally. This design is intentionally inflexible and not adaptable.

Somewhat Flexible (2)

This mid-anchor descriptor applies to projects that allow for a minimal adjustment within their specific constraints.

Flexible (3)

A *flexible* project is generally stable while allowing adjustments to its design or function. While not inherently mobile, it is adaptable within a set framework. This quality

determines whether a project is structurally or spatially fixed, with adaptive qualities or components over time.

Highly Flexible (4)

This mid-anchor describes projects that actively accommodate change and adaptation across varying considerations and functional capacities.

Dynamic (5)

A mutably *dynamic* project is intentionally mobile, temporary, or adaptive. It is designed to respond to new conditions, environments, or contexts, often emphasizing temporality or resilience.

Question 13: What is the timeframe for Project X?

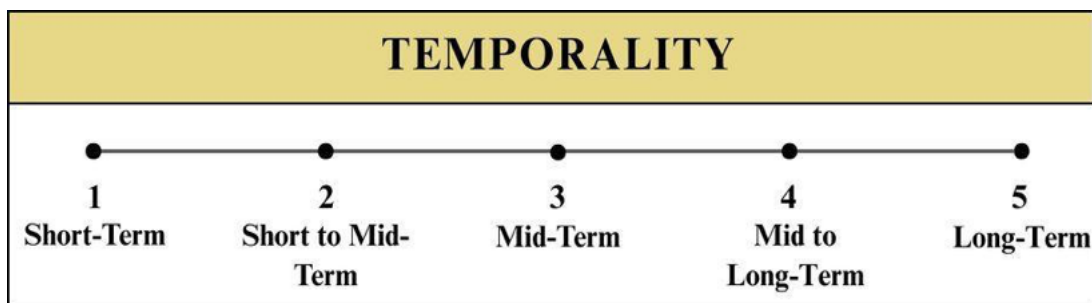


Figure 23: Analysis Framework “Temporality” Scale (created using the design program Canva).

This question evaluates the temporal dimension or scale of a project, asking how long it is designed to endure, remain relevant, and function. Framing projects along short-, mid-, and long-term degrees (anchor and mid-anchor points) highlights their intended durability, adaptability, and potential intergenerational impacts (Fig. 23).

Short-Term (1)

A *short-term* project is relatively temporary, designed for immediate use or impact but not planned for sustained longevity. These projects can serve as temporary installations, fleeting lifecycles, or brief experimental interventions. This quality very roughly refers to short-lived use, under ~50 years.

Short to Mid-Term (2)

This mid-anchor describes projects intended for transitional use, not for long-term permanence.

Mid-Term (3)

A project operating on a *mid-term* timescale aligns with the typical lifespan of a building, averaging ~50 years. These projects are intended to remain functional for several decades without requiring significant intervention.

Mid to Long-Term (4)

This mid-anchor refers to projects that are designed to operate in a somewhat permanent capacity.

Long-Term (5)

A *long-term* project is designed to endure trans-generationally. Its design intentionally incorporates durability and/or adaptability, allowing it to survive over extended temporal scales and remain relevant well beyond a single generation's use. This quality is operational for >50 years.

Question 14: How physical is the 'nature' in Project X?

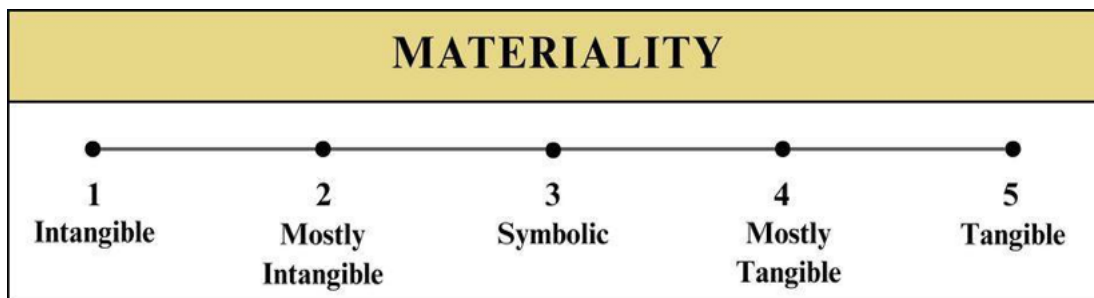


Figure 24: Analysis Framework “Materiality” Scale (created using the design program Canva).

This question explores the physicality of nature within a project, determining whether it engages with nature conceptually, symbolically, or materially. To clarify how nature is represented in the project, the question highlights whether it includes intangible ideas, symbolic framings, or tangible entities. This materiality scale spans the following anchor and mid-anchor points displayed in Figure 24: intangible, mostly intangible, symbolic, mostly tangible, and tangible.

Intangible (1)

An *intangible* reference of nature is abstract, appearing in conceptual, non-physical ideations, or legal frameworks. Nature is represented only by an idea or principle rather than as a physical component.

Mostly Intangible (2)

This mid-anchor describes projects that portray nature as a mainly conceptual entity with a minimal physical presence.

Symbol (3)

A *symbolic* reference to nature is identified as a combination of the conceptual and material. In these projects, nature may appear in both abstract framing and limited physical elements, serving more as a representation or concept than a direct presence.

Mostly Tangible (4)

This mid-anchor applies to projects that depict nature with a strong physical presence and limited symbolic or conceptual entity.

Tangible (5)

A *tangible* representation of nature involves material and physical entities, such as plants, animals, ecosystems, etc. The nature included is physically concrete and integral to the project's design and function.

Question 15: Who or what does Project X explicitly benefit or serve?

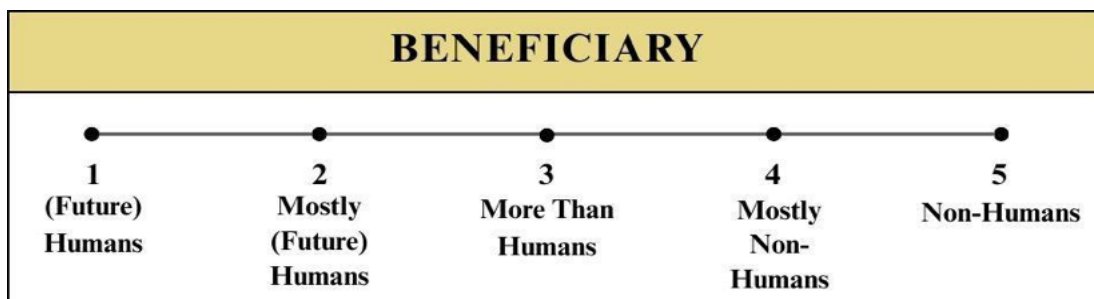


Figure 25: Analysis Framework "Beneficiary" Scale (created using the design program Canva).

This question evaluates the intended beneficiaries of a project. While projects may have indirect or unintended impacts, this category emphasizes the explicitly identified beneficiaries of the project or its related components. A crucial note to highlight in the question is the word *explicitly*. This is to determine the degree to which the project is overtly considering and furthering in their design. By distinguishing among humans, more-than-humans, and non-humans, this question highlights environmental and ethical considerations, as well as the extent to which projects decenter anthropocentrism. The final 5 evaluative points shown in Figure 25 are (future) humans, mostly (future) humans, more-than-humans, mostly, non-humans, and non-humans.

(Future) Humans (1)

Projects that intentionally benefit humans, specifically *(future) humans*, are designed primarily for human utility, comfort, or infrastructure. Nature may be framed as a resource or commodity within these projects, with an explicit exclusion of non-human species or entities.

Mostly (Future) Humans (2)

This mid-anchor describes projects that prioritize benefiting humans while minimally acknowledging non-humans as secondary beneficiaries.

More-Than-Humans (3)

More-than-human beneficiaries include both humans and non-humans, without prioritizing one over the other. These projects emphasize coexistence, interdependence, and mutual benefit across species. While this quality is more inclusive of non-humans, humans are still intended as recipients.

Mostly Non-Humans (4)

This mid-anchor descriptor applies to projects that prioritize non-humans as primary beneficiaries and humans as secondary beneficiaries.

Non-Humans (5)

Projects that prioritize *non-human* beneficiaries focus solely on non-human species, ecosystems, or ecological processes. While humans may benefit indirectly, the project is designed explicitly to center non-human entities and their needs.

3.4.10 Framework Development Process

The framework development began by identifying the common dualisms and themes present in the Natural section of the exhibition. These dualistic discourse patterns created a foundation for the framework boundaries. Additionally, Brombal, Putzer, and Schechtner all contributed significantly to the process by providing their prior research documents on dualisms, suggesting prior environmental rating scales, and standardizing processes. The New Ecological Paradigm (NEP) Scale served as an inspiration for the structure of the framework, as it “is designed to measure the environmental concern of groups of people using a survey instrument constructed of fifteen statements” (Anderson 2012, 260). Although the adapted analysis framework is similar in its construction and topic, the NEP scale is used to evaluate a broader environmental worldview and paradigm (Anderson 2012, 260). The NEP scale was instrumental

in its statements, serving as an introduction to positioning various aspects along a scale and to starting to standardize a rating procedure. This rating scale was not used in the context of this research due to its lack of specific interdisciplinary inclusion of architecture and the planning professions or perspectives. Putzer and Schechtner initially created the categorized set of questions, qualities, and anchors that served as the first draft of the framework. This framework was developed and refined to include more precise, relevant questions and clear definitions for each question and its anchor quality. These questions were revisited often and through each stage of editing, applied to various projects. This resulted in a prototyped and thorough development of the analysis framework. The process of refinement and calibration is ongoing, as will be referenced later in the External Validation Study (Chapter 5).

My initial hypothesis regarding the research findings was that most projects would use nature primarily as an ornamental or symbolic feature rather than as a central component of their design. I also predicted that most projects would ultimately prioritize human benefit and experience, even when using nature-related concepts or imagery to frame their narratives. A related example of this idea is the greenwashing of certain aspects of a project through ambiguous or unclear environmental terminology, or “trigger words” (whether intentional or unintentional). This idea stems from the understanding that many societal perspectives on nature are often limited and anthropocentric. This not only broadly shapes the way humans interact with non-humans but also greatly influences the built environment. Understanding these dynamics has provided crucial insight for developing this analytical framework to explore beyond the surface-level approach to each project. While my initial hypothesis assumed a peripheral role for nature in most projects, a structured examination proved necessary to fully unpack and understand the varying viewpoints. The structured analysis evolved, and the fifteen questions that emerged each engage a unique aspect of each project.

3.4.11 Framework Application Process

Project Title	
-AI summary of the project The complete project description Including highlighted sentences and terms to help guide my quotes and understanding	
1. Question 1.	
Project Rating (1-5) and short explanation	Supporting quote taken directly from the project description

- My personal questions or comments regarding each project, including potential themes and patterns.

Figure 26: Framework Application Formatting Template.

The composition of this framework has had many iterations due to the continual revisitations and ever-emerging topics. My initial experimental applications of the project subset to Putzer and Schechtner's analysis framework demonstrated the need for a systematic database to manage the large volume of data and notes. For each project analyzed, I created an individual table, all of which followed the formatting outline depicted in Figure 26. Each question was rated based on my interpretation of the project's description, with quotes provided to support each of my claims. I also included my developing ideas and observations at the end of each table to better organize the emerging themes. I would initially read each project description and highlight quotes that introduced crucial details and statements relevant to specific framework questions. I would occasionally reference photos taken of the installation to further explore material or visual elements. This process was repeated for each project and revised in accordance with the current versions of the framework. The final product of this application resulted in quantitative and qualitative data for every project.

Figure 27 displays the framework application format for the project, *ORIGIN, The Venetian Lagoon*¹⁵. This figure includes the project texts, my highlights, and the evaluations and supporting quotes for the first 3 questions of the framework. My evaluations of this film project identify nature as a core theme, with a focus on the Venice Lagoon. The film references a holistic view of nature, positioning it as an inspirational co-creator. These evaluations help uncover the project's underlying beliefs about nature, portraying the lagoon as interconnected with humans in a reciprocal relationship.

¹⁵ *ORIGIN, The Venetian Lagoon* was created by the following participants: Yann-Arthus Bertrand.

ORIGIN, The Venetian Lagoon	
-A bird's-eye tribute to Venice's lagoon reveals its painterly patterns and delicate balance. -This film encourages renewed appreciation and protection of a hybrid land-sea ecosystem shaped by centuries of human-nature coexistence. The Venice Lagoon is a unique place that represents the quintessence of beauty. ORIGIN, THE VENETIAN LAGOON expresses a fascination for this unknown territory between land and sea. Seen from the sky, each island, islet, canal, shade of colour, reflection of sunlight, create precious paintings that witness the coexistence of man and natural forces for centuries. As never before, ORIGIN, THE VENETIAN LAGOON reveals the Venice Lagoon as a timeless pictorial universe, encouraging us to take a new look on the nature that surrounds our lives, in order to better preserve it.	
1. How essential is 'nature' to project x?	
Nature is a core theme of this project (5) This project refers to aspects of the Venice Lagoon as nature and encourages appreciation	"Seen from the sky, each island, islet, canal, shade of colour, reflection of sunlight" "This film encourages renewed appreciation and protection of a hybrid land-sea ecosystem shaped by centuries of human-nature coexistence"
2. Which role does 'nature' play in project x?	
Nature's role is as inspiration, and co-creator (3) This project refers to nature's role as a fascination and thing of beauty as well as unexplored Nature is portrayed in a relationship with human coexistence	"Seen from the sky, each island, islet, canal, shade of colour, reflection of sunlight, create precious paintings that witness the coexistence of man and natural forces for centuries" "film encourages renewed appreciation" "the Venice Lagoon as a timeless pictorial universe" "expresses a fascination" "represents the quintessence of beauty" Also refers to the lagoon as "unknown territory"
3. Which relational aspects of 'nature' does Project X focus on?	
The project focuses on a holistic view (5) Nature is viewed as interconnected with humans and different systems	"hybrid land-sea ecosystem shaped by centuries of human-nature coexistence" "coexistence of man and natural forces for centuries" "nature that surrounds our lives"

Figure 27: Framework Application for ORIGIN, The Venetian Lagoon, Questions 1-3.

		NATURE FO... ▾	NATU... ▾	NATU... ▾	NATU... ▾	NATU... ▾	ARCHL... ▾	ARCHL... ▾
#	Project Title	1. How essential is 'nature' to project x?	2. Which role does 'nature' play in project x?	3. Which relational aspects of 'nature' does Project X focus on?	4. How does project x frame 'nature'?	5. To what extent does project x support unintentional 'natural' adaptation?	6. At which scale does project x operate?	7. To what extent is project x context-oriented?
1	ORIGIN, The Venetian Lagoon	5	3	5			5	
2	Sun Stone	4	3	5	3	3	4	5
3	Cantico Tiberino: Cradle of More-than-Human Intelligences	5	3	5	4	3	5	
4	FundamentalAI	4	4	5	5	3	5	
5	Stonecrust: The Microbeplanetary Infrastructure of Lithoeosystems	5	4	5	5	4	5	4

Figure 28: Framework Database Spreadsheet compiled in Google Sheets, Projects 1-5.

The quantitative data were extracted from the framework application tables and compiled into the Google Sheets spreadsheet depicted in Figure 28. The ordinal ratings were color-coded and entered into the spreadsheet to facilitate visualization of the results. Figure 28 shows the first five project scores for each question, categorized under the headings nature-focused (green), architecture-focused (red), and results-focused (yellow). Following Schechtner's recommendation, I included color-coded individual ratings, with numerical values for each question in shades of green and blue, to better visualize differences between projects and questions. The 2 dark blue shades represent the 1 and 2 ratings, the lightest blue represents the 3-anchor point, and finally, the lighter shades of green represent the 4 and 5 scores. Also shown in Figure 28, for the first project row (questions 11 and 13), are N/A responses for questions that did not pertain to the project or were irrelevant. For example, since *ORIGIN, The Venetian Lagoon*¹⁵ contains subject material in the form of a digital film, it lacks a clear timeframe or implementation proposal.

For further thematic reference, the quantitative ratings were summed to yield each project's total score, as shown in the far-right column, titled "SUM" in Figure 28. This scoring was not used to provide definitive rankings or concrete metrics for interpretation. These assessments were also flexible and frequently changed based on my reevaluations. The numerical scores were used primarily as an interpretive guide to identify broad thematic patterns and trends across the many projects. For instance, the aggregate rankings were helpful in

ARCHI... ▾	ARCHI... ▾	ARCHI... ▾	RESUL... ▾	RESUL... ▾	RESUL... ▾	RESUL... ▾	RESUL... ▾	
8. What degree of integration does project x demonstrate?	9. How much does project x integrate nature-based solutions (NbS) or technologies?	10. To what extent does project x challenge the separation between the natural and built environment?	11. How implementable is project x?	12. How fixed is project x?	13. What is the timeframe for project x?	14. How physical is the 'nature' in project x?	15. Who or what does Project X explicitly benefit?	SUM
5 ▾	▾	3 ▾	N/A ▾	▾	N/A ▾	3 ▾	▾	36
3 ▾	▾	5 ▾	3 ▾	4 ▾	4 ▾	3 ▾	▾	52
3 ▾	▾	5 ▾	▾	3 ▾	5 ▾	3 ▾	3 ▾	50
5 ▾	3 ▾	5 ▾	▾	5 ▾	4 ▾	5 ▾	3 ▾	59
3 ▾	3 ▾	5 ▾	3 ▾	5 ▾	5 ▾	5 ▾	5 ▾	66

choosing diverse projects to display in my External Validation Study (Chapter 5). I reviewed the total scores and used them (among other methods) to determine which projects would be shown to the participants. The resulting database facilitated a cross-project comparison of themes and observations.

The goal of this analysis framework is to explore the nature-architecture narratives and intentions of the participating architects and planning professionals, as well as their associated projects. Data collection within this framework has helped provide a more comprehensive understanding of recurring themes and patterns across the projects. The interpretive nature of these materials and evaluations has allowed this research to remain reflexive and adaptive, despite the variable boundaries. The exploratory research process improved the framework's applicability, yielding a more consistent collection of findings. Ultimately, applying the analysis framework provided this thesis with a systematic and comprehensive dataset containing many insights.

4. RESULTS

This chapter presents the results obtained by applying the adapted analysis framework, as explained and illustrated in the previous chapter, to the 53 center projects of the Natural section. The following section details the findings for each of the 15 unique framework questions, grouped into the 3 overarching categories: nature-focused, architecture-focused, and results-focused. Each outcome is presented with an explanation and a bar chart based on the evaluation ratings shown in Figure 28. Nature-human coexistence and collaboration emerged as a recurring theme across all categories. Many projects aimed to intentionally participate in redefining the roles and relationships between the environment and architecture. However, this common mention of restructuring was followed by the prioritization of human benefit. The projects frequently mention the use of natural materials, ecological processes, and regenerative design, which is especially evident since the section is titled "*Natural*." The rating, dissection, and structuring of each project led to the emergence of various themes and data types, which were explored using the following visual charts.

4.1 NATURE-FOCUSED RESULTS

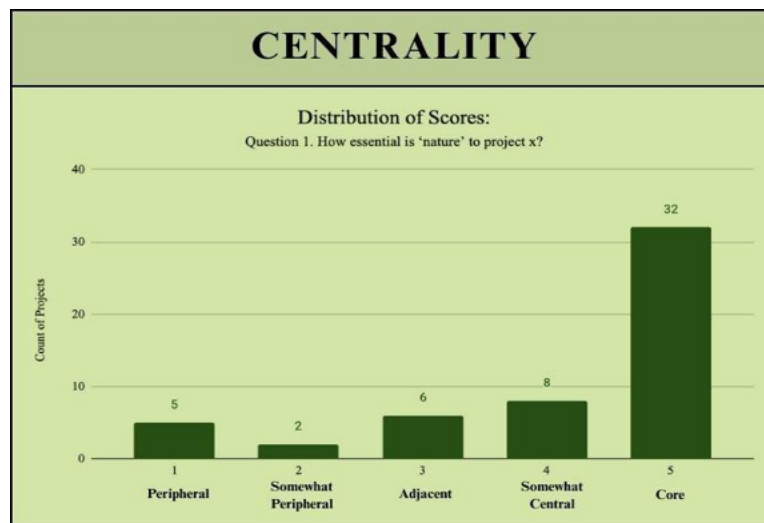


Figure 29: Analysis Framework Results. Distribution of ratings for "Centrality."

The representation of nature across the projects varied to differing degrees, although certain themes and patterns emerged. Of the 53 analyzed projects, 32 (60%) identified nature as a core or central quality, whereas 5 (9%) regarded nature in a peripheral capacity (Fig. 29).

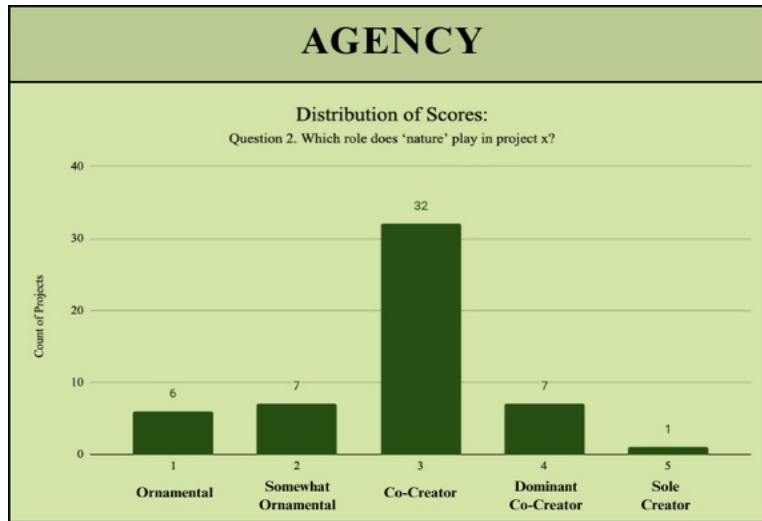


Figure 30: Analysis Framework Results. Distribution of ratings for “Agency.”

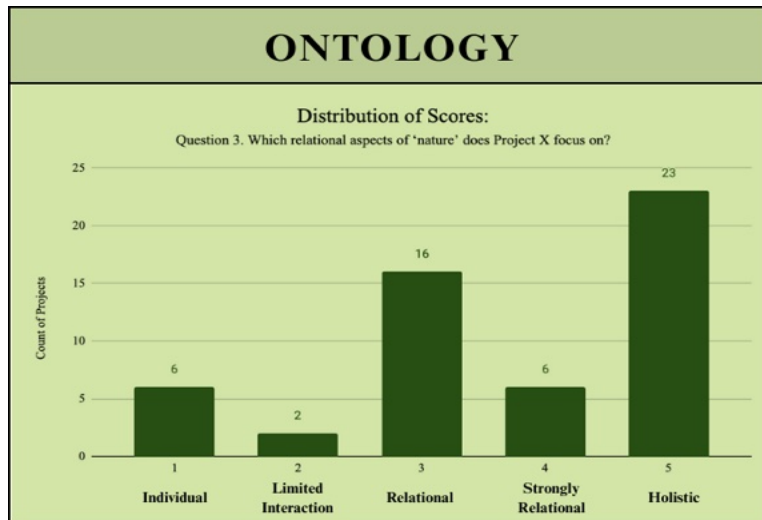


Figure 31: Analysis Framework Results. Distribution of ratings for “Ontology.”

The figure depicts the distribution of scores for Question 2 and shows that only 1 project considered nature as a sole creator (*The Only Flowering Plant in the Ocean*³), and 6 projects incorporated nature in an ornamental role (Fig. 30). The most common rating for this question, which considered nature as a co-creator, was 32 projects.

Question 3 determined the ontology of each project and demonstrated a variable distribution of scores. 23 projects were rated as having a holistic framing of nature, while 6 projects had an individual view of nature, as shown in Figure 31.

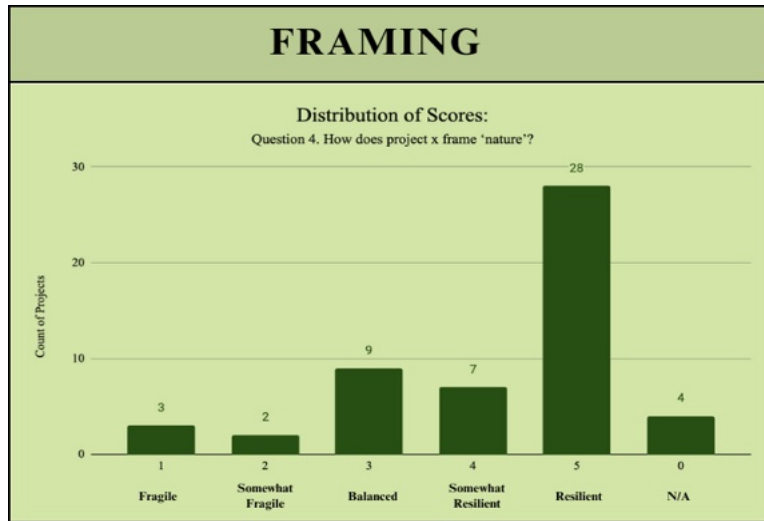


Figure 32: Analysis Framework Results. Distribution of ratings for “Framing.”

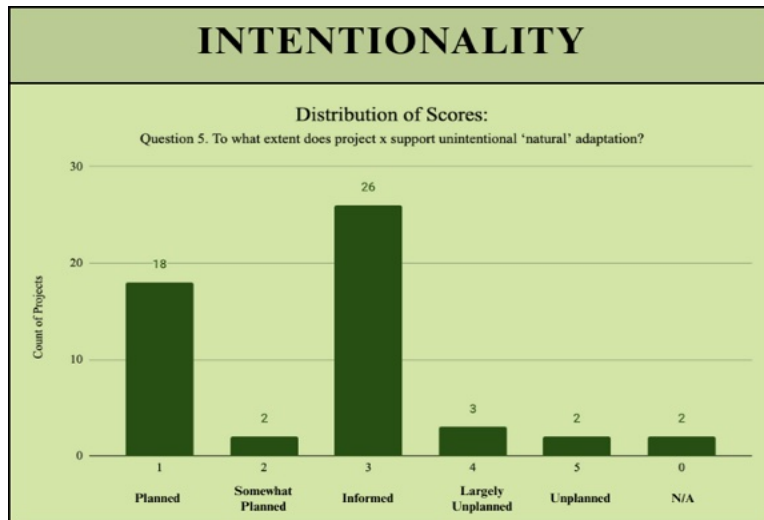


Figure 33: Analysis Framework Results. Distribution of ratings for “Intentionality.”

The second-highest rating was for projects with relational framing, which accounted for 16 projects. Just over half of the projects were rated as resilient by framing nature, as shown in Figure 32. 5 projects were rated as fragile or somewhat fragile, and 4 projects were not applicable to this question. 9 projects viewed nature as being balanced.

Question 5 determined the intentionality of adaptation within each project (Fig. 33). Only 5 projects allowed capacity for nature to evolve in an unplanned or largely unplanned manner. Very few projects allowed nature to be a self-governing agent. The majority of projects either planned for nature’s growth or included informed planning of it. Additionally, 2 projects did not fall under this question, and were evaluated as being N/A.

4.2 ARCHITECTURE-FOCUSED RESULTS

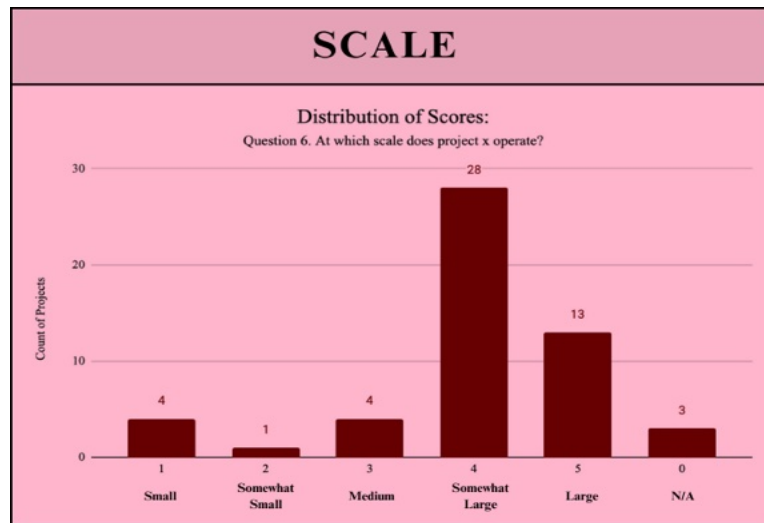


Figure 34: Analysis Framework Results. Distribution of ratings for “Scale.”



Figure 35: Analysis Framework Results. Distribution of ratings for “Locality.”

Most projects, depicted in Figure 34, were categorized as somewhat large, meaning they were larger than an average human. 3 projects were rated N/A, meaning they existed on various scales or were unclear within the project. These ratings are consistent with the Arsenale exhibition hall serving as the physical boundaries of the projects. The projects would have had to be scaled to this size or altered to fit within the exhibition structure.

Question 7 concerns the context and locality of the projects and is shown in Figure 35. The distribution of scores varies, although 24 of the 53 projects were regionally oriented. Many

of the projects were rated as broadly applicable or universally oriented, and 13 as site-specific or strongly site-specific, as depicted in the figure.

Question 8 determines the degree of integration a project demonstrates with the external or surrounding environment. A small minority of projects are independent or minimally integrated, meaning most are connected to or reliant on their surroundings (Fig. 36). 23 projects are rated as fully or strongly integrated, while 26 are considered modular. Most projects were designed with some degree of interdependence and flexibility in relation to their surroundings.

Question 9 depicted in Figure 37, rates the integration of NbS within each project. The majority of projects either include a moderate, extensive, or full degree of NbS incorporation.

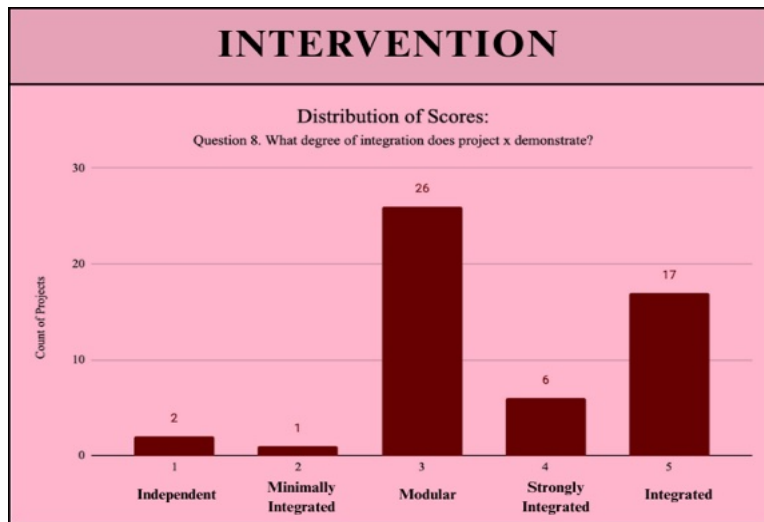


Figure 36: Analysis Framework Results. Distribution of ratings for “Intervention.”

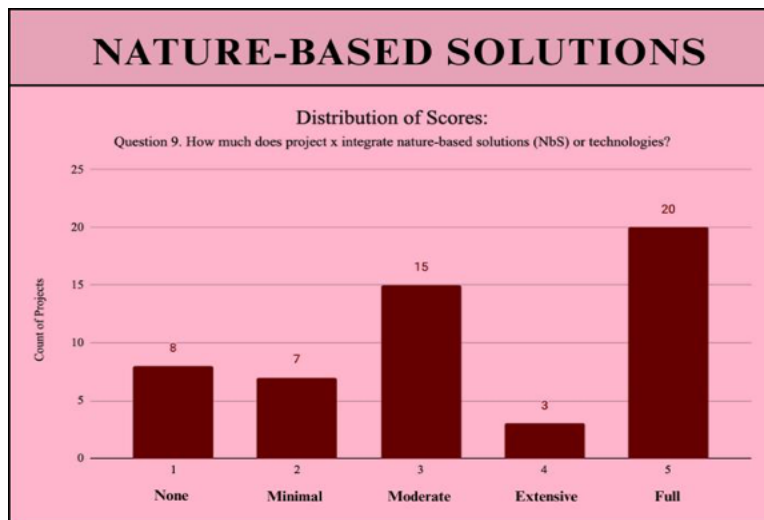


Figure 37: Analysis Framework Results. Distribution of ratings for “Nature-based Solutions.”

Despite the exhibition's overall theme, 15 projects either have no NbS or minimal inclusion of these technologies.

Question 10 assesses the extent to which projects challenge the constructed divide between the natural and built environments (Fig. 38). Most projects maintain an interactive or permeable view of these entities. 6 projects contributed to this dialogue by presenting either a somewhat separate or an entirely separate view of nature and architecture. This question also demonstrated a lack of middle ground between interactivity and permeability across the projects, as none were considered *4—strongly interactive*.

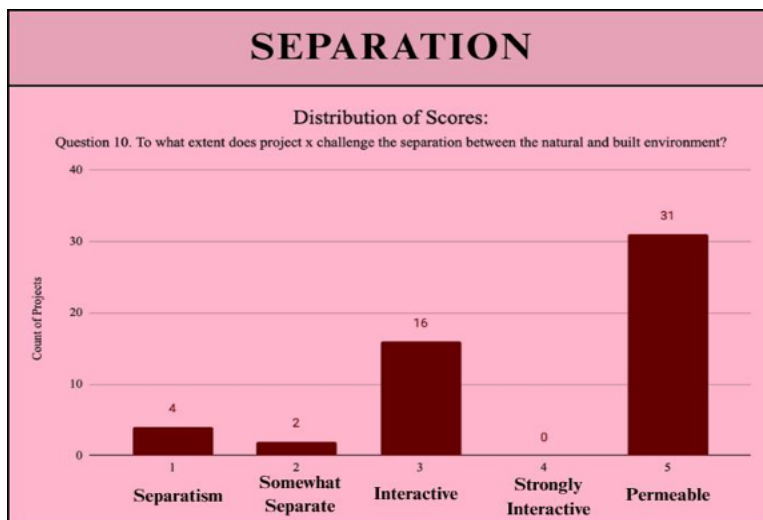


Figure 38: Analysis Framework Results. Distribution of ratings for “Separation.”

4.3 RESULTS-FOCUSED RESULTS

Figure 39 depicts the ratings for question 11 on the feasibility of each project. Over half of the projects were rated as prototypes. 4 projects were either purely speculative or at an early feasibility stage. 14 projects were either somewhat or fully implemented, and 3 projects were not applicable to this question.

Question 12 rated each project's mutability and its capability to change as depicted in Figure 40. The majority of projects were considered flexible and designed to allow adaptation over time. 17 projects were considered highly flexible or dynamic, intentionally allowing self-



Figure 39: Analysis Framework Results. Distribution of ratings for “Feasibility.”

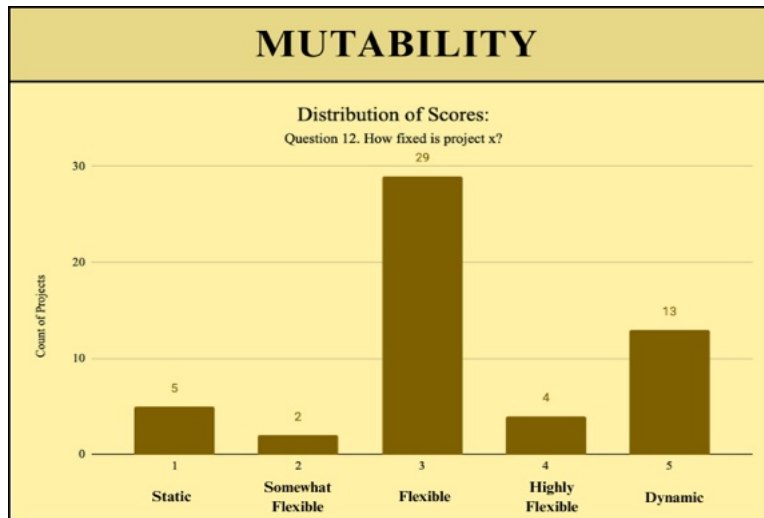


Figure 40: Analysis Framework Results. Distribution of ratings for “Mutability.”

adaptation or mobility. The 7 remaining projects were static or only somewhat flexible, designed to restrict change.

Question 13 references the lifetime or intended timeframe of each project and found that a majority of projects were designed to exist longer than 50 years (Fig. 41). Only 1 project was intended to be short-term (<50 years), 2 were rated as mid-term (~50 years), and 5 projects did not apply to this question.

Question 14 determines the materiality and physicality of each project. 40 projects (75%) were rated as either mostly or fully tangible, and 4 were rated as intangible or mostly intangible

(Fig. 42). In the middle, 8 projects were considered symbolic in material, and 1 project did not apply to this question.

The final question asks about the intended beneficiaries for each project, and is depicted in Figure 43. The majority of projects explicitly benefit (future) humans or mostly (future) humans. 12 projects benefit more than humans, and 6 explicitly aim to benefit non-humans, or mostly non-humans. The last project was determined to be N/A to this question.

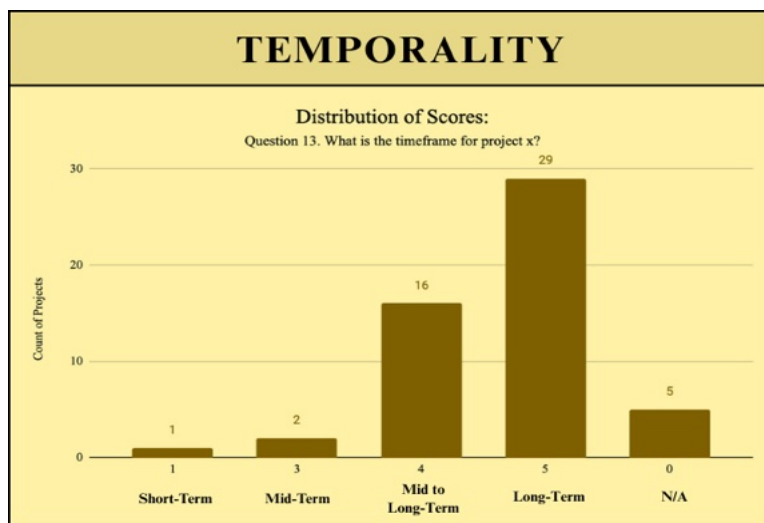


Figure 41: Analysis Framework Results. Distribution of ratings for “Temporality.”

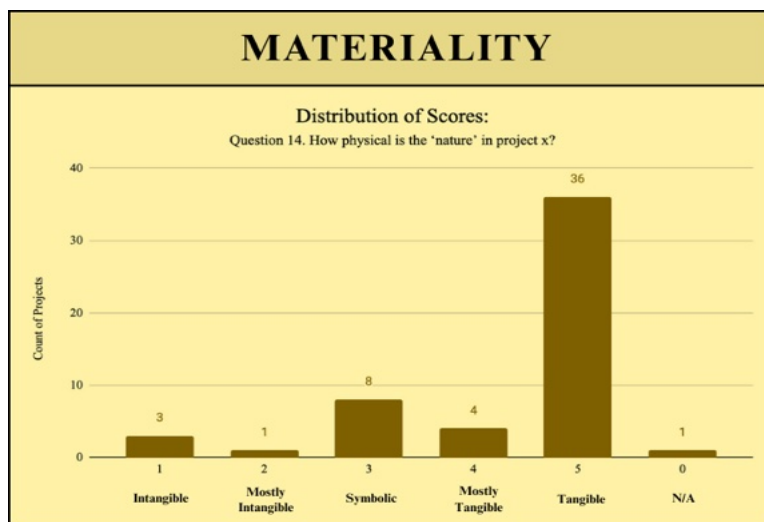


Figure 42: Analysis Framework Results. Distribution of ratings for “Materiality.”

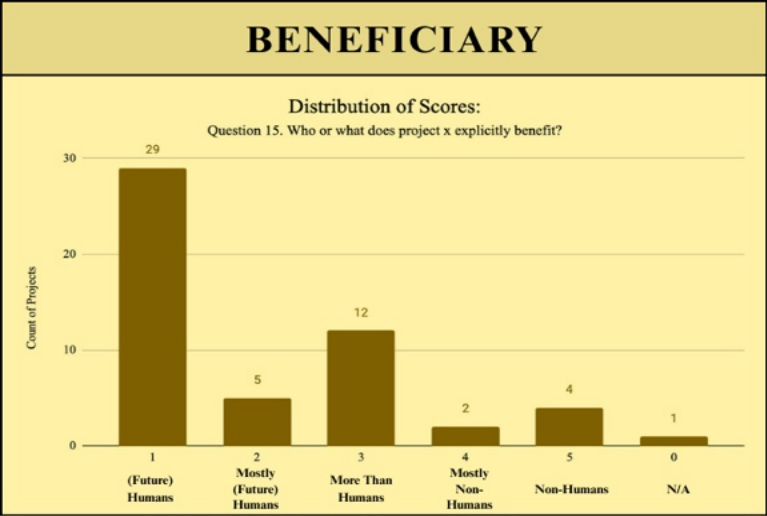


Figure 43: Analysis Framework Results. Distribution of ratings for “Beneficiary.”

5 EXTERNAL VALIDATION STUDY

The analysis framework adapted for this thesis inherently produces an interpreted outcome. Although Putzer and Schechtner's analysis structure creates clear, quantifiable data, the application process and project evaluation depend primarily on my judgment. Despite any effort to remain impartial in the project ratings, each decision was intrinsically influenced by personal experiences, academic perspectives, and assumptions. After Brombal, Putzer, and Schechtner identified these reasons, they recommended developing and incorporating external validation to further assess the framework's clarity and applicability. Their academic support and guidance justified the creation of a post hoc validation through an organized and structured workshop.

As discussed in the positionality section, the framework is informed by perspectives emphasizing ecological interconnectedness, nonhuman agency, and multispecies relationships. As a result, participants' evaluations were shaped by the project materials and also by how they interpreted these underlying concepts. The results presented in this chapter should therefore be understood as an assessment of both the projects and the framework's theoretical positioning.

5.1 VALIDATION PURPOSE AND RATIONALE

This external validation study consisted of a small in-person peer workshop held in Prof. Brombal's on-campus office. The workshop's purpose was to assess the framework's reliability and functionality across a variety of evaluators. Given the interpretive nature of this framework, it was crucial to include external feedback and ensure its replication for potential applications beyond this thesis. The validation study was also intended to identify areas of participant agreement, disagreement, or confusion, all of which are equally valuable in revealing consistencies and conceptual or linguistic ambiguities. Additionally, the study design aimed to assess the framework's abilities specifically, rather than critique the Biennale or its projects. Since this research is largely interpretive, this workshop was used to assess methodological credibility and confirm the rating's legibility. The external validation study was conducted post hoc; therefore, it did not alter my findings or results and instead contributed to the adaptation of the overall analysis framework.

5.2 PARTICIPANTS AND SAMPLING

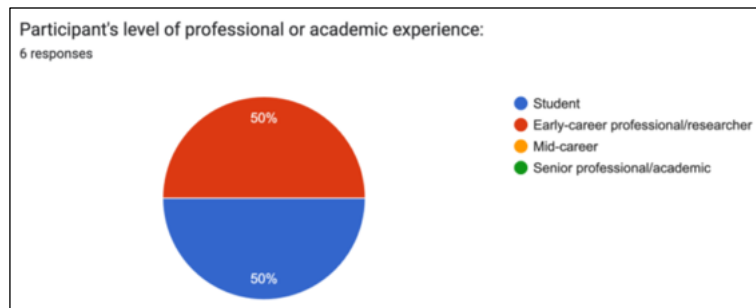


Figure 44: Professional and academic experience of external validation participants.

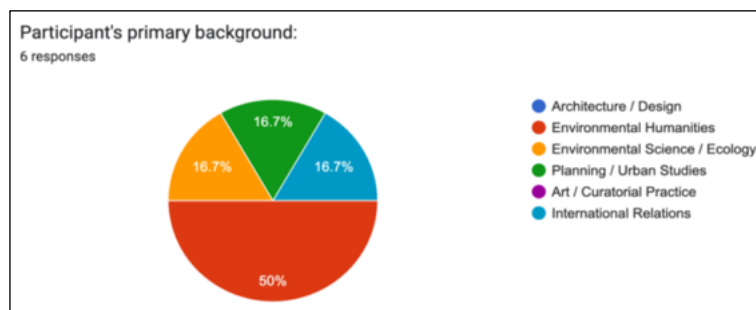


Figure 45: Primary backgrounds of external validation participants.

This workshop included a diverse group of my peers, master's students, and recent graduates with an intentional assortment of academic and professional backgrounds, as shown in Figure 44. A total of 6 participants attended the in-person session and contributed their thoughts. The students and recent graduates came from varied backgrounds, as shown in Figure 45. A majority of the students were from the environmental humanities (EH) master's program at Ca' Foscari (4); one was from the environmental science master's program at Ca' Foscari; and one was studying urban planning at the Istituto Universitario di Architettura di Venezia (IUAV). This set of participants was unevenly skewed, with more students having an environmental background than an architectural or planning background. This is crucial to reference when considering participants' responses. To better understand each participant's knowledge of the workshop content, I sent a comprehensive pre-workshop survey. Knowing that most students came from EH backgrounds, I included questions about their relationships with architecture and the built environment. 66.7% of participants reported limited familiarity, and 33.3% reported primarily theoretical or academic engagement with architecture (Figure 46).

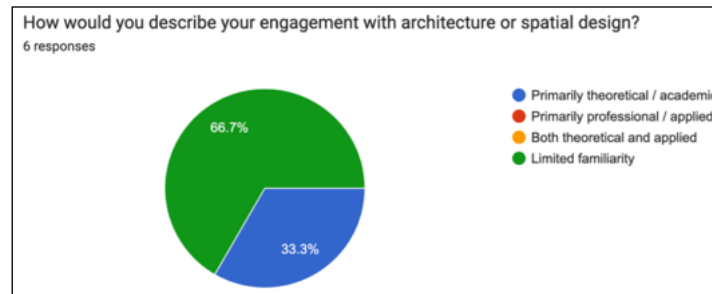


Figure 46: External validation participant engagement with architecture or spatial design.

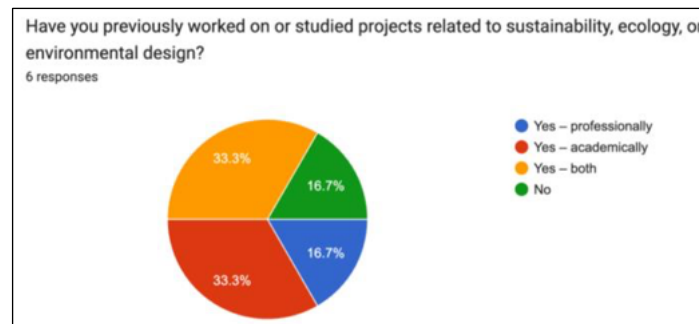


Figure 47: External validation participants' experience in sustainability, ecology, or environmental design.

Included was survey the question, “have you previously worked on or studied projects related to sustainability, ecology, or environmental design?” The majority of participants confirmed experience in varying capacities. Figure 47 depicts the distribution of participants’ responses, including academic, professional, and involvement with both. Given these crucial perspectives and relevance to my research, it was deemed a significant survey question.

In the literature review section of this thesis (Chapter 2), I reference and examine a variety of concepts and terms related to the intersection of architectural design and the environmental discipline, including a list of common dualisms. As they are critical and recurring topics throughout this research and framework, it was essential to gauge the external validation participant’s recognition and familiarity. Figure 48 presents the survey question along with a predetermined list of design/architecture concepts and notable dualisms.

Figure 49 represents participants recorded responses to the survey options shown in Figure 48. The participants were most familiar with *sustainable design/architecture* and *spatial dualisms (urban and rural, countryside and city, inside and outside)*, as both were the most selected. The concepts least familiar within the group were *regenerative design/architecture* and

Which of the following terms are you familiar with? (Select all that apply) [Hide options](#)

- ☐ Sustainable Design/Architecture
- ☐ Green Design/Architecture
- ☐ Regenerative Design/Architecture
- ☐ Circular Design/Architecture
- ☐ Hierarchical Dualisms (Superiority and Inferiority)
- ☐ Spatial Dualisms (Urban and Rural, Countryside and City, Inside and Outside)
- ☐ Material Dualisms (Innate and Manufactured, Natural World and Built Environment, Natural and Unnatural, Person and Nature)
- ☐ Epistemic Dualisms (Society and Science, Ecomimesis and Mimesis)

Figure 48: Survey question assessing external validation participant familiarity with concepts relevant to the study.

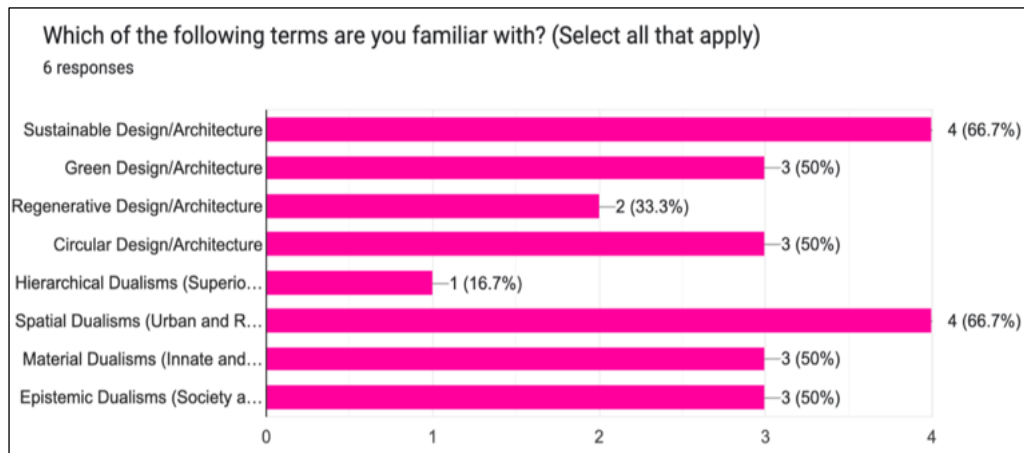


Figure 49: Survey question responses assessing external validation participant familiarity with concepts relevant to the study.

hierarchical dualisms (superiority and inferiority) (Fig. 49). The remaining selected terms indicate a moderate level of familiarity among the participants.

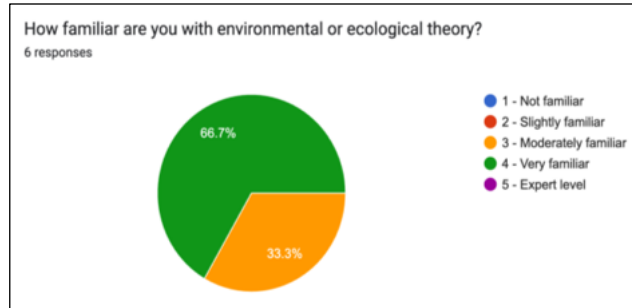


Figure 50: External validation participants' familiarity with environmental or ecological theory.

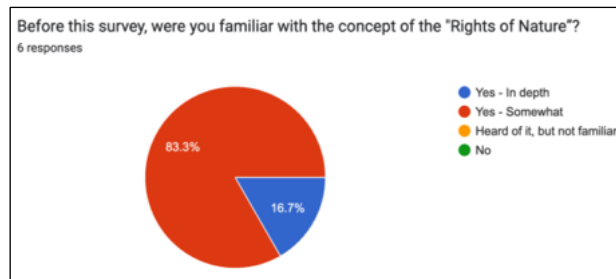


Figure 51: External validation participants' familiarity with the Rights of Nature.

The subsequent survey section rated the participants' familiarity with general environmental concepts and frameworks. Given their backgrounds, I anticipated most people to be quite familiar with the terms, theories, and concepts. The first question assessed whether each participant was familiar with *environmental or ecological theory*. As shown in Figure 50, most people were very familiar with these ideas (66.7%), and the minority were at least moderately familiar (33.3%). The next question specifically asked participants whether they were familiar with the *Rights of Nature* framework, and all responses were affirmative. As shown in Figure 51, 5 of the 6 individuals were somewhat familiar with the RoN, and the remaining participant having in depth knowledge.

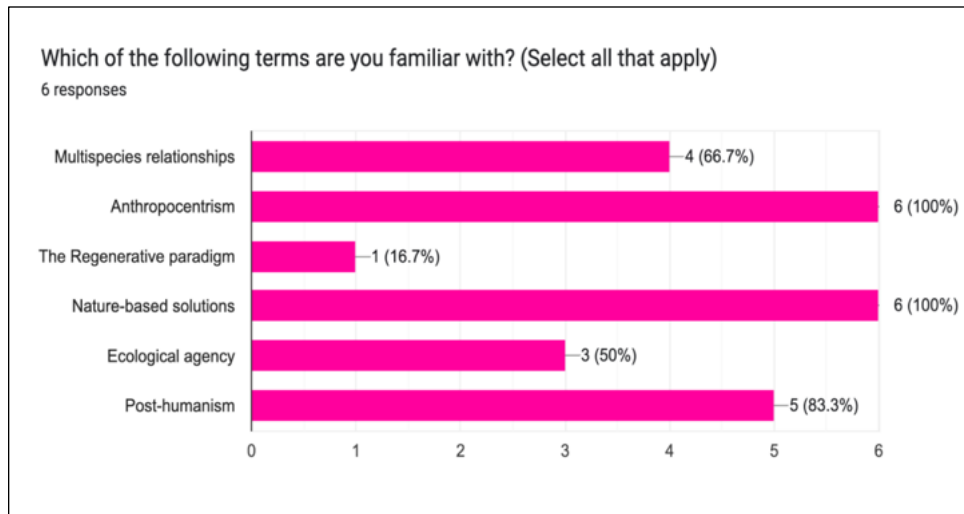


Figure 52: Survey question responses assessing external validation participant familiarity with concepts relevant to the study.

Similar to the previous survey section on architectural and environmental terms, I assessed participants' familiarity with key environment-specific concepts incorporated throughout this thesis. As shown in Figure 52, all 6 participants reported familiarity with both *anthropocentrism* and *Nature-based Solutions*. The majority were also familiar with *post-humanism*, while approximately half indicated familiarity with *ecological agency* and *multispecies relationships*. In contrast, *the regenerative paradigm* was the least familiar concept, with only one participant stating familiarity.

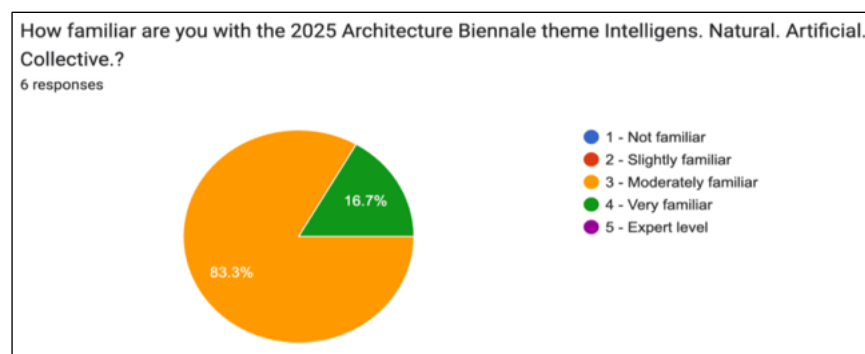


Figure 53: Survey question responses assessing external validation participant familiarity with the 2025 Architecture Biennale Theme.

The final section of the survey focused on understanding participants' relationships with and engagement with the Venice Architecture Biennale. All participants reported attending the 2025 architecture exhibition in person, with most having attended in previous years as well.

Given that all participants resided in Venice at the time, prior exposure and opinions were likely to have been formed. This was a significant factor in the consistency and partiality of the study's findings. However, this common awareness from the exhibition enabled the participants to approach the external validation study with a similar level of subject-matter experience. Most participants reported a moderate level of familiarity with the 2025 theme, while one participant reported being very familiar with it (Fig. 53).

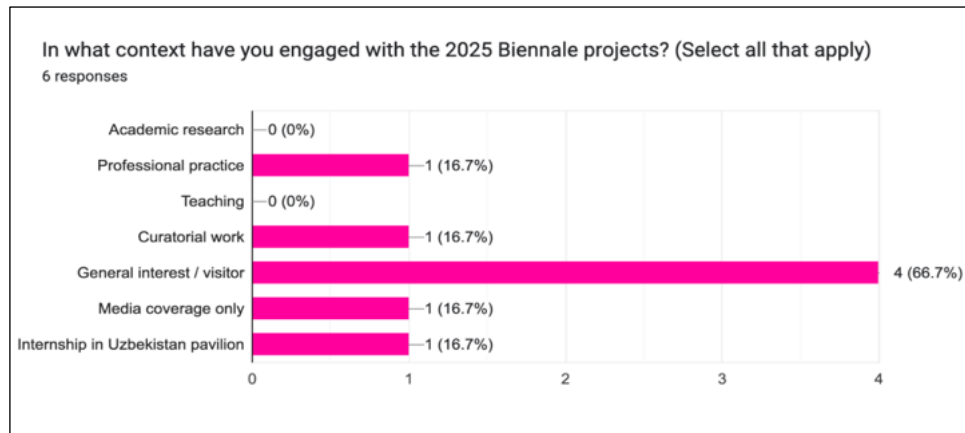


Figure 54: Survey question responses assessing various contextual engagements with the 2025 Biennale Projects.

Drawing on my prior knowledge of the group, participants were additionally asked to provide further context of their experience with the 2025 Biennale projects. While most participants reported engaging with the exhibition in a general visitor capacity, a few participated in curatorial and professional capacities, among others (Fig. 54).

The final questions in the survey examined participants' positionality. These questions were designed to capture the participants' overall perspectives. The first question asks, “how would you describe your generally perspective when engaging with environmental issues?” (Fig. 55). As expected, half of the participants reported having a *balanced human-environment perspective*, and 16.7% reported a *primarily ecocentric/multispecies* perspective (Fig. 55). About 33.3% of participants were unsure about their perspective or said it depends on the context. The final question asked participants, “do you think architecture can meaningfully grant agency to non-human entities?” (Fig. 56). The majority of participants responded that architecture can *sometimes grant agency, depending on the context* (Fig. 56). The remaining participants stated that they were *unsure*. This academic and personal experience, as well as the understanding and familiarity it provided, were crucial when reviewing the results of the validation study. A further

exploration of this validation would be helpful, including mid-career and expert-level professionals from various disciplines to solidify the framework's reliability. As seen in the study, each participant brings a unique perspective on these complex and often interconnected concepts.

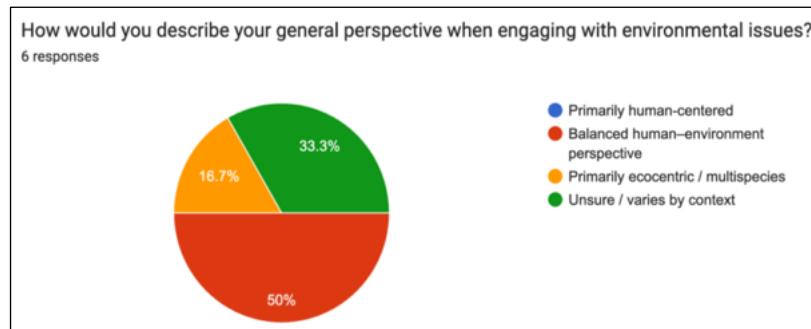


Figure 55: Survey question responses assessing external validation participants' engagement with environmental issues.

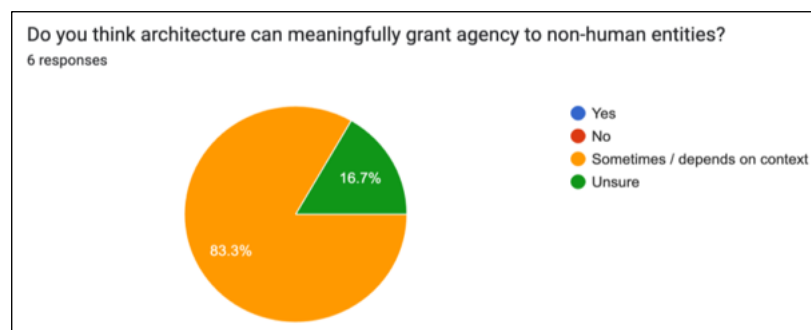


Figure 56: Survey question responses assessing external validation participant views on architecture and non-human agency.

5.3 WORKSHOP DESIGN AND PROCESS

The design of this workshop included an in-person meeting session, a pre-workshop survey, and a project evaluation study. The workshop schedule began with a brief introduction to my research topic, the purpose of external validation, and the analysis framework. Participants were allowed to ask clarifying questions, then given an introduction to the evaluation survey and to a subset of 10 projects selected for the study. The projects Prof. Brombal and I chose for this subset all yielded variable final evaluation scores, ranging from very high to very low, with some in between. Additionally, some projects are more architecturally leaning, others are more environmentally leaning, and a few are in the middle or neither. The projects varied in content,

providing a range of themes for participants to evaluate. The complete lists of evaluated projects and framework questions are listed in Table 1.



Figure 57: External validation project photograph provided to participants.

The project evaluation survey was conducted via Google Forms to collect responses and import the data into Google Sheets. The survey was divided into sections for each project. The data presented to each participant and depicted in Figures 57 and 59 included the project title, AI description, full project description, and a photo of each project, ensuring the evaluation was consistent with the dataset I analyzed. The framework questions, anchors, and anchor descriptions were also available alongside every project section. As seen in Figure 58,

this is an example view of Question 1. Each anchor descriptor was defined and accompanied by an ordinal rating from 1 to 5. I also included an “N/A” rating option, giving participants space to write or explain why the question did not apply to the project or was unclear. Each project included the same background information and set of framework questions, resulting in 6 sets of evaluations for each of the 10 projects. Additionally, printed copies of all projects, framework qualities and questions, and external validation summaries were available to participants to aid survey comprehension and completion.

Nature-Focused Questions

1. How essential is 'nature' to project X?

If N/A: Not applicable or unclear, please explain in 'other' box

☐ 1 – Peripheral: Nature is minimally included, and not required for the project to function conceptually or materially.
☐ 2 – Somewhat Peripheral: Nature is present but marginal, and its removal would cause only a slight loss of meaning.
☐ 3 – Adjacent: Nature contributes meaningfully but is not essential to the project's core concept.
☐ 4 – Somewhat Central: Nature plays a significant role, and removing it would significantly weaken the project.
☒ 5 – Core: Nature is fundamental; the project would not exist conceptually or materially without it.
☐ Other:

Figure 58: External validation question example provided to participants.

Section 2 – Project Evaluation (project 1 of 10)

Project Title: Stonecrust: The Microbeplanetary Infrastructure of Lithoecosystems

AI Description:

- Reclaiming stone surfaces as microbial habitats, this installation proposes litho-ecosystems as carbon sinks and architectural allies.
- It challenges preservation norms, suggesting stone crusts as a transspecies climate infrastructure for planetary repair.

Full Project Description:

Stones are often seen as the opposite of life, but they are not. Stonecrust mobilises the very thin crust of rocks as an interface where the relationships between the microbial and the planetary can be rearticulated and atmospheric carbonisation can be confronted. Blinded by positivism, preservation practices are often based on the destruction of the litho-ecosystems of stone crusts. But stone crust is where different forms of life—bacteria, fungi, algae, lichens, insects and many others—coproduce each other and create a thin space for microbial sociability. This microbial sociability is a response to planetary challenges and an alternative to the intersection of anthropocentrism and carbonisation. The litho-ecosystems of stone crust have been nurtured and worshipped by Indigenous cultures around the world. It is now known that far from destroying buildings, these litho-ecosystems are crucial contributors to the structural performance of ceramic and stone infrastructures.

Stonecrust affirms the surface of stones as a planetary extensive site for transspecies mutual care. Digitally-controlled jet nozzles spray a solution containing microbe DNA. The surface of the stone then grows, becoming a warehouse for crystalised carbon. If applied to the massive presence of stone façades around the world, a large part of the built environment could be turned into a planet-scale infrastructure for climate reparation.

Figure 59: External validation project overview provided to participants.

The final section of the evaluation survey asked participants for feedback on their use of the framework. Although this section was part of the online Google Form survey, I posed the 10 feedback questions to the group in the form of a discussion. Participants were given the opportunity to share their opinions and observations during the group discussion and afterward by submitting reflections online. Once a majority of the participants had finished their project evaluations, the group held the discussion. There were technical difficulties beyond our control that prevented a few participants from submitting their completed surveys, although all participants had completed them by the time the group began discussing. The feedback questions helped to facilitate the discussion, and the participants added additional topics to the conversation.

An initial intention of the workshop was to provide time at the end of the group discussion for participants to revise their survey responses. I vocalized this intention to the group, and by the end of the session, one participant stated that the group discussion did not influence their answers and therefore submitted them as is. This sentiment was echoed by other participants through their immediate submissions. The workshop session was recorded and transcribed using Otter.ai. Before the session began, all participants consented to being recorded, and the recordings were sent to them at the conclusion of the workshop. Before sharing with the participants and my advisors, I edited the recordings and automated transcriptions to maintain an accurate transcript of the conversation. The following participant feedback is either taken from the recordings or online-submitted answers.

Table 1: External Validation Project and Question Lists

<i>Project Title</i>	<i>Question</i>
P1. Stonecrust: The Microbeplanetary Infrastructure of Lithoecosystems ¹⁶	Q1. How essential is ‘nature’ to project X?
P2. The Living Orders of Venice ¹⁷	Q2. Which role does ‘nature’ play in Project X?
P3. From Plantation to Pavilion: Weaving Ecologies in the Plantationocene ¹⁸	Q3. Which relational aspects of ‘nature’ does Project X focus on?
P4. Recypark ¹⁹	Q4. How does Project X frame ‘nature’?
P5. Talking to Elephants ²⁰	Q5. How open is Project X to unintentional natural adaptation?
P6. ACROS Fukuoka Prefectural International Hall ²	Q6. At which scale does Project X operate?
P7. Necto ⁴	Q7. To what extent is Project X context-oriented?
P8. Metabolic Home: New Forms of Cohabitation and Decarbonization in the Dense City ¹³	Q8. What degree of integration does Project X demonstrate?
P9. Hyper Sponge ¹⁴	Q9. How much does Project X integrate nature-based solutions (NbS) or technologies?
P10. FRICKS: Upcycled Foamed Bricks ⁷	Q10. To what extent does Project X challenge the separation between the natural and built environment?
	Q11. How implementable is Project X?
	Q12. How fixed is Project X?
	Q13. What is the timeframe for Project X?
	Q14. How physical is the ‘nature’ in Project X?
	Q15. Who or what does Project X explicitly benefit?

¹⁶ Stonecrust: The Microbeplanetary Infrastructure of Lithoecosystems was created by the following participants: Andrés Jaque, Office for Political Innovation, Gokce Ustunisik.

¹⁷ The Living Orders of Venice was created by the following participants: Studio Gang.

¹⁸ From Plantation to Pavilion: Weaving Ecologies in the Plantationocene was created by the following participants: Zhicheng Xu, Kevin Mastro.

¹⁹ Recypark was created by the following participants: 51N4E.

²⁰ Talking to Elephants was created by the following participants: Marc Sherratt Sustainability Architects, Franco Schoeman.

5.4 EXTERNAL VALIDATION OUTCOMES

The outcomes of this external validation study and the feedback on the analysis framework were both varied and overwhelmingly constructive. The validation study assessed the framework's applicability, consistency, and clarity, and the 6 workshop participants provided valuable insights despite the small group size and the limited number of projects analyzed. Several of the 10 projects yielded strong consensus within the group, while others ended in notable disagreements and conflicting responses. The majority of participants shared an Environmental Humanities background, which informed my initial hypothesis that this would lead to many similar responses and rationales, but the findings refuted this.

Both quantitative and qualitative data were collected via Google Forms and organized within a spreadsheet for further analysis. The quantitative responses were categorized both by project and framework question to facilitate comparison. This process examined participants' responses to identify patterns specific to individual questions or projects and narrowed the scope of the research to certain areas. The qualitative data were collected from written comments and discussion points and analyzed alongside the quantitative evaluations. Table 1 depicts the titles of the 10 projects evaluated by the participants, along with the 15 framework questions.

Consensus and Majority Agreement

The validation study revealed limited instances of unanimous participant agreement, with the group reaching consensus only twice throughout the evaluation process. The first circumstance was for P6 (*ACROS Fukuoka Prefectural International Hall*²), Question 11. All participants individually agreed that this project was fully implemented. This combination of project and question seemed easier to answer because the project description explicitly stated when and for how long the project had been built. The second circumstance of total agreement was for P9 (*Hyper Sponge*¹⁴) and Question 6 about operational scale. According to the responses, there was a consensus that the project operated on a large scale. This was likely also due to the project's explicit reference to its use as flood-mitigation infrastructure. Together, these findings suggest that the framework yielded more cohesive results when the project descriptions contained clear, unambiguous information and wording.

To identify the projects and questions that received the most agreement, I organized the data within 2 tables. Table 2 counts the number of projects with majority agreement (4-6

participants per project) and for each framework question. This analysis was conducted to determine whether certain questions elicited greater participant agreement than others and to assess whether there is a correlation. The highest levels of majority agreement were observed for Questions 1, 2, 14, and 15, all of which showed majority agreement in 5 of the 10 projects evaluated by the participants, as highlighted by the yellow rows within Table 2. These findings suggest that participants were able to interpret and apply the specified questions more comparably. By contrast, Questions 3 and 9 did not reach consensus on any of the evaluated projects, as depicted in Table 2 by the red-highlighted rows. This outcome could indicate that these questions need modification, although majority agreement alone cannot provide a conclusive assessment. Further interpretation of the questions needs to account for all facets of the validation data and feedback.

To provide an alternative perspective on this majority-agreement data, an additional analysis was conducted, examining majority agreement at the project level instead of by framework question. Table 3 presents the number of framework questions that achieved majority agreement (4-6 participants in agreement/question) for each project. Projects 4 and 5 are highlighted in yellow, indicating they produced the highest level of participant agreement on 7 and 6 of the 15 questions, respectively (Table 3). Project 3, however, failed to reach majority agreement on any question, as indicated with a red-highlighted row in Table 3. These findings suggest that characteristic of the project allowed for a wide range of interpretations.

Table 2: External Validation Study Findings of Participant Consensus and Majority Agreement by Framework Questions

Framework Questions	Total Number of Majority Agreement Projects
Question 1	5/10 Projects
Question 2	5/10 Projects
Question 3	0/10 Projects
Question 4	2/10 Projects
Question 5	2/10 Projects
Question 6	3/10 Projects
Question 7	2/10 Projects
Question 8	1/10 Projects
Question 9	0/10 Projects
Question 10	2/10 Projects
Question 11	2/10 Projects
Question 12	2/10 Projects
Question 13	1/10 Projects
Question 14	5/10 Projects
Question 15	5/10 Projects

Projects	Total Number of Majority Agreement Questions
Project 1	2/15 Questions
Project 2	4/15 Questions
Project 3	0/15 Questions
Project 4	7/15 Questions
Project 5	6/15 Questions
Project 6	5/15 Questions
Project 7	1/15 Questions
Project 8	2/15 Questions
Project 9	5/15 Questions
Project 10	5/15 Questions

Table 3: External Validation Study Findings of Participant Consensus and Majority Agreement by Project

The resulting dataset was helpful in identifying trends in agreement and disagreement across both the framework questions and the projects. However, neither method of analysis showed a strong correlation between a specific question or project and participant consensus, as the highest agreement counts were 50% of the possible totals in both tables. This process did not provide proof of a distinct correlation between the relevant data. Despite the lack of correlation, these analyses further indicate that the validation workshop yielded numerous interpretive evaluations.

While several project and question combinations resulted in substantial agreement, others yielded a notable divergence. When evaluating Project 5 (*Talking to Elephants*²⁰), the workshop participants each responded differently to Question 12, as shown in Figure 60. This result was unique, as it was the only instance during the workshop in which the participants were completely divided in their evaluations. This finding suggests participants interpreted both the project and the question in very different ways.

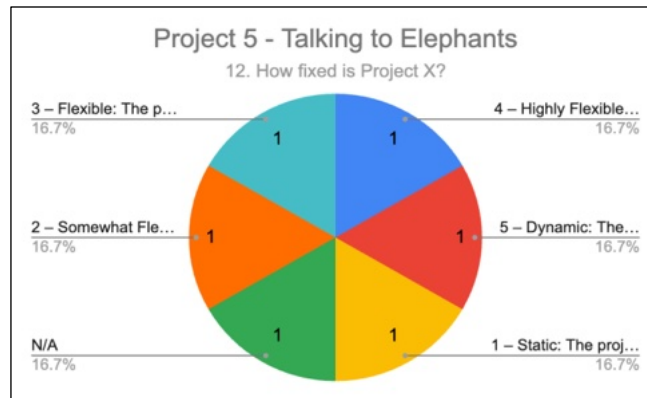


Figure 60: External validation study distribution of scores for P5, Q12.

Not Applicable Responses

In the online survey, participants had the option to rate any question as not applicable (N/A) and provide further explanation in a separate text box. Many of these ratings were given more context by the participants, adding to the qualitative data collected. For Project 5, Question 1, regarding the centrality of nature, a participant selected N/A and wrote that “the project is very human-centered by its initial intentions.” This comment provides insight into how participants’ perspectives can be widely different than my own evaluative perspective.

Similar themes emerged from Project 7, Question 4 about the framing of nature; 3 of the 6 participants selected N/A. One participant commented, “use of biomaterials implies need in sustainable solution, but doesn’t address environmental issues,” while another wrote, “nature is framed as object, for use - rather than as an independent system with strong/weak characteristics.” These responses suggest that participants found it difficult to apply the framing perspective to this particular project.

Additional ambiguity was evident in some responses regarding intended beneficiaries for Project 7 (*Necto*⁴). 2 participants provided comments, writing that the project benefited “no one?” and “designers?” respectively. Together, these confused responses indicate some uncertainty with the project’s purpose, intended outcome, and relationship to the framework evaluation criteria. The qualitative feedback regarding *Necto* aligns with the quantitative findings presented earlier in the chapter. The project achieved majority agreement for only one of the fifteen framework questions, making it one of the least consistently interpreted projects in the validation study.

5.5 FRAMEWORK FEEDBACK

The following section of this thesis shifts focus from project evaluations to participants' experiences with the framework itself. The data collected during this stage consist of quantitative and qualitative data from an online survey with 5 Likert-scale statements and 5 open-ended questions. The 10 questions centered on the framework's strengths, weaknesses, and areas for improvement. The first 5 statements were the following:

1. The framework's structure and evaluation criteria were clear and understandable before and during application.
2. The framework's categories and questions are conceptually coherent and logically organized.
3. The framework was easy to apply consistently across different projects.
4. The framework goes beyond description and supports critical interpretation of projects.
5. Overall, this framework is suitable for external academic analysis of architectural projects and could be applied beyond the Venice Architecture Biennale. Other contexts where this framework could be applied:

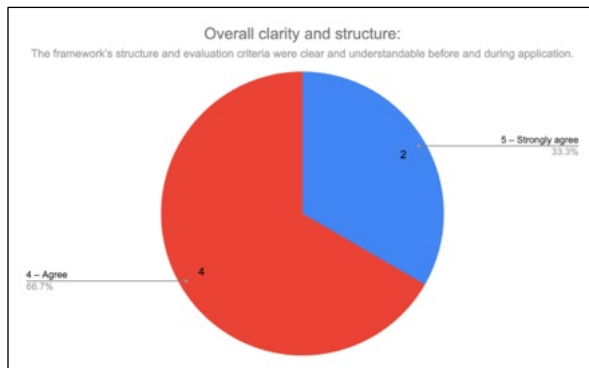


Figure 61: External validation study framework feedback for Question 1.

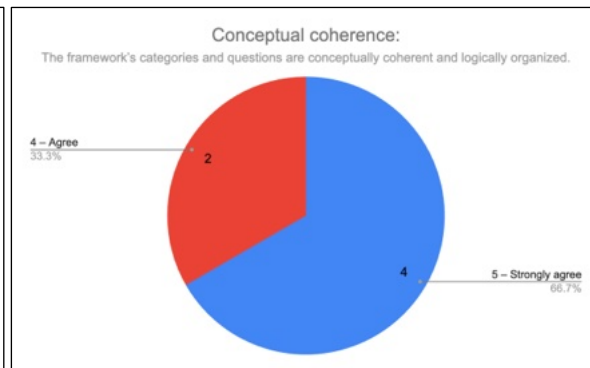


Figure 62: External validation study framework feedback for Question 2.

Figures 61 and 62 depict the responses to Questions 1 and 2, respectively, with *strongly agree* in blue and *agree* in red. As shown in the figures, all participants rated the framework structure and categories as clear and conceptually coherent. The remaining statements similarly produced agreement, with all participants responding either *agree* or *strongly agree* to all 3. This consistent pattern provides evidence that the framework was easy to apply, comprehensive, and

applicable beyond the Venice Architecture Biennale. All participants agreed in some capacity with the prior statements and accompanied these beliefs with qualitative suggestions and observations.

The latter half of the feedback questions were all open-ended to elicit details and specific comments and were collected in person during the discussion and through the online survey. The final 5 open-ended questions were the following:

6. Any observations about applying the framework to this project?
7. What aspects of the framework worked best across the projects?
8. Where did the framework feel unclear, restrictive, or insufficient? Were there any challenges?
9. How could the framework be improved for future use?
10. Any additional Comments?

The participants' comments and insights were analyzed for recurring themes specifically relating to question wording, the quality and scale design, and conceptual clarity. They provided the feedback with valuable insights and previously unexplored areas for adaptation. To facilitate the group discussion, questions (listed above) were written on a whiteboard, with space to record participants' thoughts and crucial discussion points. This was to fully capture and organize the emerging topics from the discussion and provide a visual reference. Along with the recorded transcript, feedback from online responses and written discussion points was aggregated and analyzed in this section.

The first open-ended question corresponds to the second half of Statement 5 above, about future contexts and transferability. I included a textbox with this statement, seeking alternative application ideas and mainly to assess whether participants believed in its transferability and usefulness elsewhere. The participants all provided significant alternative applications of this framework, many of which extended beyond an exhibition analysis. Some applications include video materials, such as documentaries or reports, rather than built projects. One participant suggested using this framework to analyze visual materials and projects, and another suggested analyzing "development banks, international institutions for funds," particularly to assess organizational development or investment strategies. Along a similar theme, another participant suggested that "some parts of the framework could be used for the evaluation of conceptualisation and organisation of any public/humanitarian/NGO/ educational project

oriented towards sustainable practices.” Another participant suggested continuing this framework within the Biennale, using it at the pre-implementation stage of project development rather than post-installation. The framework could be used as an evaluative or planning tool, as a participant suggested. Another idea offers a context within “building and architectural planning, urban planning, before projects are implemented,” providing a scale that exceeds the Biennale exhibition halls. One participant who worked at the Biennale suggested using this framework for guided tours of the exhibition. The structure could be adapted into a visitor-facing framework to facilitate engagement with the pavilion.

The strongest takeaway from the participants’ comments is their confidence in transferability and suggestions for alternative contexts. Every participant provided at least one unique application option, and the responses indicate they did not view the framework through a Biennale-specific lens. Some individuals indicated that the framework can be used as a planning tool to inform projects before they are created and implemented. Notably, the participants often suggested multidisciplinary avenues for transferability beyond the fields of environmental and architecture, including visual media, educational materials, and humanitarian organizations. The suggested possibilities were diverse in scale, discipline, and strategy, indicating that aspects of the framework are broadly relevant and conceptually applicable across many fields. These comments provide valuable insights into the various possibilities for the future of this framework beyond the Biennale’s boundaries.

Question 6 opened the discussion to include participants’ observations as they applied the framework. This question was intentionally worded in an unbiased way to gather information about what participants initially noticed about the framework, without adding personal opinions or experiences. Within the group discussion, many participants agreed that some questions were easier to answer than others. One participant added, “As having no experience related to architecture, design, or environmental art, I can say that this framework is a strong base for someone who is beginning in the field.” This is a helpful observation about using the framework from a beginner’s perspective.

Another submission online wrote about the provided project dataset: “More information about projects may be needed in order to analyze them appropriately. Some questions/response options, highlighted in discussion, needed more clarity, but generally the framework helped expand understanding of nature’s role/lack of role in each of these projects.” This point was also

discussed in the group and was identified as a limitation of the study. While my intention was to include all aspects of the dataset I used to evaluate, this participant's comment made me realize that this information would have been helpful to include and was discounted on my part. The project's datasets should have included information about the people and organizations that created them, as well as their countries of origin to facilitate evaluation. Since I already had this information cataloged in a database, it was a limitation and an oversight not to include it alongside the rest of the project information. My reasoning for not including this data originally was that I did not believe it would have swayed the workshop participants' observations about the projects, since it had little to no influence on my own ratings. Further exploration of this research should include all the data I accessed to confirm the framework's consistency.

Question 7 evaluated which specific aspects of the framework performed best in practice. As shown in the first set of feedback questions, the workshop participants responded positively to the framework's overall structure and parameters. One participant wrote about the categories of questions, the "framework that addresses natural aspects and architecture aspects for each project in a way that does not benefit or harm one project or the other. In this way, the framework evaluates each project at the same level." Many other participants reflected similar statements writing, "Reflecting separately on nature focusing, architecture and result-focused questions" worked well along with the "phrasing of questions and answer options is very on point." One noted that the architecture section of questions worked the best and another wrote that the "response options were very useful in helping to critically think through projects, particularly in thinking about integration and uses of nature for human's vs non-human needs." All participants in this discussion agreed that the overall formatting was intuitive and that the anchors were clear and balanced, thereby avoiding forced extremes.

This question elicited very positive feedback on the framework's overall structure, balance, and organization. Participants generally agreed that the framework allowed for a consistent evaluation for each project. The group found the 3 categories and the question wording effective and easy to understand. Additionally, the response to the scales (qualities and anchors) indicated that they worked well and allowed for nuanced interpretations, while avoiding forced extremes. The architecture-focused questions were particularly effective, as participants repeatedly emphasized. Collectively, these results indicate that the structure, question wording, and overall organization were among the analysis framework's greatest strengths.

The subsequent question asked respondents which aspects of the framework felt challenging or unclear (Question 8). The participants had difficulty applying certain questions to projects due to insufficient or ambiguous descriptions, among other technical unfamiliarities. A few participants noted that life expectancy and timeframe were difficult to assess for many projects, in agreement with the results in Table 2 above. Of the 10 projects, none had all participants reach consensus on the timeframe, and their answers varied widely. One participant wrote, “the question 13 about timeframe was not always clear due to lack of information,” and another rated a project writing that they “wouldn’t know” about this question. Although this challenge was specifically a critique of the project's clarity, it provides a rationale for why this question elicited varied responses. There were also critiques of the use of terminology and the lack of conceptual understanding. Specifically, participants found question 9 and the use of *Nature-based Solutions* to be neither clearly defined nor fully cohesive with the rest of the framework. One participant wrote that this question might have been easier to answer if NbS were clearly defined or provided with specific examples. During the discussion, one participant criticized the use of NbS as overly specific for this type of interpretive framework.

The vague project materials were often cited as a source of the framework's inapplicability rather than as a source of specific aspects of the framework itself. Although a few participants critiqued the framework’s question about NbS (Q9), stating that the use of the concept was a source of uncertainty. This feedback suggested that the term was less conceptually aligned with the rest of the framework due to its technical meaning. Participants recommended including a definition and examples of NbS to help them apply the terminology more effectively to projects. Altogether, this feedback indicates the need for specific question adaptation and, potentially, for sourcing more straightforward project materials (although this critique leans more towards the projects than the framework).

Question 9 asked for any additional comments and for suggestions on how the framework could be improved for future use. One participant suggested adding a financial context writing, “I feel an economic viability or social acceptance level section would be interesting to include.” A few participants similarly noted that, although the framework aligns well with the Biennale context, it may need further adaptation to be applicable to other scales and audiences. One participant suggested including an aspect in the discussion to analyze the visual presence and aesthetic value of the projects.

The participants' feedback indicated that the framework structure generally lacked major issues and works well within the context of the Biennale. These responses indicated that the framework could also be refined and expanded for other situations and audiences. The participants' specific feedback recommends strengthening its transferability by expanding its scope and scale and incorporating a visual evaluation and economic component. These recommendations focus on future integration opportunities and identify minor adjustments to facilitate this process.

The group's discussion included an additional conversation outside the structure of the preceding feedback survey questions, about the participants' various thoughts and ideas. A significant topic that was revisited throughout the discussion was the concept and definition of nature. This was an expected topic given the centrality of nature within this research and the EH backgrounds of many participants. There were concerns that using *nature* rather than *environment* was too limiting and not inclusive enough. One participant stated that the *environment* is broader and better demonstrates the interconnectedness of all entities. Another participant argued that *nature* was a preferable term and highlighted the tension between the object and subject framings of nature. This conversation is crucial to consider when interpreting survey results, given that each participant's personal opinions about nature are reflected in their responses. Each of their criteria has influenced how they interacted with the projects and interpreted scale, agency, and narrative intent. During the discussion, a few participants noted that some projects operate at multiple scales, making it difficult to determine their intended scale. This caused some difficulty in answering certain questions due to this ambiguity.

One participant acknowledged that architecture is a male-dominated field and may therefore perpetuate certain narratives and perspectives. This is a significant critique not only of the architecture discipline but also of our understanding of nature as a whole. The lack of gendered discussion surrounding nature is a limitation of this research and would introduce a broad range of data and influence.

5.6 VALIDATION STUDY LIMITATIONS

The results of the validation workshop suggest that the framework was most effective as a tool for identifying patterns and enabling categorical reflections. The study was not specifically aimed at gathering concrete evaluations of the projects, although this data was compared across

participants to assess commonalities, differences, and central themes. This cross-comparison demonstrated a wide range of responses, and majority consensus on project ratings was relatively uncommon. The evaluation process for the projects is highly subjective, and each participant uniquely interpreted the materials and narratives differently. Although many participants shared a similar academic experience, their responses were highly variable, a significant observed finding of this study.

As reiterated above, a critical aspect of this study was the integration of participants with academic experience relevant to the themes within the analysis framework. This element significantly influenced engagement with the framework and posed a noteworthy consideration of the study. Alternatively, a participant pool with a more proportionate inclusion of individuals from the architecture and planning professions could have provided a more balanced assessment of the framework. While the group included a single participant with an architecture background, additional representation may have strengthened the validation process by introducing additional disciplinary perspectives.

The analysis framework used in this thesis relied specifically on the project materials and information provided by the Biennale creators. These resources varied considerably from one another in descriptive detail and conceptual clarity. This factor led to widely fluctuating findings across the projects and proved to be a limitation for the study. Feedback from participants provided further limitational evidence that while certain projects were straightforward to evaluate, others were challenging and/or confusing. Despite the framework's interpretive nature, the wide distribution of responses remained partially attributed to the varying quality of the project narratives. According to the validation study's feedback, projects that employed clear terminology and communicated their ideas explicitly aided in the application of the framework questions. In contrast, projects with ambiguous wording and unspecified or vague motivations were distinctively more challenging for participants to evaluate. The varying comprehensibility of project narratives creates additional opportunities for interpretative flexibility and subjectivity. This factor increases the likelihood that ratings would be influenced by inferred meanings rather than solely by the information presented in the project description and is an additional reflection of the study. While interpretive variation was an expected outcome of this framework, the differing levels of clarity across project narratives emerged as both a consideration of the

evaluation process and a noteworthy finding regarding how nature is communicated within the exhibition.

5.7 EXTERNAL VALIDATION CONCLUSION

There were many critical and positive suggestions and observations from the 6 participants of the workshop study. The overall framework was perceived as clear, relatively consistent, and easy to apply. Many of their ratings correlated with their interactions with the framework, highlighting both its strengths and weaknesses. The participant ratings and observations guide potential further adaptation and exploration of the framework within varying contexts and to interdisciplinary audiences. I used participants' project ratings and feedback to assess the framework's clarity, rather than explicitly comparing their evaluation responses with my own. Since the validation study was aimed at assessing the framework and its inherent interpretive qualities, these results did not aim to produce concrete "correct" answers.

Despite many participants shared EH background and existing knowledge of relevant environmental and architectural themes, majority agreement on project ratings was surprisingly rare. The wide variation in consensus on project evaluations suggests that participants approached the projects and questions from various conceptual angles. This idea supports the intrinsically complex process of interpreting the relationship between architecture and nature. This finding is especially significant because it demonstrates the framework's highly subjective nature, even among participants with similar educational backgrounds and familiarity with the concepts. These results demonstrate that this analysis framework can yield multiple valid interpretations from a single dataset.

The combination of quantitative and qualitative feedback from the study has provided a comprehensive assessment of the framework's capabilities and strengths. Certain feedback statements indicated that participants believed the framework was conceptually clear, easy to use, and broadly applicable. Based on the additional information collected, the category structure, scales, and anchor points are well organized and conceptually balanced. These results provide support for maintaining the current framework structure and overall design.

The workshop results additionally offer insight into the framework's clarity to external users with varying perspectives and academic backgrounds. The study crucially demonstrated that individuals other than Brombal, Putzer, Schechtner, and me were capable of understanding

and applying the framework. This was a primary validation study goal; it proved to be a significant conclusion given the inherent variation with interpretive analysis.

The feedback stage of the study was crucial and used as a research and analysis tool in assessing potential weak spots in the framework or application process. Various challenges resulted from the study and were primarily due to specific framework questions or ambiguous project information. For both of these reasons, some questions could not conclusively be applied to certain projects. Question 9 about NbS emerged as an area for improvement through an adaptation of the question. The feedback results provide evidence that the framework is well developed, easy to use, and does not require substantial revisions. Any future adaptation of the framework will focus on the specific technical aspects concluded by the study. Despite participants' varied interpretations of the material and the specified areas for refinement, the framework can accommodate multiple contexts through its effective structure and transferability. Altogether, the validation study has fulfilled its intended purpose and research goal by successfully assessing the framework's functionality, replicability, and consistency across various evaluators. Since the validation study was conducted after my own interpretation and conclusions were completed, it will not be discussed in the following discussion chapter.

6. DISCUSSION AND INTERPRETATION

Nature Language—a way of speaking about patterns of interactions between humans and nature and their wide range of instantiations, and the meaningful, deep, and often joyful feelings that they engender

(Kahn et al. 2010, 59)

Building on this understanding of nature-language, this discussion applies the analytical framework to examine patterns in nature and human interactions. The subsequent interpretation sections follow and expand upon the analytical Rights of Urban Nature Framework and the themes that emerged across the projects in the Natural section of the IntelliGENS Biennale. While analyzing each project within the Architecture Biennale, several recurring patterns and behaviors began to emerge. Some of the patterns were immediately recognizable, containing clear, direct, and related themes. Others surfaced more subtly, only after careful comparison of the projects as a whole and in relation to one another. Taken together, these explicit and implicit themes point to the diverse disciplinary backgrounds of participants and the underlying ideas about nature that inform their designs.

This observation led me to pay close attention to how projects utilize language and to the contextual framing of particular words and phrases. In doing so, I noticed recurring gaps in specificity that often default to anthropocentrism. Many projects assign humans as the primary actors and ultimate beneficiaries within their narratives. At the same time, I observed a subtler theme relating to the rights of nature. Several projects implicitly grant rights, agency, or autonomy to non-human nature. Although rarely expressed explicitly, these inclusions suggest a broader shift in architectural discourse toward recognizing non-human entities as collaborators and active participants rather than passive resources. These recurring themes reflect the diverse ways in which contemporary architecture engages with the role and rights of nature.

6.1 NATURE-FOCUSED INTERPRETATION

While focusing on the Nature-Focused Category of the analysis, three interrelated themes emerged from the various project descriptions. The following themes all reflect relationships between humans and nonhumans in various capacities. In many projects, nature-oriented

concepts are frequently used to describe a range of materials, systems, or ideas. These concepts were often lacking an accompanied definition or intentional context to explain further.

6.1.1 Conceptual Ambiguity of Terms

The most prominent theme that emerged throughout the analysis was the consistent ambiguity and fluidity of concepts, most notably in relation to nature. As addressed in the literature review, many nature-related concepts are fluid in definition or are used differently across disciplines. Many projects use these terms as vague descriptions or abstract insinuations rather than providing clear explanations and outlines for the applications. This tendency reflects a broader issue in the fields of architecture and planning: environmental language is often misused or used ambiguously. The common misconceptions about these ideas are not unique to architecture, as concrete definitions and meanings notoriously vary across disciplines. Although ambiguity can be a productive tool for speculation and variability, it can also risk reinforcing harmful, antiquated ideas and misinterpretations of environmental issues. The following section examines how nature and the terms typically associated with it are expressed across the projects and the ramifications for the architectural field.

Projects that demonstrate conceptual ambiguity often rely on implied meanings or default assumptions to understand their intentions. For example, *(n)Permanencies Tractatus*²¹ self-describes as a temporary and “biodegradable shelter born from agricultural excess and chemical algae.” The description lacks clarity about who or what the shelter is intended for, though it can be presumed to be a structure for humans. Rather than being explicit, the project relies on vague anthropocentric descriptions, such as “a prototype that appears as a footprint or a screenshot of our situation of decay,” and “an invasive photosynthesis born from our own excess.” Both quotes refer indistinctly to humans as the primary users of the shelter by using the word “our.” Although the unspecified use of “our” could refer to a collective multispecies ownership, the project further contains anthropocentric metaphors. *(n)Permanencies Tractatus* derives its erasable architecture “from our own junk food addiction and gustative bad taste.” This phrase takes an inferential and critical stance on human behavior and consumption habits. They simultaneously position humans as both the destructive cause and primary subject of the design despite no

²¹*(n)Permanencies Tractatus* was created by the following participants: New-Territories (François Roche), Emanuele Coccia.

explicit mention of humans. The project includes environmental terms and natural processes, such as “algae,” “photosynthesis,” and “biodegradable,” to signal a partnership with nature, though it offers no examples of non-human collaboration. This project relies on anthropocentric metaphors and implied assumptions to affirm the centrality of humans.

(n)*Permanencies Tractatus* demonstrates the familiar and frequent inability of planning professionals to incorporate nature without framing it through an anthropocentric lens. Demeritt explains, “the nature-society dualism in the form of an opposition of contingency and necessity suggests both how deeply ingrained the nature-society dualism is in our habits of thought and how difficult it will be even for avowedly poststructural critics to transcend them completely.” (2002, 784). This cultural divide is structurally embedded in the conceptual framing that architects and planners use to interact with nature, making it a challenging default to reject.

(n)*Permanencies Tractatus* describes exploring “fragility, decay, and ecological guilt, proposing erasure, ephemerality, and nomadism as architectural responses to environmental and emotional collapse.” By using the phrases “ecological guilt” and “nomadism as architectural responses,” the project implies an anthropocentric view. Typically, humans are associated with feeling certain types of guilt, specifically environmentally-centered guilt. The quote also highlights nomadism, a relevant term to describe a human-specific form of mobility. As confirmed by the Oxford English Dictionary, a nomad is “a member of a group of people who move from place to place rather than living in one location” (2023). Although the term can be extended metaphorically, its use in the description treats humans as the central actors and default beneficiaries, leaving non-human entities unacknowledged. When coexistence with nature is framed in this way —anthropocentric and centered on human guilt and fragility —nature isn’t seen as an active participant or agent.

In conclusion, (n)*Permanencies Tractatus* illustrates how conceptual ambiguity complicates the collaboration with and agency of nature, despite the usage of environmentally-leaning language. The description uses the phrase “low-carbon and biodegradable organic compounds (algae bones and membranes) as an erasable architecture,” suggesting consideration of nonhumans in the design. The broader context, encompassing the use of anthropocentric metaphors and the implied human beneficiaries, reveals an overall lack of nonhuman agency or intention. As discussed in the prior paragraphs, this reliance on suggestive definitions of nature prevents the project from adopting a multispecies perspective. The root of this issue lies in the

fluidity of environmental concepts themselves and “the idea that what we consider to be ‘natural’ always bears the (usually) hidden or forgotten trace of particular assumptions, agendas and desires specific to a social group or a wider community, culture or society” (Castree 2014, xxiii). Many projects rely on implied or symbolic meanings embedded with their own biases rather than clearly articulating their intentions. Such ambiguity can allow multiple interpretations and the risk of reinforcing human-centered assumptions, further shaping a harmful, limiting perception of nature's agency. The structured analytical framework developed in this thesis makes these gaps visible by identifying where rhetoric disguises anthropocentric defaults, and by showing how precise language advances multi-species inclusion and consideration.

6.1.2 Roles, Rights, and Agency of Nature

It is crucial to understand how the Biennale projects conceptualize and portray not only the rights of nature but additionally the roles and degree of agency afforded to nature. The rights of nature (RoN) framework is broad and complex, recognizing “ecosystems as rights-bearing legal subjects” (Weis and Mullins 2025, 1). These various lenses assess and analyze the degree of consideration and significance accorded to non-humans. The RoN explicitly affirms the intrinsic value of non-human entities and ecosystems, regardless of their benefits to humans.

Through this overarching theme, the projects are assessed to determine whether they challenge the anthropocentric view of nature or merely adopt a superficial or aesthetic facade of multispecies inclusivity. The central goal of RoN frameworks is to question the underlying anthropocentric assumptions that have shaped most legal and ethical understandings of nature. As Weis and Mullins explain, “they seek to reorient legal systems towards valuing nature for its own sake and not merely for its contribution to human well-being, and towards a view of humans as members of interdependent and holistic living systems. RoN thus offer an alternative to conventional anthropocentric environmental rights, such as human rights to a clean and healthy environment” (2025, 1–2). In doing so, RoN reconceptualizes nature as an active subject with legal standing and moral consideration.

This shift crucially reframes humans as members of an interconnected, reciprocal system rather than as dominating entities at the top of the hierarchy. In the absence of an explicit mention of the RoN, the following section interprets projects that, intentionally or unintentionally, imply a degree of rights or agency for nature. The projects’ implied references

are examined through their built interactions with non-humans, their acknowledgment of partnership, and their resistance to persistent anthropocentric biases.

The ethical field in which the rights of nature live is an elaborate and substantial area of study. Environmental ethics can be pretty ambiguous, and “the language is by nature abstract, with words such as value, duty, rights, freedom, responsibility being at the core of the vocabulary” (Simmons 1993, 118). Often, environmental ethics and accompanying concepts feel vague or unclear due to the coinciding use of abstract terms that take on various meanings across contexts. This ambiguity becomes especially important when discussing the roles, rights, and agency of nature, as these terms actively shape human assumptions and decision-making processes. According to Halkis and Waldani, “without precise legal definitions and enforceable guidelines, efforts to blend these philosophies may lead to ineffective or inconsistent application of nature's rights, undermining their potential to protect ecosystems comprehensively” (2024, 4660–61). This source advocates implementing clearly defined approaches and boundaries to prevent undermining or diminishing the very protections they aim to safeguard. One such example of defined, legalized rights is the Ecuadorian constitution of 2008, which granted ecosystems legal standing to exist and regenerate (Halkis and Waldani 2024, 4661). This case marked a significant shift away from previously held environmental policies, which approached nature as property and/or as a condition for human benefit.

Even without explicitly naming the rights of nature, several projects reflect the core principles by depicting non-human species as entitled to ethical consideration, spatial autonomy, and the status of beneficial collaborators. For instance, *Talking to Elephants*²⁰ restores long-lost migratory routes for elephants in South Africa through AI-driven gates and infrasonic communication. By enabling elephants to move freely across landscapes fragmented by privatization and human interference, the project frames them as “ecological partners” and recognizes their right to mobility. The project describes its role in restoring the “extinct ability of elephant[s] to migrate across the Limpopo Province of South Africa,” thereby granting the wild species renewed freedom of movement previously obstructed. The project explicitly appoints elephants as collaborators by incorporating “elephant-only gates and water points that allow wild elephants to safely traverse fence lines.” This interaction firmly maintains the elephant's role as an active participant and guarantees their rights to access water points and safe migration. While the designers may not describe this in terms of “rights of nature,” the underlying principle is

clear: elephants are treated as agents with their own needs and entitlements, rather than as passive entities or liabilities that need to be restricted.

According to the literature, including Putzer et al., “the Rights of Nature (RoN) promote a new understanding of the human environment, where natural entities are conceived as subjects with intrinsic value independent of human interests” (2022, 89). As this is a significant concept within the RoN, it's critical to note how this project does not entirely align with it. The safe migration of the elephants is a priority for the project, although their well-being is not entirely independent of human interests. As the description states, “*Talking to Elephants* has been designed to help rural communities understand these animals as assets by using elephants to increase local food security. Elephants can be used as seed dispersal agents of locally fruiting trees to help establish and maintain self-sustaining food forests along the route.” Although most of the project description appears to acknowledge elephants as active ecological participants, this quote reduces their role to their usefulness to humans. By referring to the elephants as “assets” and “seed dispersal agents,” the project recognizes their valuable role in the ecosystem while still emphasizing the ways humans benefit. This quote highlights the framing of elephants as active ecological participants rather than as having sole intrinsic value, as it includes anthropocentric ideas. In this sense, the project leans toward RoN principles and implies a degree of natural agency, but it remains caught in appeasing human interests.

6.1.3 Unpacking the Sole-Creator Role of Nature

Within the exhibition, many forms of nature are actively, implicitly, or unconventionally granted rights. The following project explores the role of nature and how it influences the rights and recognition humans grant it. *Stonecrust: The Microbeplanetary Infrastructure of Lithoecosystems*¹⁶ is an installation that stewards and reclaims “stone surfaces as microbial habitats” by spraying stone surfaces with a microbe DNA solution. This project focuses on fostering biodiverse microbial habitats as the “surface of the stone then grows, becoming a warehouse for crystalised carbon.” The digitally sprayed solution actively evolves into complex litho-ecosystems capable of hosting many types of life-forms. The project narrative challenges the preconception that “stones are often seen as the opposite of life,” when in fact they are biodiverse landscapes where “different forms of life—bacteria, fungi, algae, lichens, insects and many others—coproduce each other and create a thin space for microbial sociability.” The

project frames litho-ecosystems as active, dynamic, multispecies habitats capable of self-governance. To a certain extent, nature serves as the sole creator and agent.

Stonecrust views litho-ecosystems as “architectural allies,” challenging the traditional and anthropocentric view that humans play the central role in creating built environments. The multispecies involved in colonizing stone surfaces are granted a relatively high degree of agency, which closely aligns with the RoN principles. This project demonstrates agency through discourse and physical action rather than through explicit legal frameworks. By enacting or affording agency to non-human entities, humans are shifted further away from being the destructive, dominating power. This shift in dynamics solidifies nature as a self-designing entity, rather than a passive or ornamental aspect of architecture. As Tănăsescu states, “the rights of nature are inevitably intertwined with pre-existing power relations” (Tănăsescu 2022, 139). The argument that nature should entirely assume a sole-creator role relies on ethical and ideal views of nature as a free agent, although, through the lens of the RoN, the practical applications and mechanisms are inherently limited.

The point is that even indirect rights and agency granted to nature can shape who can act and intervene on nature’s behalf. Also, this helps frame projects that treat nature as a collaborator or stakeholder as examples of indirect rights structures. Maybe the point is that, within an anthropocentric system, there is no such thing as true agency without a power structure, but acknowledging this representation is crucial. This is certainly challenged by the project’s initial creation, since humans are catalysts for the microbe’s implementation. This project challenges anthropocentrism by centering nature as a creator, saying, “Preservation practices are often based on the destruction of the litho-ecosystems of stone crusts. But stone crust is where different forms of life—bacteria, fungi, algae, lichens, insects and many others—coproduce each other and create a thin space for microbial sociability.” Nature, in the form of various microspecies, is granted an active role within the project as a dynamic ecosystem capable of self-governance. The project’s narrative does not center on humans, even though humans will ultimately be the beneficiaries. Nature is implicitly granted certain rights when it is viewed as possessing inherent value and capabilities.

This project takes a notably different approach than the previous two by explicitly acknowledging non-human nature as an active agent rather than implicitly. *FundementAI*²² uses biotechnologies and ecological dynamics to imagine “a future where human and microbial systems co-evolve resilient urban structures.” Within this narrative, agency is not conceptually suggested; rather, it is directly attributed to the Venice lagoon, specifically “giving agency to its complex microbiome.” By directly framing the microbiome as a decision-making entity, the project introduces a subtle yet powerful actor into urban architecture. The microbacterial layer is capable of “make decisions about its coevolution with the lagoon amid climate change and rising sea levels,” without human intervention. This suggestion affirms the idea that nature is resilient and can be incorporated into the built environment in ways that extend beyond typical boundaries.

While *FundementAI* attributes agency to the lagoon's microbiome, *Revival of Ordinary Trees*¹⁰ shifts the focus to the architectural practice of incorporating living trees. Rather than using trees as purely decorative building materials, this project incorporates them into the design by preserving them in their natural state, rooted in place. The project narrative highlights the trees as innately valuable, not merely as environmental assets. The trees are celebrated and safeguarded as “each tree embodies a unique ‘spirit.’” The project combats the separation between nature and the built environment by framing trees as vital entities with their own essence and life. Unlike many traditional architectural projects that treat vegetation as a secondary element, *Revival of Ordinary Trees* grants trees the right to exist as inherently valuable members of the built world. This emphasis reshapes and influences the fields of architecture and planning, co-evolving with multi-species.

Across the implicit and explicit views of the rights of nature, these projects reveal how clarity and specificity in their narratives enable the identification of underlying patterns and their confident interpretation. Even when projects did not explicitly invoke this legal or ethical framework, some of them gesture toward granting rights, agency, or autonomy to nonhuman entities. From restoring migratory routes to designing multi-species habitats to imagining microbiomes and trees as active participants, these projects transcend the notion of treating nature as ornamental or secondary. Instead, they position non-humans as collaborators and co-

²² *FundementAI* was created by the following participants: *ecoLogicStudio*, *Synthetic Landscape Lab* (Innsbruck University), *Urban Morphogenesis Lab* (The Bartlett UCL).

creators in the shaping of environments. This recurring theme reflects shifting perspectives in contemporary architectural discourse and suggests a broader cultural shift toward acknowledging the agency and inherent value of the more-than-human world.

6.1.4 Environmental Framing // Portrayal of Nature

Other projects apply descriptive phrases that, intentional or not, can obscure the underlying assumptions within their narratives. *Coding Plants: An Artificial Reef and Living Kelp Archive*²³ describes itself as “creating a harmonious blend of hybrid nature and human innovation.” At first glance, this phrase appears positive, emphasizing collaboration and coexistence between humans and non-human nature. The choice of the word “harmonious” carries a more profound implication: it suggests equality and balance, without acknowledging the possibility of conflict or instability within the relationship. Framing the project this way avoids technological aspects that might disrupt, exploit, or dominate ecological systems. This view of nature can lead to a superficial or delicate understanding of deeply complex and dynamic interrelationships.

A similar rhetorical pattern appears in *Fabbrica dell’Aria*²⁴, which refers to plants as “allowed to grow.” Although the project itself advocates adaptation and freedom, its phrasing inadvertently reinforces human authority by suggesting that growth and adaptation occur only with permission. This language implies that non-human actors, such as plants, require human intervention to thrive. The project inadvertently reinforces anthropocentric dominance while explicitly promoting ecological growth. This is one example of how unintentional and well-meaning language choices can perpetuate assumptions of human superiority and control over nature, thereby portraying power imbalances. These ecolinguistic variations illustrate how discourse can shape human interaction with and perception of nature and non-human entities, particularly through architectural discourse.

Castree’s distinctions among definitions of nature help clarify when projects merely aestheticize nature, when they force humans into ecological systems, or when they implicitly or explicitly grant nature agency, a key issue in the RoN and architectural discourses. And what each project intends when they do this.

²³ *Coding Plants: An Artificial Reef and Living Kelp Archive* was created by the following participants: Terreform ONE, Mitchell Joachim, Peder Anker, Melanie Fessel, Paul D. Miller aka DJ Spooky.

²⁴ *Fabbrica dell’Aria* was created by the following participants: PNAT.

6.2 ARCHITECTURE-FOCUSED INTERPRETATION

6.2.1 *Environmentally Driven Approaches to Architectural Design and Planning*

Within this section, I focused on interpreting the architecture-centered themes that emerged from the projects at the Biennale. A majority of the projects aimed to move away from traditional, unsustainable linear design processes that fail to account for the entire lifecycle and associated impacts of extracted materials or built structures. Many projects emphasized alternative architectural approaches and strategies grounded in environmental awareness. Although the degree of ecological intention varied, it was evident that most projects engaged, either implicitly or explicitly, with the reconfiguration of the human-nature relationship. The range of non-traditional strategies extended from impact reduction within *green or sustainable design* to active methods such as *regenerative design*, *circularity*, and *Nature-based Solutions (NbS)*.

This interpretation examines how architects and planning professionals integrate nature into their design innovations, thereby revealing their underlying beliefs about the relationship between nature and the built world. As the architect and author William McDonough has concluded, “design is a signal of intention,” and further implores, “what is the very best that designers can intend ... and how might a building manifest that intention?” (2002, 9–10). McDonough is referring to the idea that outcomes reflect not only form and function but also the broader goals and values embedded in them.

Within the context of the Architecture Biennale, the projects illustrate the creators' underlying intentions through various design strategies. Based on the use of different building classifications and aspects, it was evident how much emphasis was placed on the environment and non-humans. The four central architectural themes I noticed in the projects were *green or sustainable design*, *regenerative design*, *circular design*, and *Nature-based Solutions (NbS)*. The data from these projects provide evidence of how planning professionals affect the environment and demonstrate their underlying beliefs about nature.

Not only were the linguistic uses of environmental concepts instrumental in demonstrating beliefs about nature, but the various methods of building and planning were also significant. Whether they used outdated, general terms to describe their plans or intentional,

conceptually relevant ones, the projects provided further direction for the architectural future. The various aspects of building involvement give clues to each project and participants' actual consideration of nature.

Future visions can also provide clues about who or what will be considered in the building process and designs. There can be many indications, including the materials used and the project's location, of whether they integrate with the surrounding systems or remain separate and distinct. Based on this data, contemporary architecture is shifting toward a more ecocentric perspective, minimizing both direct and indirect environmental harm while promoting a greater role for nature. While many architects still employ outdated techniques, a growing number treat nature not as an ornamental addition but as a collaborator in the design process. Collectively, these approaches illustrate a consistently evolving view of nature and its complex relationship with the human-built world, revealing how understandings of nature are actively produced. Castree writes, “How can what appears to be natural be shown to bear the (usually) disguised trace of people’s preferences, values and assumptions? It is one thing to demonstrate that there are different beliefs, opinions, or values about what we call ‘nature’. But it’s another to show that the nature being analysed, debated or evaluated is not itself an extra-social world lying outside social discourse and practice.” (2014, 105). This perspective frames nature as a social construct shaped by the surrounding world, including architectural and cultural practices.

6.2.2 Green and Sustainable Design

The first significant theme was the wide-ranging incorporation of *green* and/or *sustainable practices* within the project narratives. While these terms are not synonymous by definition, they are grouped because they share many commonalities in how the projects use them. They are often coupled because of their implications in early environmental discourse, which describe broad ideas and approaches. These terms were used inconsistently to describe aspects of the building process, such as materials, resource management practices, and the overall assessment of the system. For example, *Coding Plants: An Artificial Reef and Living Kelp Archive*²³ abstractly describes itself as a “suppositional green architectural agenda,” while Recypark practically references the implementation of “repurposed structures and green zones.” Regardless of practicality, both examples use the descriptor 'green' to signify specific characteristics, such as environmental friendliness or inclusion of natural elements.

The term “*green*,” and the color itself, have become synonymous with “environmentally-conscious,” and the word is a widely recognized metonym for environmentalism or the environment as a whole. The term has an overwhelmingly positive connotation, as one study demonstrates: in the British National Corpus, “the majority of the analysed sentences convey a positive bias of the word green” in both literal and metaphorical senses (Augé 2019, 5). This positive association strongly supports using the word in this context to mean environmentally aware or eco-friendly. The evolution of this term into mainstream contemporary discourse is crucial for understanding its scope of meaning. The terms *green*, *sustainability*, and similar jargon have been used beyond the confines of environmental discourse, leading to conceptual ambiguity and implied metaphorical meanings. For this reason, it is essential to scrutinize how architects and planning professionals use these terms.

In architecture, the concepts of *green and sustainable design* have become umbrella terms encompassing a wide range of meanings and practices, often used so broadly that their impact has shifted significantly over time. In architectural discourse, *green design* refers explicitly to buildings that “emphasize the environmental performance of buildings,” and *green buildings* are defined as having “a higher environmental performance compared with that of typical buildings” (Cole 2012, 40). This definition highlights an intentional consideration of environmental impacts but remains deliberately vague by focusing on reducing harmful outcomes rather than creating beneficial ones. As Cole explicitly details, “green design is primarily directed at ‘doing less harm’ or, more generally, reducing the degenerative consequences of human activity on the health and integrity of ecological systems.” (2012, 41). This idea emphasizes that this type of design aims to lessen the adverse effects of the building process on the surrounding environment, rather than focusing on active restoration or positive outcomes.

Cole outlines eight key attributes of green buildings, including reducing damage to natural sites, minimizing environmental harm, and conserving resources (2012, 40). All eight attributes listed by Cole are short statements introduced by either “reduces” or “minimizes,” which further indicate that green buildings prioritize impact mitigation. While the focus on mitigation represents an improvement over traditional building practices that disregard environmental impact entirely, it ultimately remains a limited strategy.

Another critical aspect of *green design* involves incorporating environmental assessment tools and measuring specific metrics. These tools prioritize specific technical performance over comprehensive systemic integration. For example, the project *ACROS Fukuoka Prefectural International Hall*² is described as “a pioneering green building fusing park and structure” by incorporating a planted façade that “returns green space to the public, reduces urban heat, and proves ecological architecture can thrive in dense city centres.” Because the structure was established over three decades ago, there is significant ecological data to corroborate their claims. An external analysis “revealed that the building positively changes the surrounding climate, achieving a heat reduction of about 8°C. Moreover, the local air quality has highly improved. At the beginning, 35,000 plants were installed. Today, courtesy of the local birds, there are more than 50,000.” The environmental benefits are measured, quantified, and included within the project’s outcomes.

In alignment with this theme, Cole observes, “the success of green building is typically described in terms of listing the strategies and technologies used in meeting performance goals rather than illustrating how they function as part of an integrated system” (2012, 41). Green building assessments and analyses often rely on measurable performance metrics, such as those in the *ACROS* project, to demonstrate the effectiveness of *green buildings* through their environmental performance. The project celebrates the quantifiable outcomes and technological achievements rather than focusing on how the building ultimately operates within a larger urban ecological system. This type of prioritization within *green design* results in architecture that is misaligned with contemporary sustainability goals and disconnected from the surrounding environment. Projects that included generalized concepts such as green or sustainable design often failed to grant agency to nature or to integrate it beyond a superficial level. In conclusion, green design serves as a beneficial yet limited step toward more inclusive approaches that move beyond mitigation toward co-collaboration with nature. Similar to green design, sustainable design can be used in a very general sense to describe ideals of building without addressing systematic issues.

6.2.3 Regenerative Design

One of the most frequently referenced themes across the projects was the incorporation of regenerative design. This approach is one of the most progressive and dynamic aspects observed in the projects at the Biennale. Before exploring how the projects incorporated regenerative

design, it is crucial to define the concept, as different sources and types of literature offer varying definitions. As Rheude et al. identify in their research review, “applying the same terms but having different definitions in mind will become a hurdle when collaborating, especially when working in modern, interdisciplinary teams, which is nowadays not only in the scientific community common, but as well in the construction industry and politics” (2021, 2). This quote emphasizes the importance not only of using the same concepts across different fields but also of ensuring that their definitions align. To share information and facilitate collaboration across fields, the concepts and main ideas should be clear, well-defined, and thoroughly examined. Given the Biennale's multidisciplinary nature and the diverse, collaborative elements of its projects, it will become increasingly important to use congruent terms and concepts. In this section, I aim to use a clear definition of regenerative design to analyze the following projects on an equal basis and within the same guidelines.

The following definitions and concepts come from various authors and increasingly move away from sustainable design toward regenerative design, the ideal outcome. My first definition of regenerative design comes from Phillip B. Roös, who contrasts with the goal of sustainability, “which is mostly focused on a minimum or ‘less harm’ approach,” with regenerative design and development, which goes beyond simply being ‘sustainable’ by taking into consideration the improvement of sustainable systems (2021, 145). This author deliberately differentiates regenerative design from sustainable design, emphasizing that the former is more focused on improving existing systems. He expands this definition by highlighting, “the central message from the regenerative paradigm is that not only should human activities that are degenerative to the environment be minimized, but rather we should move towards a concept of maximising human activities that restore and regenerate ecological systems” (Roös 2021, 145). Roös emphasizes the crucial shift in perspective, moving from superficial harm reduction towards active, positive influences. This viewpoint reinterprets sustainability as a baseline rather than an objective, encouraging planning professionals to design structures that benefit and aid the overall health and well-being of surrounding environments. A separate source definition from Reed describes how *regenerative design* embodies a “whole, living systems approach in contrast to green building that remains fragments and technologically based” (Cole 2012, 47). Similarly to Roös, Reed defines the concept by distinguishing it from green design, further emphasizing that architecture is not an agent that mitigates harm but rather one that fosters restoration, reciprocity,

and symbiosis with its surroundings. These two writers believe that sustainable and green design are insufficient to address contemporary environmental issues in architecture.

The third significant description of regenerative design presents a comprehensive, holistic view of architecture. Cole defines regenerative design as requiring “a fundamental reconceptualization of the act of building design primarily in terms of imagining, formulating and enabling its role within a larger context” (2012, 45). This definition further extends beyond the physical acts of design and construction and builds on the idea that regenerative design is an interactive process. Cole advocates for planning professionals to rethink their design and building processes and become active participants in a larger, interconnected system. To further develop this idea, the following definition adds to its holistic aspect. According to Buckton et al., “regenerative design adopts a holistic perspective that is biophilic, biomimetic, participatory, and closely tied to the uniqueness of particular places, aiming for co-evolution between humans and the rest of nature.” (2023, 3). These authors explicitly refer to the relational and holistic interactions between humans and nature rather than implying, separating, or excluding this relationship altogether. By incorporating biophilia, biomimicry, and place-based involvement into the description of regenerative design, this approach views architecture as a responsive and contributing aspect of natural systems. This definition highlights specific methods to include in regenerative design; however, incorporating complex concepts into the definition of an already complicated idea is not the most direct way to outline these terms. The most significant issue arises from a lack of definition for these concepts, which instead allows readers or participants to interpret them freely. Regardless, the definition advocates coevolution between humans and nature, as architecture is not an isolated process but rather exists within a broader cultural and ecological context.

The final aspect of the overall definition of regenerative design incorporates a comprehensive mindset shift toward a holistic lens. Roös contributes significantly towards understanding this idea and writes how it “shifts the focus of a design problem from singular, separate parts (or mechanical approach) to an all-encompassing, integral approach that looks at the whole system. However, forces of change are always present, and regenerative systems need to have the ability of adaptation” (2021, 145). He highlights the importance of viewing design not as a collection of individual components but as an integrated system. This perspective acknowledges and embraces adaptation as a reality that regenerative design can evolve

alongside. Adaptability is not only ecological but also cultural, requiring planning professionals to reconsider their roles and relationships within the broader system.

Regenerative design depends on a mindset shift away from anthropocentric views of the world, dismantling the social construct that positions humans as dominant entities and the primary beneficiaries of architecture. Roös extends this idea, “to have human systems improve both human and ecological system functioning ... systems must be adaptive, in that they must be designed to have the capacity to change and learn from experience, to self-correct through feedback” (2021, 110). He affirms that the involved methods must be dynamic to account for change to both human and non-human systems. Roös continues by describing how “the interdependence of the system’s parts needs to create a whole that results in an outcome that is more positive than negative in terms of both human and nature systems” (2021, 110). To achieve these goals, these aspects must be holistic and adaptive and contribute positively to all systems. The overall message of regenerative design is the major shift it entails, moving beyond the limited properties of sustainable design.

By incorporating all facets of the previous definitions, the final description of regenerative design positions it as an adaptive process in which outcomes can continually evolve and improve. In contrast to green or sustainable building, regenerative architecture involves both the built and natural worlds as active participants, advocating for co-evolution rather than separation. Regenerative design is a holistic, dynamic, and place-based approach that transcends reductionist strategies by viewing architecture as an active participant within interdisciplinary systems, capable of restoring, enhancing, and co-evolving with the surrounding world. This widely inclusive definition aligns with the construct of humans viewing nature as a separate entity, specifically as a resource to be used at will, and with the broader idea that humans are dominant over non-humans. Within the existing, predominantly anthropocentric field of architecture, regenerative design projects need to view non-human nature as active agents and justified beneficiaries of built structures. Therefore, regenerative design positions architecture not as a static object but as an active participant in living systems, a concept increasingly reflected across Biennale projects and investigated in the following section.

Across the projects analyzed in the Biennale, regenerative design emerged as a significant and recurring theme, explicitly or implicitly signaling a growing priority for incorporating regeneration, adaptability, and active collaboration with the natural environment.

Many of the projects include regenerative aspects in their designs, either through the materials used, place-based integration, or techniques that foster autonomy. For example, the project titled *Soft Infrastructure*²⁵ combines architecture and traditional ecological knowledge (TEK) by repurposing an overabundant, invasive reed species as a biodegradable erosion-control material.

The project narrative describes how “it marries the Finnish tradition of collaborative work with ecological regeneration,” which integrates a holistic, place-based approach. The project provides a direct exchange between humans and their surrounding ecosystem through a community-centered cultural practice rooted in environmental awareness. The project “introduces a regenerative approach to erosion control that supports both environmental restoration and local communities,” and explicitly references regeneration within the design context. Rather than relying on “synthetic, non-biodegradable materials that disrupt ecosystems and cultural landscapes,” the project mitigates erosion by using an overpopulated, biodegradable, invasive species, the common reed (*Phragmites australis*). The reed grids function not only as protective barriers against wind and rain but also as active agents in ecosystem functioning, allowing vegetation to reestablish and removing excess nutrients from eutrophic environments like the Baltic and Adriatic Seas.

This is a regenerative architectural approach because the structure operates as a living, adaptive system that restores local species' resilience, benefits overall ecological function, and co-evolves with interacting natural processes. The process not only mitigates environmental harm by removing and repurposing a harmful, invasive species but also encourages self-adaptation and interspecies collaboration, resulting in comprehensive benefits.

Another project that explicitly details and approaches its design with regenerative components is *MycoMuseum*¹¹. The project specifically views nature as an active collaborator rather than as a resource to be extracted and used entirely for human benefit. The narrative details how “it challenges mass production and imagines a built environment nurtured through nature’s regenerative intelligence and decentralized fabrication systems.” Mycelium is a biotic, adaptive building material that can synthesize, decay, and regenerate. *MycoMuseum* incorporates these aspects “by demonstrating the possibilities of a symbiotic partnership between human and natural intelligence; it is a call to rethink our relationship with the built and natural environment,

²⁵ *Soft Infrastructure* was created by the following participants: Jaakko Heikkilä, Emil Lyytikä.

inspiring a future that is not just built but mindfully nurtured.” The project demonstrates architecture as a dynamic process of co-creation between humans and nature, where the primary building material is active and multifunctional.

While the previous projects explicitly referenced their regenerative design capacities, this project implicitly incorporates regenerative design aspects. *Terraforms: The Shapes of Natural Intelligence*²⁶ aligns human and non-human collaboration by developing mixtures which “respond to environmental forces, proposing new resilient, self-emergent systems where human design and natural intelligence co-create architectural stability.” This statement demonstrates a system-based approach in which built structures adapt and evolve in response to external input.

The project emphasizes that “design intention and agency should embed self-emergence, ensuring optimally functional and resilient systems,” which aligns with the regenerative design emphasis on enhancing and coevolving with the surrounding environment. *Terraforms* bypasses an anthropocentric lens of architecture by “advancing the design of future natural and built habitats as living infrastructures.” The project prioritizes creating structures not only as static, passive entities for humans, but also as responsive systems for and with multispecies. Utilizing an implicit regenerative approach, the project “proposes innovative material systems where human intention and natural emergence, via ecological principles, converge to create mutual benefits.” The statement affirms architecture as an active participant, benefiting both humans and non-human systems through a symbiotic relationship.

6.2.4 Circular Design

Another approach commonly taken by the projects was the incorporation of circular design principles and circularity. Before understanding the complete concept of circular design, it is significant to unpack the circular economy (CE). The circular economy can vary in definition and across contexts, as with previous approaches to environmentally oriented design. Within the built world, “the truth is that after demolition, the life cycle of materials continues,” and although the structure is gone, its impact remains (Farokhi and Miri 2025, 54). In contrast to the traditional, linear practice, the “circular economy transforms products and services to

²⁶ *Terraforms: The Shapes of Natural Intelligence* was created by the following participants: Enza Migliore, Matteo Convertino, Amedeo Martines.

eliminate the problem of waste and its negative environmental impacts” (Kozminska 2019, 1). This idea defies the single-use function of a material or process by minimizing or eliminating waste from the system. According to Kouhihabibi, “in a circular economy, a lot can be learned from nature. As we know, there is no waste in nature and all materials flow through endless closed loops which is exactly what a circular economy aims for” (2022, 232). The author directly ties this concept to inspiration from nature and natural processes, emphasizing circular, closed-loop systems that produce no waste.

This perspective holds that human-made architectural designs tend to be wasteful, resource-intensive, and insensitive to future impacts. To build upon the idea of consideration of the future, Farokhi and Miri describe, “rather than following this one-way path, the circular economy emphasizes sustainability, resource efficiency, and the importance of minimizing waste throughout a building's entire life cycle” (2025, 54). They acknowledge that the CE differs from the traditional linear production model by prioritizing longevity and reuse. This approach emphasizes the entire lifespan of a built structure and recognizes that building materials are more than mere resources to be consumed; they are “valuable assets that can be reused, recycled, or repurposed” (Farokhi and Miri 2025, 54). This approach treats the incorporated materials as valuable and capable of being reimplemented rather than as eventual waste. Farokhi and Miri specify their ideas by including that “the circular economy promotes the idea of designing buildings and infrastructure in a way that facilitates the continued use of materials. This means carefully selecting resources that can be easily separated, reused, or recycled at the end of their life cycle” (2025, 54). These principles are detailed and intentional, allowing for future adaptability and flexible disassembly. Architects and planning professionals who design with circular-economy principles ensure that the chosen materials and construction methods remain relevant in the long term. To be more detailed, Kouhihabibi includes specifically how the CE “aims to minimize waste through the product’s entire life cycle by designing durable and recyclable products, applying more sustainable and resource-efficient production practices, lengthening the life of products by repair, reuse, and recycling, and thus minimizing the use of virgin materials.” (2022, 231). Although they are referring to the lifecycle of a product, rather than a built structure, the same CE principles can apply, as the general goals are to design for longevity, reuse, and resilience.

A crucial pillar of CE is the examination of the life cycles of materials and, just as crucially, the processes that interact with them. Kouhihabibi acknowledges that, although the circular economy is “easily associated with reusing waste...in the ideal scenario, all products would be designed and optimized for disassembly and reuse and there would be no waste to be recycled” (2022, 232). This perspective relies on the reconceptualization of waste as a resource and as a material, rather than as trash. The author continues this idea by imagining the pinnacle circular economy in which “the supply chain would be fully a closed loop, and everything; raw materials, products, and even the manufacturing equipment would circulate constantly and be never disposed of” (2022, 232). The author highlights the importance of creating a closed-loop system in which all facets of the process are interconnected and no excess is produced. The previous ideas are critical for understanding the underlying motivations behind circular design.

Circular design is a strategic and dynamic process that promotes environmental consciousness and is rooted in the principles of the circular economy. According to author Donald Norman, circular design is based on the following three principles:

1. Minimize waste and pollution.
2. Keep products in use as long as possible.
3. Regenerate natural systems (2023, 143).

The first principle outlines the idea of designing to intentionally reduce debris and harmful emissions. Norman emphasizes that “waste and pollution should be thought of as design flaws rather than inevitable by-products of the things we make” (2023, 143). By recontextualizing the production of these entities as avoidable outcomes, planning professionals are encouraged to make less impactful decisions and take responsibility for the impact of their design choices. This principle emphasizes a shift from a conventional, extractive design perspective to a more progressive, intentional approach to minimizing environmental harm.

The second circular design principle outlined by Norman is to “keep products and materials in use as long as possible...so that they (or their parts) can be reused, repaired, or remanufactured” (2023, 143). By explicitly incorporating these goals into the planning and design processes, the resources should facilitate longevity within the system. The author describes explicitly for circular design to “preserve the reuse of the material, which means stopping the clever bonding of materials that enhances their appearance and mechanical properties but also makes it expensive, difficult, or impossible to separate them for reuse”

(Norman 2023, 143). To follow this principle, he advocates extending materials' lifecycles by prioritizing functional properties over aesthetic ones. Norman emphasizes that circular design should account for easy, affordable disassembly to enable future reuse.

The third and final principle Norman attributes to completing a circular design is to regenerate natural systems by taking inspiration from nature. He describes the capability of (almost) all natural products to be reused, for instance, "the products excreted by one organism are put to use by others. Nature recycles materials in so many different ways that not all of them have yet been discovered" (Norman 2023, 144). Within natural systems, all facets and processes are deeply interconnected, meaning that every output becomes an input for another function. The most significant notion from this principle is that there is no such thing as waste within natural systems. Rather than following a linear structure (cradle-to-grave), nature operates through a "highly effective cradle-to-cradle system of nutrient flow and metabolism, in which the very concept of waste does not exist" (McDonough and Braungart 2002, 103–4). This idea calls for the rudimentary reframing of how humans design to align with nature's closed-loop cycles, which continuously recycle and repurpose materials (cradle-to-cradle). To expand upon this statement, "to eliminate the concept of waste means to design things—products, packaging, and systems—from the very beginning on the understanding that waste does not exist" (McDonough and Braungart 2002, 104). The authors emphasize the importance of planning professionals accounting for all aspects of the design in advance to ensure that all materials serve a renewing purpose and that no excess is produced.

In principle, circular design calls for a drastic mindset shift and dynamic reconceptualization of what we typically think of as waste. According to Steane, "the ideal condition is one in which the building is part of a closed loop. In a closed loop waste does not exist. Any product from one action will be incorporated into another process" (2004, 70). The author acknowledges the ideal condition as one in which no excess is produced and all building functions are incorporated and interconnected. Norman and Kouhihabibi, respectively, echo this idealistic objective, "the goal is to design out waste and pollution," as "all materials flow through endless closed loops which is exactly what a circular economy aims for" (2023, 139; 2022, 232). As demonstrated by the authors' prior statements, planning professionals pursuing circularity should actively avoid contributing to harmful products or processes by reconceptualizing waste as interconnected and interactive parts of a whole. The literature suggests eliminating waste not

by making it physically disappear, but by transforming how we understand it. By reconceptualizing waste as a resource or a contributing factor within a continuous cycle, planning professionals can shift from seeing it as an inevitable outcome to viewing it as an avoidable design flaw.

Given the complexity of building and design, which involves many intricate aspects, it is important for planning professionals to share a common understanding of circular design principles and align their approaches to implementing them. A different level of alignment can profoundly affect the stages of the design process and the environmental performance of the built structure. This potential lack of discernment or conceptual unawareness can lead to unintended detriment to the system. For example, within the three principles of circular design, Norman uses the terms reuse, repair, and remanufacturing to expand their implications and reframe waste and pollution. Although the concept of recycling is similar in overall performance and is often associated with these terms, it should be omitted. Norman writes that “recycling can be an important part of the circular economy, but it is subject to many challenges” (2023, 146). One of the most significant issues with recycling stems from the material’s original design: “most recycling is actually downcycling,” which, over time, reduces its quality and can increase environmental contamination (McDonough and Braungart 2002, 56,57). The loss of performance and decreased lifespans of these materials directly oppose Norman’s second principle of circular design, which emphasizes longevity and continuous circulation.

Despite its importance in certain aspects of the CE and its reputation as an environmentally focused practice, recycling is neither the most comprehensive nor the most effective. McDonough and Braungart expand upon this idea, stating, “just because a material is recycled does not automatically make it ecologically benign, especially if it was not designed specifically for recycling” (2002, 59). Building materials are often not designed for true circularity or for future disassembly, which is why current recycling systems are fundamentally limited. When implementing circular design principles, planning professionals must provide specific and intentional solutions. McDonough and Braungart claim that “blindly adopting superficial environmental approaches without fully understanding their effects can be no better—and perhaps even worse—than doing nothing” (2002, 59). By vaguely incorporating ideas or misrepresenting their roles, designers and architects perpetuate a flawed system.

As demonstrated in the literature, circular design goals include specific principles that planning professionals should pursue when designing and building for circularity. Projects within the Biennale reflect various aspects of circular design and explicitly reject linear planning functions such as cradle-to-grave. The project *Metabolic Home*¹³ is a circular living model home where “every part of the home is interconnected, transforming 'waste' from one space into a resource for another.” The project incorporates a holistic view of the home, seeing waste not as disposable but rather as a crucial material. *Metabolic Home* minimizes waste and pollution by supporting the material flow between systems, for example, “kitchen greywater and organic waste nourish hydroponic food production in the garden, while AI regulates the laundry’s microclimate, channeling moist and cool air through the light shaft, which also serves as a site for domestic mycelium cultivation.” The project keeps products in use as long as possible by creating kitchen furniture from biochar bricks and a pollinator wall from mycelium bricks, all produced from household functions. Lastly, the house regenerates natural systems by incorporating and encouraging the growth of a hydroponic garden, mycelium cultivation, and the reconceptualization of waste as a resource. The project includes specific circular processes which contribute to the overall health of the environment, “enabling new forms of cohabitation and decarbonization in the dense city.” All of these systems are connected and interdependent, forming a closed loop rooted in circular design principles.

Other projects misuse the term "circularity" to describe their designs or provide an incomplete description of their processes. One such project is called *Insieme: Track, Trace, and Transform Reclaimed Stories*²⁷, which aims to revive broken bricks from demolition sites using biomaterials and traceable components. The project actively minimizes waste from demolition sites by removing broken bricks “once deemed unusable and bound for landfill” and repairing them. *Insieme* keeps these bricks in use for as long as possible by extending their lifespans. The project is “inspired by the historical practice of spolia—the reuse of decorative or structural elements from older buildings in new construction” by repairing them “using a 3D-printed biomaterial made from sawdust, brick rubble, and bio-binders.” The project also includes a traceable component in the design, creating digital passports to “capture the origin, journey, and

²⁷ *Insieme: Track, Trace, and Transform Reclaimed Stories* was created by the following participants: Catherine De Wolf (CEA, ETH Zurich), Vanessa Costalonga (CEA, ETH Zurich), Clara Blum (CEA, ETH Zurich), Océane Durand-Maniclas (CEA, ETH Zurich).

reuse potential of each building element.” The reuse and remanufacturing of the bricks align with the first and second principles of circular design.

The third principle, which details regenerative capabilities, is lacking from this project. The project narrative describes, “by tracking and tracing the histories of these materials, it merges digital tools with traditional circular practices to promote creative reuse in architecture.” Although the materials are being reused and can contribute to a broader system, they are not explicitly or intentionally contributing to a cycle; instead, they are closing a single loop. True circular design is regenerative and focuses on the continual reconceptualization of waste. According to the project description, “by transforming discarded materials into information banks, *Insieme* brings circular construction principles to life and demonstrates how past and future can coexist through technology and reuse.” While the project applies certain aspects of circular design, it does not fully encompass the scope of circularity. The project self-describes: “to advance circularity, *Insieme* introduces digital material passports for every component, enabling materials to be traced, reused, and repurposed in future projects.” Although the project uses the phrase “to advance circularity,” it does not accurately describe the concept. As stated above, genuine circular design involves designing for disassembly, adaptability, and regenerative integration with external systems. They must go beyond material reuse and traceability to be adequately considered a circular design. The project is more closely aligned with creative reuse rather than circular design.

6.3 RESULTS-FOCUSED INTERPRETATION

6.3.1 Explicit and Implicit Beneficiaries

A common trend across the projects was that the installations' intended beneficiaries were humans. Most of the projects primarily benefited humans, although they used other phrases that indicated nature as the central theme. Anthropocentrism is “the belief that humans hold primary importance in the universe” and “has historically shaped legal, ethical, and philosophical systems, creating policies prioritizing economic growth over ecological sustainability” (Halkis and Waldani 2024, 4661). There was often an underlying anthropocentric default that prioritized the needs and desires of human participants over those of non-human participants. Many of these projects lack clarity in their descriptions or refer ambiguously to non-human entities that benefit from them. According to Halkis and Waldani, “anthropocentric policies often fail to address the

underlying causes of environmental degradation, resulting in deforestation, biodiversity loss, and climate change crises” (2024, 4661). Although the authors are referencing policies, the primary principles and results are relevant to the Biennale projects. By centering their benefits on humans, they unknowingly contribute to ongoing environmental issues. The participants who created these anthropocentric projects have internal biases about the relationships between humans and non-humans.

Contemporary literature on posthuman theory aims to decenter humans and completely erase the human dominance hierarchy. This ideal is critically examined for its practical limitations and its inability to entirely remove human actions or perspectives. Zapf writes, “while the critique of the liberal humanist subject in poststructuralism and posthumanism has provided valuable insights into linguistic, biopolitical, material, and other limitations of individual self-determination, it has not really succeeded in eliminating the subject from the humanities in either theory or practice” (2022, 9). Humans are shaped by many of these factors, and although encouraging posthumanist thought has proven beneficial, we are ultimately unable to delete the human subject.

Kopnina et al., on the other hand, do not consider the unavoidability of anthropocentrism as a moral limitation; rather, “there is nothing in human moral-thinking that should prevent us from realising that nonhumans are not mere objects, without personhood” (2018, 121). There is a tension in the discourse over how to balance ethical considerations regarding non-human agency with persistent human-centered perspectives. These ideas are crucial to acknowledge before interpreting the Biennale projects, many of which claim to center nature and non-humans while benefiting humans, explicitly or implicitly. While recognizing this underlying notion within each project, I will unpack the explicit and implicit beneficiaries of the outcomes and results. The chosen beneficiaries imply the range of consideration each project participant factors into their designs. An overwhelming majority of projects explicitly benefit (future) humans, leaving very few projects that prioritize non-human actors as primary beneficiaries.

(Future) Humans

The most common recurring theme across the project narratives was the overwhelming explicit and exclusive benefit to humans and (future) humans. Most projects align with traditional anthropocentric motivations by incorporating nature, with the central purpose of

addressing human demands. One such project, titled *Liminis*²⁸, “is a sculptural intervention crafted through 3D-printed clay bricks that bridges computationally-derived tectonics with organic morphogenesis.” The project draws inspiration from Christopher Alexander’s advocacy for “craftsmanship and the use of forms inspired by nature’s self-forming and ever-evolving properties.” *Liminis*’ design is “generated through algorithmic processes that mimic natural growth, replication, and self-similarity, while at the same time embodying craft.” This narrative leans toward nature as a source of inspiration and knowledge, with no direct or tangible aspects of nature incorporated into the resulting structure. These quotes constitute the full extent of the project’s acknowledgment of non-human nature. The inspirational function that nature performs is essentially passive and peripheral to the central focus: humans.

Despite the project narrative depicting nature as a contributing and influential entity, nature ultimately does not benefit from this project, either explicitly or implicitly. The description further solidifies humans as the intended beneficiaries, noting that “by combining advanced technology with traditional craft, *Liminis* underscores the fundamental human need for materiality, form, and connection within our built environment.” The language used is explicitly anthropocentric, referring to technological processes as a means of fulfilling human demands through architecture. Despite the project’s foundational design inspiration from nature, it prioritizes meeting human needs. Additionally, *Liminis* “investigates humanity’s spontaneous and elemental connection to natural forms and processes while exploring social patterns of relatedness in architectural structures.” The project centers the human experience by framing natural forms and processes as tools for unpacking social relationships. The quote focuses on “humanity” as the primary subject, while positioning natural systems as secondary and valuable in relation to human-relatedness and social customs. Nature serves as a valuable source of intelligence, enriching and inspiring design rather than an entity capable of active participation. This project uses nature to enhance architectural design and the built environment, with the implicit purpose of benefiting humans. This narrative is intended solely to help humans and was therefore assigned a rating of “1 (future) humans” for the framework question that interrogates explicit beneficiaries. Overall, this project exhibits an anthropocentric bias that cannot be countered or eclipsed by simply citing nature as design inspiration.

²⁸ *Liminis* was created by the following participants: Polymorf.

There are many examples of projects that demonstrate anthropocentric language; in particular, *Material Bank: Matters Make Sense*²⁹ illustrates humans as the default or implied beneficiaries, similar to *Liminis*. The project is a tangible, “interactive material library” of building resources that incorporates “cultural practices in architecture.” The material library explores the intersections between natural and artificial intelligences and subtly motions to the inclusion of more-than-humans. For example, the project description states that it “celebrates nature-tech hybrids and promotes a collective, sustainable material intelligence for future environments.” This quote refers to nurturing ‘future environments’ but does not specify which types of environments it means or who or what is included. Human benefit is assumed from the lack of mention of non-human future environments and continual anthropocentric references.

Furthermore, nature is framed as a resource: “matter, as a boundary object, connects people, the built and natural environments, and the cultural narratives they represent, fostering collective well-being.” It primarily serves to further human understanding and interconnections with their surroundings. The project does not explicitly reference humans’ cultural practices; they are implied, as non-humans are not mentioned or included. This phrase also situates architecture inside the realm of human culture rather than as a multispecies collaboration.

The project reinforces the idea that humans should be the primary actors and beneficiaries by calling for a cultural shift. The project states that by “fostering material awareness, it invites visitors to perceive the environment not as passive but as an active participant in our shared cultural and ecological future.” This is a significant framing because it acknowledges nature's agency, albeit through the lens of human perception and within the context of human culture. While this type of language suggests more-than-human inclusivity, natural entities are not granted agency or afforded any real benefits within the project. The project calls for humans to view nature through the lens of material exploration rather than as an interconnected multispecies collective. As Halkis and Waldani state, “a global movement towards recognizing and protecting nature's rights will require not only legal reforms but also a shift in societal values that embrace the interconnectedness of all life on Earth” (2024, 4665–66).

²⁹ *Material Bank: Matters Make Sense* was created by the following participants: Stefano Capolongo (Department of Architecture, Built Environment, and Construction Engineering, Politecnico di Milano), Ingrid Maria Paoletti (Department of Architecture, Built Environment, and Construction Engineering, Politecnico di Milano), Margherita Palli, Konstantin Novosëlov (National University of Singapore).

An inclusive and collectively beneficial system must emphasize replacing the misconception of humans being separate from nature.

The narrative continues by describing how the project “explores the foundational role of sensory engagement as a primary form of human intelligence, rooted in our ongoing interaction with the environment.” This quote further underscores the project's priority on human sensory interactions in its design and implementation. Humans are implied to be more essential to the project than nature, as evidenced by the use of anthropocentric language and the consideration of human experience. Ultimately, nature is not described as playing an active role, explicitly or implicitly benefiting from the process, and therefore was given a rating of “1 (future) humans” within the beneficiaries framework question.

Non-Humans

While many Biennale projects may be unaware of their internal biases and environmental ethics, others acknowledge them and actively challenge them. These projects inherently value nature and envision non-humans as crucial collaborators across all aspects of design, architecture, and beneficiary outcomes. This perspective lives on the opposite end of the framework rating spectrum from the previous section. Although it is impossible to completely separate the human subject from the project, as previously discussed, it is possible to reframe the narrative to explicitly benefit non-humans. Only a few projects prioritize the well-being of non-human entities, despite efforts by some to grant them agency and reject damaging hierarchies.

While some projects successfully move beyond this perspective by framing nature as autonomous rather than a commodity or resource for human use, others reflect traditional beliefs that prioritize meeting human needs and convenience. This non-anthropocentric framing affirms humans as a part of the greater ecological system without creating a hierarchy or structure of dominance. These projects employ clear language in their narratives and implement dynamic, flexible designs that reflect natural agency. Just as projects that use anthropocentric rhetoric provide insight into the beliefs and biases of participants and creators, so too do projects that deliberately decenter humans. This acknowledgment is especially significant within contemporary and future architectural spaces, as it perpetuates the explicit adoption of multi-species agency. By normalizing this practice, built environments will continually become more inclusive, reciprocal, and mutually beneficial.

One project that explicitly benefits non-human species is titled *The Living Orders of Venice*¹⁷. The project is a “citizen science project mapping urban biodiversity” and states that “architecture must adapt to form a habitat that accommodates both humans and non-humans.” This inclusion of non-human species is specific and tangible, as it integrates non-humans' interests and needs into the architectural design. The project notes that by “combining classical architecture with multispecies design, it creates poetic shelters for Venice’s non-human inhabitants and reimagines cities as ecological habitats beyond the human-centered norm.” Although humans are considered, they are neither the primary agents nor the default beneficiaries. This project shows that humans need not be entirely removed from the narrative to be considered non-anthropocentric. They demonstrate that humans can be involved without compromising nature's benefits. This project is unique in its specificity about the types of organisms that benefit from crowdsourced data from iNaturalist, creating a list of “client species.” *The Living Orders of Venice* is explicit in its consideration for non-humans by creating “novel forms of shelter suited not to an idealised human body, but to Venice’s animal inhabitants.” The project reevaluates the anthropocentric assumptions within urban environments by centering on the needs of its non-human inhabitants. For the beneficiary question within the analysis framework, this project was rated a “5 non-humans.” The project views cities as biodiverse systems capable of supporting multispecies infrastructure.

Another “5 non-humans” project, titled *Stonecrust*¹⁶, similarly grants benefits to non-human species. Alongside non-humans, the project implicitly benefits humans while avoiding anthropocentrism. The project uses stone surfaces as viable landscapes for capturing carbon and challenging the idea that stones are devoid of life. The organisms involved in the project are “bacteria, fungi, algae, lichens, insects and many others.” *Stonecrust* uses digitally controlled jet nozzles to spray a microbe-DNA solution; “the surface of the stone then grows, becoming a warehouse for crystalised carbon.” The project recognizes stones not only as biodiverse litho-ecosystems but also as “climate infrastructure for planetary repair.” Stone surfaces can combat harmful carbonization by simply and clearly being granted agency. Moreno and Etxeberria summarize that, within the literature, an agent in a natural system typically involves the following elements: “the activity of the system has goals, the system needs the (dynamical) consequences of its actions for its own (dynamical) endurance or maintenance, the system has a particular point of view” (2005, 3). An entity granted agency must be able to contribute actively

within a system of interaction and interconnection. In the case of *Stonecrust*, the participating organisms self-regulate and coproduce to “create a thin space for microbial sociability.” The living entities actively contribute to the greater litho-ecosystem by capturing atmospheric carbon through various interconnected processes.

Stonecrust reframes litho-ecosystems as active, self-governing systems and crucial climate infrastructures. Once applied to the stone surface, each organism can grow freely and explicitly benefit from this project. Humans are actively decentered from this project as the primary beneficiaries. The project proposes microbial sociability as “an alternative to the intersection of anthropocentrism and carbonisation.” The collective well-being of the microorganisms is prioritized as an alternative to human-driven climate repair. The project portrays non-humans as valuable “architectural allies,” and active agents in beneficial environmental processes.

More-Than-Humans

Some projects landed in the middle, not leaning too far toward either end of the spectrum, meaning they benefited more-than-humans rather than exclusively humans or non-humans. Many projects would portray themselves as granting agency to nature or natural entities, while ultimately serving human needs. Some projects I initially marked as explicitly benefiting non-humans; upon revisiting the description, I realized they intended to help humans while using language designed to give self-governing principles to non-human nature.

These projects attempted to overcome human centrality but didn’t fully incorporate these principles. The descriptions would utilize a mix of anthropocentric and non-anthropocentric language. As anthropocentric and non-anthropocentric language has been explored in the previous sections, projects that incorporate hybridized language employ a moderately balanced blend of both lenses in their narratives. This categorization can be challenging to determine due to several factors, including conceptual complexities, vague descriptions, and/or conflicting interpretations. A large number of these projects emphasize the collaborative capacities between nature and humans, despite restricting agency in non-humans or preventing anthropocentric bias or hierarchy. Many projects are inconsistent in their framing of the environment and rely on implied meanings and metonyms. Such projects illustrate the intricate balance between human well-being and the prosperity of multiple species; additionally, the inherent difficulty of assigning subjective labels or distinctive themes to each.

The first project example of this situation is *MycoMuseum*¹¹, a narrative containing a mix of beneficiaries and an ambiguous meaning. The installation utilizes mycelium as a building material and an alternative to traditional construction techniques. This project explicitly frames nature as a co-collaborator, with an active role in the installation's creation and design. Upon my first exploration of this project, it was apparent that the language used was attempting to decenter humans. The project references “focusing on mycelium’s architectural potential” by imagining “a built environment nurtured through nature’s regenerative intelligence and decentralized fabrication systems.” Mycelium is framed as a primary agent in the project and a central feature in the future of architecture.

The project explores the lifecycle of mycelium and factors these processes into the overall design. In opposition to traditional building materials that contribute to environmental damage, this project prioritizes minimizing this threat by incorporating dynamic biomaterials. The incorporation of this unconventional substance “reimagines building materials by exploring the synthesis, decay, circularity, and performance of mycelium.” The narrative reframes standard architectural inputs as active partners within the building process and within evolutionary processes as a whole. By emphasizing mycelium as a self-organizing and adaptive entity, the project regards architecture as a symbiotic and collaborative experience shaped by multispecies intelligence. Fungi are presented and assimilated not as raw building materials but instead as living biomaterial with innate intelligence. Moreover, *MycoMuseum* emphasizes the true circularity of mycelium as a self-sufficient entity.

The most significant finding from this project is that it explicitly benefits humans but not nature, even though it claims to do so. The project narrative is situated within the Anthropocene and, to a certain extent, references the role humans have played in this epoch. As described in the project, “in the age of the Anthropocene, the environmental consequences of mass-production and mass-consumption pose a planetary-scale threat. The materials that shape our environment now contribute to its degradation.” The project highlights the leading role humans have played in damaging the environment, specifically through the overuse of building materials. They provide mycelium as a beneficial alternative for construction use and position it as a co-creator and architectural ally.

Upon my initial exploration of this project, I rated it as advantageous to nonhumans, though my interpretation of that rating has changed over time. I reached my initial conclusion

based on the description's emphasis on agency and self-governance. Upon further dissection, it became apparent, despite attempts to center mycelium as the primary element, that humans are the ultimate beneficiaries of *MycoMuseum*. The uses for humans are extensive, noting “mycelium’s architectural potential” and discussing its mechanical and load-bearing properties for building. The project “envision[s] a decentralised, community-driven production model, countering capitalist mass manufacturing,” prioritizing the needs of humans over those of the mycelium. According to Piet Naudé, humans can counter anthropocentric ideology by first “decentring – in our minds and consequently in our actions– of the human subject as superior apex- and reference point of the natural order” (2018, 63). Naudé shifts humans away from being the central reference points in multispecies relationships and instead considers other entities as valuable contributors. *MycoMuseum* aims to decenter humans, although it ultimately does not attribute the fungi as explicit beneficiaries. Although nature is granted some agency and acknowledged as intelligent, its ultimate purpose is to serve as a source of building materials. Naudé describes the second movement to transcend anthropocentrism as “is acknowledging and realising the subjectivity of other species and natural phenomena, and then constructing our earthly existence as an intricate web of interdependent reciprocity and mutuality” (2018, 64). The author emphasizes the importance of recognizing non-human entities as capable of possessing unique perspectives and ways of understanding the world. By following Naudé’s advice, *MycoMuseum* would appreciate fungi as inherently valuable beings, each with its own subjective experiences. Furthermore, the mycelium and human agents would both benefit from the project and actively challenge the human-dominant hierarchy.

Another project on the lower end of the beneficiary rating question is *Metabolic Home: New Forms of Cohabitation and Decarbonization in the Dense City*¹³. The project utilizes non-humans as co-producers, which are central to the system's dynamic functioning, although they are not explicitly named as beneficiaries. *Metabolic Home* is a “domestic ecosystem where waste becomes resource,” and all processes are interconnected and mutually beneficial. The project includes various natural systems and non-human nature: “kitchen greywater and organic waste nourish hydroponic food production in the garden,” and decomposing organic waste is used to create biofuel and biochar bricks. In addition, “household objects are produced from the outputs of human and other living species, linked to specific rooms,” to continue the circularity of

materials. These systems all utilize non-humans and their roles in the ecosystem to benefit humans living in urban areas.

Metabolic Home is a dynamic system because it uses natural entities and biological processes; however, it is ultimately designed to aid humans more than non-humans. The project includes minor measures that could be considered beneficial to nature, such as installing a pollinator wall and cultivating mycelium. The pollinator wall's inherent intent benefits many non-human species, and so does growing mycelium. Although the ultimate benefit of both processes is human well-being, more pollinators attracted to the home will provide valuable resources for food production, and the mycelium is eventually harvested and formed into blocks used for furniture or structural purposes. Overall, the concept of the *Metabolic Home* aims to enable “new forms of cohabitation and decarbonization in the dense city,” with humans as the primary beneficiaries and non-humans as secondary beneficiaries. This project is anthropocentric in nature because its intended use is to house humans, regardless of the support provided by non-human species and biological processes.

6.3.2 Anthropocentric Bias

Many projects contain conflicting narratives or anthropocentric bias, even when discussing the agency granted to nature. One theory is that the more similar a species is to humans, the more attention humans pay to it. According to Simmons, “there has been a hierarchy of attention based on the degree of similarity between ourselves and the other components of the system: other mammals get the most intensive treatment, then other animals, and thereafter plants, the soil and inanimate things” (1993, 123). This phenomenon is particularly apparent in the fields of architecture and design, given the intended uses and beneficiaries of built structures. This dominant hierarchy helps explain why some projects claim to center nature yet ultimately serve human interests. The following project demonstrates how underlying anthropocentric biases become apparent through both the narrative and the design logic, resulting in a conflicting message.

The project, *Smoke Screen*³⁰, illustrates how a combination of anthropocentrism and the ambiguous symbolism of nature can create a conflicting narrative. The installation repurposes wildfire ash as a construction material in the form of 3D-printed biofilament. The narrative uses

³⁰ *Smoke Screen* was created by the following participants: Virginia San Fratello.

identifying linguistic terms when referring to specific tracts of land, where the “wildfire ash was collected from wildland-urban interfaces (WUI), or transition areas between unoccupied land and human development.” This statement contributes to the constructed division between the built and human environment and the non-human environment by implying a dichotomy between “unoccupied land” and “human development.” Dualisms play a large part in these separatist relationship patterns; according to Plumwood, “relationships of domination form identities of dominator and subordinated in major ways, and much of the patterns of relationship we can discern here appears to be common to both human and nonhuman relationships of domination” (2001, 11). In the context of this project, the dominant and subordinate roles are outlined by prioritizing the areas of land that are usable or occupied by humans over the recognition of non-human spaces. Furthermore, the term “unoccupied land” is inherently anthropocentric and based on a misleading assumption. It defines land in relation to the degree of human presence or development, disregarding the existence of non-human life forms and ecological processes that actively inhabit those spaces. This framing reflects a deeply anthropocentric worldview in which land is considered valuable or “occupied” only insofar as it is proximate to or beneficial to humans.

While the project acknowledges the increasing frequency and prolonged intensity of wildfires due to climate change, its primary focus is on “the risk to people living in these zones” and the resulting “destruction of homes and buildings.” The explicit mention of concern for human safety and buildings, while no explicit or implicit regard for the non-humans also affected by wildfires, demonstrates a general lack of inclusivity. Nature is not afforded the same level of priority as humans, suggesting that nonhuman entities are perceived as less important or valuable. Continuing Plumwood’s line of thought, “relationships of dualism or binary opposition are created around the identities of the One and the Other, in this case human and the nonhuman, and the Other is treated as something to distance from and subdue” (2001, 12). Nature is “othered” from humans as a way to assert dominance over and control. In the context of *Smoke Screen*, this anthropocentric preference limits the extent to which ecological disasters are acknowledged, often qualifying concern to instances or events in which human populations or interests (such as buildings) are directly affected. Simmons affirms the importance of considering non-human entities just as deeply as humans, “although in our anthropocentric way we calmly categorise the rest of the planet as the non-human world, this does not mean that we

are released from concern about it” (1993, 123). Despite the frequent misconception of viewing humans as separate from nature and therefore above it, this is not a realistic or beneficial perspective on the world.

Smoke Screen presents some conflicting statements in contrast to the previously included anthropocentric extracts by emphasizing environmental health. The project notes that, across global land areas, “wildfires occur naturally and are essential to the long-term health of these ecosystems.” The broader environmental system and its related functions encompass natural processes that maintain its well-being and flexibility. While this short passage is linguistically nonanthropocentric, the surrounding context contradicts this assertion. The narrative describes forests, shrublands, and grassland as crucial ecosystems and “important resources, both environmentally and economically.” The framing of this statement positions nature as a commodity, measured by human-centered benefit and economic value. Rather than acknowledging nature’s innate value and agency, it is viewed as an asset through the lens of commodification.

Nature, in this project, is simultaneously resilient and vulnerable, yet ultimately secondary to human-centered concerns and priorities. The combination of anthropocentric and non-anthropocentric dialogue reinforces a juxtaposition in which humans and non-humans are positioned simultaneously as valuable resources and as self-governing agents, revealing the underlying tension within this contradictory framing. Although the project mentions an overlap of natural and human systems and their intersecting ecological roles, the majority of the language is anthropocentric. Closer analysis of *Smoke Screen* reveals it to be more anthropocentric than initially apparent, highlighting how linguistic framing can subtly reinforce human-centered worldviews even within works that outwardly mention ecological themes. Overall, the hybrid and conflicting language within the projects reflects a broader effort by architects to acknowledge environmental agency; however, they often fail to eliminate or address anthropocentric assumptions and biases.

By contrast, *From Plantation to Pavilion: Weaving Ecologies in the Plantationocene*¹⁸ adopts a more explicitly environmental humanities-informed approach by imposing its design with critiques of the plantation system and the “plantationocene.” This project challenges the anthropocentric lens through which society views the mass production of agricultural products. The plantationocene is a concept used “to describe the environmental and social upheavals

caused by plantation economies,” by intentionally validating and acknowledging non-human inequities. While this idea includes more-than-human perspectives, humans are not the central agents or beneficiaries of this project.

The project aims to provide resilient building materials by exploring “species origins, migrations, and traditional ecological knowledge (TEK)” in the context of global banana production. The project narrative advocates decentering humans through a holistic framing of architecture that engages multispecies processes and systems. One such system emphasizes “the resilience embedded in TEK as a counter to the ecological disruptions caused by plantation economies.” Ecological knowledge is recognized as a conceptually relevant form of resistance to extractive, anthropocentric cultivation due to its inherently dynamic nature. The project incorporates the contextual insight that “bananas are entangled with histories of trade and land occupation,” along with intense environmental destruction. By acknowledging the complex history and relationship between humans and nonhumans, the project shifts its scope to a more inclusive audience.

Unlike other projects that exclude cultural affiliations, this project critiques the Plantationocene by tracing how plantation economies have shaped both humans and non-humans. *From Plantation to Pavilion* decenters humans and aligns closely with the environmental humanities perspective by emphasizing the interconnections between culture, nature, and hierarchical systems of power. The global legacy of plantation economies is deeply ingrained in history, revealing the anthropocentric systems of extraction and the commodification of nature that shape human-nature relationships. By outlining these complex interrelations, the project displaces humans as the sole priority, instead expanding its priorities to include multispecies resilience, TEK, and the agency of nature as a co-creator within the architecture and planning professions.

7. CONCLUSION

This thesis has examined how nature is conceptualized, represented, and operationalized within the 2025 Venice Architecture Biennale exhibition Intelligens. Natural. Artificial. Collective. Nature is positioned in various ways throughout the 2025 Venice Architecture Biennale projects. This research addresses the notable gap in understanding of how these perspectives are represented in the context of an architectural exhibition. By focusing on this influential stage in architecture, this thesis has unpacked many popular narratives about nature by developing and applying an adapted analytical framework.

This research has shown that nature is not a fixed or singular concept, but rather a fluid and perspective-dependent idea shaped by historical, cultural, scientific, and interdisciplinary influences. Throughout the Natural section of the Biennale, participants have incorporated nature or natural entities in many ways, including through materials, processes, design inspiration, or not at all. The research has revealed that many projects frequently reference nature in a symbolic, representative, and shallow sense. These projects often lacked granting agency and value to natural entities beyond their usefulness to humans. Many of the evaluated projects have used environmental trigger words to hint towards an outward ecocentric view of the world, while simultaneously perpetuating harmful misconceptions about nature.

Using an interpretive analysis framework developed by Putzer and Schechtner and further refined through my own environmental humanities lens, this thesis has explored both explicit and implicit narratives of nature. By approaching these topics as inclusive and interconnected, the nature-architecture relationship was critically dissected and interpreted. The framework adapted for this thesis enabled analysis of complex and often ambiguous project descriptions and participant design intentions. This analysis framework application process revealed vast patterns and emerging themes across the Natural section.

Ultimately, this research argues that many of the analyzed projects reflect and perpetuate prevailing anthropocentric narratives, despite using ecocentric discourse or signaling toward environmental awareness. Several projects used environmental trigger words and broad concepts such as green, sustainability, harmony, resilience, regeneration, and collaboration without always clearly defining or applying them. These terms often suggested an environmentally responsible position but did not necessarily challenge the deeper separation between humans, non-humans,

and the built environment. This ambiguity is significant because the language used to describe nature shapes how environmental responsibility and architectural intention are understood.

At the same time, the findings also revealed projects that challenged traditional assumptions about nature and architecture. Some projects positioned nature as an active participant, co-creator, or autonomous system capable of shaping design outcomes. These examples suggest that architectural discourse is beginning to create space for more complex understandings of multispecies relationships, ecological agency, and shared futures. Although these examples were not always dominant, they demonstrate architecture's potential to move beyond nature as an aesthetic, a resource, or a background condition.

The external validation study further supported the relevance and applicability of the analysis framework. The workshop participants consistently understood and applied the framework to a subset of projects, while also identifying areas of agreement, disagreement, and confusion. Their feedback demonstrated that the framework is clear, broadly applicable, and capable of producing meaningful interpretations among external evaluators. The variation in participant responses confirmed that the interpretation of nature-architecture relationships remains highly subjective and dependent on each evaluator's perspective.

This thesis crucially does not attempt to provide a single definition of nature or to determine a single correct interpretation of the Biennale projects. Instead, it demonstrates the importance of examining how nature is described, positioned, and valued within contemporary architectural discourse. The Venice Architecture Biennale is not only a space for displaying architectural ideas, but also a platform where cultural, environmental, and political narratives are produced and circulated. For this reason, critically analyzing the exhibition's nature-related narratives helps reveal the assumptions that continue to shape the relationship between architecture and the more-than-human world.

Throughout this research process, Prof. Brombal has assisted with multiple opportunities to present and develop my work to various audiences. The first opportunity was at the Biennale symposium titled *Archi/Tree/Tecture* in September 2025, where I presented my research topic and part of the analytical framework application that I had completed at the time. The second was an external validation study conducted with fellow graduate and postgraduate students in January 2026. This workshop provided critical insights into the framework and gave participants

first-hand experience applying it to a subset of Natural section projects. Together, these events opened a path for the continued development of this research.

Future research could continue to apply and adapt this framework to other sections of the Biennale, national pavilions, architectural exhibitions, or built projects outside the exhibition context, as this thesis initially intended. The framework's flexibility allows it to be used across multiple design and planning contexts while maintaining a structured analytical method, as additionally confirmed through the validation study. In this way, the research contributes to broader discussions about environmental humanities, architectural practice, rights of nature, and the role of design in shaping shared ecological futures.

Ultimately, the way architects and planning professionals conceptualize nature matters. These perspectives influence how nature is represented, how agency is assigned, who benefits from design, and how future relationships between humans and non-humans are imagined. As the thesis introductory quote states, contemporary society often finds itself “using nature to find respite from nature” (Kahn et al. 2010, 61). This paradox reflects many of the tensions identified throughout the Biennale projects, where nature is frequently positioned simultaneously as a source of inspiration, a problem to be solved, a resource to be managed, and a system upon which humans depend. By making these narratives visible, this thesis contributes to the ongoing need for more critical, reflective, and ecologically responsible approaches to the built environment. To prevent the often-reinforced, conventional separation between humans and nature, future architectural discourse will benefit from recognizing the interconnected, collaborative relationships that shape our shared ecological futures.

8. BIBLIOGRAPHY

- Anderson, Mark. 2012. "New Ecological Paradigm (NEP) Scale." *Berkshire Encyclopedia of Sustainability* 6 (January): 260–62.
- Anselm, A. J. 2006. "Developing Designs in Balance with Nature." *WIT Transactions on The Built Environment, Vol 86* 1 (June): 195–204. <https://doi.org/10.2495/arc060201>.
- Augé, Anaïs. 2019. "Climate Change (Un)Certainty: The GREEN FOR THE ENVIRONMENT Metonymy." *Papers in Language and Communication Studies (PiLaCS)* 2: 20.
- Biennale Architettura 2025. 2025. "The Biennale Architettura 2025 in Figures." La Biennale Di Venezia, November 23. <https://www.labiennale.org/en/news/biennale-architettura-2025-figures>.
- Bonilla Maldonado, Daniel. 2025. "The Rights of Nature: Their Conceptual Architecture." *Law & Literature*, January 6, 1–36. <https://doi.org/10.1080/1535685X.2024.2431406>.
- Bressanin, Anna. 2025. "Mud, Water and Wood: The System That Kept a 1604-Year-Old City Afloat." *BBC*, March 26. <https://www.bbc.com/future/article/20250324-the-ancient-forest-that-supports-venice>.
- Buckton, Sam J., Ioan Fazey, Bill Sharpe, et al. 2023. "The Regenerative Lens: A Conceptual Framework for Regenerative Social-Ecological Systems." *One Earth* 6 (7): 824–42. <https://doi.org/10.1016/j.oneear.2023.06.006>.
- Carlson, Allen. 2002. *Aesthetics And The Environment: The Appreciation Of Nature, Art And Architecture*. Taylor and Francis.
- Casetta, Elena. 2020. "Making Sense of Nature Conservation after the End of Nature." *History and Philosophy of the Life Sciences* 42 (2). <https://doi.org/10.1007/s40656-020-00312-3>.
- Castree, Noel. 2014. *Making Sense of Nature: Representation, Politics and Democracy*. Routledge.
- Cole, Raymond J. 2012. "Transitioning from Green to Regenerative Design." *Building Research & Information* 40 (1): 39–53. <https://doi.org/10.1080/09613218.2011.610608>.
- Demeritt, David. 2002. "What Is the 'Social Construction of Nature'? A Typology and Sympathetic Critique." *Progress in Human Geography* 26 (6): 767–90. <https://doi.org/10.1191/0309132502ph402oa>.
- Deplazes-Zemp, Anna. 2022. "Are People Part of Nature? Yes and No: A Perspectival Account of the Concept of 'Nature.'" *Environmental Ethics* 44 (2): 99–119. <https://doi.org/10.5840/enviroethics202242736>.

- Du Plessis, Chrisna. 2012. "Towards a Regenerative Paradigm for the Built Environment." *Building Research & Information* 40 (1): 7–22. <https://doi.org/10.1080/09613218.2012.628548>.
- Ducarme, Frédéric, and Denis Couvet. 2020. "What Does 'Nature' Mean?" *Palgrave Communications* 6 (1): 1–8. <https://doi.org/10.1057/s41599-020-0390-y>.
- Farokhi, Alireza, and Seyed Amir Miri. 2025. "Circular Economy Principles in Architectural Design Construction and Cities." *Journal of Engineering in Industrial Research* 6 (1). <https://doi.org/10.48309/jeires.2025.503720.1157>.
- Foggin, J. Marc, Daniele Brombal, and Ali Razmkhah. 2021. "Thinking Like a Mountain: Exploring the Potential of Relational Approaches for Transformative Nature Conservation." *Sustainability* 13 (22): 12884. <https://doi.org/10.3390/su132212884>.
- Gandy, Matthew. 2006. "Urban Nature and the Ecological Imaginary." In *In the Nature of Cities*. Routledge.
- Gehl, Jan. 2010. *Cities for People*. Island Press.
- Gehl, Jan. 2011. *Life between Buildings: Using Public Space*. Island Press.
- Halkis, Mhd, and Izmi Waldani. 2024. "Rethinking Nature's Rights: An Ethical Framework for Sustainable Coexistence." *Journal of Ecohumanism* 3 (7). <https://doi.org/10.62754/joe.v3i7.4570>.
- Harper, Phineas. 2025. "Venice Architecture Biennale 2025 Review: A Tech Bro Fever Dream." *ArtReview*, May 14. <https://artreview.com/venice-architecture-biennale-2025-review-a-tech-bro-fever-dream-phineas-harper/>.
- Haupt, P. 2014. "Architecture vs. Nature: A Reinvented Relationship." *WIT Transactions on The Built Environment* 1 (September): 37–45. <https://doi.org/10.2495/arc140041>.
- Iniziativa per i Diritti delle Reti d'Acqua (IDRA). 2025. "Declaration of the Rights of the Venice Lagoon." November 20. <https://drive.google.com/file/d/1VX28jrGgVYD9u8wHYTzEak5zg5q2nGKC/view?usp=sharing>.
- IUCN. 2025. "Nature-Based Solutions | IUCN." International Union for Conservation of Nature and Natural Resources, September 11. <https://iucn.org/our-work/nature-based-solutions>.
- Johanson, Katya, Bronwyn Coate, Caitlin Vincent, and Hilary Glow. 2022. "Is There a 'Venice Effect'? Participation in the Venice Biennale and the Implications for Artists' Careers." *Poetics* 92 (June): 101619. <https://doi.org/10.1016/j.poetic.2021.101619>.
- Kahn, Peter H., Jolina H. Ruckert, Rachel L. Severson, Aimee L. Reichert, and Erin Fowler. 2010. "A Nature Language: An Agenda to Catalog, Save, and Recover Patterns of

- Human–Nature Interaction.” *Ecopsychology* 2 (2): 59–66.
<https://doi.org/10.1089/eco.2009.0047>.
- Kellert, Stephen R. 2005. *Building for Life: Designing and Understanding the Human-Nature Connection*. Island Press.
- Kimmelman, Michael. 1990. “Review/Art; Venice Biennale Opens With Surprises.” Arts. *The New York Times*, May 28. <https://www.nytimes.com/1990/05/28/arts/review-art-venice-biennale-opens-with-surprises.html>.
- Kopnina, Helen, Haydn Washington, Bron Taylor, and John J Piccolo. 2018. “Anthropocentrism: More than Just a Misunderstood Problem.” *Journal of Agricultural and Environmental Ethics* 31 (1): 109–27. <https://doi.org/10.1007/s10806-018-9711-1>.
- Kouhihabibi, Mehrnaz. 2022. “Linear Economy versus Circular Economy: New Raw Material.” *Turk Turizm Arastirmalari Dergisi*, August 17, 4.
<https://doi.org/10.26677/TR1010.2022.1057>.
- La Biennale di Venezia. 2017a. “From the Beginnings until the Second World War.” La Biennale Di Venezia, April 12. <https://www.labiennale.org/en/history/beginnings-until-second-world-war>.
- La Biennale di Venezia. 2017b. “The Organization.” La Biennale Di Venezia, April 26.
<https://www.labiennale.org/en/la-biennale-di-venezia>.
- La Biennale di Venezia. 2020. “Statement by Hashim Sarkis.” La Biennale Di Venezia, February 11. <https://www.labiennale.org/en/architecture/2021/statement-hashim-sarkis>.
- La Biennale di Venezia. 2021. “The Exhibition within the Exhibition: Future Assembly.” La Biennale Di Venezia, June 11. <https://www.labiennale.org/en/architecture/2021/special-participations/exhibition-within-exhibition-future-assembly>.
- La Biennale di Venezia. 2024. “The Biennale Arte 2024 Closes with 700,000 Tickets Sold.” La Biennale Di Venezia, November 24. <https://www.labiennale.org/en/news/biennale-arte-2024-closes-700000-tickets-sold>.
- La Biennale di Venezia. 2025a. “Biennale Architettura 2025 | Brazil.” La Biennale Di Venezia, March 5. <https://www.labiennale.org/en/architecture/2025/brazil>.
- La Biennale di Venezia. 2025b. “Projects / Participants.” La Biennale Di Venezia, March 31.
<https://www.labiennale.org/en/architecture/2025/projects-participants>.
- Levy, Aaron, and William Menking. 2010. *Architecture on Display: On the History of the Venice Biennale of Architecture*. Edited by Architectural Association (Great Britain). Architectural Association.
- McDonough, William, and Michael Braungart. 2002. *Cradle to Cradle: Remaking the Way We Make Things*. North Point Press.

- McTernan, Elizabeth. n.d. "Future Assembly." With Studio Other Spaces. Accessed August 16, 2025. <https://studiootherspaces.net/futureassembly/>.
- Moreno, Alvaro, and Arantza Etxeberria. 2005. "Agency in Natural and Artificial Systems." *Artificial Life* 11 (1–2): 161–75. <https://doi.org/10.1162/1064546053278919>.
- Morton, Timothy. 2007. *Ecology without Nature: Rethinking Environmental Aesthetics*. Harvard university press.
- Mwakasumba, Daniel. 2025. "Othering Nature: A Critical Examination of the Representation of Environmental Marginalization in Chigozie Obioma's The Fishermen." *International Journal Online of Humanities*, June 27, 138–60. <https://doi.org/10.24113/ijohmn.v11i3.316>.
- Naudé, Piet. 2018. "Can We Overcome the Anthropocentrism Bias in Sustainability Discourse?" *African Journal of Business Ethics* 11 (2). <https://doi.org/10.15249/11-2-189>.
- "Nomad, n. & Adj." 2023. In *Oxford English Dictionary*, 3rd ed. Oxford University Press. <https://doi.org/10.1093/OED/6659973416>.
- Norman, Donald A. 2023. *Design for a Better World: Meaningful, Sustainable, Humanity Centered*. MIT Press.
- OOZE. 2023. "Future Island." OOZE. http://ooze.eu.com/en/urban_prototype/future_island/.
- Plumwood, Val. 2001. "Nature as Agency and the Prospects for a Progressive Naturalism." *Capitalism Nature Socialism* 12 (4): 3–32. <https://doi.org/10.1080/104557501101245225>.
- Putzer, Alex, Tineke Lambooy, Ronald Jeurissen, and Eunsu Kim. 2022. "Putting the Rights of Nature on the Map. A Quantitative Analysis of Rights of Nature Initiatives across the World." *Journal of Maps* 18 (1): 89–96. <https://doi.org/10.1080/17445647.2022.2079432>.
- Pyra, Leszek. 2002. "Nature as the Source of Life." In *Life Energies, Forces and the Shaping of Life: Vital, Existential*, edited by Anna-Teresa Tymieniecka, vol. 74. Analecta Husserliana. Springer Netherlands. https://doi.org/10.1007/978-94-010-0417-6_24.
- Ratti, Carlo. 2024. "Introduction by Carlo Ratti." La Biennale Di Venezia, May 6. <https://www.labiennale.org/en/architecture/2025/introduction-carlo-ratti>.
- Reed, Bill. 2007. "Shifting from 'Sustainability' to Regeneration." *Building Research & Information* 35 (6): 674–80. <https://doi.org/10.1080/09613210701475753>.
- Regan, Tom. 2008. "The Case for Animal Rights." In *Animal Rights*. Routledge.
- Rheude, Felix, Johanna Kondrasch, Hubert Röder, and Magnus Fröhling. 2021. "Review of the Terminology in the Sustainable Building Sector." *Journal of Cleaner Production* 286 (March): 125445. <https://doi.org/10.1016/j.jclepro.2020.125445>.

- Roös, Phillip B. 2021. *Regenerative-Adaptive Design for Sustainable Development: A Pattern Language Approach*. Sustainable Development Goals Series. Springer International Publishing. <https://doi.org/10.1007/978-3-030-53234-5>.
- Russeth, Andrew. 2024. “What Is the Venice Biennale? Everything You Need to Know.” *ARTnews.Com*, April 16. <https://www.artnews.com/art-news/news/what-is-venice-biennale-1234703040/>.
- Sahi, Jyoti. 1986. “The Duality of Symbolism.” *India International Centre Quarterly* 13 (1): 117–29.
- Shiva, Vandana. 2016. *Staying Alive: Women, Ecology, and Development*. North Atlantic Books.
- Simmons, Ian G. 1993. *Interpreting Nature: Cultural Constructions of the Environment*. Taylor and Francis.
- Steane, Mary Ann. 2004. *Environmental Diversity in Architecture*. 1st ed. With Koen Steemers. Routledge.
- Steffensen, Sune Vork. 2007. “Language, Ecology and Society: An Introduction to Dialectical Linguistics.” In *Language, Ecology and Society*, edited by Jørgen Christian Bang, Jørgen Døør, Sune Vork Steffensen, and Joshua Nash. Bloomsbury Academic.
- Tănăsescu, Mihnea. 2022. *Understanding the Rights of Nature: A Critical Introduction*. Neue Ökologie 6. Transcript Verlag.
- Transsolar, Bilge Kobas, Daniel A. Barber, and Sonia Seneviratne. 2025. *Terms and Conditions*.
- Wainwright, Oliver. 2025. “Can Robots Make the Perfect Aperol Spritz? – Venice Architecture Biennale 2025 Review.” Art and Design. *The Guardian*, May 9. <https://www.theguardian.com/artanddesign/2025/may/09/robots-aperol-spritz-venice-architecture-biennale-2025-review-3d>.
- Weinert, Friedel. 2005. *The Scientist as Philosopher: Philosophical Consequences of Great Scientific Discoveries*. Springer Science & Business Media.
- Weis, Lael K., and Robert Mullins. 2025. “Does Nature Need Rights?” *Oxford Journal of Legal Studies*, June 15, gqaf021. <https://doi.org/10.1093/ojls/gqaf021>.
- Woo, Sang Eun, Ernest H. O’Boyle, and Paul E. Spector. 2017. “Best Practices in Developing, Conducting, and Evaluating Inductive Research.” *Human Resource Management Review* 27 (2): 255–64. <https://doi.org/10.1016/j.hrmr.2016.08.004>.
- Zapf, Hubert. 2022. “Posthumanism or Ecohumanism? Environmental Studies in the Anthropocene.” *Journal of Ecohumanism* 1 (1): 5–17. <https://doi.org/10.33182/joe.v1i1.1743>.

Zhou, Wenjuan. 2017. "Ecolinguistics: Towards a New Harmony." *Language Sciences* 62 (July): 124–38. <https://doi.org/10.1016/j.langsci.2017.04.004>.