



# **ZOFNASS PROGRAM**

FOR SUSTAINABLE INFRASTRUCTURE

## **RESEARCH 2021-2022**

### **Assessment of Projects for**

- (a) integrated climate-biodiversity action, and**
- (b) attractiveness to investments**

Research Framework

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## INTRODUCTION

The present document outlines the framework of the ongoing Zofnass Program research work, as described in the document of October 18, 2021, “The ZHP Proposed Research Focus for 2021-22.” The current research is a continuation of the “Assessment of Projects for (a) mitigation and adaptation to climate change and (b) attractiveness to investments” project - presented in a draft final report<sup>1</sup> on June 15, 2021. The report assesses how Envision® captures climate change-related risks and opportunities as identified in the literature and assist to its alignment to current trends of urgent response to the climate crisis.

The need to capture (a) the risk of climate change on biodiversity and (b) biodiversity’s role in climate action were identified as additional research areas in the completed research. Moreover, climate change mitigation and adaptation<sup>2</sup> actions can unintentionally impact biodiversity long term. Therefore, the proposed work continues in climate change-related risks and opportunities, expanding the boundary of research to encompass biodiversity & climate change-related risks and opportunities.

Moreover, the work is motivated by emerging evidence of a biodiversity crisis in parallel with the climate crisis and the related ongoing discourse on the climate-biodiversity nexus and the need for integrated solutions to deal with both threats simultaneously. Awareness of biodiversity loss as a threat to humans and their activities is gaining momentum internationally, also reflected in ESG reporting practice.

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<sup>1</sup> Pollalis, S.N., E. Chatzistavrou, A. Kouveli, E. Marinou, J. Rodriguez, and O. Tzioti, (June 2021). “Assessment of projects for (a) climate change mitigation and adaptation and (b) attractiveness to investments,” Research report, Zofnass Program for Sustainable Infrastructure and accompanying presentation.

<sup>2</sup> Climate change mitigation is defined as a human intervention to reduce emissions or enhance the sinks of GHG emissions. (IPCC, 2014)  
Climate change adaptation is the process of adjustment to actual or expected climate and its effects in human systems. (IPCC, 2014)

The ‘twin’ biodiversity and climate crises redefine what the ‘right projects,’ a priority of Envision, should be, moving from a climate-focused to an integrated climate-biodiversity solution. Therefore, **the updated working research title is: ‘Assessment of Projects for (a) integrated climate-biodiversity action and (b) attractiveness to investments’**

## 1. SCOPE OF RESEARCH

The 2020-21 ZHP research aimed to assist the Envision framework in adapting and contributing to the ongoing global discourse and research on climate change and the urgency of channeling investments in climate action projects.

Key related research areas were highlighted, and current climate-action goals were identified based on a literature review (a) on climate change and (b) the investors’ demand for climate action. The analysis of selected established ESG standards – the primary tool for investor knowledge on companies’ sustainable performance- and climate-related reporting frameworks like the Taskforce for Climate-related Financial Disclosures (TCFD) recommendations provides additional insight on how climate-related performance is defined and communicated to investors.

Based on the findings of the literature review and the ESG systems analysis, **key criteria for assessing climate-related performance were identified and used for a targeted analysis of Envision.** The analysis focused on (a) how Envision assesses project performance in climate change mitigation and adaptation, (b) if Envision is in line with current trends and methods and (c) if the climate-related risks and opportunities of projects for investors are adequately captured.

The findings of the review process were synthesized in:

- identified gaps in Envision’s climate-related assessment of projects and guidance to project teams,
- potential recommendations to Envision on how to address the identified gaps and enhance its climate-related assessment and guidance, and
- prioritized Envision credits to assist in selecting the right projects for climate action, which is critical in the current climate emergency.

However, the research so far and the key criteria used as part of the analysis methodology are yet to be evaluated if appropriate for a complete review of the Natural World credits of Envision in terms of climate change mitigation and adaptation, as well as the potential of Nature-based Solutions for climate action and relevance to investors. As already explained within the Research 2020- 2021 report:

*In general, by referring to habitat and biodiversity protection and enhancement, the Natural World credits contribute to the preservation and enhancement of ‘natural capital’ with value both for the infrastructure owner, the manager, and the community. The landscape has the singularity of being both a solution to climate change (natural carbon sink) and recipient of direct pressure by its impacts. [...] Due to the topic's extent and complexity, the research did not focus on nature-based solutions for climate change mitigation and adaptation.*

Moreover, in parallel to the climate crisis, the urgency to halt and reverse biodiversity loss is gaining global momentum. Emerging evidence points out unprecedented and accelerating biodiversity loss on a worldwide scale. Awareness of biodiversity loss as a threat to humans and their activities, as well as to achieving urgent climate goals set, has resulted in initiatives for setting nature-related targets:

- Become nature-positive by 2030 to halt and reverse nature loss and support the SDGs.<sup>3</sup>
- 'Living in harmony with nature' by 2050.<sup>4</sup>
- Protect or conserve at least 30% of the planet by 2030.

This global agenda is also reflected in changes to the ESG landscape with an increased focus on biodiversity. Further evidence of this trend is the recent formation of TNFD, the Taskforce on Nature-related Financial Disclosures, with the mission to develop recommendations on how biodiversity is comprehensively accounted for in future investment decisions and engagements (similarly to the work of the TCFD for climate). The TNFD Recommendations are due to be published by 2023.

Therefore, the key role of biodiversity in climate action and the need for integrated solutions for both the climate and biodiversity crises expand the scope of the research to encompass biodiversity-related risks and opportunities of climate change and climate action, to eventually capture the climate-biodiversity nexus risks and opportunities.

The expanded research scope aims to assist the Envision framework in identifying and prioritizing projects that demonstrate the most robust win-win solutions for climate change action and biodiversity.

## 2. RESEARCH METHODOLOGY

The methodology proposed for the 2021-22 Research is similar to the one developed for the 2020-21 Research, following five key parts:

- Literature review.
- ESG reporting systems analysis.
- Identification of key criteria for biodiversity action.
- Review of Envision framework based on criteria outcome of Literature review and systems analysis.
- Use of case studies.

Each of these parts will have its detailed methodology briefly described in this document and will be further detailed and refined based on the ongoing work findings.

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<sup>3</sup> <https://www.naturepositive.org/>

<sup>4</sup> Target of the post-2020 global biodiversity framework which builds on the Strategic Plan for Biodiversity 2011-2020 and sets out an ambitious plan to implement broad-based action to bring about a transformation in society's relationship with biodiversity, ensuring that by 2050 the shared vision of 'living in harmony with nature' is fulfilled.

The overall proposed methodology for the research on the climate-biodiversity nexus consists of:

## **A. LITERATURE REVIEW**

### ***A1. Literature Review on the biodiversity crisis and the biodiversity-climate nexus:***

- Biodiversity loss as one of the top global threats, and current action for halting and reversing it
- Biodiversity's contribution to climate change action/ biodiversity as part of climate pathways and its critical role for achieving Paris Agreement targets
- Biodiversity's contributions to people and business dependencies
- Relation between biodiversity and climate change
- The process of carbon sequestration by ecosystems. An overview of the links between the carbon cycle and climate. Which are the main components of the carbon cycle? It is essential to understand both the impact of climate change on natural processes and the contribution of nature to climate change mitigation.
- The natural carbon sequestration potential and quality of carbon stock, dependent on (1) ecosystem type and (2) ecosystem condition
  - Impact of climate change on biodiversity (impacts per main ecosystem types identified terrestrial, freshwater, and marine ecosystems)
  - Unintended impact/ risk of climate change mitigation actions on biodiversity (impacts per type of solution: technical/ technological, NbS, combined Technical-NbS). Addressing climate change issues may become counterproductive if actions initiated to reduce greenhouse gas emissions aggravate biodiversity decline.
- Need for an integrated approach to climate change and biodiversity loss
- The relation between nature-positive and carbon-neutral targets by 2030
- Biodiversity and SDGs
- Nature-based Solutions (NbS). Which actions are encompassed under the NbS definition?

It is worth highlighting that the IPBES-IPCC report, which serves as a central and recurrent reference for the current research, uses the concept of ecosystem services, or 'nature's contributions to people'- the alternative term IPBES uses to refer to ecosystem services- to demonstrate the impact of climate change to biodiversity, as well as the role of biodiversity as an integral part of climate action. Ecosystem services are evidence of the Nature-based Solutions' potential for multiple benefits. A growing body of literature supports that assessment of the performance of NbS should be ecosystem services-based. Therefore, an additional literature review is required on:

- The ecosystem services concept
- The links between biodiversity and ecosystem services
- Ecosystem services-based assessment and accounting approaches and their theoretical frameworks. Both cases are helpful for the research, given that they both aim to inform decision-making and make explicit the benefits that ecosystems provide.

### ***A2. Literature Review on biodiversity as part of investors' agenda (through ESG reporting):***

- The emergence of biodiversity as the next priority for investors
- Criticism that the 'E' of ESG has become nearly synonymous with attempts to mitigate climate change.<sup>5</sup>
- Biodiversity accounting in existing ESG systems

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<sup>5</sup> Financial Times. (July 2020). "ESG investors wake up to biodiversity risk."

- New initiatives and updates of existing ESG systems to better account for biodiversity and ensure that the biodiversity-related risks and opportunities gain visibility among investors and companies.

## B. ESG SYSTEMS ANALYSIS

Analysis and cross-examination of selected established ESG reporting frameworks and standards to identify the current approach to biodiversity-related reporting. This analysis allows identifying biodiversity-related data relevant to investors and suggests that companies communicate to investors to guide decisions. Specific focus is given on analyzing the Taskforce for Nature-related Financial Disclosures (TNFD) in-progress work that aims to mainstream biodiversity loss as a financial risk by connecting it to potential financial impacts for companies.

- The TNFD (Taskforce on Nature-related Financial Disclosures) with the mission to develop recommendations on biodiversity-related accounting into investment decisions and engagements (similarly to the work of the TCFD for climate). Given that the TNFD Recommendations will be published by 2023, the analysis will be based on available resources.
- The CDSB ESG framework's draft guidance for Biodiversity-related disclosures, currently in the process of public consultation, and
- The GRI Standards review of their Biodiversity standard (of 2016) as a priority in their work plan for 2020-22.

In parallel to the ESG systems analysis and since Envision is an infrastructure project performance assessment tool, the ecosystem assessment and accounting systems analysis is also suggested to address the question 'how biodiversity-related performance is being assessed?' The analysis will focus on the theoretical frameworks that underlie these approaches and their ecosystem services classification systems. Seven approaches to the classification of ecosystem services will be analyzed to finally select one system to be used for a detailed analysis of ecosystem services and their relevance and importance to climate change mitigation and adaptation:

- the Millennium Ecosystem Assessment<sup>6</sup> (MA) framework (2003, 2005);
- the De Groot et al. (2002);
- the US Environmental Protection Agency (EPA) 's National Ecosystem Services Classification System (NESCS) (2015, 2020);
- the European Environmental Agency's Common International Classification of Ecosystem Services (CICES)<sup>7</sup> (2013, 2018)
- the United Nations' System of Environmental-Economic Accounting (SEEA-EA) (2014, 2021);
- the United Nations Environment Program (UNEP) 's 'The Economics of Ecosystems & Biodiversity' (TEEB) (2013); and
- The IPBES Nature's Contribution to People (NCPs) framework (2017)

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<sup>6</sup> The Millennium Ecosystem Assessment (MA) was called for by the United Nations Secretary-General Kofi Annan in 2000. Initiated in 2001, the objective of the MA was to assess the consequences of ecosystem change for human well-being and the scientific basis for action needed to enhance the conservation and sustainable use of those systems and their contribution to human well-being, launched by the UN. (source: <https://www.millenniumassessment.org/en/About.html>)

<sup>7</sup> CICES has been used by the EU for the Mapping and Assessment of Ecosystem Services (MAES)

It is worth highlighting that the SEEA EA ecosystem accounting system refers explicitly to climate change highlighting that “ecosystem accounting can provide data to understand the key role ecosystems play in GHG cycling on global, national, and regional scales that underpin the carbon concentration in the atmosphere. In addition, data from ecosystem accounts can help understand the impact that climate change is having on ecosystems and biodiversity.”<sup>8</sup>

Both ecosystem accounting and ecosystem assessment are frameworks for recording a range of climate change effects on the environment, on the extent (size) and condition of ecosystem assets and flows of ecosystem services.

A focus will be given on those ecosystem services that are more sensitive to climate change and those that hold mitigation and adaptation potential. However, a broader overview of all ecosystem services is also necessary to ensure that all potential trade-offs are accounted for as part of the assessment.

### **C. IDENTIFICATION OF KEY CRITERIA FOR ASSESSING BIODIVERSITY-RELATED PROJECT PERFORMANCE**

Based on the literature review findings and the systems analysis, key criteria for assessing a project’s performance against biodiversity-related risks and opportunities will be identified. In combination with the identified key criteria for climate change, these criteria will represent key criteria for integrated climate-biodiversity action.

### **D. ENVISION FRAMEWORK REVIEW**

#### ***D1. Targeted review of Envision to explore if the climate change-related risks for biodiversity and biodiversity as an opportunity for climate change action are captured in the Envision Framework.***

- Analysis of Envision to ensure risks for biodiversity are addressed through the Natural World category
- Review of Envision if its climate change-related risk assessment and risk management requirements capture the risk of the impact of climate change and climate action on biodiversity
- Envision's analysis ensures that the singularity of Nature-based Solutions, **nature-based climate solutions<sup>9</sup> in specific**, is adequately captured. NbS are widely recognized as crucial to responding to climate change and sustainable development challenges (SDGs) at the needed scale and pace. NbS are recognized for their potential to contribute to climate change mitigation and adaptation while contributing to biodiversity conservation and human well-being.<sup>10</sup>

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<sup>8</sup> UN Department of Economic and Social Affairs Statistical Division, SEEA. (February 2021). System of Environmental-Economic Accounting—Ecosystem Accounting. Final Draft. Version 5.

<sup>9</sup> When NbS are intentionally used to respond to climate change they may be referred to as ‘nature-based climate solutions’ or ‘natural climate solutions’. (source: De Lamo, X. et al. (2020) Strengthening synergies: how action to achieve post-2020 global biodiversity conservation targets can contribute to mitigating climate change. UNEP-WCMC, Cambridge, UK.)

<sup>10</sup> Naumann, S. and Davis M. (April 2020). “Biodiversity and Nature-based Solutions: Analysis of EU-funded projects.” Independent Expert Report prepared for the European Commission.

- Identification of gaps and recommendations to be considered as part of the next Envision update:
  - Should criteria be more aggressive given the current biodiversity crisis?

***D2. Review based on current priorities for tackling biodiversity and climate twin crises together as they are identified in the literature:***

- The top priority is the conservation of natural ecosystems, and, more important, carbon-rich ecosystems (IPBES-IPCC report, 2021). Relevance of Envision’s Mitigation hierarchy.

***D3. Review of Envision based on the assessment of ecosystem services and climate-relevant ecosystem services in particular. Envision will be cross-examined against a selected established Ecosystem Services classification system. “A classification can operate as a checklist”<sup>11</sup> therefore allows identifying:***

- Which ecosystem services are captured by Envision?
- Which credits implicitly refer to ecosystem services? etc.
- Which credits refer to conservation, restoration, or enhancement of ecosystems and by extension of ecosystem services?
- Moreover, if the performance assessment (particularly of NbS) could be enhanced based on input from assessing existing ecosystem services, etc.

It is worth mentioning that Envision cannot replace an ecosystem assessment framework. However, reviewing ecosystem assessment frameworks can provide feedback for an Envision-review that aims to capture the complex interactions of climate change-biodiversity.

## **E. USE OF CASE STUDIES**

The analysis and review of specific projects as case studies, already part of the 2020-21 research, will be continued and enhanced with additional representative infrastructure project cases. The two case studies,<sup>12</sup> part of the 2020-21 research on climate change, will be updated with input from the proposed research on climate-biodiversity nexus. Additional infrastructure projects will be studied based on climate change and biodiversity-related actions.

Selected project examples are used to apply the outcomes of the literature review and the performed analysis and test if they adequately capture climate change and biodiversity-related project actions.

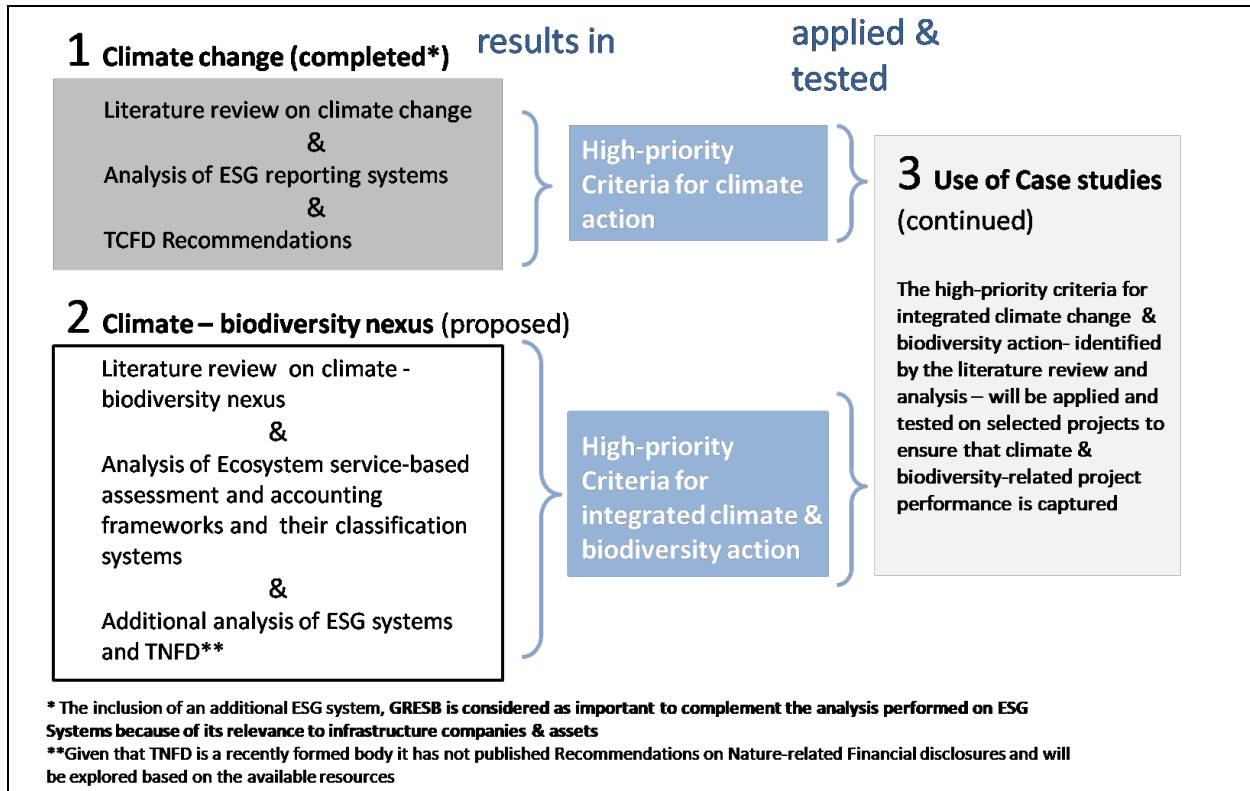
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<sup>11</sup> Lars Hein, with inputs from Ken Bagstad, Neville Crossman, Sander Jacobs, Alessandra La Notte, Carl Obst and UNSD. (September 2018). “SEEA Experimental Ecosystem Accounting: Towards a definition and classification of ecosystem services for SEEA.” Final Report.

<sup>12</sup> The two projects used as case studies are:

- The California High Speed Rail Program, an exemplary climate change mitigation project; and
- The Santa Monica Clean Beaches project, a multi-benefit project with contribution to climate change adaptation.





**Fig. 2: Schematic representation of the overall research methodology**

A detailed initial proposed methodology for case studies selection and analysis is presented in the Preliminary Progress on Research tasks document, part of the first submission for the 2021-22 Zofnass Program Research.

In brief, the proposed methodology consists of:

#### Project selection process

- Use of the ISI's Database of Envision awarded projects for identification of representative projects
- Two-step short-listing of projects based on specific selection criteria to ensure the selection of:
  - (a) high-performance projects in terms of climate change and biodiversity action
  - (b) different infrastructure types of projects for providing sector-specific risks and opportunities
  - (c) different types of solutions:
    - Technical/ technological solutions,
    - Combined technical/ technological- Nature-Based Solutions,<sup>13</sup> and
    - Nature-based Solutions (NbS).

#### Request for Information

- Development of generic documents for Request for Information on the selected projects by their respective project teams

<sup>13</sup> NbS can be implemented alone or in an integrated manner with other solutions (e.g. technological, engineering solutions).

- Organization of discussions for targeted requests of information

### Project analysis

The analysis of selected projects for integrated climate-biodiversity performance will be performed in two main phases:

- Analysis of climate change mitigation & adaptation performance
  - Identification of project strategies relevant to climate change mitigation and adaptation
  - Connection of strategies with the key criteria for assessment of climate change-related performance (outcome of the 2020-21 Research on Climate change)
- Analysis of biodiversity-related performance
  - Identification of Nature-based climate solutions among the project strategies
  - Connection of project strategies with key criteria for assessment of biodiversity-related performance (expected outcome of the 2021-22 Research on climate- biodiversity nexus)

## **3. SCHEDULE: TASKS & DELIVERABLES**

### **3.1. List of Research Tasks**

**Task 1:** Literature Review

**Task 2a:** Development of methodology for selecting systems to be used for biodiversity- targeted Envision analysis.

**Task 2b:** Review of ESG systems concerning biodiversity-related disclosures

**Task 2c:** Ecosystem services classification systems review

**Task 3a:** Development of methodology for Envision Review

**Task 3b:** Identification of priority criteria for biodiversity-related performance

**Task 3c:** Envision review against identified criteria (gap analysis)

**Task 3d:** Envision review against a selected ES classification system (gap analysis)

**Task 4:** Synthesis of Envision review findings, gaps identification, and initial recommendations for addressing gaps

**Task 5:** Merging findings of climate change research and biodiversity research to provide criteria for integrated performance

**Task 6a:** Development of methodology for selection of projects to be used as case studies  
Development

**Task 6b:** Generic analysis of climate change and biodiversity risks and opportunities per infrastructure project-type

**Task 6c:** Development of methodology for project review

**Task 6d:** Request for information for selected projects (the task will be performed in certain intervals for groups of projects, e.g., platinum award projects, gold award projects, etc. and will be supplemented by targeted requests where necessary)

**Task 6e:** Review of selected projects material-Project analysis

In parallel, some additional tasks have been identified in relation to the research on Climate change (See fig.2). GRESB and, more specifically, the GRESB Infrastructure Asset Assessment tool, an ESG tool widely used for assessment of performance in infrastructure assets, is considered essential to complement the analysis performed on ESG systems (Task A). Moreover, any additions required to reflect updates in global climate goals will also be incorporated in an updated version of the 2020-21 Research Final Report (Task B).

### 3.2. Schedule & Deliverables

#### Proposed Research Schedule

		OCT		NOV				DEC			JAN				FEB				MAR			APR				MAY				JUN					
		O3	O4	N1	N2	N3	N4	D1	D2	D4	J1	J2	J3	J4	F1	F2	F3	F4	M1	M2	M3	M4	A1	A2	A3	A4	M1	M2	M3	M4	J1	J2	J3	J4	
		Tasks																																	
		Research Report document																																	
SYSTEMS ANALYSIS	Task 1	Literature Review																																	
	Task 2a	Development of Methodology for selection of systems to be analysed for biodiversity-related performance																																	
	Task 2b	ESG systems review in relation to biodiversity-related disclosures																																	
	Task 2c	Ecosystem services classification systems review																																	
ENVISION REVIEW	Task 3a	Development of Methodology for Envision Review																																	
	Task 3b	Identification of priority criteria for biodiversity-related performance																																	
	Task 3c	Envision Review against identified criteria																																	
	Task 3d	Envision Review against a selected ES classification system																																	
SYNTHESIS	Task 4	Synthesis of Envision review findings - gaps identification & initial recommendations for addressing gaps																																	
	Task 5	Merging findings of the two researches to provide criteria for integrated performance.																																	
USE OF CASE STUDIES	Task 6a	Development of Methodology for selection of project to be used as case studies																																	
	Task 6b	Generic analysis of climate change and biodiversity risks and opportunities per infrastructure project-type																																	
	Task 6c	Methodology for project analysis																																	
	Task 6d	Request for additional material for selected projects*																																	
	Task 6e	Review of selected projects material-Project analysis**																																	
		Final Review and research submission																																	

\* Request for material will be repeated in certain intervals to incorporate new projects as case studies  
 \*\* The exact duration of this task will depend on the timely response to requests for material, as well as the final decision on the number of projects to be studied

ADDITIONAL TASKS																																			
Task A	GRESB Infrastructure Asset Assessment tool analysis																																		
Task B	Update of 2020-21 Research Final Report document with additional ESG system analysis and other required additions																																		

#### List of Deliverables

##### Deliverable 1 - End of December 2021:

- Research framework (the present document)
- Preliminary Progress on Research tasks including:
  - Literature Review (preliminary)
  - Overview of Ecosystem Services Classification Systems

- Draft Detailed methodology for case studies selection & analysis

**Deliverable 2 - End of March 2022:**

(This milestone is related to a Zofnass Program Workshop to be scheduled in April 2022)

- Research report document - Interim Report including:
  - Potential refinements in Detailed Research Methodology
  - Literature review (Interim submission)
  - ESG Systems Analysis (given that there are ongoing efforts for the development of new guidance, the analysis performed may be extended to incorporate information as published)
  - ES classification systems analysis
  - Identification of key criteria for assessing biodiversity-related risks & opportunities (progress)
  - Case studies analysis in terms of integrated climate- biodiversity performance (progress)
- Presentation of Research progress for feedback
- Update of 2020-21 Research Final Report:
  - Update of ESG systems analysis with inclusion of the GRESB Infrastructure Asset Assessment tool

**Deliverable 3 – Mid- June 2022:**

- Research document – Final Report including:
  - Incorporation of potential feedback on Interim Report & presentation of research progress
  - Literature Review (Final)
  - ESG Systems Analysis
  - ES classification systems analysis
  - Identification of key criteria for assessing biodiversity-related risks & opportunities
  - Envision Review based on identified biodiversity-related key criteria
  - Envision Review based on a selected ES Classification system
  - Synthesis of findings: identification of priority Envision credits for assessment of biodiversity-related performance (risks & opportunities)
  - Synthesis of the overall conclusions for assessment of climate change- and biodiversity-related performance and final list of priority Envision credits for assessment of integrated climate-biodiversity performance
  - Case studies analysis in terms of integrated climate- biodiversity performance
  - Overall conclusions from Envision-level and project-level analysis
- Final Presentation of research & resubmission of the research on climate change (PPT).

**Parts of the above deliverables will be submitted as different research deliverables.**

## 4. DRAFT RESEARCH REPORT STRUCTURE

The draft research report structure presented below is based on the key parts of the Research Methodology, described in a previous section, and the structure of the 2020-21 Research report.<sup>14</sup> It will guide the various scheduled submissions of research progress:

### PART 1: LITERATURE REVIEW

1. LITERATURE REVIEW ON BIODIVERSITY-CLIMATE
  - 1.1. URGENCY FOR BIODIVERSITY ACTION
    - 1.1.1. Facts that indicate current levels of biodiversity loss as a threat
    - 1.1.2. Key Milestones for Biodiversity
    - 1.1.3. Demand for nature positive targets
  - 1.2. CLIMATE-BIODIVERSITY NEXUS
    - 1.2.1. biodiversity to climate
    - 1.2.2. Evidence of climate change impact on biodiversity
    - 1.2.3. need for an integrated approach to biodiversity and climate crises
    - 1.2.4. Bridging COP26 and COP15: 2021 as a landmark year for an integrated approach to climate-biodiversity crises
    - 1.2.5. biodiversity as an integral component of climate action
  - 1.3. ALIGNMENT OF BIODIVERSITY TARGETS TO THE 2030 AGENDA SDGs
  - 1.4. NbS AS AN INTEGRATED BIODIVERSITY-CLIMATE SOLUTION
  - 1.5. NbS CONTRIBUTION ANALYZED THROUGH THE ECOSYSTEM APPROACH
    - 1.5.1. The ecosystems approach
    - 1.5.2. Biodiversity and Ecosystem services
2. LITERATURE REVIEW ON INVESTORS DEMANDING BIODIVERSITY
  - 2.1. The 'E' in ESG-Criticism to the climate-only focus
  - 2.2. ESG Reporting current focus on Biodiversity
  - 2.3. Challenges in Nature-related Financial Reporting- knowledge and data gap
  - 2.4. The formation of the Taskforce for Nature-related Financial Disclosures (TNFD)

### PART 2: RESEARCH TOOLS

1. ECOSYSTEM ASSESSMENT AND ACCOUNTING FRAMEWORKS & THEIR ECOSYSTEM SERVICES CLASSIFICATION SYSTEMS
  - 1.1. Overview of frameworks under review
    - 1.1.1. Millennium Ecosystem Assessment framework (MA, 2003)
    - 1.1.2. De Groot et al. study (2002)
    - 1.1.3. The Economics of Ecosystems and Biodiversity (TEEB)
    - 1.1.4. The National Ecosystem Services Classification System (NESCS)
    - 1.1.5. The Common International Classification of Ecosystem Services (CICES)
    - 1.1.6. The IPBES Nature's Contributions to People (NCPs)

<sup>14</sup> See: Pollalis SN, E. Chatzistavrou, A. Kouveli, E. Marinou, J. Rodriguez, and O. Tzioti, (June 2021). "Research on the assessment of projects for (a) mitigation and adaptation to climate change and (b) attractiveness to investments." Final report, the Zofnass Program for Sustainable Infrastructure.

<ul style="list-style-type: none"> <li>1.1.7. The System of Environmental-Economic Accounting (SEEA EA) Ecosystem services reference list</li> <li>1.2. Selection of ES Classification System for Detailed Analysis <ul style="list-style-type: none"> <li>1.2.1. Identification of climate change-relevant ecosystem services</li> </ul> </li> <li>2. ESG SYSTEMS AND BIODIVERSITY-RELATED REPORTING <ul style="list-style-type: none"> <li>2.1. Overview of systems under review</li> <li>2.2. CDSB: A framework for climate change, environmental and natural capital-related reporting</li> <li>2.3. Taskforce for Nature-Related Financial Reporting (TNFD)</li> <li>2.4. Key takeaways</li> </ul> </li> </ul> <p><b>PART 3: ENVISION REVIEW</b></p> <ul style="list-style-type: none"> <li>1. METHODOLOGY FOR REVIEW <ul style="list-style-type: none"> <li>1.1. Review based on Ecosystem-based approaches</li> <li>1.2. Review based on integrated climate-biodiversity criteria</li> </ul> </li> <li>2. ENVISION REVIEW – ASSESSMENT OF BIODIVERSITY RISKS</li> <li>3. ENVISION REVIEW – ASSESSMENT OF BIODIVERSITY OPPORTUNITIES</li> </ul> <p><b>PART 4: SYNTHESIS OF FINDINGS AND INITIAL RECOMMENDATIONS</b></p> <p><b>PART 5: USE OF CASE STUDIES</b></p> <ul style="list-style-type: none"> <li>1. METHODOLOGY FOR THE SELECTION AND USE OF CASE STUDIES</li> <li>2. METHODOLOGY FOR THE ANALYSIS OF PROJECTS</li> <li>3. GENERIC ANALYSIS PER INFRASTRUCTURE PROJECT TYPE <ul style="list-style-type: none"> <li>3.1. Climate change-related opportunities per infrastructure project type</li> <li>3.2. Trade-offs of climate mitigation projects on biodiversity</li> <li>3.3. Trade-offs of Nature-based climate solutions on biodiversity (the example of afforestation)</li> </ul> </li> <li>4. PROJECT #1</li> <li>5. PROJECT #2 etc</li> </ul> <p><b>PART6: CONCLUSIONS AND OVERALL RECOMMENDATIONS</b></p>
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## ABBREVIATIONS

<b>CBD</b>	Convention for Biological Diversity
<b>CDSB</b>	Climate Disclosure Standards Board
<b>CICES</b>	Common International Classification of Ecosystem Services
<b>COP</b>	Conference of the Parties
<b>EEA</b>	European Environmental Agency
<b>ES</b>	Ecosystem Services
<b>ESG</b>	Environmental Social and Corporate Governance
<b>EU</b>	European Union
<b>IPBES</b>	Intergovernmental Platform on Biodiversity and Ecosystem Services
<b>IPCC</b>	Intergovernmental Panel on Climate Change

**IUCN** \_\_\_\_ International Union for Conservation of Nature  
**LTS** \_\_\_\_ Long-Term Strategies  
**MA** \_\_\_\_ Millennium Ecosystem Assessment  
**MAES** \_\_\_\_ EU’s Mapping and Assessment of Ecosystems and their Services  
**NBSAPs** \_\_\_\_ National Biodiversity Strategies and Action Plans  
**NCPs** \_\_\_\_ IPBES Nature’s Contribution to People  
**NDCs** \_\_\_\_ Nationally Determined Contributions  
**NESCS** \_\_\_\_ US Environmental Protection Agency (USEPA) National Ecosystem Services Classification System  
**SDGs** \_\_\_\_ Sustainable Development Goals  
**SEEA EA** \_\_\_\_ United Nations System of Environmental-Economic Accounting Ecosystem Accounting  
**TCFD** \_\_\_\_ Task Force on Climate-related Financial Disclosures  
**TEEB** \_\_\_\_ The Economics of Ecosystems and Biodiversity  
**TNFD** \_\_\_\_ Task Force on Nature-related Financial Disclosures  
**UN** \_\_\_\_ United Nations  
**UNEP** \_\_\_\_ United Nations Environmental Programme  
**UNFCCC** \_\_\_\_ United Nations Framework Convention on Climate Change

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