Validated Terminal Review of the UNEP/GEF Project "Zero Carbon Buildings for All: from Energy Efficiency to Decarbonization" (GEF ID 10321) 2021 – 2023

UNEP Climate Change Division

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Front cover: UNDP/Grey Díaz. 2020. “In Panama City inequality is seen side by side. Panama, April 2020.”

This Final Report has been prepared by an external consultant for a Terminal Review, which is a management-led process to assess performance at the project’s operational completion. The UNEP Evaluation Office provides templates and tools to support the review process and provides a formal assessment of the quality of the Review report, which is provided within this report’s annexed material. In addition, the Evaluation Office formally validates the report by ensuring that the performance judgments made are consistent with evidence presented in the Review report and in-line with the performance standards set out for independent evaluations. As such the project performance ratings presented in the Review report may be adjusted by the Evaluation Office. The findings and conclusions expressed herein do not necessarily reflect the views of Member States or the UN Environment Programme Senior Management.

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Project title: Zero Carbon Buildings for All: from Energy Efficiency to Decarbonization
GEFID 10321 / UNEP S1-32GFL-000666
6 August 2024

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This Final Report of a Terminal Review was prepared for UNEP, Climate Change Division, Mitigation Branch, Climate Change Mitigation Unit by Kathryn M. Conway.

The reviewer would like to thank the UNEP Task Managers and World Resources Institute Project Managers for their contributions and collaboration throughout the review process. Sincere appreciation is also expressed to the Project Steering Committee members and project partners who took time to provide comments to the draft report. The reviewer also would like to express her gratitude to all persons interviewed and who contributed to this review, as listed in Annex I.

The review consultant hopes that the findings, conclusions and recommendations will contribute to the successful finalisation of the current project, formulation of subsequent projects and to the continuous improvement of similar projects in other countries and regions.

EXTERNAL CONSULTANT BIOGRAPHY

Ms. Conway is an independent consultant with three decades of experience developing, managing and evaluating international market transformation programs that respond to stakeholder needs and environmental concerns. She has authored or edited many publications on the building sector and energy efficiency topics. From 2012 to 2015, Conway served as UNEP Programme Officer for the UNEP/GEF “en.lighten initiative.” Subsequently she has conducted reviews and evaluations for UNEP.

ABOUT THE REVIEW

Joint Review: No

Report Language: English.

Review Type: Terminal Review

Brief Description: This report is a management-led Terminal Review of a UNEP/GEF project implemented by UNEP and executed by World Resources Institute between 2021 and 2023. The project's overall development goal was to, “Reduce greenhouse gas emissions by supporting market transformations that will facilitate decarbonization of the building sector by linking global market experience, national policy, local action and capacity building” (Approved CEO Endorsement Document 2021). The project outcomes and impacts contribute toward Sustainable Development Goal 7, “ensure access to affordable, reliable, sustainable and modern energy for all.” The review sought to assess project performance (in terms of relevance, effectiveness and efficiency), and determine outcomes and impacts (actual and potential) stemming from the project, including their sustainability. The review has two primary purposes: (i) to provide evidence of results to meet accountability requirements, and (ii) to promote learning, feedback, and knowledge sharing through results and lessons learned among UNEP, the Executing Agency and the relevant agencies of the project participating countries.

Key words: Buildings sector, climate action, climate mitigation, energy efficiency, Global Environment Facility, renewable energy, Sustainable Development Goal 7, World Resources Institute, zero carbon buildings

Primary data collection period: March 2024 through June 2024.

Field mission dates: Not applicable.

TABLE OF CONTENTS

ACKNOWLEDGEMENTS **3**

ABOUT THE REVIEW **4**

TABLE OF CONTENTS **5**

LIST OF ACRONYMS **6**

PROJECT IDENTIFICATION TABLE **7**

EXECUTIVE SUMMARY **9**

I. INTRODUCTION **13**

II. REVIEW METHODS **16**

III. THE PROJECT **20**

A. Context 20
B. Objectives and components 23
C. Stakeholders 24
D. Project implementation structure and partners 28
E. Changes in design during implementation 28
F. Project financing 29

IV. THEORY OF CHANGE AT REVIEW **31**

V. REVIEW FINDINGS **45**

A. Strategic Relevance 45
B. Quality of Project Design 51
C. Nature of the External Context 52
D. Effectiveness 53
E. Financial Management 60
F. Efficiency 61
G. Monitoring and Reporting 62
H. Sustainability 63
I. Factors Affecting Performance and Cross-Cutting Issues 65

VI. DISCUSSION, CONCLUSIONS AND RECOMMENDATIONS **67**

A. Discussion: Market Transformation and Emissions Reductions Monitoring 67
B. Conclusions 69
C. Summary of project findings and ratings 71
D. Lessons learned 75
E. Recommendations 78

ANNEX I. PEOPLE CONSULTED DURING THE REVIEW **85**

ANNEX II. REVIEW FRAMEWORK/MATRIX **87**

ANNEX III. GEF PORTAL TOPICS **91**

ANNEX IV. KEY DOCUMENTS CONSULTED **97**

ANNEX V. PROJECT BUDGET AND EXPENDITURES **103**

ANNEX VI. FINANCIAL MANAGEMENT **104**

ANNEX VII. PROJECT STEERING COMMITTEE **107**

ANNEX VIII. BRIEF CV OF THE REVIEWER **108**

ANNEX IX. REVIEW TERMS OF REFERENCE (WITHOUT ANNEXES) **109**

ANNEX X. RESPONSE TO STAKEHOLDER COMMENTS **130**

ANNEX XI. IMPLEMENTATION PLAN OF RECOMMENDATIONS **131**

ANNEX XII. QUALITY ASSESSMENT OF THE REVIEW REPORT **133**

LIST OF ACRONYMS

BEA	Scaling up the Sustainable Energy for All Building Efficiency Accelerator (GEF ID 9329)
BEA 2	The SEAforALL Building Efficiency Accelerator: Expanding Local Action and Driving National Change (GEF ID 9947)
EA	Expected Accomplishment
CCM	Climate Change Mitigation
COP	Conference of the Parties (UNFCCC)
FMO	Fund Management Officer
FY	Fiscal Year
GEF	The Global Environment Facility
GHG	greenhouse gas
GlobalABC	Global Alliance for Buildings and Construction
NDC	Nationally Determined Contribution
PCA	Project Cooperation Agreement
PoW	Programme of Work
PRC	Project Review Committee
ProDoc	Project Document
PSC	Project Steering Committee
RTOC	Reconstructed Theory of Change
SDG	Sustainable Development Goal
SE4All	Sustainable Energy for All
ToC	Theory of Change
ToR	Terms of Reference
TR	Terminal Review
UNEP	United Nations Environment Programme
UNFCCC	United Nations Framework Convention on Climate Change
UNOPS	United Nations Office for Project Services
WBCSD	World Business Council for Sustainable Development
WRI	World Resources Institute
ZCB	zero carbon building
ZCB project	Zero Carbon Buildings for All: from Energy Efficiency to Decarbonization (GEFID 10321)

PROJECT IDENTIFICATION TABLE

Table 1 Project Identification Table

UNEP PIMS ID:	1-32GFL-000666	Title: Zero Carbon Buildings for All: from Energy Efficiency to Decarbonization	
DONOR—GEF ID:	10321		
Implementing Partners	Implementing Agency: UNEP, Climate Change Division, Mitigation Branch, Climate Change Mitigation Unit Executing Agency: WRI World Resources Institute (WRI)		
Relevant SDGs:	• SDG-7: Ensure access to affordable, reliable, sustainable and modern energy for all • Target 7.a: By 2030, enhance international cooperation to facilitate access to clean energy research and technology, including renewable energy, energy efficiency and advanced and cleaner fossil-fuel technology, and promote investment in energy infrastructure and clean energy technology • Indicator 7.a.1: International financial flows to developing countries in support of clean energy research and development and renewable energy production, including in hybrid systems • Target 7.b: By 2030, expand infrastructure and upgrade technology for supplying modern and sustainable energy services for all in developing countries, in particular, least developed countries, small island developing States and landlocked developing countries, in accordance with their respective programmes of support • Indicator 7.b.1: Installed renewable energy-generating capacity in developing countries (in watts per capita) • Target 7.3. By 2030, double the global rate of improvement in energy efficiency • Indicator 7.3.1: Energy intensity measured in terms of primary energy and GDP		
Sub-programme:	Climate Action	Expected Accomplishment(s):	1(B) Countries and stakeholders have increased capacity, finance and access to technologies to deliver on the adaptation and mitigation goals of the Paris Agreement.
UNEP approval date:	19 February 2021	Programme of Work Output(s):	1.2 Carbon neutrality and resilience are integrated into climate planning and policy and regulatory frameworks at all levels. 1.5 Private and public financial flows are aligned with the goals of the Paris Agreement. 1.7 Public support and political engagement for climate action are catalysed.
Expected start date:	19 February 2021	Actual start date:	18 March 2021
Planned completion date:	28 February 2023	Actual operational completion date:	30 September 2023
Planned project budget at approval:	GEF: USD 2,000,000	Actual total expenditures reported as of 30	USD 1,970,000

		September 2023 (Final Report)		
Planned Environment Fund allocation:	n/a	Actual Environment Fund expenditures reported as of [date]:	n/a	
Planned Extra-Budgetary Financing:	n/a	Secured Extra-Budgetary Financing:	n/a	
		Actual Extra-Budgetary Financing expenditures reported as of [date]:	n/a	
Expected co-financing:	USD 6,938,081	Secured co-financing :	USD 5,940,312 *(subject to revision)*	
First disbursement:	08 April 2021	Planned date of financial closure:	30 September 2024	
No. of formal project revisions:	2	Date of last approved project revision:	22 February 2023	
No. of Steering Committee meetings:	4	Date of last/next Steering Committee meeting:	Last: 25 April 2023	Next: n/a
Mid-term Review/ Evaluation *(planned date):*	n/a	Mid-term Review/ Evaluation (actual date):	n/a	
Terminal Review *(planned date):*	October 2023	Terminal Review (actual date):	August 2024	
Coverage - Country(ies):	Colombia and Türkiye	Coverage - Region(s):	Global	
Dates of previous project phases:	• GEFID 9329 "Scaling up the Sustainable Energy for All Building Efficiency Accelerator" (BEA) (14 April 2016 – 31 December 2017) • GEFID 9947 "The SEforALL Building Efficiency Accelerator (BEA): Expanding Local Action and Driving National Change" (BEA 2) (5 September 2018 – 30 September 2020)	Status of future project phases:	To be determined	

EXECUTIVE SUMMARY

Project background

1. The "Zero Carbon Buildings for All: from Energy Efficiency to Decarbonization (S1-32GFL-000666)" project was implemented under the United Nations Environment Programme Climate Action Sub-programme, in the Climate Change Division, Mitigation Branch, Climate Change Mitigation Unit and executed by the World Resources Institute. Two countries, Colombia and Türkiye, agreed to participate; in each, two cities also agreed to participate: in Colombia, Bogotá and Santiago de Cali and in Türkiye, Gaziantep and Konya. Local government (subnational) participants from other countries were: in Costa Rica: Belén, Curridabat, Moravia and Santa Ana; in India, Nagpur; and in Kenya, Laikipia County.
2. The Global Environment Facility Trust Fund (GEF-7 Period) supported this medium-sized, two-and-a-half year project (March 2021 through September 2023) with a grant of USD 2,000,000. Project partners provided in-kind support of USD 5,940,312. The project results contribute to United Nations Environment Programme's Expected Accomplishment 1(B) "Countries and stakeholders have increased capacity, finance and access to technologies to deliver on the adaptation and mitigation goals of the Paris Agreement. Project outputs contribute to United Nations Environment Programme's "For People and Planet" Programme Of Work for 2022 to 2023.
3. The project was envisioned as a third phase of the previously completed two projects of the Buildings Efficiency Accelerator, with a greatly expanded technical scope to focus on reducing GHG emissions from buildings to (or near) zero. The two Global Environment Facility—United Nations Environment Programme prior projects also were executed by World Resources Institute. This project had a flexible approach that encouraged national and subnational partners to identify and prioritize actions that would integrate energy efficiency, renewable energy, low-carbon building materials and resiliency to achieve a market transformation to "zero carbon buildings."

This Review

4. This management-led Terminal Review was conducted from March through August 2023 by an external consultant to assess performance with regard to: project relevance, effectiveness and efficiency. It examines and summarizes the actual and possible future outcomes and impacts associated with the project and remarks upon their sustainability while presenting evidence of results to meet donor and partner accountability expectations. The reviewer also addressed three key strategic questions posed by the United Nations Environment Programme Task Manager. The Review highlights "Lessons Learned" to improve operations, opportunities to learn and means to share knowledge. Lessons Learned and the Recommendations are meant to promote subsequent phases or proposals for this or other zero carbon building projects and programs.
5. The Reviewer and the Task Manager worked together to revise, update and validate the Theory of Change, producing a Reconstructed Theory of Change at Review. The Reviewer conducted interviews, discussions or correspondence with 24 stakeholders, examined key project documents and project outputs including roadmaps, action plans, webinar recordings and publications. The Review Report was circulated to the Task Managers, Project Managers and key partners for comments and then revised accordingly.

Key findings

6. The Zero Carbon Buildings project is well-aligned with the plans and strategic priorities of United Nations Environment Programme and its partners. The project highlights the strong relevance of country and subnational (state and city) roadmaps, policies and actions to global, regional and national environmental priorities, and confirms the potential of the

building sector to contribute to climate change mitigation via reduction of GHG emissions (GEF-7 Core Indicator 6) and the number and gender of direct project beneficiaries (GEF-7 Core Indicator 11). The project results also contribute to Sustainable Development Goals 7 (to ensure access to affordable, reliable, sustainable and modern energy for all) and 11 (sustainable cities and communities).

7. The quality of the project design was Satisfactory; the Theory of Change was reconstructed to better align with the elements of a zero carbon approach to the built environment. The nature of the external context was Moderately Unfavourable overall due to the SARS-COVID-19 pandemic and a major earthquake and recovery in Türkiye in early 2023. The project teams and participants responded with adaptive management and virtual communications to meet these external challenges and to complete the project with a no-cost seven-month time extension.
8. Financial management of the project followed United Nations Environment Programme policies and procedures, financial information was (nearly) complete and communication between the Fund Management Officer and Task Manager was frequent and well-informed. Overall, financial management is rated as Highly Satisfactory.
9. All outputs were of high quality, complete and monitored and reported in a Satisfactory manner. The project outcomes were exceeded and assessed as Highly Satisfactory. The project has a Moderately Likely rating for impact due to the difficulty of projecting total project emissions reductions and social/economic co-benefits on a long timeline (to 2050), especially post-2030.
10. The Zero Carbon Building project outcomes are on track for three pathways envisioned in the Theory of Change, generally corresponding to three levels of adoption of zero carbon buildings: national policy commitments, subnational action plans implemented and global platforms supporting enhanced stakeholder capacities. The outcomes of the pathways have begun to converge resulting in an Intermediate State, where by 2030, "at least two countries, [a number of] cities and hundreds of stakeholders apply increased capacity, finance and access to accelerate zero carbon building roadmaps, policies and technologies that deliver towards the mitigation goals of the Paris Agreement; and, motivate additional countries, cities and stakeholders to follow suit." So far, two countries have national zero carbon building roadmaps and some related policies in place, or, at a subnational level, one state and nine cities have published and are implementing zero carbon building action plans.
11. Most of the assumptions in the Theory of Change hold and the drivers are in place for progress toward market transformation and impact. The project's overall sustainability is Moderately Likely, with some reliance of country and subnational partners on external market transformation support and improvements in local supply and production of zero carbon building materials.
12. Overall, factors affecting performance were rated as Highly Satisfactory. Only communication and public awareness was rated as Moderately Satisfactory, due to the lack of a centralized, publicly accessible point for documenting the project's zero carbon building resources, publications, case studies, events and other project outputs or outcomes.

Conclusions

13. Based on the findings from this review, the project demonstrates performance at the Highly Satisfactory level. The Conclusions section includes details of ratings against all review criteria (Table 14).
14. The Zero Carbon Buildings project demonstrated strongest performance in the areas of Strategic Relevance due to its alignment with the priorities of the Implementing and

Executing Agencies and their partners and the relevance of the project to the priorities of the participating country and city partners. The project areas that would have benefited from further attention include sustainability with respect to long-term political and financial commitments to instituting zero carbon building requirements and funding. Also, the project could have contributed to greater impact—via future replication by additional national and subnational entities— if it had established a more centralized, virtual point of communication to raise global public awareness via access to the technical resources and case study results of the project.

Lessons Learned

15. Lesson 1: The Zero Carbon Buildings project's in-kind support and contacts were highly valuable to country and city partners. Leveraged partner support of in-kind resources and expertise added value and helped to expand and enhance the skills, tools and capabilities of the participating stakeholders. Access to partners was both virtual and in-person. Some of the partners also introduced opportunities to collaborate and to secure funding for future country and city zero carbon buildings projects and actions.
16. Lesson 2: Climate resilience is identified by national and subnational actors as a key, persuasive element of the zero carbon building approach. The project showed that partners turned challenges into opportunities via their innovative operations while they directly experienced the need for resilience in buildings. For example, the challenges of conducting the Zero Carbon Buildings project during the SARS-COVID-19 pandemic and during the major earthquake and recovery in Türkiye emphasised the need for including climate resilience as a key element of the zero carbon building approach, spurring World Resources Institute, World Resources Institute—Türkiye and all the executing partners to go beyond their business-as-usual modes of operation and to maximise opportunities for innovation.
17. Lesson 3: The zero carbon buildings approach offered many co-benefits that are related to Sustainable Development Goals and the goals of the Kunming-Montreal Global Biodiversity Framework . This lesson learned has wider application as more national and subnational governments strive to meet climate change mitigation and biodiversity goals: by linking the carbon emission reduction and biodiversity direct benefits of zero carbon buildings to Sustainable Development Goals that are of greatest importance to their constituencies, multiple concerns can be addressed. This synthesis may help to engage more public and private sector support for future financing of zero carbon buildings.
18. Lesson 4: The process for creating zero carbon buildings national roadmaps and subnational action plans is adaptable and replicable. It built upon the experience and strategy of the Buildings Efficiency Accelerator 1 and 2 projects and applied the process for road mapping developed by United Nations Environment Programme and the GlobalABC. As more countries target the building sector as a resource for achieving their GHG emission reduction targets this project is a resource that offers a fast-start method with prior case study examples in several geographic regions. The project also explored ways to increase communication and align subnational and national priorities for reducing GHG emissions in the buildings sector.

Recommendations

19. As a general aspiration, the reviewer encourages United Nations Environment Programme and its partners to continue to build upon the Zero Carbon Building project, the Buildings Efficiency Accelerator projects and other previous and ongoing energy efficiency and renewable energy projects and programmes to accelerate the market transformation of the buildings sector in developing countries worldwide.

20. Recommendation 1: As a high priority, United Nations Environment Programme Climate Change Division—Climate Mitigation Branch and World Resources Institute should ensure open access to the Zero Carbon Buildings project resources/results to inform key stakeholders working to decarbonize the building sector by reducing GHG emissions and delivering co-benefits to more women and men worldwide.
21. Recommendation 2: For future buildings-related Global Environment Facility project proposals (and optionally, for those ongoing), design, monitor and update throughout the project a Theory of Change that includes at least one pathway for enhancing the project participants' capabilities to quantify progress towards the Intermediate State(s) and Impacts.
22. Recommendation 3: United Nations Environment Programme Climate Change Division should develop donor proposals that would address two market transformation barriers in developing countries that were identified in the Zero Carbon Buildings project. First, there is a weak supply chain for low carbon building materials and low carbon building processes. Second, there is a strong need to support countries and cities in developing their human resource capacities to conduct lifecycle analyses and processes for measuring and reporting on the operations of zero carbon buildings.
23. Recommendation 4: United Nations Environment Programme Climate Change Division, when developing zero carbon building projects for climate change mitigation and adaptation, should ensure a focus on delivering direct benefits and co-benefits to vulnerable communities. Although this project prompted country and subnational participating entities to address gender equity and human rights in relation to the built environment and in relation to an efficient workplace in the building sector, a challenge remains to develop guidance and relevant case studies, especially in regard to how zero carbon buildings could support vulnerable communities and communities where the built environment and its occupants are in crisis or post-crisis.

Validation

The report has been subject to an independent validation exercise performed by UNEP's Evaluation Office. The performance ratings for the UNEP/GEF Project "Zero Carbon Buildings for All: From Energy Efficiency to Decarbonization" (GEF ID 10321), set out in the section on summary of project findings and ratings, have been adjusted as a result. The overall project performance is validated at the Satisfactory level. Moreover, the Evaluation Office has found the overall quality of the report to be Moderately Satisfactory (see Annex XII).

I. INTRODUCTION

Background

24. The institutional context of the "Zero Carbon Buildings for All: from Energy Efficiency to Decarbonization (S1-32GFL-000666)" project (hereafter, "ZCB project") was implemented under the United Nations Environment Programme (UNEP) Climate Action Sub-programme, in the Climate Change Division, Mitigation Branch, Climate Change Mitigation Unit[1] and executed in partnership with the World Resources Institute (WRI). It was a global project implemented with two national partners (Colombia and Türkiye) and multiple city and state partners in the regions of East Africa, Latin America, South Asia and Southeast Asia.

25. UNEP submitted the project proposal to The Global Environment Facility (GEF) on 13 August 2019; the project concept was approved 12 December 2019. The GEF Trust Fund (GEF-7 Period) supported this Medium-sized project with a grant of USD 2,000,000 that was approved by the GEF Secretariat on 22 January 2021 and accepted by UNEP on 19 February 2021. The project is within the GEF's Climate Change Focal Area. One project revision to the Project Cooperation Agreement between UNEP and WRI (Executing Agency) was signed on 22 February 2023. This no-cost, seven-month time extension allowed for time to finalize project activities.

26. The ZCB project results contribute to UNEP's Expected Accomplishment 1(B) "Countries and stakeholders have increased capacity, finance and access to technologies to deliver on the adaptation and mitigation goals of the Paris Agreement. Furthermore, the ZCB project outputs contribute primarily to UNEP's "For People and Planet" Programme Of Work for 2022 to 2023; for three outputs:

- 1.2 Carbon neutrality and resilience are integrated into climate planning and policy and regulatory frameworks at all levels.
- 1.5 Private and public financial flows are aligned with the goals of the Paris Agreement.
- 1.7 Public support and political engagement for climate action are catalysed.

Partners

27. In agreement with WRI, the following partners executed activities at regional, national and local levels:

- Consejo Colombiano de Construcción Sostenible (CCCS) was the local lead organization in Colombia, responsible for the development of national building decarbonisation roadmaps and city action plans for Cali and Bogotá;
- WRI Türkiye Sustainable Cities was the local lead organization in Türkiye, responsible for the development of national building decarbonisation roadmaps and city action plans for Konya and Gaziantep;
- Kenya Green Building Society was the regional lead Africa and responsible for development of building decarbonisation action plan for Laikipia county, Kenya;
- ICLEI South Asia (ICLEI SA) was the regional lead South Asia and responsible for development of building decarbonisation action plan for Nagpur, India;

[1] This is the most recent name of the unit; when the ZCB project was proposed and initiated, the responsible unit was named the Climate Change Mitigation Unit, Energy Branch, Industry and Economy Division.

- Costa Rica Green Building Council was responsible for development of building decarbonisation action plan for city cluster of Belén, Curridabat, Santa Ana and Moravia; and,
- The World Green Building Council (WGBC), regional leads for Latin America who led the regional webinars and outreach for the project in Latin America.
- ICLEI Southeast Asia (ICLEI SEA) was the regional lead for South East Asia and led the regional webinars and outreach for the project in Latin America.

28. The ZCB total secured budget was USD 2,000,000. Co-financing (in-kind contributions) of USD 6,938,081 was committed by eight project partners, as described in their letters of commitment. (Table 2)

Table 2 In-kind contributions of project partners (* indicates members of Steering Committee)

Partner	**In-kind contribution** (non-cash, USD)	**Components / Description of contribution**
Consejo Colombiano de Construcción Sostenible	150,000	Components 1 to 3 / Leadership and advocacy in Latin America region
International Energy Agency*	1,400,000	Components 1 to 3 / Energy in Emerging Economies roadmaps, training and implementation; Global Exchange tracking and sharing information (energy, policy and projects)
International Finance Corporation* (World Bank Group, donor)	1,472,760	Components 1 and 2 / Provision of Excellence in Design for Greater Efficiencies (EDGE) app and online support; technical training.
Johnson Controls*	200,000	Components 1 to 3 / Sharing of expertise, knowledge products and BEA experience and guidance
UN Environment Programme*	300,000	Components 1 to 3 / GlobalABC regional roadmap experience, outreach and peer-to-peer exchanges; advocacy and harmonization of road mapping
World Green Building Council*	1,378,972	Components 1 to 3 / Support to align with WGBC Advancing Net Zero project and Europe Regional Network BUILD UPON 2 project (to support Türkiye); coordination with BEA partnership; published materials to support ZCB global platform
World Resources Institute*	1,935,692	Components 1 to 3 / Staffing, leadership, communications and logistical support; alignment with WRI ongoing work in related topics and projects; access for project partners to WRI tools and resources, webinars, training and workshops; ZCB research; and, outreach and advocacy for the project.
World Resources Institute—Türkiye	100,657	Components 1 and 2 / Workshops, stakeholder meetings and reports; national and subnational roadmaps published *[by government ministries]*

29. The Terminal Review covers from the project inception in February 2021 through project completion on 30 September 2023. No Mid-term Review or other prior reviews or

evaluations of the ZCB project were conducted. One independent financial audit commissioned by WRI was submitted to UNEP, covering the period from 18 March to 31 December 2021 (Andersson, 2022). UNEP awaits an independent final audit for fiscal years 2022 and 2023 (combined).

30. The purpose of the Terminal Review is to assess performance vis-à-vis the project's relevance, effectiveness and efficiency. It examines and summarizes the actual and possible future outcomes and impacts attributable to the project and remarks upon their sustainability.

31. The Terminal Review presents evidence of results to meet donor and partner accountability expectations. It also highlights "Lessons Learned" to improve operations, opportunities to learn and means to share knowledge. These Lessons Learned and the review Recommendations should further promote subsequent phases or proposals for this or other ZCB-related projects and programs.

32. The target audience for the Terminal Review and its findings includes: The GEF Secretariat; UNEP's Task Manager, Portfolio Manager and Fund Management Officer; and, WRI's Project Manager and team; the ZCB Project Steering Committee members and key players; regional and country leads; UNEP programme officers with responsibility for related subject project leaders (such as the Secretariat of the Global Alliance for Buildings and Construction and the Cities Unit Programme Officer); and, the UNEP Evaluation Office.

II. REVIEW METHODS

Model for the Review

33. The Reviewer applied the management-led review model and approach developed by UNEP Evaluation Office, as follows.

34. Definitions of review criteria: In line with the UNEP Evaluation Policy, the UNEP Programme Manual and the Guidelines for GEF Agencies in Conducting Terminal Evaluations, this Terminal Review has been carried out using a set of nine commonly applied review criteria which include: (1) Strategic Relevance[2], (2) Quality of Project Design, (3) Nature of External Context, (4) Effectiveness (incl. availability of outputs; achievement of outcomes and likelihood of impact), (5) Financial Management, (6) Efficiency, (7) Monitoring and Reporting, (8) Sustainability and (9) Factors Affecting Project Performance and Cross-Cutting Issues (Annex II).

35. Most review criteria are rated on a six-point scale as follows: Highly Satisfactory (HS); Satisfactory (S); Moderately Satisfactory (MS); Moderately Unsatisfactory (MU); Unsatisfactory (U); Highly Unsatisfactory (HU). Sustainability and Likelihood of Impact are rated from Highly Likely (HL) down to Highly Unlikely (HU) and Nature of External Context is rated from Highly Favourable (HF) to Highly Unfavourable (HU). The ratings against each criterion are 'weighted' to derive the Overall Project Performance Rating, using an algorithm developed by the UNEP Evaluation Office. The greatest weight is placed on the achievement of outcomes, followed by dimensions of sustainability.

36. Matrix of ratings levels for each criterion: The UNEP Evaluation Office has developed detailed descriptions of the main elements required to be demonstrated at each level (i.e. Highly Satisfactory to Highly Unsatisfactory) for each review criterion. The reviewer has considered all the evidence gathered during the review in relation to this matrix in order to generate review criteria performance ratings

37. Strategic questions: In addition to the nine review criteria outlined above, the Terminal Review addresses three strategic questions that were formulated in the Reviewer's Terms of Reference. These questions were posed by Project Task Managers. The findings and conclusions related to these questions are presented in Section V, A, lines 140 to 152.

38. To support this process, review findings related to the five topics of interest to the GEF are summarised in Annex III (and will be uploaded by UNEP to the GEF Portal). The intended actions and results on the five topics were described in the GEF CEO Endorsement and Approval documents. The five topics are: i) performance against GEF's Core Indicator Targets; ii) engagement of stakeholders; iii) gender-responsive measures and gender result areas; iv) implementation of management measures taken against the Safeguards Plan and v) challenges and outcomes regarding the project's completed Knowledge Management Approach.

39. Review Process: This review adopted a participatory approach, consulting with project team members, partners and beneficiaries at several stages throughout the process. Central to the review was the analysis (and reconstruction[3]) of the project's Theory of Change. Consultations were held during the review inception phase to arrive at a nuanced understanding of how the project intended to drive change and what contributing

[2] This criterion includes a sub-category on Complementarity, which closely reflects the OECD-DAC criterion of 'Coherence', introduced in 2019. Complementarity with other initiatives is assessed with respect to the project's design. In addition, complementarity with other initiatives during the project's implementation is assessed under the criterion of Efficiency.

[3] Over time it is expected that UNEP projects will include a Theory of Change within the Project Document and the need to 'reconstruct' change models will reduce.

conditions ('assumptions' and 'drivers') would need to be in place to support such change. The (reconstructed) Theory of Change (RTOC), supported by a graphic representation and narrative discussion of the causal pathways, was discussed further with respondents during the data collection phase, and refined as appropriate. The final iteration of the Theory of Change is presented in this Final Report and has been used throughout the review process.

Statement of ethics

40. Throughout this review process and in the compilation of the review reports the Reviewer made a best effort to represent the views of both mainstream and more marginalised groups. Data were collected with respect for ethics and human rights issues. All discussions remained anonymous and all information was collected according to relevant United Nations Evaluation Group guidelines and United Nations standards of conduct.

41. Figure 1 illustrates the Terminal Review process steps.

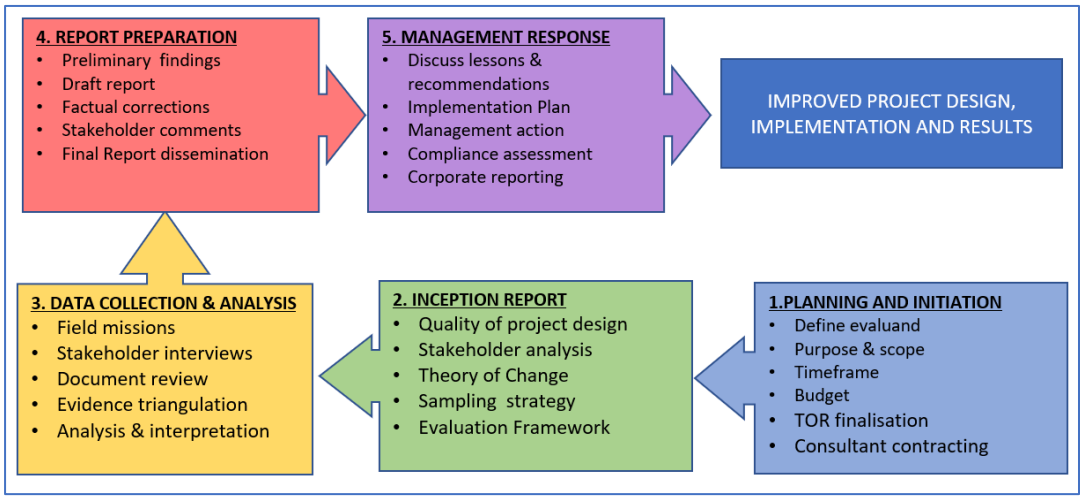

Figure 1 UNEP Terminal Review Process

Data collection

42. The Reviewer collected all data remotely; no in-person missions were planned. The Reviewer and the UNEP Task Manager have met briefly via videoconference on a regular basis to facilitate communication and discussion of the review deliverables (Inception Report and Preliminary Findings). The Reviewer also had several discussions and exchanged emails with WRI Project Managers, to gather documentation and for assistance with introductions to prospective interviewees.

43. The two methods for gathering evidence were both qualitative in nature: 1) an in-depth desk review of project documents and reports (primary data) and 2) stakeholder interviews (primary data). The desk review also covered public media (secondary data) and any available digital recordings of meetings or presentations (primary data).

Documents

44. Document files and links to online data and online meeting recordings were provided to the Reviewer by UNEP, WRI and some interviewees. The Reviewer analysed these sources with respect to the implementation of the ZCB Project Results Framework (Section II B, Inception Report). The Reviewer also cross-checked (triangulated) the evidence presented in the UNEP and WRI documents with the comments made by interviewees and with documents and online links (to government publications and to media recordings) provided by interviewees. Some additional, publicly available evidence for triangulation

was found via online searches by the Reviewer. All documents and online sources examined by the Reviewer are included in Annex IV.

Interviews

45. Prospective interviewees were selected by the Reviewer with input from the Task Managers and Project Managers. Criteria for selecting prospective interviewees included: current availability; project roles; geographic representation of participating cities and countries; co-financiers (in-kind contributors) and project activity leaders (especially those who had direct outreach to local stakeholders); and, gender balance. The selection conformed to the approved stakeholder typology (Section IV, Inception Report), with emphasis on those with highest interest in the ZCB project.

46. With respect to interviewees' roles, the pool of interviewees was drawn from the organizations that were key to the execution and implementation of the project (Figure 2). The scope of the Terminal Review TOR did not include any field missions nor the time or budget to survey stakeholders at the local level. The Reviewer did take into account the Executing Agency's summaries of stakeholder meetings and of surveys by the local partners of their stakeholders.

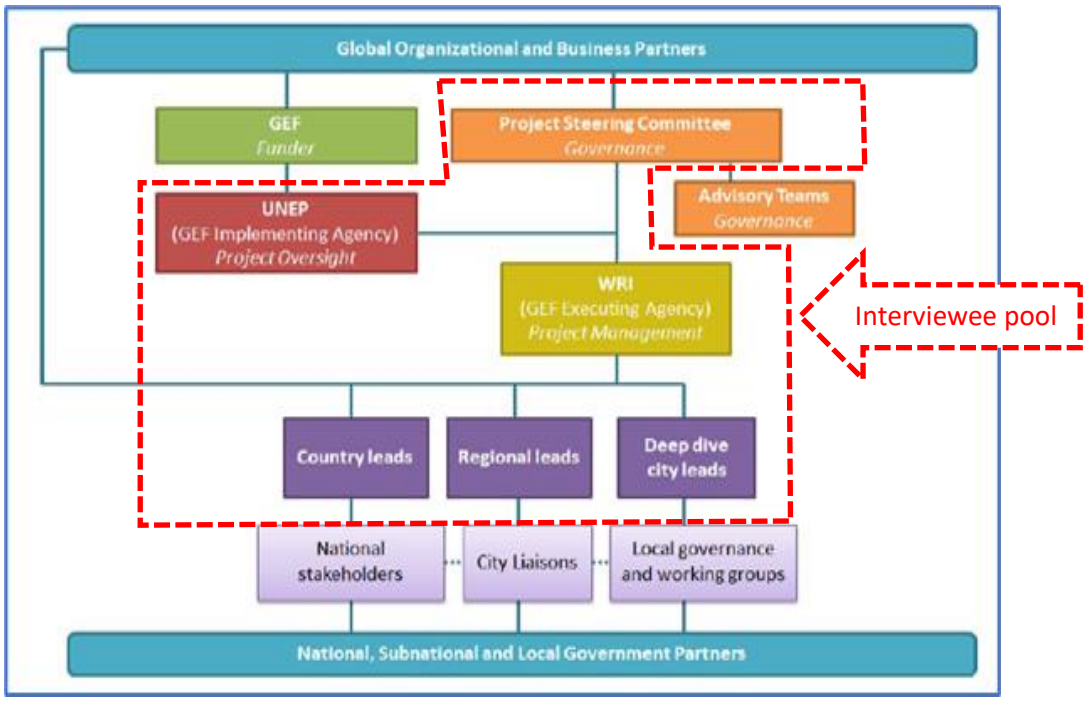

Figure 2 Management structure and interviewee pool

47. As proposed in the Inception Report, the Reviewer was introduced by UNEP or by WRI to prospective interviewees. Introductions, interviews and interviewee responses were all presented in the English language. Invitations and responses were completed between March 2024 and May 2024. Following up with a private email sent directly to each invitee, the Reviewer proposed four topical questions plus an open-ended comment. The questions were selected by the Reviewer from the Review Framework (Annex C, Inception Report). The questions encouraged the interviewees to describe their project roles and responsibilities, to reflect on the ZCB project activities, and to suggest future needs and trends regarding zero carbon buildings.

48. Several reminders were sent to invitees who did not respond within 10 days of the invitation. Of 27 invitees (14 women and 13 men), 21 (12 women and 9 men) responded positively and either scheduled an interview or sent written comments to the Reviewer. The respondents are included in the list of 24 individuals consulted for the Review (Annex I). In total, the interviewees represented 10 organizations. The five non-respondents were no longer available due to changes in professional affiliation or due to reasons unknown to the Reviewer.

49. The Reviewer conducted the structured interviews virtually; each discussion was between 45 to 75 minutes in length. Several interviewees chose to participate as a team (group interview); several responded in writing, together or individually; and, some provided follow-up links or documents via e-mail.

50. The Reviewer took note of interviewee's comments during the discussions and then wrote a brief summary of each interview. Subsequently she analysed the responses thematically, grouping comments by topic and type of stakeholder. To maintain confidentiality, only some examples of generalized responses to questions are included in this Final Report but they are not attributed to any individual respondent or organization. Table 3 further characterizes the respondents.

Table 3 Interview invitees and respondents, by affiliation

Organizational affiliation of invitees	**Interview invitees** total # (women #, men #)	**Interview respondents** total # (women #, men #)
UNEP Task Manager and Officers (Implementing Agency)	n=7 (5 W, 2 M)	n=6 (4 W, 2 M)
WRI Project Managers (Executing Agency)	n=2 (2 W, 0 M)	n=2 (2 W)
Executing Agency's project partners *(receiving project funds)*	n=9 (5 W, 4 M)	n=8 (4 W, 4 M)
Contributing project partners (*not receiving project funds*[4])	n=9 (2 W, 7 M)	n=5 (2 W, 3 M)
TOTAL	**n=27 (14 W, 13 M)**	**n=21 (12 W, 9 M)**

Validation of evidence and additional input

51. The Reviewer welcomed written comments from the UNEP Task Manager and Junior Consultant on the Inception Report, scheduled a virtual discussion of the report and then incorporated their suggestions in this first deliverable. Likewise, the Reviewer, Task Manager and project associate had a virtual discussion regarding the Preliminary Findings. They mutually agreed that the Reviewer would proceed to prepare a Draft Main Report for an accuracy check and for comments from key stakeholders.

52. To check for accuracy and to engage institutional perspectives. the Task Manager invited WRI Project Managers and partners to comment on the Draft Main Report via email.

[4] Contributing partners provided resources as in-kind inputs (e.g. staff time, office space etc.). Letters of commitment submitted in the project proposal to The GEF described and ascribed value to partner contributions.

III. THE PROJECT

A. Context

Building sector contributions to global climate change

53. The main issue that the project intended to address is the persistently high percentage of greenhouse gas emissions (GHGs, particularly carbon dioxide) attributable to the global building sector. The ZCB project's stated development goal was to, "Reduce greenhouse gas emissions by supporting market transformations that will facilitate decarbonization of the building sector by linking global market experience, national policy, local action and capacity building." (Approved CEO Endorsement Document 2021)

54. Despite prior and numerous multinational, national and municipal market transformation efforts—including those that have resulted in significant increases in building energy efficiency and a rapidly expanding market for renewable energy—progress has stalled on the sector overall (IEA 2023[5], GlobalABC 2023[6]). The ZCB project aimed to introduce best practice concepts and methods for a "zero carbon buildings" approach to selected national, state and city roadmaps, policies and action plans, especially in support of the participant countries' Nationally Determined Contributions (NDCs) to the Paris Agreement.

55. The two-year timeframe for the ZCB project was short but the resulting pledges and actions to be executed by participants were anticipated to occur within the 2030 to 2050 horizon and to correspond in locally appropriate ways to the "Net Zero Roadmap: A Global Pathway to Keep the 1.5 °C Goal in Reach" scenario that was developed with global stakeholder input by the International Energy Agency[7].

56. The ZCB project was conceived by UNEP, WRI and partners as a follow-on to the successful first two phases of the Building Efficiency Accelerator (BEA)[8]. ZCB project participants were selected based on a set of competitive criteria adopted by the Project Steering Committee. Two countries, Colombia and Türkiye, agreed to participate; in each, two cities also agreed to participate. The local government (subnational) participants were: in Colombia, Bogotá and Santiago de Cali; in Costa Rica: Belén, Curridabat, Moravia and Santa Ana; in India, Nagpur; in Kenya, Laikipia County; and, in Türkiye, Gaziantep and Konya. (Figure 3) Previously participating in the BEA were: Belén, Bogotá, Curridabat, Moravia, Nagpur, Santa Ana and Santiago de Cali.

57. No Least Developed Countries, Landlocked Developing Countries or Small Island Developing States participated in the project.

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[5] International Energy Agency states that, "Direct CO2 emissions from buildings decreased to 3 Gt in 2022, while indirect CO2 emissions increased to nearly 6.8 Gt." Also, "In 2022, the buildings sector consumed about 1% more energy than the year before." (https://www.iea.org/energy-system/buildings). Furthermore, "The Net Zero Emissions by 2050 Scenario (NZE Scenario) relies on the deployment of a wide portfolio of low-emissions technologies and emissions reduction options to reach net zero CO2 from the energy sector by 2050, but it also depends on a high degree of global co-operation and collaboration." (https://prod.iea.org/reports/net-zero-roadmap-a-global-pathway-to-keep-the-15-0c-goal-in-reach/a-renewed-pathway-to-net-zero-emissions).

[6] According to the Global Status Report 2023 (UNEP), "…the buildings and construction sector contributes significantly to global climate change, accounting for about 21 per cent of global greenhouse gas emissions. In 2022, buildings were responsible for 34 per cent global energy demand and 37 per cent of energy and process-related carbon dioxide (CO2) emissions. Despite a 3.5 per cent reduction in energy intensity, overall energy demand and emissions rose by about one per cent from 2021." https://globalabc.org/our-work/tracking-progress-global-status-report.

[7] IEA (2023), Net Zero Roadmap: A Global Pathway to Keep the 1.5 °C Goal in Reach, IEA, Paris https://www.iea.org/reports/net-zero-roadmap-a-global-pathway-to-keep-the-15-0c-goal-in-reach.

[8] BEA: Scaling up the Sustainable Energy for All Building Efficiency Accelerator (GEF ID 9329) and BEA 2: The SEAforALL Building Efficiency Accelerator: Expanding Local Action and Driving National Change (GEF ID 9947).

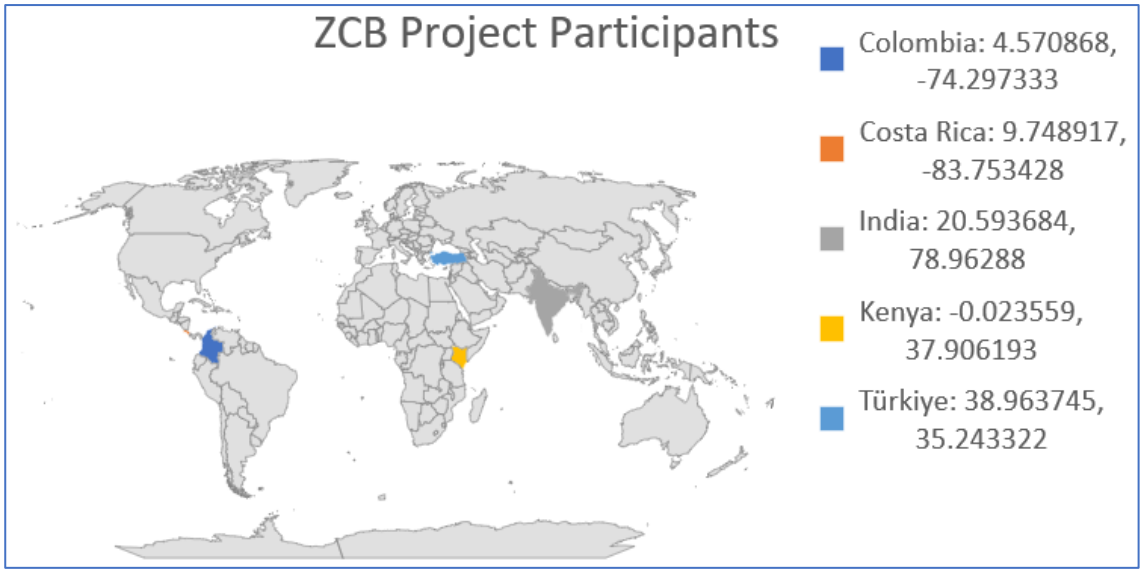

Figure 3 Locations of Interventions: Project Participants

58. At the outset, the ZCB project adopted the Theory of Change of the first phases of the BEA[9]. However, in the process of this review, it has become clear to the Reviewer that "net zero" is fundamentally a different and more complex technical approach than that taken for achieving building efficiency, in that "net zero" combines best practices for many aspects of a building, building occupants, communities and the built environment overall. For example, the zero carbon buildings approach, as generally described by interviewees[10], could be summarized as:

ZCB approach = efficiency + renewable energy + low or no emissions from building operations + low carbon materials for renovation and construction + locally appropriate, climate resilient design

59. In considering the performance of this project, the Reviewer notes that many efforts are underway globally to promote and accelerate the net zero building approach, and, that many of these efforts are led by organizations that are/were also involved in many of UNEP's buildings, energy efficiency, renewable energy and cities projects. The ZCB project enlisted many of the BEA participants and contributors, including members of the BEA Steering Committees. Also involved are many of the same organizations and experts that are members of the Global Alliance for Buildings and Construction (GlobalABC), for which UNEP serves as Secretariat. Thus there are many strong synergies and relationships contributing to continuity and impact of the results of all of the projects.

60. The root causes of the building sector's slowness to adopt a net zero approach are diverse and deep-seated; they are analysed in depth in the resources posted by the GlobalABC, for example in the annual Global Status Reports and the Global and Regional Roadmaps[11]. According to interviewees, barriers to net zero building adoption, include:

    - Lack of knowledge and familiarity with net zero principles, including lifecycle analysis;

[9] As noted in the Reviewer's TOR, the impact for the Theory of Change of the ZCB project would be, "Increased energy saving and reduced GHG emissions via project objective: Reduce greenhouse gas emissions by supporting market transformations that would enable a doubling of the rate of energy efficiency improvements in buildings by 2030, by linking global market experience, national policy, and local action and capacity building." The Reviewer reconstructed the Theory of Change (RTOC) and presented it in the Inception Report; the UNEP Task Manager approved the RTOC. See Section X.

[10] In some ZCB programs, carbon offsets are included as an optional measure, but interviewees for this Review did not mention them. Carbon offsets were sometimes considered in local stakeholder meetings, especially those discussing business and financing options.

[11] Accessible via GlobalABC Resources: https://globalabc.org/resources/flagship-products.

- A fragmented market reliant upon local jurisdictions that lack net zero building codes and enforcement capabilities;
- Local supply chains not yet familiar with or offering low carbon building materials (especially materials with any certified or standardized verification of embodied carbon);
- Local developers and building occupants who lack financial incentives to adopt or demand net zero approaches; and,
- A general lack of (or intense competition for) budgeted funds to build and renovate with climate resilient intent.

61. The consequences of failure to reduce emissions from the building sector are significant. Globally, the sector is contributing to increasing climate change impacts. Regionally, nationally and locally, net zero buildings could offer many human safety and comfort improvements, such as cooling, resilience to intensifying weather events, and more productive work places. These improvements are similar to those associated with (variously defined) "green buildings" and "sustainable buildings." However, "net zero emissions" emphasizes that the building sector also would make a positive impact on mitigating and adapting to climate change, thus making the planet more liveable for all.

Challenges

62. The ZCB project experienced two major external challenges. By project launch in 2021, the SARS-COVID19 pandemic had caused major global disruptions that were ongoing and well-known to the project participants. Most project activities were carried out virtually; many of the participants benefited from their prior familiarity with the BEA projects and participants and they had the administrative and technical ability to work remotely and cooperatively.

63. In Türkiye, a major earthquake[12] and aftershocks occurred 6 February, just 37 km (23 mi) west–northwest of Gaziantep, a participating municipal project partner. The quake and aftermath delayed ZCB project activities and reporting in Türkiye. Project management adapted by seeking and obtaining a no-cost, seven-month extension.

64. The project design had anticipated potential challenges in continuity of policy development due to some political administrations' changeovers. Such changes did not alter the project[13], although some interviewees' were concerned that changes in administration could slow the subsequent adoption of ZCB roadmap actions (building codes, national policies, or budget allocations for training and other capacity-building actions). Nonetheless, some interviewees pointed out that their activities had involved many and diverse stakeholders in their local road mapping processes. They asserted that this inclusiveness was helping to bridge political changes and—hopefully—sustaining continuous support for ZCB actions.

65. The project experienced an unanticipated challenge that was noted in the Reviewer's TOR. Both UNEP and WRI project management had several personnel changes during the project lifetime. Performance of management is assessed in Section V.

[12] USGS. 2023. M 7.8 - Pazarcik earthquake, Kahramanmaras earthquake sequence, 2023-02-06 01:17:34 (UTC) 37.226°N, 37.014°E, 10.0 km depth. https://earthquake.usgs.gov/earthquakes/eventpage/us6000jllz/executive.

[13] EO guidance: Note that 'political upheaval' does not include regular national election cycles, but unanticipated unrest or prolonged disruption. The potential delays or changes in political support that are often associated with the regular national election cycle should be part of the project's design and addressed through adaptive management of the project team."

B. Objectives and components

66. During the inception phase of the Terminal Review, the Project Task Manager approved the following revised Project Objective that was suggested by the Reviewer. This objective aligns with the activities conducted during the project and with the Revised Theory of Change at Review.

67. *Project Objective:* "To support efforts to initiate, accelerate and intensify ZCB market transformation, in order to reduce GHG emissions by linking global market experience, national policy, local action and capacity building."

68. The timeframe of the project is not long enough to achieve actual emissions reductions, so the emphasis in the objective is on actions that, "initiate, accelerate and intensify ZCB market transformation."

69. The selection criteria for participation in the ZCB project recognized that the participants had market transformation experience with climate change mitigation actions (to promote energy efficiency and/or renewable energy) prior to engaging with the ZCB project. Selection criteria agreed during the first two Project Steering Committee meetings included: "city capacity and track record with the BEA (proven success on building energy efficiency programming and current activities aligning with the ZCB project), political will (national and subnational commitments to zero carbon, and a political term that ensures throughout the project), influence/replicability (opportunities to replicate in other cities regionally), and impact potential (rapid construction and energy demand growth)." Also, the PSC members recommended including cities from multiple regions (such as Africa, Asia and Latin America). (PSC meeting minutes, 2021 and 2022)

70. Presumably, participating in the ZCB project would support these entities to accelerate change with increased levels of ambition and a more impactful approach. Those project participants with fewer market transformation efforts in the building sector would presumably develop and adopt ZCB mitigation action plans and initiate their efforts, with more rapid timelines and higher levels of ambition than they would otherwise have considered had they not participated in the ZCB project.

Results Framework and Components

71. The ZCB project design had three components with corresponding Outputs and Outcomes (from Table 3; Terminal Review TOR p 4). The project outcome statements accurately reflect the CEO Endorsement document. The Theory of Change mirrors the three components as three pathways to impact.

72. The first component engaged, supported and facilitated key stakeholders in Colombia and Türkiye in consensus-making activities focused on promoting national commitments that reflected actions they had prioritized in zero carbon buildings roadmaps.

73. The second component was executed at the county or city level, engaging municipal government and building sector decision-makers to increase their knowledge and confidence in taking tangible steps toward applying a zero carbon building approach.

74. The third component supported the participants in the first two components; its outputs were offered globally to scale up the ZCB project impact. This component enhanced the existing resources of the Building Efficiency Accelerator (hosted by WRI) and linked the ZCB project participants with each other (peer-to-peer knowledge exchange) and with global experts in zero carbon building technologies, techniques and policies (including many resources provided by GlobalABC). This component effectively employed WRI's strategy of "Dialogue-Assess-Act-Monitor-Invest" to support participants to identify and realize roadmaps and action plans that would be appropriate to their respective needs.

Table 4 ZCB project outputs and outcomes, at project launch.

Project Outputs	Project Outcomes
Component 1: National commitments and roadmaps towards zero carbon buildings policies	
1.1 Outreach: Outreach activities are performed using tools from the national market and global partners to encourage national governments to adopt public commitments on net zero carbon buildings	1. Two national governments link NDCs and/or other national strategies with ZCB and develop approaches to support subnational governments, utilities, the private sector and civil society to accelerate the market transformation towards zero carbon buildings
1.2 Dialogue: National/local governments, utilities, the private sector and civil society explore how to achieve ZCB commitments through in-country policy dialogues facilitated by the project	
1.3 Plan: Long-term national roadmaps, including short/medium-term action plans, linked to the NDCs and/or other national strategies to achieve net zero carbon buildings by 2050 are developed and adoption is initiated	
1.4 Enable: Enabling policies are developed and adoption is initiated to support subnational governments, utilities, private sector and civil society to accelerate the market transformation towards ZCBs	
Component 2: City strategies towards net zero carbon building implementation	
2.1 Dialogue: In a total of 4 cities (2 in each selected country), stakeholders from the public and private sectors explore options to advance local action towards zero carbon buildings through dialogues facilitated by the project	2. City governments in two countries use newly gained tools and knowledge to achieve socially, environmentally and economically viable GHG mitigation in buildings to advance towards ZCBs
2.2 Assess: In 3 cities, appropriate methods to quantify social, environmental and economic costs and benefits of ZCB policies and investments are demonstrated to inform local government decisions	
2.3 Act: In 3 cities, policies and actions to move towards a decarbonized building sector are developed and adoption is initiated	
2.4 Monitor: In 2 cities, innovative methods for monitoring progress are tested and lessons learned are provided to national ministries for future policy design	
2.5 Invest. In at least 2 cities, a business model for investing in ZCBs is developed in cooperation with at least one development bank and in consultation with the private sector	
Component 3: Pipelines of additional local and national governments for future scaling through platform-wide capacity building and technical assistance	
3.1 Platform: The BEA global platform is enhanced in order to provide capacity building and technical assistance on ZCBs	3. National, subnational, and city governments, beyond those in components 1 and 2, advance actions towards zero carbon buildings
3.2 Scale: Support provided through the global platform facilitates 6 additional city or subnational governments to make public commitments towards zero carbon buildings	
3.3 Replicate: Support provided through the global platform enables 3 additional city or subnational governments to develop and initiate implementation of ZCB roadmaps	

(Source: Approved Project Document, 2021)

C. Stakeholders

75. The Approved Project Document described ZCB project stakeholders as, "decision-makers including political, private sector, and community advocates of integration strategies" (CEO Endorsement document 2021). The ZCB project invited influential and interested local stakeholders (women and men) to participate in meetings, consultations, road

mapping workshops and other activities, leveraging their networks and influence in scaling up policies and supporting actions encouraged by the ZCB project.

76. For this Terminal Review, stakeholders are described further by their level of interest and level of power, roles and responsibilities and expected changes in behaviours (Table 5). To assess behavioural change the Reviewer considered interviewee responses and additional evidence signifying national, state or city-level change. The Reviewer examined publicly available documents and/ or pre-release (draft) documents provided by interviewees and the UNEP oversight team.

77. To check for progress against GEF Core Indicator 11, the number and gender of direct project beneficiaries, the Reviewer sought evidence of number of individuals involved in the project, gender equity and human rights in the ZCB project documentation, stakeholder engagement reports from local Partners, and, visual documentation of project activities (photographs in project reports, Partner publications, online webinar recordings and online news articles)

78. Intent to cover gender and human rights issues was designed into the project plans and demonstrated early in the project. For example, WRI offered two tools developed for the ZCB project road mapping activity and stakeholder meetings to guide facilitators and participants during their discussions and documentation of outcomes: "Zero Carbon Building Accelerator: An Equity & Inclusion Lens" and "Integrating Gender Considerations into Zero Carbon Building Roadmaps." The latter included a list and links to other organization's building-specific equity and inclusion guides. WRI reports to UNEP included data on gender of participants. Outputs such as the participants' national roadmaps and city action plans also addressed these issues.

Table 5 Stakeholder roles, responsibilities and anticipated behaviour changes

Stakeholders: Power / Interest	Implementation roles and responsibilities	Anticipated changes in behaviours
Financial cash and in-kind contributors that provided essential resources and partnered at a high level with UNEP. Includes representatives of UNEP, WRI, the Project Steering Committee[14]; governmental partners; and leads for countries, regions and deep dive cities.	Provided financing, in-kind effort and knowledge resources, guidance and critical review of progress. Participated in governance. Promoted ZCB project to potential donors and members. Raised global awareness of ZCB project through their respective media channels. Gave constructive input on ZCB project plans and outputs.	Become more deeply engaged with UNEP and the ZCB project members, helping them to garner additional support at the global and national levels. Agreed in principle to continue support for the UNEP ZCB project and advice for developing new ZCB-related projects. Committed via their organizations to promote knowledge exchanges of decarbonization and resilience approaches to the built environment and the buildings and construction sector.
Government officials (technical and elected) at national and local levels who were a prime target	Joined as active ZCB project members, engaging in discussions, workshops, and Working Groups. Some shared their experiences and results from the ZCB project at	Applied the resources and knowledge gained through ZCB project to enact and implement national and local policies to mitigate building and construction sector GHG emissions.

[14] Members of the Project Steering Committee are listed in Annex VII.

Stakeholders: Power / Interest	Implementation roles and responsibilities	Anticipated changes in behaviours
audience and could enact policy changes	international event(s), increasing awareness of the ZCB project and its resources for their peers in other countries. Some planned for or initiated ZCB pilot projects in-country.	Support related policies and projects in built environments in their jurisdictions and in cooperation with nearby jurisdictions. Planned for, helped to finance or helped to raise funding for ZCB projects. Promoted awareness of ZCB opportunities and supply chain needs.
International organizations, especially in-kind contributors or prospects for task-related activities, such as hosting workshops or webinars.	Deliver international or regional expertise, data and services in buildings, climate change, energy, policy or sustainability	Increased cooperation with UNEP, ZCB project and ZCB project members' efforts Increased promotion of ZCB project's activities and publications throughout their own networks Possibly help develop and fund efforts in ZCB project members' areas of interest
Private sector (global and regional): high-resource / high visibility value chain players that develop and deliver integrated solutions to problems occurring in the built environment.	Promoted ZCB project policy initiatives that integrate sustainable practices in their respective value chains. Participated in ZCB project Working Groups, representing the reality and feasibility of integrated management and sustainability practices. Contributed real-world data to ZCB project outputs (such as the annual reports).	In their respective organizations and industries: incorporated more sustainable management, materials and practices and strategies; made plans or began to measure their impact on reducing GHG emissions; and, showcased their efforts to peers, customers and people who use their products. Recruited other private sector players to join ZCB project and implement its recommendations.
Private sector (conventional building and construction supply chain players interested in delivering integrated solutions.	By demonstrating openness to change, they could encourage government and their peers to adopt a ZCB approach.	If their interest and concerns were met, they could spur market transformation and strengthen the building materials supply chain, especially at the state or city levels.
Researchers (global, regional and national levels) in universities and institutes that focus on sustainable	Provided consultative resources and data on technical, design and policy topics; offered regional and local experience in buildings and construction. Participated in ZCB project discussions at one or more levels.	Adopted and promoted ZCB project integrated management solutions and policies in their spheres of influence (universities, peer organizations, local projects) with the aim of reducing GHG emissions from new buildings and

Stakeholders: Power / Interest	Implementation roles and responsibilities	Anticipated changes in behaviours
buildings and construction. Professional and trade organizations (global and regional).	Advocated ZCB project policies to practitioners in professional and trade organizations.	construction projects and deep renovations. Focused their research and innovation on finding near- and long-term solutions to enable zero-emissions built environments. Changed their built environment-related curricula to include sustainable materials and construction practices.
Non-governmental actors and environmental groups Media channels (global, national, and local)	Participated in ZCB project discussions at one or more levels. Advocated for higher levels of ambition and faster implementation paths in policies and projects. Advocated on behalf of vulnerable groups for more appropriate, affordable, accessible and sustainable solutions for buildings and construction. Introduced ZCB project members, outputs and intended impacts to public audiences worldwide. Highlighted how building and construction policies and practices offer opportunities to regions or local communities.	Deepened awareness and awareness-raising of the impact of buildings and construction on climate change and the consequences for governments and for communities at one or more levels. Included ZCB project news in their organizations' programming for climate change, urban affairs and the buildings/construction sector. Publicly published (or hosted and posted) documents and recordings of ZCB activities and resources.
All other users and occupants of the built environment	Representatives from or representing women, disabled persons and vulnerable groups that participated in some ZCB project working groups, outreach activities and pilot projects. Likewise, they could contribute to outputs such as publications and media content (for example, with case studies or testimonials describing their experiences with the polices or practices recommended by ZCB project).	Users and building occupants who accessed and benefited from ZCB project knowledge products and may have or will become peer influencers in their communities. They could speed demand for adoption of ZCB practices and materials, at all levels of income. Outputs of their knowledge acquisition could include social media and social justice calls to action. Users/occupants could develop the capability to improve the buildings and spaces they frequent, or, in which they work or live.

D. Project implementation structure and partners

79. A Project Cooperation Agreement (PCA) stipulating roles and responsibilities was signed by the Executing (WRI) and Implementing Agencies UNEP), respectively (UNEP 19 February 2021; WRI 18 March 2021). Figure 4 shows the participating partners and their relationships.

80. As Implementing Agency, UNEP appointed a Task Manager to oversee the ZCB project and to communicate with and report regularly on progress to The GEF. The Task Manager liaised with WRI, the Executing Agency and its Project Manager, receiving and reviewing reports and coordinating schedules as needed.

81. The WRI Project Manager executed agreements and oversaw project activities with regional partner organizations. These partner organizations hosted meetings, facilitated roadmaps, conducted workshops and publicized and coordinated local events. Their reports to WRI were reviewed and the content communicated in reports to UNEP.

82. A Programme Officer from the Cities Unit represented UNEP's in-kind contributions from the GlobalABC Secretariat at Project Steering Committee meetings. The Executing Agency, WRI, appointed staff to represent their in-kind contribution to each Project Steering Committee. The UNEP Task Manager and the WRI Project Manager coordinated the project launch and the four meetings and agendas of the Project Steering Committee.

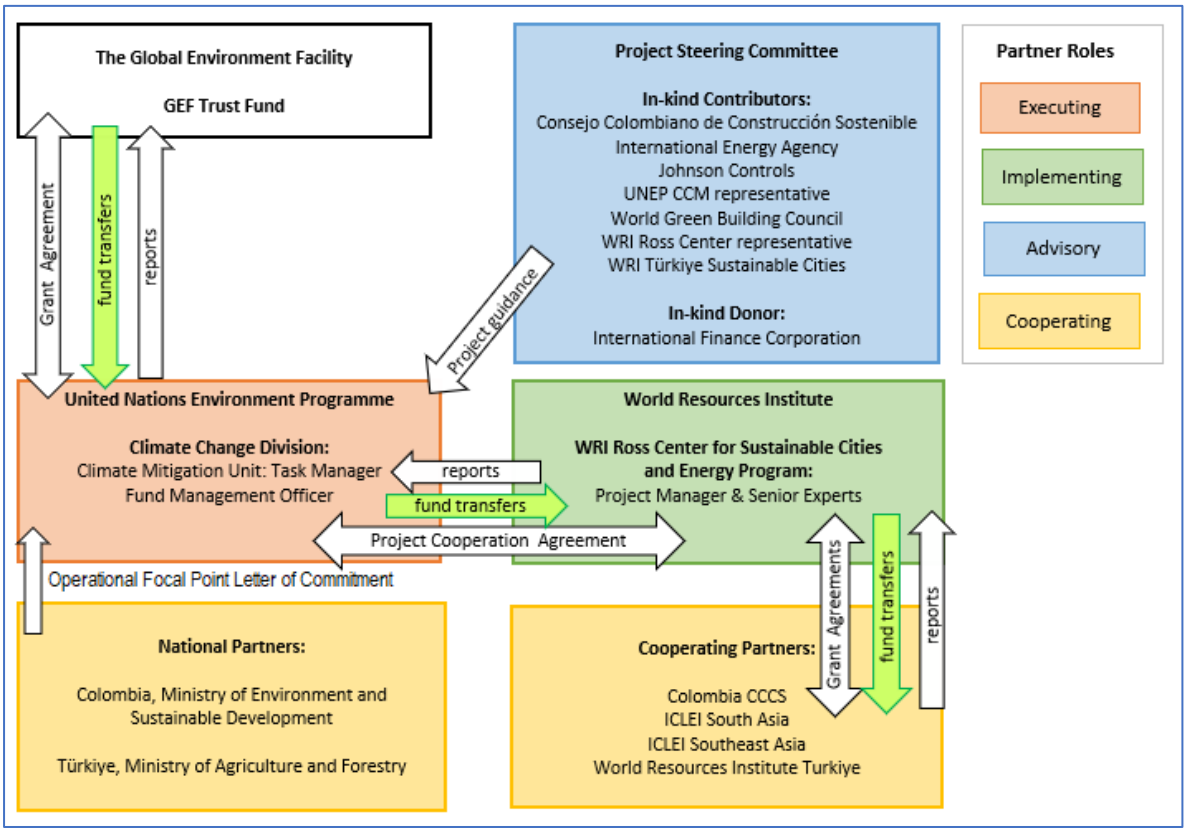

Figure 4 Key project partners and relationships

E. Changes in design during implementation

83. Component 1 activities with national partners Colombia and Türkiye formally launched (on schedule) in June 2021. Component 1 and 2 activities in Bogotá, Cali, Gaziantep and Konya began soon after. Component 2 selection of an additional six subnational partners began

in 2021, the criteria for which were discussed with the Project Steering Committee at its first two meetings (May and December 2021). By the third PSC meeting in June 2022 selections had been made and commitments received from: Nagpur, India; Laikipia County, Kenya; and, the Costa Rica City Cluster: Belén, Curridabat, Moravia and Santa Ana. Kick-off meetings for the City Action Plans for those cities began shortly thereafter. Component 3 support activities, including resource materials and technical guidance began at project launch and continued throughout the ZCB project.

84. One key event affected the ZCB project's duration. As described in Section III A, a major earthquake occurred near Gaziantep, Türkiye in February 2023. The event and its aftermath delayed project completion. A seven-month, no-cost extension was agreed to by UNEP and WRI, "to revise the project technical completion date to finalise all pending activities as per the appended revised work plan and budget." This extension also benefited all the subnational partners that had begun and were reporting on progress toward their pilot project targets.

F. Project financing

85. The GEF approved the ZCB Medium-size Project on 22 January 2021, with a grant to UNEP from The GEF Trust Fund of USD 2,000,000. The total cost of the ZCB project as agreed to by The GEF, UNEP and WRI is shown in Table 6 (UNEP-WRI Project Cooperation Agreement, signed 18 March 2021).

Table 6 Total cost of the ZCB project

Cost to the GEF Trust Fund	USD 2,000,000
In-kind contribution from the Executing Agency (WRI)	USD 1,935,692
In-kind contribution from the Implementing Agency (UNEP)	USD 300,000
Third party co-finance (in-kind)	USD 4,702,389
Total cost of the project	**USD 8,938,081**

86. One amendment was made to the PCA for a seven-month, no-cost extension; it was signed on 23 February 2023. A footnote in the PCA states, "The project technical completion date of the project is 30 September 2023. The legal instrument remains in force for an additional 12 months after the project technical completion to allow for receipt of all terminal reports and for financial closure." Thus WRI should submit all reports and financial statements by 30 September 2024. The Reviewer notes that this date is past the 14 August 2024 completion date of this Terminal Review.

87. Summary tables of the original budget and the revised budget are included in Table 22. The estimated cost at design of project versus the actual cost (expenditure) by component is shown in Table 7.

Table 7 Project cost at design versus actual cost

Component/sub-component/output *All figures as USD*	**Estimated cost at design**	**Actual Cost / expenditure**	**Expenditure ratio (%, actual/planned)**
Component 1 / Outcome 1	773,579	801,487	1.04
Component 2 / Outcome 2	649,518	635,964	0.98

Component/sub-component/output *All figures as USD*	Estimated cost at design	Actual Cost / expenditure	Expenditure ratio (%, actual/planned)
Component 3 / Outcome 3	375,474	378,068	1.01

Sources: Estimated cost at design: PCA 2021; Actual cost expenditure: WRI final report as of 30 September 2023; Expenditure ratio: calculated by Reviewer.

88. Performance of financial management is detailed in Annex VI. The only report not received from WRI by UNEP at the time of this Terminal Review is a contractually-required, independently-conducted, final financial audit, due no later than 30 September 2024 (and noted by the UNEP Junior Consultant as being in progress as of June 2024).

89. The only shortfall is one of in-kind contribution, from International Finance Corporation, which originally committed to contribute effort valued at USD1,472,760 but the final financial report from WRI[15] shows actual contributed effort valued at USD 920,475 (62% of commitment).

[15] ZCBA Co-Finance Report July 2022 - June 2023 Final Draft (Signed) March 2024

IV. THEORY OF CHANGE AT REVIEW

Precedents for the Theory of Change at project approval

90. The Theory of Change (TOC) for the ZCB project is mentioned only briefly in the CEO Endorsement document; no diagram was included. The TOC text refers to prior projects BEA and BEA 2 (CEO Endorsement document p 41):

> "In 2020, this project seeks to increase the ambition of both levels of alignment. Rather than focus only on building energy efficiency, raising the ambition to zero carbon buildings enables the team to build on the successful models of the BEA and increase the impact of action over time from stepwise improvement to sector decarbonization. The theory of change remains the same that has been proven over the last 4 years, but the impact increases as cities and countries build on the critical first steps of energy efficiency actions to achieve decarbonization of the building sector."

91. The Terminal Review TOR (p 5) offered the elements shown in Table 8, excerpted from prior projects' TOCs. However, these statements are not specific to the ZCB approach; they are only pertinent to the prior BEA projects. Refer to Inception Report, Annex B for reformulated elements that are more appropriate for ZCB, as per the CEO Endorsement document. The Terminal Evaluations of BEA 1 and BEA 2 did contain diagrams for TOCs and Reconstructed Theories of Change. For reference, they were discussed with the UNEP Task Manager and Junior Consultant during the Terminal Review inception phase and were included in Annex G of the Inception Report.

Table 8 Elements of Theory of Change, from Terminal Review TOR

First level Intermediate States	Second level Intermediate States	Impact
Leveraged finance/funding for Energy Efficiency projects and buildings	Improved capacity to implement Energy Efficiency projects and policies on buildings	Increased energy saving and reduced GHG emissions *via project objective*: Reduce greenhouse gas emissions by supporting market transformations that would enable a doubling of the rate of energy efficiency improvements in buildings by 2030, by linking global market experience, national policy, and local action and capacity building
Facilitated dialogue, information exchange and awareness on Energy Efficiency policy and project opportunities	Increased Energy Efficiency technology deployment	
Facilitated local actions at national and subnational levels for support of Energy Efficiency measures in buildings		
Better building energy consumption data and local capacity to improve scalable assessment methods		

Theory of Change at Inception and at Terminal Review

92. The Reviewer and Task Manager agreed upon the Reconstructed Theory of Change (RTOC) presented in Figure 5. The Component and Direct Outcome statements are shown in Section II; no changes are proposed at this level. Additional RTOC statements are listed in Table 9.

93. The RTOC included drivers similar to and consistent with statements made in the RTOCs of BEA 1 and BEA2 Terminal Evaluations (Conway 2018; Kebir 2023), the Interim Review of the GlobalABC (Conway 2021) and the Terminal Review of the Cities Unit (Conway 2023). However, they emphasize the unique characteristics of the ZCB (initiate, accelerate and achieve a zero-carbon balance for each building or group of buildings). The assumptions were consistent with the findings from the above project assessments but were revised to apply specifically to ZCBs.

94. In presenting the Preliminary Findings (May 2024) for this Terminal Review, the Reviewer noted that the Assumptions and Drivers and other RTOC statements would be more accurate if modified to reflect the pathways associated with Component, project stakeholder events and interviewees' observations on current building market conditions and key player behaviours. Also, recent guidance from the Evaluation Office advised inclusion of statements specific to human rights and gender equality[16]. These revisions and justifications thereof are presented in Table 9 and incorporated into the diagram of the RTOC (Figure 5).

[16] EO guidance note, Management-led Terminal Review 02/09/21 states: "Work to promote human rights and gender equality is central to the aims of UNEP but does not always appear within results frameworks. The TOC should include assumptions/drivers relating to human rights and gender equality and the TOC narrative should discuss how greater equality and inclusivity was expected to be achieved by the project. For example, if the project document includes commitments to gender equality/gender strategies etc., these should be identified as drivers. If the project document is silent, then the UN expectations on human rights and gender equality should be included as assumptions."

Table 9 Justification for Reformulation of Results Statements

Formulation in ZCB CEO Endorsement document or Terminal Review TOR, or, BEA 2 CEO Endorsement document, or, BEA 2 RTOC in TE	Formulation for Reconstructed ToC at Terminal Review	Justification for Reformulation
LONG TERM IMPACT	**IMPACT**	Consistency with EO guidelines
"Increased energy saving and reduced GHG emissions *via project objective*: Reduce greenhouse gas emissions by supporting market transformations that would enable a doubling of the rate of energy efficiency improvements in buildings by 2030, by linking global market experience, national policy, and local action and capacity building."	By 2050, project results contribute to: achievement of SDG 7, "Ensure access to affordable, reliable, sustainable and modern energy for all"; and, GEF-7 CCM, "promotion of innovation and technology transfer for sustainable energy breakthroughs," by reducing metric tons of CO2e emissions and by increasing the number of women and men in developing countries who will directly co-benefit from GEF funding	To incorporate impact described in the CEO Endorsement document, GEF-7 Core Indicator targets and align with RTOC in the BEA TE.
FIRST LEVEL INTERMEDIATE STATES	**INTERMEDIATE STATE**	Consistency with EO guidelines
Leveraged finance/funding for Energy Efficiency projects and buildings	From 2021 to 2030, at least two countries, six cities and hundreds of stakeholders apply increased capacity, finance and access to accelerate ZCB roadmaps, policies and technologies that deliver towards the mitigation goals of the Paris Agreement; and, motivate additional countries, cities and stakeholders to follow suit	Alignment with the more comprehensive technical approach of zero carbon emissions versus BEA's focus solely on energy efficiency. Alignment with CEO Endorsement document. One intermediate state result statement is sufficient for this project.
Facilitated dialogue, information exchange and awareness on Energy Efficiency policy and project opportunities		
Facilitated local actions at national and subnational levels for support of Energy Efficiency measures in buildings		
Better building energy consumption data and local capacity to improve scalable assessment methods		
SECOND LEVEL INTERMEDIATE STATES		
Improved capacity to implement Energy Efficiency projects and policies on buildings		
Increased Energy Efficiency technology deployment		
PROJECT OUTCOMES		

Formulation in ZCB CEO Endorsement document or Terminal Review TOR, or, BEA 2 CEO Endorsement document, or, BEA 2 RTOC in TE	Formulation for Reconstructed ToC at Terminal Review	Justification for Reformulation
Project Outcome 1: Two national governments link NDCs and/or other national strategies with ZCBs and develop approaches to support subnational governments, utilities, the private sector and civil society to accelerate the market transformation towards ZCBs	Direct Outcome 1: Two national governments link NDCs and/or other national strategies with ZCBs and develop approaches to support subnational governments, utilities, the private sector and civil society to accelerate the market transformation towards ZCBs	Statement acceptable. Note that Outcomes 1, 2 and 3 are linked directly to Project Components 1, 2 and 3, respectively, and also, linked to Pathways 1, 2 and 3 in the TOC.
Project Outcome 2: City governments in two countries use newly gained tools and knowledge to achieve socially, environmentally and economically viable GHG mitigation in buildings to advance towards ZCBs	Direct Outcome 2: City governments in at least two countries use newly gained tools and knowledge to achieve socially, environmentally and economically viable GHG mitigation in buildings to advance towards ZCBs	Revised to indicate that “two countries” is a minimum ambition.
Project Outcome 3: National, subnational and city governments, beyond those in components 1 and 2, advance actions towards ZCBs	Direct Outcome 3: National, subnational and city governments, beyond those in components 1 and 2, advance actions towards ZCBs	Statement acceptable. Note that this Outcome is the first step in Pathway 3 in the TOC diagram which is titled, “Global platforms increase NZB activity” because participants’ (at any level, national or subnational) use of this Component’s outputs (see below) support their progressive market transformation actions

Formulation in ZCB CEO Endorsement document or Terminal Review TOR, or, BEA 2 CEO Endorsement document, or, BEA 2 RTOC in TE	Formulation for Reconstructed ToC at Terminal Review	Justification for Reformulation
OUTPUTS		
1.1. Outreach: Outreach activities are performed using tools from the national market and global partners to encourage national governments to adopt public commitments on net zero carbon buildings 1.2 Dialogue: National/local governments, utilities, the private sector and civil society explore how to achieve ZCB commitments through in-country policy dialogues facilitated by the project 1.3 Plan. Long-term national roadmaps including short/medium-term action plans, linked to the NDCs and/or other national strategies to achieve net zero carbon buildings by 2050 are developed and adoption is initiated 1.4 Enable: Enabling policies are developed and adoption is initiated to support subnational governments, utilities, private sector and civil society to accelerate the market transformation towards ZCBs 2.1. Dialogue: In a total of 4 cities (2 in each selected country), stakeholders from the public and private sectors explore options to advance local action towards zero carbon buildings through dialogues facilitated by the project 2.2 Assess: In 3 cities, appropriate methods to quantify social, environmental and economic costs and benefits of ZCB policies and investments are demonstrated to inform local government decisions 2.3 Act: In 3 cities, policies and actions to move towards a decarbonized building sector are developed and adoption is initiated 2.4 Monitor: In 2 cities, innovative methods for monitoring progress are tested and lessons learned are provided to national ministries for future policy design 2.5 Invest. In at least 2 cities, a business model for investing in ZCBs is developed in cooperation with at least one development bank and in consultation with the private sector		Original statements acceptable. Outputs precede each Component/ Direct Outcome but are not included in the Theory of Change.
3.1. Platform: The BEA global platform is enhanced in order to provide capacity building and technical assistance on ZCBs 3.2. Scale: Support provided through the global platform facilitates 6 additional city or subnational governments to make public commitments towards zero carbon buildings 3.3. Replicate: Support provided through the global platform enables 3 additional city or subnational governments to develop and initiate implementation of ZCB roadmaps		

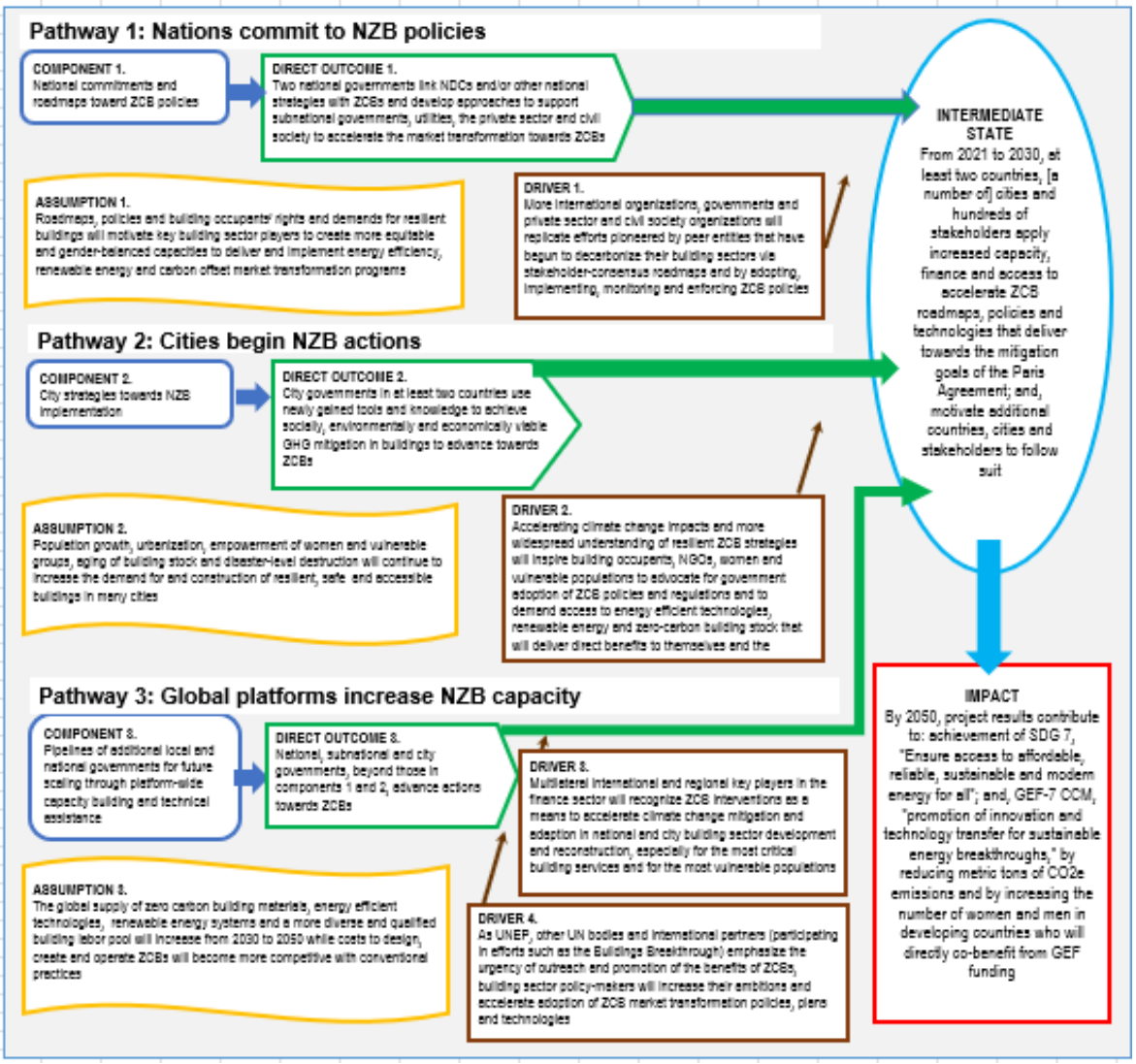

Figure 5 Reconstructed Theory of Change at Terminal Review

Three pathways toward impact

95. The project design—through its structure of three components—clearly established what now are named in the RTOC diagram as the three pathways toward the impact of reducing GHG emissions from the building sector while increasing co-benefits for women and men.

96. Pathway 1 begins with two countries, Colombia and Türkiye, that have national commitments to the Paris Agreement and that have already in place national policies or plans to mitigate and/or adapt to climate change. By gathering stakeholders and engaging national ministries, CCCS and WRI Türkiye—both of which were BEA partners— initiated ZCB project Component 1 activities to 1) establish building sector emissions baselines, 2) develop consensus-based roadmaps of actions prioritized to achieve a transformation of their respective building sector markets, and 3) connect and align building sector-specific policies and actions with their national climate change commitments, policies and actions.

97. Pathway 1 assumes that roadmaps, policies and building occupants' rights and demands for resilient buildings will motivate key building sector players to create more equitable and gender-balanced capacities to deliver and implement energy efficiency, renewable energy and carbon offset market transformation programs. A series of stakeholder meetings with representatives of each stakeholder group in each country met virtually and in-person to "dialogue and assess," the first steps in the roadmap strategy articulated by WRI.

98. Figure 6 shows the published Colombia (2022) and Türkiye (2023) roadmaps.

Figure 6 Roadmaps of Colombia and Türkiye

99. Driving progress along Pathway 1 are entities demonstrating pioneering ZCB leadership that motivate international organizations, governments, private sector and civil society organizations to collaborate and to replicate efforts at the national level by decarbonizing their building sectors via implementing stakeholder-consensus roadmaps and by adopting, implementing, monitoring and enforcing ZCB policies. The Direct Outcome of

this pathway in the ZCB project is that the respective national governments of Colombia[17] and Türkiye[18] linked their NDCs and/or other national commitments and strategies with ZCBs and develop approaches to support subnational governments, utilities, the private sector and civil society to accelerate the market transformation towards ZCBs. Figure 7 and Figure 8 show excerpts from the Colombia and Türkiye country roadmaps, respectively.

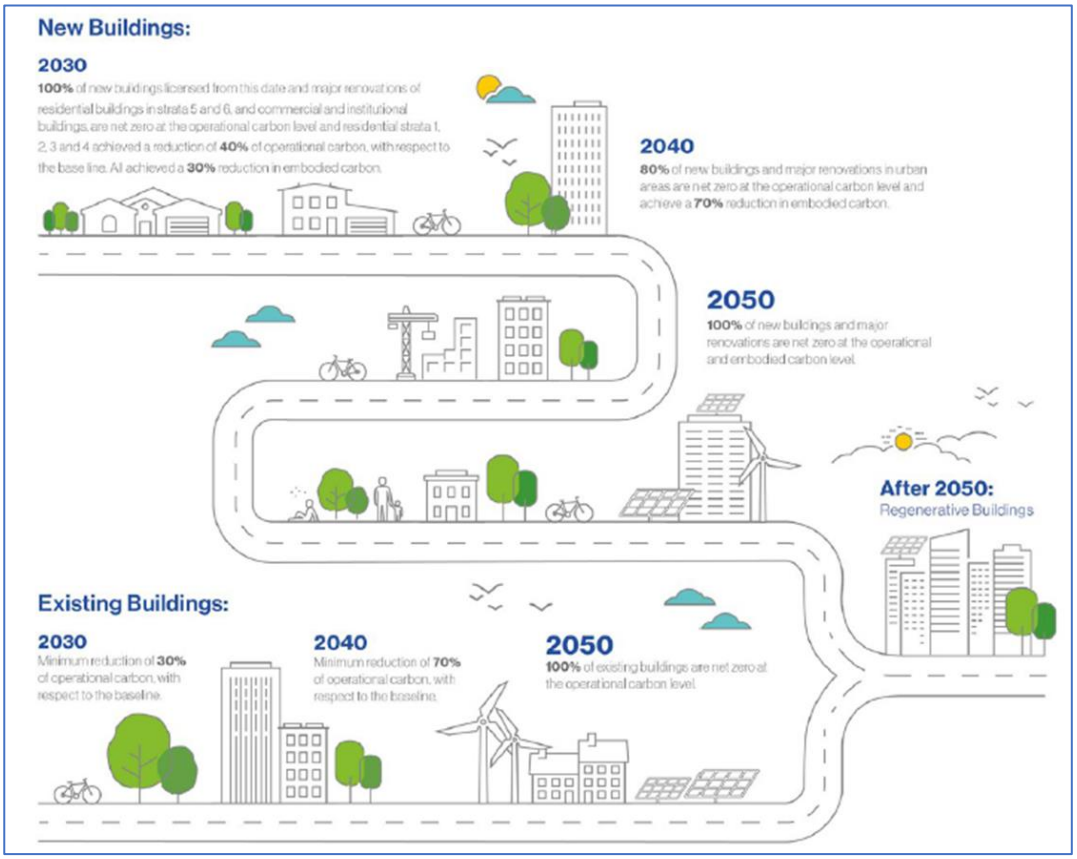

Figure 7 Excerpt of roadmap goals for new and existing buildings, from Colombia's National Roadmap for Net Zero Carbon Buildings, published June 2022 (in English)

[17] Noted in PIR FY 2024 – ZCB – 10321: "The ZCBA team in Colombia worked in partnership with the government to provide input on the following national policies: update to Resolution 549 (shared input on a platform to assess proposed building projects more easily); E2050 & NDC Enhancement (will utilize national monitoring system developed for ZCBA to track buildings commitments); 2022 Colombia Green Taxonomy (provided inputs on buildings); an implementation plan for Climate Action Law 2169; National Development Plan 2022-2026 (submitted suggestions on transformative actions from the roadmap to be included in the new plan); and the Comprehensive Climate Change Management Plan for the Housing, City And Land, And Water And Basic Sanitation Sector (PIGCCS) Vivienda. The input to the policies has been provided and adoption has been initiated."

[18] Noted in PIR FY 2024 – ZCB – 10321: "In Türkiye, WRI Türkiye quantified the social, environmental, and economic costs and benefits of ZCBs (2.2.1) on existing building stock data and modelling for building stock growth projections including assumptions based on national policies and available data. In October 2022, WRI Türkiye presented the impact assessment to the Ministry of Environment (2.2.2), which they found to be superior to the approach used in the NDCs and later integrated the ZCBA impact assessment into the Türkiye NDC on built environment."

Figure 8 Excerpt of building lifecycle carbon emissions diagram and goals for existing and new buildings, from Türkiye Building Sector Decarbonization Roadmap Extended Summary, December 2023

100. Pathway 2 begins with selected cities in Colombia, Costa Rica, India, Kenya and Türkiye that develop strategies to guide their building sectors toward implementing ZCB actions in line with national commitments. Pathway 2 assumes that trends in population growth, urbanization, empowerment of women and vulnerable groups, aging of building stock and disaster-level destruction will continue to increase the demand for and construction of resilient, safe and accessible buildings. Figure 9 and Figure 10 show Executive Summaries of city action plans.

Figure 9 Net Zero Carbon Buildings Action Plans of Bogotá and Cali, Colombia

101. Driving progress along Pathway 2 are accelerating climate change impacts and more widespread understanding of resilient ZCB strategies that are motivating building occupants, NGOs, women and vulnerable populations to advocate for government adoption of ZCB policies and regulations and to demand access to energy efficient technologies, renewable energy and zero-carbon building stock that will deliver direct benefits to themselves and the environment. City-level stakeholders include many administrative departments, local-level developers and investors, local building professionals and managers, and community groups.

102. The Direct Outcome of this Pathway 2 is that city governments in these countries are using newly gained tools and knowledge to achieve socially, environmentally and economically viable GHG mitigation in buildings to advance towards ZCBs. Also, attempts were made to connect the local action plans clearly to national ministries, climate change ambitions, building regulations and other key national efforts.

103. A lesson learned about the coordination of outcomes of Pathways 1 and 2 identified by WRI is the need for "better coordination mechanisms for effective multi-level governance. National government develops buildings policies, which must be implemented at the local level. But due to geographic and cultural conditions, national policies may not always effectively address local needs. Dialogue between national ministries and local governments is limited, which can make implementation difficult at the local level. Interdepartmental coordination between various national and subnational departments is a challenge and needs to be addressed." (WRI, Lessons Learned 2024, p 9). (Lesson Learned 4, p 77 of this report)

Figure 10 ZCB and Decarbonization Action Plans: Costa Rica City Cluster; Nagpur, India; and, Gaziantep and Konya, Türkiye

104. Pathway 3 supports and amplifies Pathways 1 and 2 by assisting additional local and national governments and scaling the impact of the ZCB project with platform-wide capacity building and technical assistance. The premise for this platform is that the global supply of zero carbon building materials, energy efficient technologies, renewable energy systems and a more diverse and qualified building labour pool will increase from 2030 to 2050 while costs to design, create and operate ZCBs will become more competitive with conventional practices.

105. For example, Figure 11 is an excerpt from the WRI guide, "Integrating Gender Considerations into Zero Carbon Building Roadmaps." The chart highlights the opportunities that occur during building lifecycles to consider gender and social equity[19]. Facilitators included these topics for stakeholders to consider in their agendas, discussions, presentations roadmaps, action plans and future proposals.

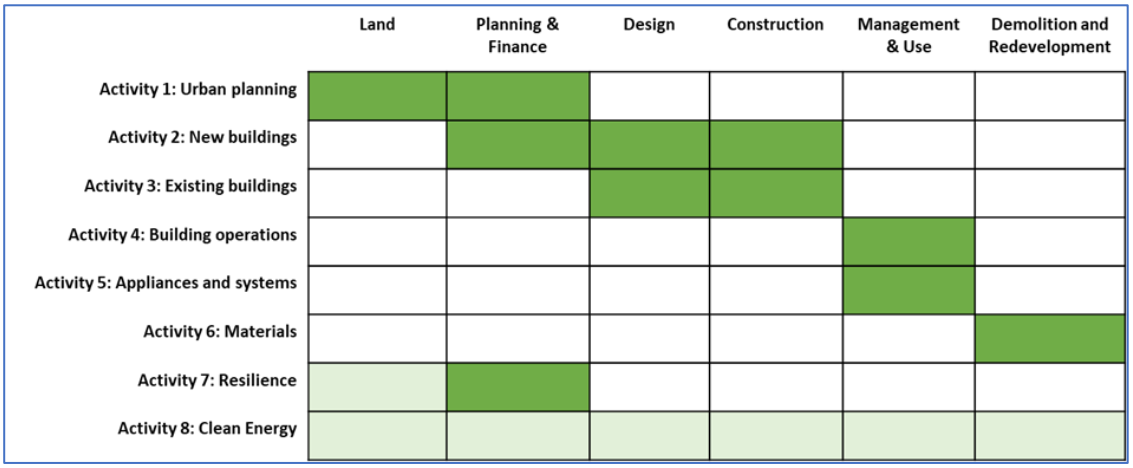

Figure 11 Opportunities for Gender Inclusion in the Built Environment Lifecycle

106. Driving access to and use of the platform by additional sub-national entities are multilateral international and regional key players in the finance sector that will recognize ZCB interventions as a means to accelerate climate change mitigation and climate change adaption in national and city building sector for development and reconstruction, especially for the most critical building services and for the most vulnerable populations. A second driver of scale-up changes should occur as UNEP, other UN bodies and international partners (participating in efforts such as the Buildings Breakthrough) emphasize the urgency of outreach and promotion of the benefits of ZCBs, motivation building sector policy-makers to increase their ambitions and accelerate the adoption of ZCB market transformation policies, plans and technologies. These resources and drivers associated with the ZCB platform are critical to achieving the Direct Outcome of national, subnational and city governments (beyond those in components 1 and 2) advancing actions towards ZCBs.

107. Along Pathways 1 and 2, countries and cities will advance the elements of ZCBs at different paces, making progress toward an Intermediate State that the ZCB project anticipated to occur from 2021 to 2030. In the Intermediate State, least two countries, [a number of] cities and hundreds of stakeholders have increased capacity, finance and access to accelerate ZCB roadmaps, policies and technologies eventually will deliver towards the mitigation goals of the Paris Agreement. Through follow-on actions, financing

[19] Footnote from the WRI guide: "How to read: the darker the color, the more essential the intervention is to ensuring gender inclusion and parity."

and technical assistance for other projects[20], additional countries (including India and Mexico), cities (such as Nagpur, India[21]) and key stakeholders are following suit, often in collaboration with ZCB project partners (including ICLEI South Asia, ICLEI Southeast Asia, UNEP, WGBC and WRI).

108. By 2030, 2040 and 2050, the ZCB project results will contribute to global Impact, including contributing to the achievement of SDG 7, "Ensure access to affordable, reliable, sustainable and modern energy for all"; and, GEF-7 CCM, "promotion of innovation and technology transfer for sustainable energy breakthroughs," (Core Indicator 6, Table 10) by reducing metric tons of CO2e emissions and by increasing the number of women and men in developing countries who will directly co-benefit from GEF and other donors' funding.

Table 10 GEF Core Indicator 6: Targets and Achievements

By Project, Country	GEF Core Indicator 6: Greenhouse Gas Emissions Mitigated Targets, Expected Values		
	End-of-project[22] (metric tons of CO2e)	Energy saved: (MJ)	Materialized to-date (metric tons of CO2e)
ZCB project	Direct: 7,099,211 tCO2 Cumulative from 2020-2042 (direct and direct post-project)	35,712,414,000 MJ	*(no estimate given)*
Colombia	*(no estimate given)*		467 Mt CO2eq (2020-2050) (maximum mitigation potential)
Türkiye	*(no estimate given)*		971 Mt CO2 eq (2023-2042)

109. Progress against GEF-7 Core Indicator 11 shows that the target set for the project in its entirety was exceeded (300%) by the number of persons participating in just two countries, Colombia and Türkiye (compiled data was not presented for cities in the WRI Final Report). The number of women and men participating in these two countries was approximately equal. (Table 11)

Table 11 GEF Core Indicator 11: Targets and Achievements

By Project, Country	GEF Core Indicator 11 - Target number of direct beneficiaries as co-benefit of GEF investment (disaggregated by gender)			Achieved number of direct beneficiaries as co-benefit of GEF investment (disaggregated by gender)		
	Women	Men	Total	Women	Men	Total
ZCB project	400	600	1000	*(not provided)*		*> 3155*
Colombia	*(not provided)*			1009	1048	2159
Türkiye				510	486	996
All other participants				*(not provided)*		

[20] According to WRI's final report, "Key aspects of the project methodology will be replicated in India and Mexico, as part of the All in for a Net Zero Built Environment project, funded by We Mean Business Coalition from 2023 to 2024. A national roadmap in Mexico and city action plans in two cities in India and in two cities in Mexico, as well as pilot projects, will be developed by WRI in collaboration with WGBC and WBCSD and their local offices."

[21] Noted in PIR FY 2024 – ZCB – 10321: "In Nagpur, impressed by the efforts of implementation partners ICLEI South Asia on developing the ZCB city action plan, the city partners requested support on developing some tools to initiate adoption of their own city action plan. This was outside of the project's scope, wherein the partners ICLEI South Asia had already demonstrated implementation of pilot project (green building recommendations for two upcoming public buildings of the Nagpur corporation). The partners responded to this request and developed a model RfP (Request for Proposal) document that aimed at recommending building design and technical recommendations, specifications, and criteria to further improve the overall thermal and energy performance of future buildings, in Nagpur. The RfP was received well by the corporation and the team is working towards operationalizing it in the city. This unplanned request also shows the impact of the project and the proven usefulness of work undertaken within the scope of the project."

[22] Column for Mid-Term omitted because it was non-applicable. Column for End-of-Project is equal to omitted column for Total Target.

110. Interviewees contributed additional documents, guidelines and online links to media articles. These examples provide tangible evidence of outcomes and progress toward the Intermediate State of the RTOC.

V. REVIEW FINDINGS

A. Strategic Relevance

Alignment to UNEP's UNEP Medium Term Strategy[23] (MTS), Programme of Work (POW) and Strategic Priorities

111. The ZCB Project aligns with the UNEP MTS 2022 to 2025, "For People and Planet," by addressing two of three stated crisis-level challenges: climate change, and, pollution and waste. The building sector has been contributing to, "unsustainable patterns of consumption and production that are overburdening the planet's resources," the heart of the MTS situational analysis. The ZCB project contributed to the MTS three climate action subprogramme outcomes (pp 23-25):

112. *Outcome 1: "Decision makers at all levels adopt decarbonization, dematerialization and resilience pathways."* The ZCB approach incorporated these pathways by reducing operational carbon emissions, using materials with low embodied carbon and reusing or recycling end-of-life construction waste, and, designing buildings to be best-sited and built for strength, safety and comfort for the local environment.

113. *Outcome 2: "Countries and stakeholders have increased capacity, finance and access to technologies to deliver on the adaptation and mitigation goals."* The project enhanced national, state and city capacities by: introducing ZCB business models; developing public policies for buildings and communities that were informed by extensive stakeholder input; and, encouraging the private sector to expand ZCB supply chains at all levels.

114. *Outcome 3: "State and non-state actors adopt the enhanced transparency framework arrangements under the Paris Agreement."* In roadmaps and city action plans, the ZCB project introduced methods to create or update baseline building stock inventories, develop appropriate benchmarks and identify indicators to track and report progress on emissions reductions gained through a life-cycle and ZCB approach to new construction and deep renovation of buildings.

115. The ZCB project contributions to Outcome 3 are further defined by conforming its Outputs to the technical targets of "SDG-7: Ensure access to affordable, reliable, sustainable and modern energy for all," which are listed in Table 1.

116. Several strategic priorities in the MTS were incorporated and delivered through the project. For example, Item 34. "UNEP will strengthen institutional capacity for gender-responsive programme delivery," is reflected in the balanced representation of women and men in all ZCB project activities, the provision of Gender Guidelines by WRI, discussion of gender in stakeholder meetings and planned actions, and, project reporting on gender indicators.

117. In reference to Item 35, "UNEP, working with its many partners, will deliver transformational results. It will align its planning and action with the 2030 Agenda and other internationally agreed environmental goals and aspire to deliver long-term, transformational impacts beyond the four years covered by this strategy" the ZCB project matched multiple partners' expert resources with participants request for assistance in developing ZCB timeframes that included 2030 and 2050 targets. These targets were

[23] UNEP's Medium-Term Strategy (MTS) is a document that guides UNEP's programme planning over a four-year period. It identifies UNEP's thematic priorities, known as Sub-programmes (SP), and sets out the desired outcomes, known as Expected Accomplishments (EAs), of the Sub-programmes. https://www.unenvironment.org/about-un-environment/evaluation-office/our-evaluation-approach/un-environment-documents

linked to emerging reference points and pathways being developed by international organizations IEA (Net Zero Roadmap), IFC (EDGE[24]) and GlobalABC roadmaps.

118. Beyond following the guidance of MTS Item 50, "Keeping a clear focus on the Paris Agreement is essential for guiding collective climate action in line with sustainable development," ZCB project participants exchanged experiences and best practices with developing country peers and became more connected to the UNFCCC COP process. Several countries participating in the ZCB project activities[25] also became signatories to the Chaillot Declaration, committing to support the priorities outlined in the Buildings Breakthrough, part of the Breakthrough Agenda.

119. In summary, the ZCB project's outputs and outcomes fully align with UNEP's mandate and stated priorities in the relevant MTS and Programme of Work for the project period (2021 to 2023). Additionally, the project helped approximately two thousand individual participants and their respective organizations to increase their capacities to plan, act and deliver on low-emissions development strategies for their building sector and communities. The innovations represented by NZB capacity-building was enhanced by significant efforts on the part of the project Executing Agency and regional, national and local partners to foster South—South Cooperation (as per the Bali Strategic Plan). Interviewees expressed their ownership of accomplishments and emphasized their willingness in the future to exchange knowledge, develop mutually beneficial monitoring, reporting and verification technology and low-carbon building materials processes, share case studies, action plans and lessons learned from the NZB project with peers in other developing countries and cities in the Global South.

120. The rating for alignment to UNEP MTS, POW and strategic priorities is Highly Satisfactory.

Alignment to the Strategic Priorities of The GEF and Partners

121. The ZCB project was initiated during the seventh replenishment period of the GEF Trust Fund (GEF-7) covering the period July 1, 2018, to June 30, 2022, under the GEF Programme Climate Change Mitigation 1-1. The relevant Focal Area Outcome is, "Promote innovation and technology transfer for sustainable energy breakthroughs." The ZCB project contributes to two GEF-7 Core Indicators: Core Indicator 6: Greenhouse Gas Emissions Mitigated (metric tons of CO2e); and, Core Indicator 11: Number of direct beneficiaries disaggregated by gender as co-benefit of GEF investment.

122. The national and subnational project partners sought to align their buildings sector climate mitigation efforts with national intentions (expressed in their NDCs and other emission reduction commitments) and their economic and policy priorities. Several interviewees stated that the baseline for building sector operational emissions in their localities was very low. Therefore any ZCB proposed policies that emphasized energy efficiency would need to emphasize other features (such as renewable energy and lower-embodied carbon in building materials) to make a more compelling case for local market acceptance.

123. Interviewees noted that although ZCBs were the focus of roadmaps, which highlighted priorities, in times of great challenges due to disasters (Section X) the ZCB priorities would be superseded by the needs of immediate responses and then by the needs of recovery and rebuilding. However, they pointed out that if ZCB policies included resilience and climate adaptation features, then they would be more attractive to policy makers. For

[24] IFC EDGE: "EDGE ("Excellence in Design for Greater Efficiencies") is a free software, a green building standard, and an international green building certification system." https://edgebuildings.com/

[25] Signatories as of 8 March 2024 include: Colombia; Costa Rica; Kenya; Mexico; The Philippines; and, Türkiye.

example, possibly a link could be made to add ZCB features when building structural codes are adopted or updated.

124. The multinational organizations, private sector and non-governmental partners (represented on the Project Steering Committee and through agreements to conduct activities for the project), each have ongoing and ambitious climate change mitigation priorities and market intervention programs that emphasize global or regional efforts to reduce GHG emissions reduction contributions in the buildings sector. In their advisory roles they contributed extensive technical and market knowledge to enhance the knowledge exchanges and peer-to-peer capacity building activities of the ZCB project. (Annex VII)

125. The rating for alignment to the strategic priorities of The GEF and project partners is Highly Satisfactory.

Relevance to Global, Regional, Sub-regional and National Priorities

126. The ZCB project was and remains relevant to the countries and subnational entities (cities, states) because it opens a new path focused on the buildings sector and markets to integrate and accelerate previous efforts and to better track and quantify carbon emissions reductions. Some of the participating government entities at initiation of the ZCB project lacked a current building inventory and the means to track future growth in their building stock; through the ZCB project they enhanced their capacity to monitor, report and verify GHG emissions from the building sector.

127. In Colombia, the ZCB project at design was relevant to the country's United Nations Development Assistance Framework (2015-2019) sustainable development strategy, wherein one goal was to strengthen national and local policies and strategies to achieve comprehensive environmental management and resilience. The ZCB project at design was relevant to the United Nations Development Cooperation Strategy for Türkiye (2016-2020) in its strategy for sustainable, inclusive growth and development, for two outcomes: improving the legal and policy framework for a more enabling and inclusive economy; and, for improving the implementation of more effective policies and practices "for all men and women on sustainable environment, climate change, biodiversity by national, local authorities and stakeholders, including resilience of the system/communities to disasters." (WRI, PIR 2024, p 3)

128. In its final report, WRI summarized the progress made by Colombia: "Three Colombian Ministries of (i) Environment and Sustainable Development (in October 2021) and (ii) Housing, City and Territory (in July 2021) and the (iii) National Planning Department (in July 2021), signed MOUs with CCCS in support of ZCBA project implementation. Ministry of Mining and Energy and Industry participated in dialogues at the national level. At the baseline, Colombia did not explicitly state building decarbonization as a target in their NDC. In April 2021, Colombia announced its Colombia Carbon Neutral strategy (E2050) with 2050 as the target year to reach net zero. Following this announcement, the national government adopted a law of minimum standards for achieving NDCs and E2050. At the launch of the National Roadmap in June 2022, the Ministry of the Environment and Sustainable Development announced that the roadmap would guide the building sector decarbonization goals of the NDCs and E2050. The ZCBA local partner defined all inputs and indicators on buildings for the commission leading this policy's adoption. E2050 was updated in August 2022 and issued a resolution that the national planning department and other ministries must meet and exceed the NDCs. The National Planning Department will include the ZCBA roadmap in the National Development Plan for the next four years." (WRI, Final PIR, Appendix 11, Outcome 1, p 3)

129. WRI summarized the progress made by Türkiye: "The two Turkish Ministries of (i) Environment Urbanization and Climate Change and (ii) Agriculture and Forestry signed

MOUs with WRI Türkiye in 2020 and have continued their collaboration through 2023. Türkiye was an early signatory of the Zero Carbon Buildings for All commitment, including building decarbonization targets, and ratified the Paris Agreement on 6 October 2021, and committed to reach net zero emissions by 2053. WRI Türkiye collaborated with the Department of Energy Efficiency, a part of the newly minted Ministry of Environment and Urbanization to define the contours of implementation for the Nearly Zero Energy Building Regulation. (WRI, Final PIR, Appendix 11, Outcome 1, p 3)

130. The rating for this criterion is Highly Satisfactory.

Complementarity with Existing Interventions/Coherence

131. The ZCB project complemented and built upon numerous, prior market transformation projects implemented by UNEP that increased knowledge and enhanced the capabilities of developing countries worldwide, introducing some of the basic elements that became fundamental to the design of the ZCB project.

132. All of the prior or ongoing projects are/were public-private partnerships with deep stakeholder input focused on some of the elements of the ZCB approach. Examples focused on energy efficiency include: UNEP-GEF en.lighten Initiative; UNEP-GEF BEA 1 and BEA2 (both executed by WRI); and, UNEP-GEF United for Efficiency; and, these projects' many follow-on GEF country projects). An example focused on renewable energy is the Seed Capital Assistance Facility (SCAF I and II, executed with the Frankfurt School UNEP Collaborating Centre). Examples focused on sustainable production and consumption included projects that provided capacity-building and technical assistance for reducing emissions from materials, such as cement. An example focused on subnational intervention is UNEP-GEF UrbanShift (executed by WRI). The closest related ongoing effort by UNEP and many international partners that is focused on many similar policy and technical topics of ZCBs is the GlobalABC, for which UNEP Cities Unit serves as Secretariat.

133. Members of the PSC were very well-connected to building sector global programmatic efforts in the buildings and construction sector, especially the GlobalABC, lending strong coherence to the direction of the ZCB project. Many provided continuity with the prior BEA projects and also were involved with the governance and working groups of the GlobalABC. The "GlobalABC Roadmap for Buildings and Construction 2020 to 2050" and its regional roadmaps for Africa, Asia and Latin America were fundamental references for the ZCB project. The GlobalABC's Roadmap Coordination Group members include ZCB partners and PSC members (IEA, WGBC and WRI), lending continuity to the ZCB project's activities.

134. PSC members helped to expand the ZCB project expert technical network, contributing: professional consultations; training and tools (such as IFC's EDGE program); data, analysis and reporting frameworks (such as IEA's Net Zero Pathway); Sustainable Energy for All's experiences in developing countries (such as with market transformation outreach to and interventions design to bring better energy services to disadvantaged and vulnerable populations); and, models for engaging and scaling up peer-to-peer organizations (such as WGBC's extensive network of national and local green building councils and ICLEI's strong relationships with cities in South Asia and Southeast Asia). Private sector members of the PSC offered technical expertise on innovative systems, materials and construction methods; value chain insights; and, suggestions for overcoming market transformation barriers.

135. WRI continued the successful methods of the BEA projects and the experience and resources of the WRI Ross Center for Sustainable Cities, adding continuity and building on prior Lessons Learned. WRI Project Managers were located in the regions of some of the national and city partners and were able to make connections with existing government

and multinational policy and project efforts to advance energy efficiency, renewables and sustainable building practices.

136. Some interviewees mentioned that the expert technical support offered in some cases was too brief, or, it was not well-matched to local conditions. For example, in the private sector more information was needed to help initiate locally-accessible supply chains for low-carbon building materials, low-carbon materials production and training for vendors and distributors regarding the added value of certified, low-carbon building materials.

137. UNEP as Implementing Agency had a broad portfolio of donor-supported market transformation projects and staff familiar with each region's and nation's climate change mitigation commitments, policies and programs. However—possibly due to staff turnover during the project—some UNEP resources (such as SCAF's financing expertise for energy efficiency and for renewables in developing countries) was underutilized by the ZCB project. Also, IFC's in-kind technical support for use of the EDGE tools was underutilized.

138. Critical to the future impact of the ZCB project is UNEP's role as a high-level change agent and WRI's role as an executing agency and thought leader for sustainable cities worldwide. For example, via UNEP and the PSC members' involvement with the Buildings Breakthrough and the UNFCCC COPs, project participants were able to elevate their ZCB efforts and achievements to an international community audience that includes potential donors and collaborators. (Figure 12, Table 12)

139. The rating for complementarity with relevant existing interventions/coherence is Moderately Satisfactory.

Responses to Terminal Review Strategic Questions

140. The Terminal Review TOR included three strategic questions posed by UNEP. The responses below are based on the Reviewer's examination of evidence from the ZCB project, the generalized responses of the interviewees and on the Reviewer's prior experience with UNEP's energy efficiency, renewable energy and building sector project portfolios.

Question 1: To what extent are the results attributable to the project?

141. Many of the interviewees' qualitative attributions for the results of the project identified most strongly with their WRI-BEA prior experience and the continuity of that experience with the ZCB project (which they perceived as a Phase 3 of BEA). Interviewees often mentioned the GlobalABC, Buildings Breakthrough and Chaillot Declaration as motivators, drivers and resources for follow-on, post-ZCB project actions. The reviewer concludes that participants' longer-term results will be partially attributable to the BEA projects and the ZCB project but taking action to realize emissions reductions will be more dependent on their governments' and organizations' efforts and funding.

142. The project results could be regarded as catalysts, accelerators and influencers, rather than direct causes of the ultimate Impacts. Without participating in the ZCB project, the countries and cities would have taken or continued efforts on energy efficiency, renewables and sustainability. Post-project, these decision-makers and market actors will likely to follow their respective roadmaps, enacting their building sector interventions in a systematic manner.

143. Quantitative attribution of the ZCB project's results might be possible on the basis of the city pilot projects. However, any quantitative attribution of emission reduction results to the ZCB project would be very challenging to model and track because the baselines and available tools in each country are relatively new, unverified and may not be funded to the extent needed to accurately track results back to the ZCB project. Perhaps some of the countries will have post-project capability of attributing results to the time period in

which the project occurred. (For example, to the date of first establishing a building sector emissions baseline, circa 2022-2023). (Recommendation 1)

Question 2: What can we conclude in terms of effectiveness of global accelerator projects versus individual local projects? During the Inception and Preliminary Findings phases of the Terminal Review, the Reviewer consulted with the UNEP Task Managers and WRI Project Managers to gain clarity on the scope of this question. With their input, the question is reformulated as follows.

Reconstructed Question 2: What is the relative value of the results of BEA—ZCB global accelerator (platform) activities versus the locally-conducted activities? What value is added to local activities by offering a global platform and what actions would be taken in the absence of a global platform?

144. The BEA global platform is well-developed, standalone (website with public and membership features) and offers many resources and a network of more than ## cities with experience in transforming building markets to be more energy efficient. In contrast, the ZCB project had a far more limited scope and budget for platform development. Its resources were mainly linked to many resources on other global platforms; it did not develop standalone features; the project has a "ZCB Accelerator" web page on WRI's website. Some of the ZCB resources were provided as tools to participants, but they are not aggregated now in a publicly accessible, well-organized website. There are no inter-user social media communications tools to help build communities of practice.

145. As a topic and a market innovation, the ZCB approach is newer, less standardized and far more complicated than energy efficiency in buildings. In its final report on the ZCB project, WRI stated that, "ZCBs currently only account for less than 1% of the global building stock." (WRI, Lessons Learned, p3) While developing a standalone ZCB global platform could be valuable, it should be multilingually accessible and designed for multiple levels of audiences (national, subnational, city). Unique technical content would need to be developed or linked to, to avoid duplication of existing platforms for the various elements of the ZCB approach. Eventually, a global ZCB platform could encourage more building sector decision-makers and practitioners to take action, as the ZCB approach matures beyond an early adopter audience. Meanwhile, to support the ZCB project participants post-project, UNEP and WRI could seek options for better organizing and publicizing the resources that were developed and the case studies that highlight achievements of ZCB pilot projects in cities.

146. Interviewees noted that the Component 3 activities provided an introduction to zero carbon topics, resources and some peer exchanges. It also facilitated access to experts, one-on-one, for specific challenges faced by stakeholders involved in the activities of Component 1 and/or Component 2. Nonetheless, a few interviewees criticized the ZCB platform for being, "too Global North," in technical content and experience with local building practices and materials. They suggested that having access to more building sector professionals and producers and distributors of low-carbon building materials from the Global South who would have experience with their local situations (policy, market factors and suppliers) could have been a better match with their pilot projects.

147. Interviewees working with participating cities did appreciate the flexibility of being able to design and choose locally-appropriate priorities and actions for their pilot projects. They would have appreciated more peer-to-peer exchanges, within regions or levels of development. Such exchanges would have furthered South-South Cooperation.

148. Nearly all interviewees accepted that virtual communication, webinars and online meetings were a necessity during the ZCB project, due to the pandemic. Most also believed that: 1) in-person exchanges lead to more robust networks than were developed

in the project; and 2) that local projects stimulate more sustainable changes because they are tangible and replicable.

149. Interviewees requested that future ZCB efforts offer: more local expertise; in-person study visits to pilot projects in similar climate/building types; in-person training for specialty skills (for example, building code development, code enforcement, monitoring and tracking; knowledge resources, specifications and testing for low-carbon building materials; and, best practices for safe and equitable building and construction labour forces); and, a networking mechanism to stay in touch with peers and experts.

150. In the absence of the ZCB Component 3 (global platform) aspects of the ZCB project, the Reviewer concludes that many of the project participants would not have been able to achieve as many tangible results in their pilot projects and would have lacked a global audience for their efforts. The BEA global platform or the GlobalABC platform did help some participants to identify and seek funding for future work; their grant-seeking successes might not have occurred—or been as timely—without these publicly-accessible resources and the expert network offered by the ZCB project. (Lesson Learned 1; Recommendation 2)

Question 3: After the completion of the BEA phase 1 and 2 projects, have any of the lessons learned from the previous phases been applied to this project in terms of options for exiting or transitioning strategies for the sustainability of the actions undertaken?

151. Some interviewees (members of the PSC) previously had participated in BEA 1 and BEA 2. Given that they perceived ZCB as a third phase of BEA[26], they considered this project as a continuing transformation of regional building sectors. Even so, most acknowledged the need for continued support from donors and project partners because many of the ZCB project participating country and city ministries or administrations were less familiar with the ZCB approach (versus energy efficiency and renewable energy) and especially unfamiliar with the low-carbon materials and life-cycle complexities of the buildings sector.

152. Nonetheless, all interviewees pointed to the value of having created a broad consensus among stakeholders for their respective roadmaps. All of the roadmaps had listed a myriad of desired actions but none of the participating entities felt that their country or city already had sufficient capabilities or budgets to tackle all the actions. Some had invested time and effort outside of the ZCB project to develop business and financial proposals for future work; some have succeeded in securing funding. They expressed optimism for sustaining their national and subnational building sectors' long-term market transformation and achieving emissions reductions even as the ZCB project closed. (Lesson Learned 3) (Recommendation 1; Recommendation 3)

Rating for Strategic Relevance: Highly Satisfactory

B. Quality of Project Design

153. Overall, the ZCB project is well designed, effectively and efficiently incorporating many of the results of its predecessor projects. It was envisioned as a "Phase 3" to BEA 1 and BEA 2. However, it was also novel in that it introduced a relatively new and powerful conceptual approach—zero carbon GHG emissions from the building sector—to be achieved through a balancing of means (sustainable materials, energy efficiency,

[26] The BEA engages its members at the subnational level. The ZCB participating cities with prior membership in BEA are: the Costa Rica City Cluster; Bogotá and Santiago de Cali, Colombia; and, Nagpur, India. See map of BEA cities at: https://buildingefficiencyaccelerator.org/

renewable energy, and carbon offsets) and the expressed needs of many and diverse stakeholders.

154. Rather than overreach to achieve actual zero carbon building emissions reductions within its duration and scope, the project had a more modest and achievable two-year goal of accelerating the efforts of a limited number of countries and cities to plan, initiate, adopt and/or accelerate ZCB climate mitigation action plans (countries and cities) and small pilot projects (cities). It was also designed to identify, gather and publicize ZCB resources to a large audience (global).

155. The design included a process of selection of candidates for participating countries and cities for the ZCB project. A candidate assessment was conducted by WRI with UNEP input. The selection process is detailed in the CEO Endorsement document (pp 27-29). The selection process minimized risks and focused on partners that would have a high probability of successful outcomes; some of the candidates had demonstrated their motivation and capabilities while participating in BEA 1 and/or BEA 2, but this was not a mandatory requirement for participation in the ZCB project.

156. The project partners' roles, responsibilities, tasks, budgets and milestones were clearly laid out in work plans that were kept up to date during the project. The only adjustment was made at the end of the project, for a no-cost extension. At that time the workplan and budget were updated (Section X).

157. A weakness in the design of the project was the lack of a strong narrative for a Theory of Change and a lack of a diagram to visualize the pathways toward impact that originated with the three components of the project. This weakness is addressed by the Reconstructed Theory of Change (RTOC, Section IV). A clear narrative and diagram would have offered a more complete basis for project updates and impact assessments.

Rating for Project Design: Satisfactory

C. Nature of the External Context

158. The ZCB project was affected by several external factors: The security and economic situation due to the ongoing SARS-COVID-19 pandemic temporarily and differently affected project staff and partners operations in each locality to a moderate extent; the earthquake in Türkiye also caused disruption of security and operations, especially in Gaziantep.

159. In each locality, the political context may have intermittently or partially affected project operations to a moderate extent (due to national and local elections and subsequent changeover in leadership and staffing of ministries or local administrations). For example, in the final PIR (WRI 2024), the overall risk to achievement of Outcomes was assessed as Moderate, "… due to social, political, and economic changes in Türkiye and government changes in Laikipia County, however, no risks to delivery of project outputs were anticipated."

160. Nonetheless, the Reviewer finds that a Highly Satisfactory degree of adaptive management was demonstrated by the Implementing and Executing Agency staff members and project partners who faced remote work and virtual meeting challenges during the SARS-COVID-19 pandemic. They also accommodated staff personnel transitions among several UNEP Task Managers[27] and WRI Project Managers.

[27] UNEP underwent a reorganization at the Division level during implementation of the ZCB Project. During this Terminal Review, additional UNEP staff changes (for the ZCB Project Task Manager) also occurred.

161. Additionally, the WRI and WRI-Türkiye managers reported prioritizing their organizations' employees' safety and security after the earthquake disaster in Türkiye. (WRI, PIR 2024 p 9) They soon requested an accommodation from UNEP of a no-cost extension to allow for project completion. With regard to political and government changes in each participant locality, extensive stakeholder engagement that included representatives of government, private sector and civil society lent stability overall to the conduct, quality and completion of the ZCB project activities.

Rating for Nature of the External Context: Moderately Unfavourable

D. Effectiveness

Availability of Outputs

162. Project outputs with confidential or draft texts were made available (in original local language) to engage relevant participants via a secure, online, private file sharing platform ("Basecamp") maintained by WRI. Publicly-released documents were presented in local languages, some with English summaries made available, too. Some public documents were linked to WRI's existing BEA website[28] and platform[29] and others were highlighted on a (more limited) WRI "Zero Carbon Building Accelerator" web page[30]. Recordings of some public events remain posted, with links on the WRI, GlobalABC and UNEP website. (Table 12) However, all outputs were not (and have not yet been) aggregated on any UNEP public-facing website. (Recommendation 1)

163. Brief updates, event summaries and cross-cutting case studies describing ZCB project outputs and outcomes were co-authored by WRI and local partners (in English and local languages) and posted publicly by WRI under various topical headings on its website (Table 12).

164. The outputs committed to by the project were completed successfully, with extensive stakeholder engagement and were considered to be of high value by interviewees, fulfilling the Direct Outcomes. Interviewees whose organizations facilitated webinars, road-mapping activities and expert exchanges with stakeholders indicated moderate to high levels of satisfaction and subsequent use of roadmaps (beyond closure of project) by project participants and local and national governments.

165. Individual city and national project participants' draft documents and non-public (reporting) documents were shared with WRI and UNEP, but for confidentiality reasons may not have been made available beyond designated stakeholders. All project files submitted to UNEP are organized internally and maintained by the Task Manager.

166. The Half-Yearly, Annual and Final progress reporting by WRI was timely, detailed and approved by UNEP Task Managers. These reports showed steady progress on all scheduled activities, culminating in 100% completion by September 2023.

[28] WRI BEA website: (Topic: Cities). https://www.wri.org/initiatives/building-efficiency-accelerator
[29] WRI BEA platform: (Platform title: Accelerating Building Efficiency Around the World) https://buildingefficiencyaccelerator.org/
[30] WRI ZCBA webpage (Topic: Cities). Includes a link to a brochure.: https://www.wri.org/initiatives/zero-carbon-building-accelerator

Table 12 Examples of ZCB project outputs, by date, author, title and project component

Date	Authors, Presenters	Title (Component)	Type of Entry / URL WRI website
22.06.21	Carlos Manuel Rodriguez. Carlos Eduardo Correa, Mehmet Emin Birpinar, Martina Otto, Cristina Gamboa	Global Launch: Zero Carbon Building Accelerator (Component 3)	Past Event, Energy (webinar): https://www.wri.org/events/2021/6/global-launch-zero-carbon-building-accelerator
21.01.22	Kayla Rakes, Angélica Ospina and Melissa Ferro	How Stakeholder Working Groups Are Advancing the Zero Carbon Building Accelerator in Colombia (Components 1, 2, 3)	Project update, Buildings: https://www.wri.org/update/how-stakeholder-working-groups-are-advancing-zero-carbon-building-accelerator-colombia
23.02.22	Sumedha Malaviya, Fairuz Loutfi, Angélica Ospina	Zero Carbon Building Accelerator: Stakeholder Engagement in Colombia (Components 1, 2, 3)	Past event, Cities (panel): https://www.wri.org/events/2022/2/zero-carbon-building-accelerator-stakeholder-engagement-colombia
21.04.22	Kayla Rakes, Lorena Pupo, Angelica Ospina	Identifying Transformative Actions in Colombia (Components 1, 2, 3)	Project update, Cities: https://www.wri.org/update/identifying-transformative-actions-colombia
27.04.22	--	6 Cities and Local Governments Accelerating Zero Carbon Buildings (Component 2)	Project update, Cities: https://www.wri.org/update/6-cities-and-local-governments-accelerating-zero-carbon-buildings
28.04.22	Sumedha Malaviya, Pedro Rodrigo Rolim, Naschielli Ayala, Maria Fernanda Aguirre, John Henry Melo, Juanita Alvarez	From Energy Efficiency to Net Zero Carbon Roadmaps in Latin America (Components 1, 2, 3)	Past event, Urban efficiency & Climate (webinar): https://www.wri.org/events/2022/4/energy-efficiency-net-zero-carbon-roadmaps-latin-america
10.05.22	Ahmed Sadda, Salah El-Haggar, Ronita Bardhan, Nina Rentel, Emiliano Detta, Robin King, Sumedha Malaviya	Green Upgrading in Informal Settlements (Component 3)	Past event, Cities (webinar): https://www.wri.org/events/2022/5/green-upgrading-informal-settlements
17.08.22	Kayla Rakes	Colombia Launches National Roadmap for	Project update, Cities: https://www.wri.org/update/colombia-

Date	Authors, Presenters	Title (Component)	Type of Entry / URL WRI website
		Net Zero Carbon Buildings (Component 1)	launches-national-roadmap-net-zero-carbon-buildings
21.09.22	Natalie Thomure, Meltem Bayraktar and Tuğçe Üzümoğlu	Stakeholder Engagement Underpins a Bold Roadmap to Zero-carbon Buildings in Türkiye (Component 1)	Project update, Cities: https://www.wri.org/update/stakeholder-engagement-underpins-bold-roadmap-zero-carbon-buildings-Türkiye
18.10.22	Kayla Rakes	Bogotá and Cali Connect Local Action to National Ambition to Transform the Buildings Sector (Component 2)	Project update, Cities: https://www.wri.org/update/Bogotá-and-cali-connect-local-action-national-ambition-transform-buildings-sector
19.04.23	Michael Doust, Fairuz Loutfi, Sumedha Malaviya, Natalie Thomure, Angelica Ospina, Nicolas Ramirez, Meltem Baryaktar and Baret Binatli, Louis Kariuki, Nikhil Kolsepatil	What We Learned: Developing National Roadmaps and City Action Plans for Zero Carbon Buildings (Components 1, 2, 3)	Past event, Cities (webinar): https://www.wri.org/events/2023/4/what-we-learned-developing-national-roadmaps-and-city-action-plans-zero-carbon (recording): https://youtu.be/cyoTjAWEKgQ
09.12.23	Ahmed Sadda, Salah El-Haggar, Ronita Bardhan, Nina Rentel, Emiliano Detta, Robin King, Sumedha Malaviya	COP28 #BuildingsPavilion: Roadmaps to Decarbonize the Buildings Sector (Components 1, 2, 3)	High-level event, COP 28 (panel): https://globalabc.org/events/cop28buildingspavilion-roadmaps-decarbonize-buildings-sector

167. As the tasks in each of the three Components were completed, the three Pathways converged to move the ZCB project toward the Intermediate State. For example, Component 2/Pathway 2 was catalytic in that several additional cities joined the project after it was launched. Some of the interviewee responses indicate momentum toward the Intermediate State as they have launched pilot projects, such as a public library building in Konya and templates for specifications for procuring ZCBs in Nagpur.

168. The rating for availability of outputs is Satisfactory, due to the need for aggregating all public documents in one place that is on or linked to UNEP's public-facing website(s).

Achievement of Project Outcomes

169. All three Project Outcomes were achieved or exceeded. To the credit of the Implementing and Executing Agency teams and despite the Moderately Unfavourable Nature of External Context, each of the project outcomes was achieved with well-documented, gender-balanced participation of donors, in-kind contributors and stakeholders from multiple levels of government, the private sector and civil society.

Figure 14. Work within one of the groups formed during the Workshop, with a view to defining gaps and barriers, transformative actions, stakeholders and implementation steps.

Source: GBCCR

Figure 12 Costa Rica City-Cluster: ZCBA Closing Report, p 124. Image source: GBCCR

170. Direct Outcome 1: *(Target achieved: "Two national governments link NDCs and/or other national strategies with ZCBs and develop approaches to support subnational governments, utilities, the private sector and civil society to accelerate the market transformation towards ZCBs")* Two national governments—Colombia and Türkiye--linked their national strategies to the building sector, specifically with ZCB approaches that would in turn support subnational governments, utilities, the private sector and civil society to accelerate the market toward lowering carbon emissions by 2030 and nearing net zero carbon emissions from the buildings sector by 2050. Notably, the initiatives of subnational governments in Colombia are anticipated by interviewees to increase the national ambitions. In Türkiye (which is in the process of adopting European Commission directives as part of its trajectory towards European Union membership) all national building and energy codes are anticipated to become mandatory for subnational execution in the building sector.

171. The Assumption associated with Pathway 1, *"Roadmaps, policies and building occupants' rights and demands for resilient buildings will motivate key building sector players to create more equitable and gender-balanced capacities to deliver and implement energy efficiency, renewable energy and carbon offset market transformation programs"* holds true, in that the roadmaps and action plans that were published during the project do reflect local communities and their needs; and, they are being utilized post-project, for their respective prioritized actions. Programmatic delivery of market transformations will take longer than the project's two year timeframe to achieve; this was anticipated in the

project design and is reflected in the indicators for the outputs, which emphasize "initiation of implementation" rather than completion of implementation.

172. The Driver associated with Pathway 1, "*More international organizations, governments and private sector and civil society organizations will replicate efforts pioneered by peer entities that have begun to decarbonize their building sectors via stakeholder-consensus roadmaps and by adopting, implementing, monitoring and enforcing ZCB policies*" was beginning to be active during the ZCB project. For example, ICLEI South Asia organized several online ZCB webinars and co-marketed them with ICLEI-India. They found strong audience interest in possibly replicating the ZCB approach: the ZCB webinars attracted 175 participants from Philippines, Sri Lanka, Bangladesh and India. No follow-up surveys were conducted for the webinars.

173. Direct Outcome 2: *(Target exceeded: City governments in at least two countries use newly gained tools and knowledge to achieve socially, environmentally and economically viable GHG mitigation in buildings to advance towards ZCBs)* Nine city governments in four countries (Colombia, Costa Rica, India, and Türkiye) used newly gained tools and knowledge to increase their capability to achieve socially, environmentally and economically viable GHG mitigation interventions. They developed city action plans with new or updated baselines and initiated the means of tracking progress toward ZCB market transformation. Although Laikipia County did create an action plan, it has yet to be adopted.

174. Several factors in the Assumption associated with Pathway 2, "*Population growth, urbanization, empowerment of women and vulnerable groups, aging of building stock and disaster-level destruction will continue to increase the demand for and construction of resilient, safe and accessible buildings in many cities*" hold generally, as global trends, but empowerment of women and vulnerable groups varies and in many countries, lags considerably.

175. Considering the most recent statistical updates for relevant indicators for the two national participants, Colombia and Türkiye, the assumption holds for all but one of the four factors for which a proxy indicator is available, for the most recent five-year period, 2019 to 2023. (Table 13) In both countries, the total population continues to grow, but the annual growth rate of urbanization has slowed. Most notably, in both countries, the number of cases of internally displaced persons associated with disasters has increased dramatically. Using the proportion of seats held by women in national parliaments as a proxy for empowerment of women, both countries have seen gains. Overall, the assumption holds for Pathway 2.

Table 13 Proxy indicators and national data to test validity of Pathway 2 assumption

Indicator: Series Name	Country	2019	2020	2021	2022	2023	Five-year trend
Population, total (millions)	Colombia	50	51	52	52	52	Increased: 50 million to 52 million
	Türkiye	83	83	84	85	85	Increased: 83 million to 85 million
Urban population growth (annual %)	Colombia	2.2	1.9	1.5	1.1	0.8	Slowed: 2.2% to 0.8%
	Türkiye	2.1	1.6	1.5	1.6	1.0	Slowed: 2.1% to 1.0%
Internally displaced persons, new displacement associated with disasters (# cases)	Colombia	36000	64000	32000	281000	351000	Increased: 36 thousand to 351 thousand
	Türkiye	540	41000	84000	6900	4053000	Increased: 540 cases to more than 405 million
Proportion of seats held by women in	Colombia	19	18	19	29	29	Increased: 19% to 29%

Indicator: Series Name	Country	2019	2020	2021	2022	2023	Five-year trend
national parliaments (%)	Türkiye	17	17	17	17	20	Increased: 17% to 20%
Data source: World Bank Databank, World Development Indicators (as of 28 June 2024)							

176. The Driver associated with Pathway 2, *"Accelerating climate change impacts and more widespread understanding of resilient ZCB strategies will inspire building occupants, NGOs, women and vulnerable populations to advocate for government adoption of ZCB policies and regulations and to demand access to energy efficient technologies, renewable energy and zero-carbon building stock that will deliver direct benefits to themselves and the environment"* appears to be intensifying, based on the level of interest and the stakeholder ownership of the ZCB project.

177. Direct Outcome 3: *(Target achieved: National, subnational and city governments, beyond those in components 1 and 2, advance actions towards ZCBs)* Six subnational governments (four cities in Costa Rica, one city in India and one state in Kenya)—beyond those anticipated in Components 1 and 2—advanced actions towards ZCBs by participating in the ZCB project outreach (workshops, webinars, international or regional events). Some also advanced by securing external, multilateral funding for initiating ZCB methodology and local actions[31].

178. The Assumption associated with Pathway 3, "The global supply of zero carbon building materials, energy efficient technologies, renewable energy systems and a more diverse and qualified building labour pool will increase from 2030 to 2050 while costs to design, create and operate ZCBs will become more competitive with conventional practices" is future-focused. To test if it is valid, future evaluations of this project could use the GlobalABC or IEA annual building sector and energy reports as a data source.

179. The Drivers associated with Pathway 3 are: "*Multilateral international and regional key players in the finance sector will recognize ZCB interventions as a means to accelerate climate change mitigation and adaption in national and city building sector development and reconstruction, especially for the most critical building services and for the most vulnerable populations*"; and, "*As UNEP, other UN bodies and international partners (participating in efforts such as the Buildings Breakthrough) emphasize the urgency of outreach and promotion of the benefits of ZCBs, building sector policy-makers will increase their ambitions and accelerate adoption of ZCB market transformation policies, plans and technologies.*"

180. Both of these drivers are presently active, as evidenced by the interest of donors (including the European Union, The GEF and donors to the GlobalABC) as well as private sector interests, including this project's partners and PSC members (Johnson Controls, Saint-Gobain) and locally involved private sector partners. Nearly all the interviewees stressed that mitigation and adaptation actions are becoming more urgent, with adaptation planning (especially disaster preparation and response and the resilience of any new or renovated buildings) now at a critical point for all levels of government. Thus the intensity of these Pathway 3 drivers is accelerating.

181. The rating for achievement of project outcomes is Highly Satisfactory.

[31] WRI has began a new project (beyond ZCB project), " All in for a Net Zero Built Environment," in India and Mexico, garnering support of USD 3,372,991 from three donors: Bloomberg Philanthropies USD 1 million; We Mean Business Coalition USD 2 million and HSBC Asia, USD 372,991.

Achievement of Likelihood of Impact

182. Per the ZCB project's RTOC, the impact is envisioned as, *By 2050, project results contribute to: achievement of SDG 7, "Ensure access to affordable, reliable, sustainable and modern energy for all"; and, GEF-7 CCM, "promotion of innovation and technology transfer for sustainable energy breakthroughs," by reducing metric tons of CO2e emissions and by increasing the number of women and men in developing countries who will directly co-benefit from GEF funding*.

183. The roadmaps and impact assessments produced during the ZCB project reflect the extended timeline—more than two decades to 2050—that will be needed for building sector market transformation interventions to achieve the optimal impact to support their countries' Paris Agreement targeted commitments.

184. The assumptions in the RTOC appear to hold true, with no objections raised in discussions the Task Manager or with interviewees. Likewise, the drivers in the RTOC appear to remain in place and are consistent with drivers for other ongoing market transformation activities noted throughout this Terminal Review (such as GlobalABC, UrbanShift, IEA forecasts and WGBC Advancing Net Zero).

185. Future efforts based on the ZCB project have begun in each participating country and city and at least two countries have begun to replicate aspects of the ZCB project (as noted in Appendix 11 to Final Report to UNEP, p 12, item 2.3). These efforts move the project further toward the project's RTOC Intermediate State and Impact that could be realized by 2050.

186. WRI has secured additional support for 2023 to 2024 to replicate aspects of the ZCB project methodology in India and in Mexico. WRI will collaborate with WGBC and WBCSD and local stakeholders to develop pilot projects and a "national roadmap in Mexico and city action plans in two cities in India and in two cities in Mexico."

187. In Colombia, multiple ministries will continue prioritized roadmap actions. Additionally, cities will benefit from the support of a GEF-7 project implemented with CAF and IDB: "Energy Efficiency for the Transition to Carbon Neutral Cities in Colombia." Simultaneously, the private sector is moving forward with a Decarbonization Guide and an inter-union effort to develop a ZCB value chain for the sector's market transformation.

188. In Türkiye, the ZCB project supported certified train-the-trainer participation to increase the numbers of assessors for green building applications. The Konya Metropolitan Municipality is working with WRI-Türkiye to develop a proposal for EU funding to execute the City Action Plan, especially to increase technical capacities; the city also will develop a certified green building public library featuring low-carbon materials. Gaziantep has developed a post-quake resilient urban community plan.

189. In India, Nagpur aims to expand the scope of low-carbon emissions efforts in public buildings and social housing to include commercial and residential ZCBs. ICLEI South Asia intends to support member cities by applying ZCB experiences to benchmarking of construction techniques and specific pilot interventions, such as using ZCB tools and information to make recommendations for new public buildings.

190. Influenced by the ZCB project in Kenya, Laikipia County's experience that was presented at a regional level attracted a private sector company to express interest in developing National Roadmaps and City Action Plans for ZCB construction in Nigeria.

191. In Costa Rica, Belén published a City Master Plan and approved cooperation with GBCCR for prioritized actions. The ZCB project also raised awareness nationally and contributed to interest in establishing a national buildings baseline and national taxonomy for sustainable buildings.

192. Interviewees cautioned that quantifying reduced emissions at the national and city levels requires more and more accurate, standardized baseline information, significant private and public funding for physical construction/deep renovation and—critically—more sustained political commitment, from now to 2050. The Reviewer found that some Impact would be achieved by 2030, especially for the pilot projects already underway and for projects that plan for deep renovations of existing buildings, for example, Konya's "renovation portfolio."

193. Some Impact is moderately likely to be achieved from 2030 to 2040 in countries and cities that have existing building sector policies, especially if by 2030 they have adopted or updated building and energy codes with features from prioritized in their ZCB project roadmaps. Input from the interviewees indicates that significant Impact envisioned in the RTOC would be likely to be realized from 2040 to 2050, in keeping with typical new buildings construction schedules.

194. Final reports from the participants and WRI present some—albeit incomplete—evidence of Impact as of end of 2023 against the ZCB project's two GEF-7 Core Indicators. (Table 10; Table 11; Recommendation 1)

195. Some progress by countries was made against GEF-7 Core Indicator 6, the expected values for GHG mitigated targets, but the estimated progress (which could have included city contributions) is only projected for the two national participants (not for the subnational participants).

196. The rating for likelihood of impact is Moderately Likely due to lack of data and uncertainty in projecting impact beyond 2030.

Rating for Effectiveness: Highly Satisfactory

E. Financial Management

Adherence to UNEP's Financial Policies and Procedures

197. Annex V and Annex VI present financial data (Table 21, Table 22, Table 23 and Table 24) regarding budget and financial management.

198. The Reviewer examined financial and co-financial reports, one audit from 2021 (Andersson) and interviewed the Fund Management Officer, Task Managers and Project Managers. The financial management of this project was collaborative, timely, detailed and accurate. No technical problems were identified; the rating is Highly Satisfactory.

Completeness of Financial Information

199. The reports were regular, detailed and complete. No major adjustments were made to budgets or expenditures, other than Revision 1, made to the UNEP-WRI PCA to accommodate the reasonable request for a no-cost extension due to field disruptions in Türkiye (Annex V).

200. Two financial issues remain outstanding at the time of submission of this Final Report: 1) UNEP awaits a final financial audit from an independent auditor commissioned and to be submitted by WRI; and, 2) no explanation was provided by WRI for why the budgeted in-kind contribution of IFC was not fully realized (Table 21).

201. Until such time that these issues are resolved the rating is Moderately Satisfactory.

Communication Between Finance and Project Management Staff

202. Interviewees asked about financial management, payments, expenditures and reporting all replied that communication was highly satisfactory. Regular, virtual meetings

were held to discuss progress and answer any questions. Considering the need to work remotely and the turnover in management staff (both UNEP and WRI) during the project, interviewees also noted that all staff made best efforts to achieve transparent and smooth transitions in financial management matters. The rating is Satisfactory, pending an explanation from WRI regarding the shortfall in IFC's contribution.

Rating for Financial Management: Satisfactory *(pending UNEP approval of final audit and completed co-finance information)*

F. Efficiency

203. WRI already had established Project Managers, staff and offices in some of the regions targeted for participation. WRI also leveraged the its buildings and cities topical resources, global professional networks and "deep dive" city partners developed by the WRI Ross Center for Sustainable Cities and the prior BEA 1 and 2 projects, in addition to its role and experience with the GlobalABC.

204. The time extension of seven months, with a no-cost extension, allowed for completion of all tasks and deliverables but did not delay significantly any direct outcomes or impacts, given the 2050 timeframe for projected emissions reductions impact. WRI and its executing partners in-country were efficient in organizing tasks, events and reporting.

205. Conducting most project activities via virtual technology (email, video conference and online webinars) was key to minimizing environmental impact. Most in-person events were held locally, avoiding long-distance travel expenses and on-site meeting costs for participants and organizers. For a project with global reach, with many activities undertaken in a relatively short period of time and engagement of more than a thousand stakeholders, the ZCB project efficiently minimised UNEP's environmental footprint.

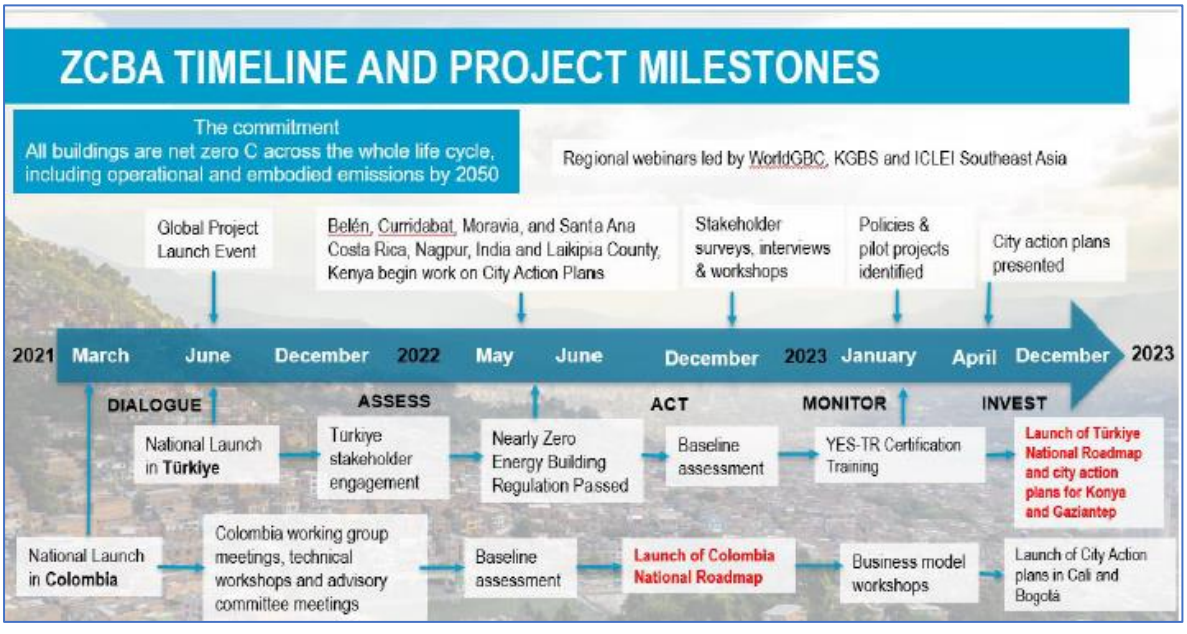

Figure 13 ZCB Timeline and milestones Source: WRI Final Report

Rating for Efficiency: Highly Satisfactory

G. Monitoring and Reporting

Monitoring Design and Budgeting

206. The UNEP Task Managers and WRI Project Managers coordinated all aspects of project monitoring and reporting. Reports followed the design for monitoring in the original Project Approval Package approved by the GEF. Reporting during the project complied with UNEP and GEF standard monitoring, reporting and evaluation procedures, including progress report submissions, per UNEP's and WRI's respective contractual agreements, designated indicators and administrative approvals. Planned budgets were sufficient for the monitoring and reporting tasks, including project evaluation, which required only this management-led Terminal Review.

207. The rating for Monitoring Design and Budgeting is Highly Satisfactory.

Monitoring of Project Implementation

208. The project launch meeting was held remotely in June 2021, via a webinar, to encourage stakeholder participation and to promote transparency. Likewise, a project closure meeting was hosted by WRI in April 2023 via a 90-minute webinar (recorded and later posted on YouTube, to encourage participants to report achievements and to share experiences. (Table 12) The webinar was multilingual (closed caption translation in English), featuring key project participants from all participating regions, with both live and recorded comments and a panel of presenters who welcomed questions the live audience.

209. Four Project Steering Committee meetings were held, in May 2021, December 2021, June 2022 and April 2023. Project Steering Committee organizations and representatives are listed in Annex VII. Representation by Steering Committee organizations external to the Implementing and Executing Agencies at each meeting varied (58%, 43%, 27% and 42%, respectively). Meeting minutes documented attendance by 12 to 15 persons per meeting, of which one-half to two-thirds of the attendees were women. (Source: PSC meeting minutes). Each Steering Committee meeting opened with an update from the Executing Agency and partners. Pending issues and key decisions were discussed with diligent input and consensus from the Steering Committee members present. The Steering Committee was somewhat informally operated: according to the minutes, no chair or co-chairs were selected or presiding, nor were votes on any decisions held. The Reviewer assesses the level of participation and ownership by the Steering Committee as Satisfactory.

210. During the project, Project Managers and local Partners exercised adaptive management to adjust the timing of their activities. For example, the national political election cycles prompted the Colombia and Kenya local Partners, respectively, to form strong ZCB relationships with technical professionals in-country who could carry on without interruption through changes of political administrations to inform and advocate for priorities in their roadmaps and action plans. As another type of example of adaptive management, the local Partner in Konya adjusted the timing of their tasks to enable local professionals to become certified to assess buildings and also for the pilot project (a public library) to have the library plans certified as a green building and as one of the first ZCBs in Türkiye.

211. The rating for Monitoring of Project Implementation is Satisfactory.

Project Reporting

212. UNEP and WRI provided substantial project documentation to the Reviewer. (Annex IV) Project outputs were well-designed, well-documented and provided electronically, as demonstrated in figures throughout this report. The participants' baseline assessments, impact assessments, roadmaps, action plans, presentations, meeting summaries were

complete and included images to illustrate processes and photographs to document participation and illustrate local conditions.

213. Beyond project reporting requirements, each country and city Partner contributed to the project's Component 3 and Knowledge Management by publicizing their actions. They shared knowledge, garnered stakeholder attention and described how ZCBs added benefits to local and national policy building sectors and communities. For example, Figure 14 shows a national news article that includes testimonial of how city action can link to and enhance national policy and India's NDC (Deccan Herald, 4 March 2024)[32].

214. The Executing Agency prepared periodic reports in UNEP formats for the Task Managers' reviews and approvals. These included four Steering Committee Minutes, two Half-Yearly reports (2021, 2022) and three annual Project Information Reports (2021, 2022, 2023) and a Final Report (2024). Upon review by the then-current Task Manager, WRI made any requested revisions to the reports. The reports were clear and complete; they are cited in Annex IV.

215. The rating for Project Reporting is Highly Satisfactory.

Figure 14 Deccan Herald article describing Nagpur's pioneering ZCB actions

Rating for Monitoring and Reporting: Highly Satisfactory

H. Sustainability

Socio-political Sustainability

216. Presently the near-term forecast for socio-political sustainability is favourable, according to the interviewees, but longer term they pointed out that political sustainability is highly dependent upon each country's, state's or city's political commitments, continuity of governance and capabilities for delivering results that demonstrate the value of ZCBs

[32] Excerpt: The article quotes CEO Prithviraj BP of Nagpur Smart and Sustainable City Development Corporation Limited as saying, "This plan aligns with the Climate Smart Cities Assessment Framework (CSCAF), India's Long-Term Low-Carbon Development Strategy, and the Urban Outcomes Framework, among others instrumental in tracking and assessing urban sustainability and climate readiness. The action plan also supports Nagpur in meeting its global commitments with the Global Covenant of Mayors for Climate & Energy (GCoM) and the Race to Zero campaign."
https://www.deccanherald.com/india/maharashtra/nagpur-takes-lead-with-indias-first-city-specific-zero-carbon-plan-for-buildings-2920736

to their constituent populations. Continued demand from constituents will need to be expressed for government support for further strengthening of the building sector's professional ZCB skills and tools; for this ownership to occur, more outreach by ZCB advocates to the public regarding co-benefits would be necessary, too.

217. The ZCB project, as an institution, may not persist per se, however, the ZCB efforts of UNEP, WRI and other partners likely will persist under their respective ZCB programs. A feature of the exit strategy for the project is the prioritized list of actions published in each participating partner's roadmap. At least one interviewee noted that during a transition between political administrations, the momentum toward ZCB policies was maintained by the stakeholders, who approached newly appointed government staff with an introduction to the roadmap and requests for implementing high priority actions.

218. The rating for Socio-political Sustainability is Moderately Likely.

Financial Sustainability

219. Near-term, financing of ZCB market transformation efforts is likely, especially where stakeholders' sense of ownership of the ZCB road mapping is strong. However, in most cases the process of finalizing and adopting building policies and codes is long and will require additional national and local financial support beyond the end of the ZCB project. For long-term transformation to occur, the ZCB approach must demonstrate value to the financial sector in each region and to multiple levels of governance. Interviewees acknowledged that (most of) their respective national and subnational governments have not yet gone through a budget allocation cycle that would ensure continued support for ZCB actions.

220. Support from regional banks and bilateral donors would help to spur the development of ZCB material supply chains, especially where system of product verification exists and where manufacturers need to see proof of demand before investing in new, low-carbon processes. The project activities did expand stakeholders networks of contacts and awareness of grants and other financial tools that participants might access post-project. The project also supported some training and train-the-trainer certification of building assessors (in Konya). Having peer-to-peer exchanges, as were arranged during the project, helped to sustain the move toward ZCBs. If the participants maintain contact and organize amongst themselves they will contribute to a capability "pipeline" to meet local building, construction and labour needs.

221. Interviewees emphasized that ZCB approach must also become more competitive with other financial and economic demands, such as the need for more building stock, buildings that are more resilient, and, buildings to better serve the informal sector and vulnerable populations. The ZCB project responded to the interest expressed by stakeholders about ZCBs in the informal sector, for example, by hosting and recording a webinar with presenters from Egypt, India and Mexico. (Figure 15, Table 12)

222. Interviewees also cautioned that even though governments' plans and budgets may include more ambition for ZCBs, sudden economic disruptions may necessitate redirection of ZCB budgets towards immediate concerns. Examples include political, natural and climate-related crises, such as pandemics, armed conflicts, mass migration, and the numerous environmental disasters that destroy large areas of the built environment (earthquakes, volcanic activity, cyclonic storms, floods and landslides).

223. The rating for Financial Sustainability is Moderately Likely.

Figure 15 Green Upgrading in Informal Settlements (May 2022 webinar moderated by WRI)

Institutional Sustainability

224. The ZCB project, as an institution, may not persist *per se,* however, the ZCB efforts of UNEP, WRI and other partners likely will be sustained under their respective buildings and cities programs and will be supported by synergies and collaborations with emerging leaders worldwide. For example, after the ZCB project closure, discussions focusing on topics such as zero carbon buildings, net zero buildings, near-zero carbon buildings, and zero emission buildings are being hosted and promoted by signatories to the Chaillot Declaration, key parties to the Buildings Breakthrough, WRI Ross Center, GlobalABC, WGBC, ICLEI, IEA and SE4All. All of these change agents can be considered as helping to secure the impact of the ZCB project during the next two decades.

225. The rating for Institutional Sustainability is Likely.

Rating for Sustainability: Moderately Likely

I. Factors Affecting Performance and Cross-Cutting Issues

Preparation and Readiness

226. The rating is Highly Satisfactory. (Refer to Table 1 and Section V- D, E, F and G)

Quality of Project Management and Supervision

227. The rating is Highly Satisfactory for UNEP/Implementing Agency

228. The rating is Highly Satisfactory for Partners/Executing Agency

Stakeholders Participation and Cooperation

229. The rating is Highly Satisfactory. (Refer to Section III C.)

Responsiveness to Human Rights and Gender Equality

230. The rating is Highly Satisfactory. (Refer to Section II, Section III C, Recommendations and Annex I)

Environmental and Social Safeguards

231. The rating is Satisfactory. (Refer to Table 18 and Table 19)

Country Ownership and Driven-ness

232. The rating is Highly Satisfactory.

Communication and Public Awareness

233. The rating is Moderately Satisfactory. (Refer to Section V, A; Recommendation 2)

Rating for Factors Affecting Performance and Cross-Cutting Issues: Highly Satisfactory

VI. DISCUSSION, CONCLUSIONS AND RECOMMENDATIONS

A. Discussion: Market Transformation and Emissions Reductions Monitoring

234. With the agreement of the Task Manager, the Reviewer has considered the project and the RTOC from the perspective of diffusion of innovation theory (Rogers 2003) and market transformation (WBCSD 2021, 2024) best practices for appliances and buildings. It is possible that at the design phase of the project proposal, the global market for ZCBs was not mature enough for the project designers to predict how and when market uptake would proceed[33]. The results of the ZCB project find that ZCBs are proceeding but on a much different time frame and pathways than the then-current state of energy efficiency and renewable energy market transformation had followed.

235. The Reviewer's discussions with interviewees supports a hypothesis that ZCBs should be treated as an emerging innovation that presently is being taken up by "early adopters," indicating an early stage of market diffusion. Those who engaged with building sector decision makers at a national level found that the ZCB approach was relatively new and not defined consistently by stakeholders. For example, a first step in many of the road mapping workshops was an attempt to define what "zero carbon" would and should mean for buildings in their country. The same interviewees noted that most decision makers were familiar with and had promoted the uptake of energy efficiency in appliances and in buildings. Some were also familiar with renewable energy market interventions, but more so with large-scale commercial or industrial renewable energy projects than with building-scale renewable energy installations.

236. Comments from interviewees also indicate that low-carbon materials are to many of the stakeholders the "newest" innovation (or, perhaps, the least well-understood) innovation in the ZCB lifecycle. Figure 16 shows the relative maturity of elements of the ZCB approach (in green), overlaid on an IEA graphic representation[34] of a clean technology innovation diffusion S-curve. (Carbon offsets are potential an option for the ZCB approach, but were not covered in depth in the project and so are not placed in this figure.)

237. The need for long-term monitoring and related financing is emphasized by the findings of a recent portfolio review, "Portfolio Brief on Energy Efficiency in Buildings" (Kebir, 2023) and "Lessons Learned in Energy Efficient Buildings" (EO, 2024) published by the UNEP Evaluation Office. The summary identified two serious challenges common to the six energy efficiency in buildings projects (including the BEA) that were evaluated: 1) "The inability to determine emission reduction contributions was a major challenge found across almost all the evaluations. However, it was difficult to track and estimate actual GHG emissions savings resulting from the projects' activities. This was due to a lack of capacity and the relatively short duration of the projects. Monitoring and verification of energy savings and emission reductions to an appropriate degree of accuracy is a specialized function, particularly when back fitting ex-post without a baseline." 2) Inadequate monitoring plans and poor monitoring capacity posed a challenge for all the projects. … In the BEA I, BEA II and DES projects, officials' ability to effective conduct

[33] WRI published research in 2019, during the design phase of the ZCB project, "New Research Shows Zero Carbon Buildings Are Possible Where You Might Least Expect Them." They concluded that, "Overall costs and broader social and environmental factors suggest that decision-makers should use the following hierarchy of preference among different policy components: Efficiency First: Decision-makers should first apply building design strategies and energy efficiency measures to reduce consumption. On-site Before Off-site Renewable Energy: Then incorporate (carbon-free) on-site renewable energy systems before off-site (carbon-free) renewable energy to meet the balance of energy needs. Renewable Energy Before Offsets: Lastly, credible carbon offsets are the least desirable option — both for generation and embodied carbon — but can help close any remaining gaps in net carbon balance. Carbon offsets reduce emissions further from the source, can be hard to verify and, ultimately, cannot support a full transition to a decarbonized building stock."

[34] IEA. 2023. Breakthrough Agenda Report 2023, Executive Summary. https://www.iea.org/reports/breakthrough-agenda-report-2023/executive-summary

impact monitoring using Monitoring, Reporting, and Verification (MRV) frameworks was observed to be the most under-developed capacity."

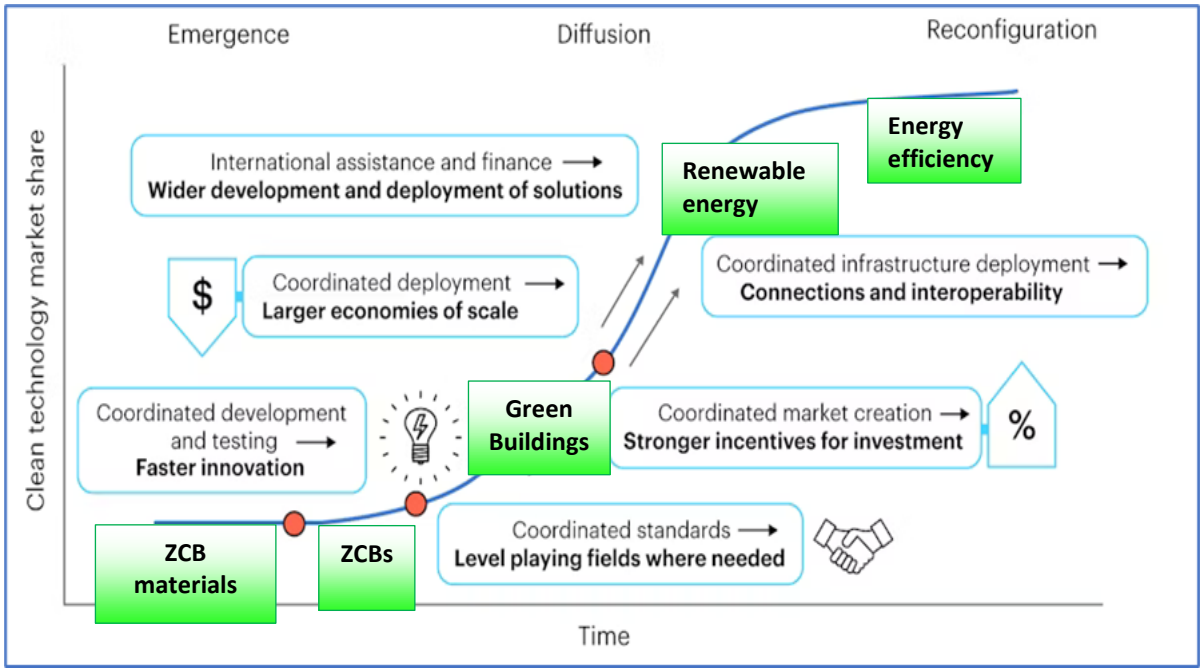

Figure 16 IEA clean technology market transformation curve, adapted and modified by the Reviewer (by the addition of green blocks) to show elements of the ZCB approach, relative to generic clean technology

238. Some interviewees noted that they quickly learned to start one-on-one discussions with key decision makers in a step-by-step way, speaking first of energy efficiency, next of renewables, then of "green buildings" and sustainable buildings, seeking initially to link ZCBs to the most familiar topics. Finally they would introduce ZCBs as the next integrative step in mitigating climate change in the building sector. Interviewees emphasized that very few decision makers were aware of how much carbon was emitted in the sourcing, processing and distribution of building materials and how much carbon emissions throughout the lifecycle of buildings contributed to the sector's global GHG emissions. Even fewer were aware of methods to evaluate embodied carbon in materials or find materials that were known or certified to be "low carbon."

239. Briefly, the market in most participating countries was not ready to "leapfrog" directly from energy efficiency and renewable energy interventions to the adoption of ZCBs. In retrospect, it appears that ZCBs were at a much earlier point on a market transformation adoption curve. This could help explain why significant uptake of the ZCB approach may take another decade, and why impacts from the ZCB project may not be realized until after 2030 and perhaps closer to 2050.

240. The design of the ZCB project did include evaluation, but follow-on support for post-project monitoring, reporting or verification (MRV) was not included. This leaves the Terminal Review and the partners in the project only with models and hypotheses based on the Theory of Change to forecast what impacts could be attributed to the ZCB project.

241. The need for long-term impact evaluation (based on national or sub-national MRV) and related financing is emphasized in the findings in "Portfolio Brief on Energy Efficiency in Buildings" (Kebir, 2023) and "Lessons Learned in Energy Efficient Buildings" (UNEP EO, 2024) published by the UNEP Evaluation Office.

242. The EO summaries identified two serious challenges common to the six energy efficiency in buildings projects (including BEA) that were evaluated:

First, *"The inability to determine emission reduction contributions was a major challenge found across almost all the evaluations. However, it was difficult to track and estimate actual GHG emissions savings resulting from the projects' activities. This was due to a lack of capacity and the relatively short duration of the projects. Monitoring and verification of energy savings and emission reductions to an appropriate degree of accuracy is a specialized function, particularly when back fitting ex-post without a baseline."*

Second, *"Inadequate monitoring plans and poor monitoring capacity posed a challenge for all the projects. … In the BEA I, BEA II and DES[35] projects, officials' ability to effective conduct impact monitoring using Monitoring, Reporting, and Verification (MRV) frameworks was observed to be the most under-developed capacity."*

243. Given that energy efficiency is only one of the elements of the ZCB approach, the need for future monitoring of ZCB projects is amplified and complicated by the many synergistic elements that could contribute to reduced GHG emissions in the projects. (Recommendation 1; Recommendation 3)

B. Conclusions

244. The Reviewer has taken into account the conclusions, lessons learned and recommendations presented by WRI in its Final Report, substantially concurring with them. Additionally, the conclusions, lessons learned and recommendations that follow conform to UNEP guidance and consider UNEP's and the GEF's administrative and programmatic concerns and options for possible future program developments that could incorporate ZCBs.

245. The ZCB project confirmed that adoption of zero carbon buildings is an innovative intervention in the buildings and construction sector that will contribute to global reduction of GHG emissions[36] (SDG 7) and an increase in building-related services and benefits in support of gender equity and human rights. The project outcomes have led to an Intermediate State (being realized from 2021 to 2030) and eventual Impacts (likely to be realized beyond 2030 and to 2050) that contribute to UNEP's Climate Action Expected Accomplishments and Programme of Work.

246. ZCBs integrate and expand upon more mature technical interventions (energy efficiency, renewable energy, green buildings and resilient structures) while simultaneously introducing at least two less mature market interventions (carbon offsets and low-/lower-embodied carbon building materials). Introducing ZCBs to any market requires a cross-cutting policy strategy to engage multiple ministries at a national level and multiple departments at a state or city level. This is a complex undertaking because the legal frameworks and jurisdictions for regulating, monitoring and enforcing ZCB requirements differ from country to country and may differ within a country from department to department, depending upon respective political and administrative structures.

247. Nonetheless, each country and city partnering with the ZCB project effectively engaged a wide array of stakeholders and pioneered methods to characterize their existing and planned future building stock, weigh options for accelerating the adoption of ZCBs and—through roadmaps or city action plans—prioritized next steps to accelerate

[35] DES project: GEF 9320, Increasing Investments in District Energy Systems in Cities: A SE4All Energy Efficiency Accelerator, 2016-2017.
[36] The expected reductions emissions target for this GEF-funded project is: 7,099,211 tCO2 (cumulative from 2020-2042, direct and direct post-project). (Table 10)

adoption of ZCBs in a manner that linked local efforts to national commitments vis-à-vis climate change mitigation and climate change adaptation commitments.

248. In executing the ZCB project, WRI selected participants and applied the lessons learned and recommendations of prior GEF-funded/UNEP-implemented projects such as the Buildings Efficiency Accelerator and the resources of the WRI Ross Center for Sustainable Cities. Project execution followed WRI's strategy of "Dialogue-Assess-Act-Monitor-Invest" and UNEP's extensive experiences with public-private partnership projects and programs. These strategies, along with adaptation to a virtual work environment worldwide, helped to mitigate risks that were identified in the ZCB project design and plans.

249. As Implementing Agency, UNEP contributed a high-level perspective on global and regional climate change mitigation and adaptation, global conventions, and, communities of practice. Key partners supporting implementation included the WGBC and its affiliate councils and ICLEI and its regional counterparts. Operating under the challenges of a global pandemic and localized climate change and natural events, the collaboration of these partners was critical to the success of short but highly effective project.

250. The Project Steering Committee and in-kind contributions of its members also was critical for the ZCB project's introduction of market innovations in policy, buildings and materials. The GEF's USD 2 million in grant funds leveraged USD6,938,081 of in-kind contributions from Consejo Colombiano de Construcción Sostenible, International Energy Agency, International Finance Corporation, Johnson Controls, United Nations Environment Programme, World Green Building Council, World Resources Institute and World Resources Institute—Türkiye. These in-kind contributions supported the ZCB project's global platform resources which included: technical assistance expertise, knowledge products, policy and analysis tools, training and peer-to-peer exchanges.

251. Sustained momentum of the ZCB project actions depends on the two participating countries' realization of ZCB national roadmaps (Colombia and Türkiye) and seven participating subnational entities' financing and implementation of city action plans and operationalization of pilot projects (Bogotá, Cali, Costa Rica City Cluster, Gaziantep, Konya, Laikipia County and Nagpur).

252. The project identified gaps and barriers to scaling up ZCBs and connecting subnational to national and international GHG emissions reduction efforts. This review highlights several underlying causes: 1) the ZCB approach is highly multidisciplinary and must be simultaneously adopted by disparate parties in multiple ministries and more local administrations; 2) existing building codes, or the lack of any building codes (either at national or at local levels), makes regulation of ZCBs novel and lacking in legal precedent; 3) government officials, financiers and private sector enterprises may be highly unfamiliar with some elements of the ZCB approach, such as the use of innovative, low-carbon building materials. There is a strong need to develop: local and national data on building stock; persuasive economic, social and climate rationales for adopting ZCBs; and, demonstration of actual building case studies and financial models.

253. The ZCB project did make strides in bringing these market transformation challenges to the attention of an international audience. The project delivered on UNEP's mandate to facilitate high-level cooperation, bring forward the perspectives of multiple levels of government and stakeholders to international fora (COP 28; Buildings Breakthrough). Importantly, the project made clear the needs, requests and ambitions of stakeholders for policy and technical information and tools and capacity-building that should be tailored to the needs of cities, states and countries and their constituent populations. The country and city representatives were able to describe and demonstrate how they attempted and in some cases succeeded in linking multiple levels of effort to national commitments and plans.

C. Summary of project findings and ratings

254. Based on the findings of this review, the project demonstrates performance at the Highly Satisfactory level. Table 14 includes details of ratings against all review criteria.

255. The ZCB project demonstrated strongest performance in the areas of Strategic Relevance due to its alignment with the priorities of the Implementing and Executing Agencies and their partners and the relevance of the project to the priorities of the participating country and city partners.

256. The project areas that would have benefited from further attention include sustainability with respect to long-term political and financial commitments to instituting zero carbon building requirements and funding. Also, the project could have contributed to greater impact—via future replication by additional national and subnational entities—if it had established a more centralized, virtual point of communication to raise global public awareness via access to the technical resources and case study results of the project.

UNEP Evaluation Office Validation of Performance Ratings:

The UNEP Evaluation Office formally quality assesses (see Annex XII) management led Terminal Review reports and validates the performance ratings therein by ensuring that the performance judgments made are consistent with evidence presented in the Review report and in-line with the performance standards set out for independent evaluations.

The Evaluation Office assesses a Terminal Review report in the same way as it assesses the initial draft of a Terminal Evaluation report. It applies the following assumptions in its validation process:

– That what is being assessed is the contents of the report and the extent to which it makes a consistent and justifiable case for the performance ratings it records.

- That the consultant has, within the report, presented all the evidence that was made available to them.

- That the Review has been based on a robust Theory of Change, reconstructed where necessary, which reflects UNEP's definitions at all levels of results.

- That the project team and key stakeholders have already reviewed a draft version of the report and provided substantive comments and made factual corrections to the Review Consultant, who has responded to them. The Evaluation Office assumes, therefore, that it has received the Final (revised) version of the report.

In this instance the Evaluation Office finds that most of the ratings awarded are validated except for efficiency, monitoring design and budgeting and responsiveness to human rights and gender equality. The aggregation of the overall ratings for strategic relevance and financial management had to be corrected, in accordance with the weighted ratings calculation. The overall project performance rating is validated at the **'Satisfactory'** level.

Table 14: Summary of project findings and ratings

Criterion	Summary assessment	Rating	Justification for any ratings' changes due to validation	EOU Validated Rating
Strategic Relevance		**HS**	**The rating is corrected** from HS to S in accordance with the weighted rating of the three sub-criteria under Strategic Relevance.	**S**
1. Alignment to UNEP MTS, POW and strategic priorities	Excellent alignment	HS	The rating is validated.	HS
2. Alignment to Donor/Partner strategic priorities	Very good alignment	HS	The rating is validated.	HS
3. Relevance to global, regional, sub-regional and national environmental priorities	Relevance varied but overall was Satisfactory	S	The rating is validated.	S
4. Complementarity with relevant existing interventions/coherence	HS complementarity, but it was underutilized. (Pending reassessment)	MS	The rating is validated.	MS
Quality of Project Design	Design based on successful BEA projects, but TOC lacked some relevant market elements of ZCBs	**S**	**The rating is validated**[37]. The EOU notes that, according to evidence presented in the review report, the project design had weaknesses in its TOC and lacked 'smart' stakeholder-related indicators at output and outcome levels in the logical framework and monitoring.	**S**
Nature of External Context	Global pandemic of SARS-COVID-19 and earthquake in Türkiye were challenging	**MU**	**The rating is validated.**	**MU**
Effectiveness		**HS**	**The rating is validated.**	**HS**
1. Availability of outputs	Outputs were high quality, available and well-utilized but should have been gathered together in one public access point by end of project	S	The rating is validated. However, the assessment does not provide evidence of availability of outputs against baseline and indicator targets. The outputs that were delivered and assessed in the review appear to be of good quality.	S

[37] In this instance the EOU reviewed the Inception Report as the ratings for sub-categories were not given for the assessment of the Project Design Quality.

Criterion	Summary assessment	Rating	Justification for any ratings' changes due to validation	EOU Validated Rating
2. Achievement of project outcomes	Targets for outcomes were exceeded	HS	The rating is validated based on the evidence presented. While targets for outcomes were exceeded, the lack of evidence provided on delivery of all outputs versus delivery of key outputs weakens the causal narrative underpinning the outcome assessment.	HS
3. Likelihood of impact	Difficult to project, given lack of emissions data and long timeline(post-2030) for assumptions and drivers to hold for multiple countries	ML	The rating is validated. In addition to the justification provided by the reviewer, there are key assumptions and drivers identified in the discussion in the conclusions sections which are not addressed.	ML
Financial Management		**HS**	**The rating is corrected** from HS to S in accordance with the weighted rating of the three sub-criteria under Financial Management.	**S**
1. Adherence to UNEP's financial policies and procedures	All policies and procedures followed	HS	The rating is validated.	HS
2. Completeness of project financial information	Nearly complete, except for final audit (underway) and PM's explanation for one budget shortfall (IFC in-kind contribution)	MS	The rating is validated.	MS
3. Communication between finance and project management staff	Regular, frequent and satisfactory; FMO and TM well-informed. See above for outstanding PM items	S	The rating is validated.	S
Efficiency	Implemented fully within timeframe (with well-justified no-cost 7-month extension for MU nature of external context)	**HS**	**The rating is revised from HS to S.** The project had one no-cost extension. The project was implemented over the period 2021-2023 after the Covid-19 onset. Although the extension was justified by external factors in Turkey, the increased cost of project management remains.	**S**
Monitoring and Reporting		**HS**	The rating is validated.	**HS**

Criterion	Summary assessment	Rating	Justification for any ratings' changes due to validation	EOU Validated Rating
1. Monitoring design and budgeting	Designed with sufficient budget and indicators and owned by UNEP TMs and WRI PMs.	HS	The rating is revised reflecting a lack of adequate and smart indicators disaggregated by relevant stakeholder groups for measuring results, especially at outcome level and towards impact. .	S
2. Monitoring of project implementation	Plan fully developed and conducted in a timely manner by TMs and PMs. Some reporting revisions made for no-cost time extension.	S	The rating is validated.	S
3. Project reporting	Reports match other evidence examined during TR; PM submitted detailed reports of stakeholder engagement and outreach (disaggregated by gender)	HS	The rating is validated.	HS
Sustainability		**ML**	The rating is validated.	**ML**
1. Socio-political sustainability	Near-term is likely, but longer term is highly dependent upon each country's, state's or city's political commitments, continuity of governance and increased capabilities	ML	The rating is validated.	ML
2. Financial sustainability	Near-term, partially reliant upon international support. Long-term, the ZCB approach must demonstrate value to the financial sector in each locality and level of governance.	ML	The rating is validated.	ML
3. Institutional sustainability	ZCB advocacy by UNEP, WRI and other partners likely will persist under their respective programs, possibly driven by the Buildings Breakthrough, GlobalABC and other UNEP and UNFCCC efforts.	L	The rating is validated.	L
Factors Affecting Performance		**HS**	**The overall rating of factors is validated.**	**HS**
1. Preparation and readiness	All conditions met; first disbursement within 6 months.	HS	The rating is validated. Timeliness and engagement was supported by an experienced implementing partner and a project well situated in a nest of other EE projects.	HS
2. Quality of project management and supervision	Good communication maintained virtually by both parties, including smooth transitions during staff turnovers.	HS	The rating is validated.	HS
2.1 UNEP/Implementing Agency:		HS	The rating is validated.	HS

Criterion	Summary assessment	Rating	Justification for any ratings' changes due to validation	EOU Validated Rating
2.2 Partners/Executing Agency:		HS	The rating is validated.	HS
3. Stakeholders' participation and cooperation	High degree of participation, exceeding targets for number of participants and balanced gender participation	HS	The rating is validated.	HS
4. Responsiveness to human rights and gender equality	Consideration given to gender equality throughout project activities, outputs and outcomes. Human rights issues addressed in discussions of informal building sector	HS	The rating is revised from HS to S. Moderate human rights and gender considerations demonstrated in project activities through the use of WRI tools and guides with focus on gender inclusion. Some gender sensitivity was demonstrated during implementation with "gender-balanced participation of donors" (paragraph 169).	S
5. Environmental and social safeguards	Safeguarding and risks well-considered and monitored; no negative environmental impacts	S	Rating is validated. See also Annex III, for more details on the management of safeguards.	S
6. Country ownership and driven-ness	High degree of country and subnational ownership and driven-ness demonstrated, with many local-level ZCB policy & building efforts continuing post-project	HS	The rating is validated.	HS
7. Communication and public awareness	Good awareness at local stakeholder level; global audience communication could have been improved (lacks central access point for resources, post-project; this could negatively impact ease of ZCB project replication)	MS	The rating is validated.	MS
Overall Project Performance Rating	HS, especially considering diverse locations, short timeframe, medium-size project (& budget) and unanticipated external context (prolonged pandemic & a major earthquake)	**HS**	**The overall rating is corrected based on the weighted rating scale of evaluation criteria.**	**S**

D. Lessons learned

257. The following is a summary of lessons learned from some of the project's experiences, based upon explicit findings of the review. They briefly describe the context from which the lessons are derived and the potential for their wider application.

Lesson Learned 1	The ZCB project's in-kind support and contacts were highly valuable to country and city partners
Context and wider application	Leveraged partner support of in-kind resources and expertise added value and helped to expand and enhance the skills, tools and capabilities of the participating stakeholders. Access to partners was both virtual and in-person. Some of the partners also introduced opportunities to collaborate and to secure funding for future country and city ZCB projects and actions. The Executing Agency, WRI, contributed significantly in-kind, leveraging prior experience, an extensive global network of cooperative partners including ICLEI Southeast Asia, World Green Building Council and many expert contacts from IEA, IFC-EDGE, SE4All and private sector partners represented on the PSC (Johnson Controls and Saint-Gobain). Country and city stakeholders appreciated the flexible, tailored delivery of expertise on topics that they had prioritized in their roadmaps and action plans. Stakeholders interviewed all agreed that they would like to maintain contact with the ZCB project partners and their policy and technical resources as they progress through their national roadmap actions and city action plans. They also expressed interest and willingness to continue with peer-to-peer exchanges initiated by the ZCB project. The ZCB project served as a replicable model for developing and utilizing public-private partnerships, networks of expertise and peer-to-peer exchanges to launch ZCB market transformation in countries and cities.

Lesson Learned 2	Climate resilience is identified by national and subnational actors as a key, persuasive element of the zero carbon building approach.
Context and wider application	The project showed that partners turned challenges into opportunities via their innovative operations while they directly experienced the need for resilience in buildings. The challenges of conducting the ZCB project during the SARS-COVID-19 pandemic and during the major earthquake and recovery in Türkiye spurred WRI, WRI Türkiye and all the executing partners to go beyond their business-as-usual modes of operation. They set good examples for managing adaptively through challenges. These events served as vivid examples of why the ZCB approach should include climate resilience as a key element. Being prepared with technology and skills to conduct business remotely enabled the ZCB project's completion without serious delays. The ZCB global partners' expressions of support and virtual delivery of expertise were appreciated and well-received during these two challenges. Working remotely during the pandemic opened the project to more stakeholders and different forms of stakeholder participation than had been anticipated at project design. Local project partners efficiently expanded their reach through virtual meetings and webinars that were co-marketed with colleagues in other geographic regions. Some interviewees noted that more diverse stakeholders benefited from virtual operations: the number and the geographic and gender diversity

	of participants was increased by virtual means, avoiding the inconveniences and costs of time and travel to in-person meetings. In addition to virtual meetings, some local project partners made more than planned one-on-one informational visits (when in-person restrictions were lifted) with local government officials and staff of ministries, leading to in-depth exchanges of information and policy development discussions that might not have been possible in larger group meetings. In Türkiye, the planned ZCB activities took on new meaning, offering structured planning during a crisis and recovery, with the result being a design for rebuilding community in Gaziantep that would be more resilient and better meet the needs and aspiration of residents. Flexibility of delivery of information and use of virtual media for meetings, consultations and peer-to-peer exchanges can be widely adapted to keep projects operating and progressing during crises and disruptions. Creative and coordinated outreach via virtual media can also enhance the capabilities of more persons and build more diverse audiences. Awareness of the co-benefits of ZCBs can be raised by demonstrating that coordinated planning of resilient buildings contributes to climate change mitigation and adaptation.

Lesson Learned 3	The zero carbon buildings approach offered many co-benefits that are related to Sustainable Development Goals and to the goals of the more recently adopted Kunming-Montreal Global Biodiversity Framework (GBF).
Context and wider application	The ZCB project's stakeholders and key partners recognize that decarbonizing the building sector can improve the quality of life of individuals and communities through many co-benefits envisioned in the Sustainable Development Goals. WRI in its Lessons Learned report (2024) points out that "building decarbonization can unlock significant co-benefits, contributing to other SDGs on tackling energy poverty (SDG 1), health and well-being through better air quality and thermal comfort (SDG 3); accelerate affordable access to clean energy (SDG 7); creation of green and decent jobs (SDG 8); reduction of social, economic and environmental inequalities (SDG 10) by increasing disposable income from lower household energy expenditure and improving access to adequate housing and increasing access to affordable and sustainable urban services (SDG 11), especially for women (SDG 5). For local authorities, lower energy costs can free up resources for local services and investments." (WRI, Lessons Learned, 2024, p 3) Applying a zero carbon building approach also offers co-benefits that can contribute prospectively to the goals of the Kunming-Montreal Global Biodiversity Framework (GBF)[38], particularly where plans for and siting of buildings (Goal A, "Protect and Restore" and Target 12[39])

[38] Zero carbon buildings are consistent with the Kunming-Montreal Global Biodiversity Framework (GBF) (https://www.cbd.int/gbf/goals), adopted 19 December 2022, insofar as they also relate to SDG 12, Sustainable Consumption and Production and SDG 15, The Land We Live On.

[39] GBF Target 12: Enhance Green Spaces and Urban Planning for Human Well-Being and Biodiversity

	respects wetlands and encourages sustainable agriculture, and, where low-carbon building materials can be sourced and manufactured locally while supporting the human rights of labourers (Goal B, "Prosper with Nature" and Target 16[40]). This lesson learned will have wider application as national and subnational governments strive to meet climate change mitigation and biodiversity goals: by linking the carbon emission reduction and biodiversity conservation direct benefits of ZCBs to SDGs that are of greatest importance to their constituencies, multiple concerns can be addressed. This synthesis may help to engage more public and private sector support for financing ZCB development (GBF Goal D, "Invest and Collaborate").

Lesson Learned 4	The process for creating ZCB national roadmaps and subnational action plans is adaptable and replicable
Context and wider application	Building upon the experience and strategy of the Buildings Efficiency Accelerator 1 and 2 projects and applying the process for road mapping developed by UNEP and the GlobalABC proved to be adaptable and replicable. The process was adapted with respect to the building sector status of each of the participating countries, state and cities. The process was replicated in each instance and resulted in published roadmaps or action plans tailored to the priorities identified by stakeholders. Stakeholder engagement was critical for success, as was the involvement of ministries or administrations that would be responsible for policy, budgeting and implementation of each of the elements of the ZCB approach. This lesson learned has wider application as more countries target the building sector as a resource for achieving their GHG emission reduction targets. It offers a fast-start method with prior case study examples in several geographic regions. It also offers examples of how participants increased communication between government agencies and attempted to align national and subnational priorities for the building sector.

E. Recommendations

258. The Evaluation Office provided the Reviewer with a pre-publication, "Portfolio Review on Energy Efficient Buildings." The GlobalABC Secretariat shared the "Declaration de Chaillot" and a confidential, non-public document, "Summary: Buildings and Climate Global Forum, Paris, 7 – 8 March 2024." These references, along with WRI's final report recommendations, were considered during the development of the following Terminal Review recommendations.

259. For the ZCB project, the period of the contract with the Executing Agency has concluded, so the following recommendations are addressed solely to UNEP, per EO guidance[41] (2021) and are intended to be carried out within 12 months from UNEP's

[40] GBF Target 16: Enable Sustainable Consumption Choices To Reduce Waste and Overconsumption

[41] "In cases where the recommendation is addressed to a third party, compliance can only be monitored and assessed where a contractual/legal agreement remains in place. Without such an agreement, the recommendation should be formulated to say that UNEP

acceptance of this Terminal Review. The recommendations are presented in order of level of priority.

Recommendation 1	Create a central, virtual access point for ZCB project resources/results to encourage and support replication of project activities in additional national or subnational building sector markets, to encourage greater global impact (reduction of GHG emissions from the building sector and delivery of co-benefits to more women and men worldwide)
Challenge/problem to be addressed by the recommendation	Presently the project lacks a simple, central, virtual access point to compiles and link to: the publicly-accessible resources made available to ZCB project participants; the ZCB outputs created by or in cooperation with the Executing Agency and its partners; and, the publicly-released results of country and subnational partners' efforts. Some (but not all) of the above items are posted online and linked to WRI (BEA) website pages, UNEP website(s) pages, or, partners' pages, minimally fulfilling the ZCB contract obligations. Nonetheless, creation of a ZCB "resource page(s)" would encourage replication of results and potentially lead to accelerated market transformations and greater impact of the ZCB project. It could also support UNEP's future proposals to The GEF; and, the contents could enhance the GlobalABC's global platform.
Priority Level	Critical/High level: Addressing this gap would increase the likelihood of achieving the programmed project objectives, impact as envisioned in the RTOC and contribute to UNEP's mission and goals. It could also support the GlobalABC Secretariat's mission.
Type of Recommendation	Partner level: The action to be taken requires approval and leadership from Executing Agency WRI and its partners
Responsibility	UNEP Climate Change Division, CCM Unit, Portfolio Manager (optionally, the CCM Cities Unit, too).
Proposed implementation time-frame	Upon UNEP acceptance of Terminal Review and within three months the recommendation should be communicated by UNEP to WRI and a discussion initiated to find a mutually agreeable solution

260. Rationale and supporting discussions in Section IV and Section V.

Recommendation 2	For future buildings-related GEF project proposals (and optionally, for those ongoing), design, monitor and update throughout the project a Theory of Change that includes at least one pathway that incorporates enhancing the project participants' capabilities

project staff should pass on the recommendation to the relevant third party in an effective or substantive manner. The effective transmission by UNEP of the recommendation will then be monitored for compliance." Also, "Project Level Recommendations: Where there is no follow-on project phase or future project team structure to act, then a recommendation should be addressed to the UNEP Division Head of Branch and Portfolio Manager (in case of GEF projects) for them to consider the recommendation for further projects." UNEP EO, 2021, 06_TR Main Review Report_Guidance Note FOR USE BY CONSULTANT

	to quantify progress towards the Intermediate State(s) and Impacts.
Challenge/problem to be addressed by the recommendation	This TR points to areas for improvement in future projects, specifically: designing high quality project proposals; estimating the likelihood of project impacts; addressing issues of sustainability; and; communicating and raising awareness of ZCB direct benefits and co-benefits. A well-designed TOC is a "live" tool that should be referenced periodically throughout a project and modified as needed and as justified. This is especially important in any dynamic project that seeks to transform markets because an appropriate baseline is needed before progress toward an Intermediate State can be tracked or forecast for future Impact. Using well-established indicators to track a project's progress benefits all partners in a project. Data collected against a well-defined indicator during the project can then be tracked, reported, compared (benchmarked) and utilized by the country and subnational partners, their constituents and their donors, and other international organizations. The Reviewer suggests using the World Bank Databank as a resource for identifying the participants' needs for capabilities to work with relevant indicators. Thereafter, the Databank (or a similar international data resource) could be used for market modelling and projections, testing of assumptions and assessing the intensity of drivers. UNEP could also seek input on how to develop participants' capabilities to select and apply relevant indicators from peers at organizations such as GlobalABC, IFC/World Bank Group (and regional banks), IEA, SE4All, UNDP, UN HABITAT and UN Women.
Priority Level	Important/Medium level: This recommendation addresses internal control processes for developing future GEF proposals.
Type of Recommendation	Project level: UNEP staff can address the recommendation or the underlying problem independently.
Responsibility	UNEP Climate Change Division, CCM Unit, Portfolio Manager (for future proposals involving zero carbon buildings, urban planning and development, or market transformation programs for energy efficiency and renewable energy).
Proposed implementation time-frame	Consideration upon UNEP acceptance of Terminal Review and within six months; exploration of the application of this recommendation within 12 months. Review and updating of each project's Theory of Change on a semi-annual basis.

261. Rationale and supporting discussions in Section IV; Section V.)

Recommendation 3	Develop donor proposals for demonstration projects and workforce training curricula to address ZCB market transformation barriers in developing countries
Challenge/problem to be addressed by the recommendation	This TR establishes that ZCBs are at a very early stage of market adoption, with significant opportunity for uptake by many more countries and subnational entities. Interviewees and the Reviewer found that two specific ZCB resources should be developed by UNEP and its partners to help overcome barriers to widespread adoption of ZCBs and achievement of carbon emission reductions. First, to support greater use of low carbon building materials and low carbon building processes, UNEP and its partners should invest in demonstration projects that help regions and countries to develop case studies and business transformation models for efficient materials production (bricks, waste-wood products, recycled insulation materials) and to offer a means of certifying the carbon footprint of local and imported building products. Second, project stakeholders at national and subnational level identified a strong need to develop capacity: they requested more technical guidance and tools for topics such as lifecycle analysis, locally-sourced and produced low-carbon materials (especially brick and cement), and how to integrate renewable energy at the building scale. They also pointed to the need for workforce training curricula that would include women and their need for family/child care at work sites.
Priority Level	Opportunity for improvement/ Low level: This recommendation urges UNEP to address ZCB-specific building sector market transformation challenges at the national and subnational level by leveraging its role as a GEF Implementing Agency.
Type of Recommendation	Project level: UNEP staff can address the recommendation or the underlying problem independently and (later) invite partners to collaborate on proposal development.
Responsibility	UNEP Climate Change Division, CCM Unit, Portfolio Manager (for future proposals involving zero carbon buildings, urban planning and development, or market transformation programs for energy efficiency and renewable energy)
Proposed implementation time-frame	Discuss within the CCM and Cities Unit upon UNEP acceptance of the TR and recommend actions for future proposals within 12 months.

262. Rationale and supporting discussions in Section V.

Recommendation 4	Propose the ZCB approach for both climate change mitigation and adaptation roadmaps and actions, especially to deliver direct benefits and co-benefits to vulnerable communities

Challenge/problem to be addressed by the recommendation	The ZCB project prompted country and subnational participating entities to address gender equity and human rights in relation to the built environment and in relation to an efficient workplace. A challenge remains to develop guidance and relevant case studies, especially in regard to how ZCBs could support vulnerable communities and communities where the built environment and its occupants are in crisis or post-crisis. It is a challenge that some interviewees suggested as either a competition for resources and/or a merging of the needs for climate change mitigation and climate change adaptation. This TR provides evidence that a ZCB project can support countries and cities to plan to deliver both direct (mitigation) benefits and co-benefits (adaptation) simultaneously. Interviewees emphasized that resilience is a key ZCB element that has wide appeal, especially to stakeholders responsible for delivering services to vulnerable communities. Raising awareness of this opportunity can intensify one of the drivers toward greater project impact. For example, ZCBs can reduce GHG emissions and lower operating costs while delivering thermal conditioning (cooling/heating) services to building occupants, workers and enterprises. With outreach and communication of the multiple benefits that ZCBs offer stakeholders, demand and supply should increase.
Priority Level	Opportunity for improvement/ Low level: This is a distinctive challenge that was experienced first-hand during the project by all participants due to the global SARS-COVID-19 pandemic/economic disruption and by local participants in Türkiye affected by a major earthquake.
Type of Recommendation	Project level: UNEP staff can address the recommendation or the underlying problem independently and then follow up with appropriate partners as opportunities for innovative projects arise.
Responsibility	UNEP Climate Change Division, CCM Unit, Portfolio Manager (for future proposals involving zero carbon buildings, urban planning and development, or market transformation programs for energy efficiency and renewable energy)
Proposed implementation time-frame	Upon UNEP acceptance of Terminal Review and within 12 months, units within the Climate Change Division should discuss how to maximize the appeal of ZCB projects that deliver multiple benefits, especially vulnerable communities and communities post-crisis.

263. Rationale and supporting discussions in Sections IV, V and VI.

Table 15: Implementation Plan of Recommendations

PLANS

RECOMMENDATION	ACCEPTED (yes / no / partially)	WHAT WILL BE DONE?	EXPECTED COMPLETION DATE	REPONSIBLE OFFICER[42]
1. Create a central, virtual access point for ZCB project resources.	Yes	• The Implementing and Executing Agencies will confer and consider choosing a virtual location for centralising project deliverables as well as a means to host the ZCB project information for public access; • Global Projects will prioritize the centralization of project resources and deliverables on online platforms through the course of project design and implementation (note that knowledge management is an area of focus for GEF-8 Global Projects under development).	Three months from approval of Terminal Review Final Report.	UNEP Climate Change Division, CCM Unit, Portfolio Manager
2. For future buildings-related GEF project proposals design, monitor and update throughout the project a Theory of Change that includes at least one pathway that enhances the project participants' capabilities to quantify progress towards the Intermediate State(s) and Impacts.	Yes	The Implementing and Executing Agencies will consider developing a pathway regarding quantification of progress in each future project's Theory of Change based on the requirements of the project.	Six months from approval of Terminal Review Final Report.	UNEP Climate Change Division, CCM Unit, Portfolio Manager
3. Develop donor proposals for country-implemented demonstration projects and workforce training curricula to address ZCB market transformation barriers in developing countries.	Partially	• In future proposals, project teams will focus on donor support for country-based actions, including ZCB demonstration projects and workforce training to address ZCB barriers; • While certain Global Projects seek to provide knowledge management and capacity building support instead of	Twelve months from approval of Terminal Review Final Report.	UNEP Climate Change Division, CCM Unit, Portfolio Manager

[42] UNEP Climate Change Division, Climate Change Mitigation Unit

		carrying out direct country interventions, future Global projects will consider country-based interventions and demonstrations as well from the market transformation perspective (note that this is already being integrated into GEF-8 Global Projects)		
4. Propose the ZCB approach for both climate change mitigation and adaptation roadmaps and actions, especially to deliver direct benefits and co-benefits to vulnerable communities and women.	Yes	• The Project Teams and relevant agencies will emphasize the ZCB approach as applicable for both climate change mitigation and adaptation projects, especially calling out the enhanced capabilities and direct benefits that would accrue to vulnerable communities and women. • This will be done through the development and monitoring of gender action plans, surveys and questionnaires to assess impacts for beneficiaries, as well as through communication products such as the annual reports that would highlight stories about direct benefits and co-benefits to vulnerable communities.	Twelve months from approval of Terminal Review Final Report.	UNEP Climate Change Division, CCM Unit, Portfolio Manager

ANNEX I. PEOPLE CONSULTED DURING THE REVIEW

Table 16: People consulted during the Terminal Review, by family name

Organisation	Name	Position	Gender
ICLEI-Local Governments for Sustainability Southeast Asia Secretariat	Victor Aquitania	Regional Director	M
World Resources Institute Türkiye Sustainable Cities	Meltem Bayraktar	Senior Program Manager, Urban Efficiency and Climate	W
World Resources Institute Türkiye Sustainable Cities	Baret Binatli	Built Environment Manager, Urban Efficiency & Climate	M
ICLEI-Local Governments for Sustainability Southeast Asia Secretariat	Pamela Cabacungan	Manager, Low Emission Development Pathway	W
World Green Building Council	Dominika Czerwinska	Director, Engagement & Implementation	W
United Nations Environment Programme, Climate Change Division, Mitigation Branch	Tania Daccarett	Project Specialist Affiliate	W
Sustainable Energy for All	Brian Dean	Director, Energy Transition	M
United Nations Environment Programme, Climate Change Division, Mitigation Branch	Jiya Dhillon	Junior Consultant	W
United Nations Environment Programme, Climate Change Division, Mitigation Branch, Cities Unit	Jonathan Duwyn	Programme Officer	M
World Green Building Council	Cristina Gamboa	Chief Executive Officer	W
United Nations Environment Programme, Climate Change Division, Mitigation Branch	Tea Garcia-Huidobro	Global Portfolio Manager	W
ICLEI- Local Governments for Sustainability South Asia	Nikhil Kolsepati	Programme Coordinator, Energy & Climate	M
United Nations Environment Programme, Climate Change Division, Mitigation Branch	Asher Lessels	Head a.i.	M
United Nations Environment Programme, Climate Change Division, Mitigation Branch	Julien Lheureux	Programme Management Officer	M
World Resources Institute, Mexico	Fairuz Loutfi	Circular Economy and Energy Efficiency Manager	W
World Resources Institute, India	Sumedha Malaviya	Senior Manager, Energy Program	W
United Nations Environment Programme, Climate Change Division, Mitigation Branch	Sonja Malicevic	Project Specialist	W
World Resources Institute Energy Program	Clay Nesler	Senior Fellow, Energy Program	M
Saint-Gobain	Emmanuel Normant	Vice President, Sustainable Development	M

Organisation	Name	Position	Gender
Consejo Colombiano de Construcción Sostenible	Angélica Ospina	Chief Executive Officer	W
World Resources Institute, WRI Ross Center for Sustainable Cities	Roxana Slavcheva	Global Lead for Built Environment	W
United Nations Environment Programme, Evaluation Office	Fatma Twahir	Fund Management Officer	W
World Resources Institute Türkiye Sustainable Cities	Tuğçe Üzümoğlu	Integrated Climate Action Manager, Urban Efficiency & Climate	W
ICLEI- Local Governments for Sustainability South Asia	Shardul Venegurkar	Project Officer	M

ANNEX II. REVIEW FRAMEWORK/MATRIX

Note: Below are the Key Strategic questions from the Reviewer's TOR, along with the approach taken to answer each of the questions. The answers are detailed at the end of Section V, A, Strategic Relevance.

Approach to Responding to Key Strategic Questions for the Terminal Review

Q1: To what extent are the results attributable to the project?

Throughout the research and development of the Terminal Review, where the ZCB claims any quantitative results, the Reviewer sought comparative data from reports of trends and actions in the global, regional and country-level building sector. For example, resources included International Energy Agency building sector reports and the GlobalABC's annual *Global Status Report for Buildings and Construction* (2021 issue for a baseline; 2023 issue as a most recent comparison). Some interviewees supplied national or municipal points of comparison.

The Reviewer conferred briefly (regarding attribution practices for GEF projects) with UNEP Task Managers who were responsible for building sector/CCM-related efforts, such as Urban Shift, and the Secretariat of the GlobalABC. The subject of attribution was discussed with WRI and the executing partners.

Where no quantifiable results were available, the Reviewer attempted to assess levels of ZCB effort, reach and impact for its activities and outputs that resulted in positive change. Examples included participants' first-time involvement in policy-making; participants' increased confidence in professional capabilities to articulate and promote CCM measures in the building sector; accelerated adoption of energy efficient or renewable energy policies and solutions; and, increased capabilities, efficiency and speed of building code development and adoption.

Q2: What can we conclude in terms of effectiveness of global accelerator projects versus individual local projects?

The Reviewer discussed with UNEP and WRI how to best articulate this generic question with more specificity, especially to define which projects are the basis for such a comparison. For example, comparisons were limited to the BEA, BEA2 and ZCB projects.

Q3: After the completion of the BEA phase 1 and 2 projects, have any of the lessons learned from the previous phases been applied to this project in terms of options for exiting or transitioning strategies for the sustainability of the actions undertaken?

In the Preliminary Findings, the Reviewer summarized the Lessons Learned from the final reports of the BEA Terminal Evaluation and BEA 2 Terminal Evaluation. Questions posed in interviews referred to these earlier Lessons Learned and encouraged reflection on how the ZCB exit plan and any future ZCB-related proposals incorporated aspects of the cumulative BEA—BEA2—ZCB experiences, particularly as they may have fostered momentum and sustainability of efforts to reduce drastically the GHG emissions from the building sector by 2050.

Table 17 Rating Performance: Criteria, Indicators and Means of Verification

Terminal Review Criteria	Terminal Review Indicators	Means of Verification
A. Strategic Relevance 1. Alignment to MTS and POW 2. Alignment to UNEP / Donor strategic priorities 3. Relevance to regional, sub-regional and national environmental priorities 4. Complementarity with existing interventions	• Level of alignment of the ZCB project with UNEP's stated strategic priorities (2021 to 2023) • Synergies with Lessons Learned from other UNEP building sector projects and programs are identified	• Comparison of results reported in GEF donor framework • Lessons Learned (from related projects (Buildings Efficiency Accelerator; BEA II, GlobalABC and, UNEP/GEF energy efficiency projects) • Interviewee observations
B. Effectiveness *1. Availability of outputs* *2. Achievement of project outcomes* *3. Likelihood of impact*	• All ZCB project outputs are publicly available and have been or are being promoted in trainings, online media and publications. • New or enhanced policy frameworks such as building codes and NDCs are initiated and reflect stakeholder input • GHG emission mitigation, energy efficiency, renewable energy and ZCB targets are being set at higher levels of ambition relative to any prior baselines documented in country roadmaps, NDCs, regional or municipal regulations, or, industry standards	• Interviewees acknowledge that the outputs of the ZCB project that they utilized in their own mitigation and sustainable building efforts (regional, national or local) have accelerated their respective timelines and have increased intended levels of ambition. • Participant data reports from the ZCB project events along with audience data from The ZCB project website demonstrate uptake of output by targeted beneficiaries • Co-financing agreements between UNEP, WRI and partners have supported accelerated actions in the participating countries and cities • Country policies, NDCs and regulations and regional plans promulgated after the ZCB project interventions reflect UNEP-WRI project guidance and are shared more broadly with peers and interested parties

Terminal Review Criteria	Terminal Review Indicators	Means of Verification
C. Financial Management *1.Adherence to UNEP's policies and procedures* *2.Completeness of project financial information* *3.Communication between finance and project management staff*	• Financial reports are complete, accurate and timely. • If needed, revisions or corrections align with the ZCB Project objectives. • UNEP and WRI communicate regularly and as needed with The GEF and with the FMO and staff regarding finances.	• Internal UNEP financial reports. • Interviews with major donors, UNEP Task Manager, financial assistant and Fund Management Officer.
D. Efficiency	• Use of appropriate data, information and in-kind resources from UNEP and The ZCB project participants • Timely delivery of well-matched resources and services to stakeholder groups. • Minimal waste of resources (time, cash, effort). • Conformity of actual execution and expenditures with original Project plans and budget.	• Financial statements • Travel reports • Project budgets, work plans and financial reports • Required, regular reports to UNEP from grantees (PCAs, SSFAs, etc.) • Interviews with Task Manager, Fund Management Officer and Country Partners.
E. Monitoring and Reporting *2. Monitoring of project implementation* *3.Project reporting*	• UNEP and WRI internal progress tools updated comprehensively • Project Information Reports (PIRs) or other regular progress reports are clear, accurate and comprehensive, and, have been revised until approved by each relevant level of oversight in UNEP (and donors, if applicable)	• Any available tracking tools or reports • Minutes of governance meetings. • Interviews with Project Managers.
F. Sustainability *1. Socio-political sustainability* *2. Financial sustainability* *3. Institutional sustainability*	• Evidence of exit planning with ZCB Steering Committee, with input from each type of stakeholder/participant	• Reports and interviews that document discussions of long-term plans and future sources of support, especially for governments participating in ZCB • Evidence of ZCB contributing to collaborative proposals for and implementation of spin-off activities in participant countries and cities

Terminal Review Criteria	Terminal Review Indicators	Means of Verification
G. Factors Affecting Performance and Cross-Cutting Issues[43] *1. Preparation and readiness* *2. Quality of project management and supervision[44]* *3. Stakeholders participation and cooperation* *4. Responsiveness to human rights and gender equity* *5. Environmental, social and economic safeguards* *6. Country ownership and driven-ness* *7. Communication and public awareness*	• Timely project launch, including assignment of staff (UNEP and external) and recruitment of consultants. • Project managed per the governance structure (2019) • Clear definitions and fulfilment of roles and responsibilities. • All key stakeholder types are represented in training, publications and policy development outputs. • Interviewees and media reports express the value of ZCB interventions and demonstrate specific benefits to stakeholders, especially users of the built environment	• Contributions of ZCB to Program of Work reports, per ProDoc milestones • ZCB minutes or reports of PSC and Working Group meetings. • Interviews with several ZCB participants in each of four stakeholder types. • Examination of ZCB deliverables (outputs), including website, recorded webinars and publications. • ZCB participation and presentations in international, national and regional events. • Website audience data. • Media coverage of ZCB and its participants' activities, policies and climate change mitigation and sustainability commitments.
Overall Project Rating	Calculated by Reviewer from weighted sub-criteria ratings in the approved draft of the Terminal Review Report.	Task Manager to host Preliminary Findings presentation and circulate draft of Terminal Review; then provide stakeholder feedback to Reviewer, prior to final determination of the ZCB project rating. Task Manager to provide Terminal Review Final Report to EO for quality assessment (Annex XI).

[43] While ratings are required for each of these factors individually, they should be discussed within the Main Review Report as cross-cutting issues as they relate to other criteria. Note that catalytic role, replication and scaling up are expected to be discussed under effectiveness if they are a relevant part of the Theory of Change.

[44] In some cases 'project management and supervision' will refer to the supervision and guidance provided by UNEP to implementing partners and national governments while in others, specifically for GEF funded projects, it will refer to the project management performance of the Executing Agency and the technical backstopping provided by UNEP, as the Implementing Agency.

ANNEX III. GEF PORTAL TOPICS

GEF Q1. What was the performance at the project's completion against (GEF 7) Core Indicator Targets?

Core Indicator 6: Greenhouse Gas Emissions Mitigated (metric tons of CO2e).

Expected contribution (in EO Endorsement document): Direct: 7,099,211 tCO2; Cumulative from 2020-2042, energy saved: 35,712,414,000 MJ

(Table 10 GEF Core Indicator 6: Targets and Achievements)

By Project, Country	GEF Core Indicator 6: Greenhouse Gas Emissions Mitigated Targets, Expected Values		
	End-of-project[45] (metric tons of CO2e)	Energy saved: (MJ)	Materialized to-date (metric tons of CO2e)
ZCB project	Direct: 7,099,211 tCO2 Cumulative from 2020-2042 (direct and direct post-project)	35,712,414,000 MJ	*(no estimate given)*
Colombia	*(no estimate given)*		467 Mt CO2eq (2020-2050) (maximum mitigation potential)
Türkiye	*(no estimate given)*		971 Mt CO2 eq (2023-2042)

Core Indicator 11: Number of direct beneficiaries disaggregated by gender as co-benefit of GEF investment

Expected contribution (in CEO Endorsement document): Women: 400; Men: 600. Total: 1,000 direct beneficiaries

The CEO Endorsement document defines direct beneficiaries as, "the individuals participating directly in the Zero Carbon Buildings project via working groups, trainings, webinars, and other convenings/engagement."

(Table 11 GEF Core Indicator 11: Targets and Achievements)

By Project, Country	GEF Core Indicator 11 - Target number of direct beneficiaries as co-benefit of GEF investment (disaggregated by gender)			Achieved number of direct beneficiaries as co-benefit of GEF investment (disaggregated by gender)		
	Women	Men	Total	Women	Men	Total
ZCB project	400	600	1000	*(not provided)*		*> 3155*
Colombia	*(not provided)*			1009	1048	2159
Türkiye				510	486	996
All other participants				*(not provided)*		

[45] Column for Mid-Term omitted because it was non-applicable. Column for End-of-Project is equal to omitted column for Total Target.

GEF Q2. What were the progress, challenges and outcomes regarding engagement of stakeholders in the project as evolved from the time of the MTR?

No Mid-Term Review was conducted, so the reference point used is the project's initiation.

The first component engaged, supported and facilitated key stakeholders in Colombia and Türkiye in consensus-making activities focused on promoting national commitments that reflected actions they had prioritized in zero carbon buildings roadmaps. National and local governments, utilities, the private sector and civil society explored how to achieve ZCB commitments through in-country policy dialogues facilitated by the project and then delivered national roadmaps with timelines and prioritized actions to guide future policies and building sector market transformations.

The second component was executed at the county or city level, engaging municipal government and building sector decision-makers in the public and private sectors to increase their knowledge and confidence in taking tangible steps toward applying a zero carbon building approach. Through dialogues and workshops facilitated by project partners, diverse stakeholders contributed to city action plans for integrating a zero carbon building approach to pilot project and future urban developments. Stakeholders also developed business models to inform and encourage investment in zero carbon buildings.

The third component outputs were offered globally to scale up the project's impact. This component enhanced the existing resources of the Building Efficiency Accelerator (hosted by WRI) and linked the project participants with each other (peer-to-peer knowledge exchange) and with global experts in zero carbon building technologies, techniques and policies (including many resources provided by GlobalABC). This component effectively employed WRI's strategy of "Dialogue-Assess-Act-Monitor-Invest" to support participants to identify and realize roadmaps and action plans that would be appropriate to their respective needs.

The project design had anticipated potential challenges in continuity of policy development due to some political administrations' changeovers. Such changes did not alter the completion of the project, possibly due to the involvement of many and diverse stakeholders in road mapping and action plan processes, an approach that (this terminal review's) interviewees believed had helped to bridge political changes and hopefully would sustain continuous future support for zero carbon building actions.

GEF Q3. What were the completed gender-responsive measures and, if applicable, actual gender result areas?

Intent to cover gender and human rights issues was designed into the ZCB project plans and demonstrated early in the project. For example, WRI offered two tools developed for road mapping activities and stakeholder meetings to guide facilitators and participants during their discussions and documentation of outcomes: "Zero Carbon Building Accelerator: An Equity & Inclusion Lens" and "Integrating Gender Considerations into Zero Carbon Building Roadmaps." The latter included a list and links to other organization's building-specific equity and inclusion guides.

WRI reports to UNEP included data on gender of participants. Outputs such as the participants' national roadmaps and city action plans also addressed these issues. Gender was addressed in the project deliverables including engagement tracking of stakeholders, business plans, country roadmaps and city action plans. For example, the national roadmap for Colombia includes urban planning goals and timeline targets for women and children as direct beneficiaries of zero carbon buildings and prioritization of a gender-sensitive approach to the provision of integrated building services. The national roadmap for Turkiye includes a section on Gender Equality Strategies in the Building Sector; and, both the Gaziantep and Konya city action plans specify ways to achieve women's equality in the building sector.

Overall, the results for stakeholder involvement exceeded the target number of 1000 persons by more than threefold (>3155 participants). The target for numbers of women (400 women) was exceeded (Core Indicator 11) by nearly by fourfold (>1519 women participants). Gender equity was achieved in stakeholder groups' key leadership roles (such as facilitation, organization and management roles, decision-makers consulted, presenters and panelists). Gender parity was achieved in overall participation of direct beneficiaries.

GEF Q4: What was the progress made in the implementation of the management measures against the Safeguards Plan submitted at CEO Approval?

In the Approved Project Document Package, the Environmental Social and Economic Screening Decision prepared by WRI and approved by the Task Manager was "Low Risk." In the Terminal Review Inception Report (pp 48-50), assessments of the Project Design Quality for the factors of "K-Risk identification and Social Safeguards"; "L-Sustainability/Replication and Catalytic Effects" and "M-Identified Project Design Weaknesses/Gaps" were Highly Satisfactory because the project execution plans and the Project Information Reports addressed all previously identified safeguard standards risks (those with any rating above the lowest available rating or with any comments noted).

Table 18 Evidence of management response to Safeguard Standards Risks identified at project design and/or during implementation

Identified Safeguard Standards Risks	Mitigation / avoidance/ management approach	Supporting documentation
SS 2: Resource Efficiency, Pollution Prevention and Management of Chemicals and Wastes	"Any building construction that might have an impact on soil and water would not be additional to business as usual. Furthermore, construction firms will be expected to comply with local building codes and in certain cases the project expects to reduce these impacts from the business as usual case." "The project aims to reduce energy consumption in buildings as a minimum requirement." "On the contrary, the project's objective is to reduce GHG emissions.	Approved Project Document Package, pp 160 – 165. (2020) Project Information Reports (2022, 2023 and 2024)
SS 8: Gender equity	"The project seeks to promote gender equality (see section 3, 'Gender Equality and Women's Empowerment' in the Request for CEO Endorsement)."	
SS 9: Economic Sustainability	"The CAPEX costs of construction of buildings may be slightly higher that the business as usual, but the life cycle costs due to the energy savings should be lower."	

The Terminal Review Inception Report identified one "Observed Safeguard Standards Risk" that was overlooked at project design and during project implementation: the Theory of Change in the design and the approved project documentation did not fully reflect all key aspects of the Zero Carbon Buildings approach. (Inception Report, Design Quality, items K, L and M, pp 48-49). (Table 19, Table 20) These factors were considered, added and approved by the Task Manager in the Reconstructed Theory of Change at Terminal Review (Figure 5).

Table 19 Observed Safeguard Standards Risks that were overlooked at project design and/or during project implementation

Unidentified Safeguard Standards Risks	Consequence of Risk to the Project	Justification (source of information)
Incomplete Theory of Change	If the Theory of Change at design and project approval did not include factors regarding a Zero Carbon Buildings approach Gender Equity, Economic Sustainability and consideration of Human Rights, then the project might not have chosen relevant indicators, tracking and reporting methods and contributions towards impact. However, in the execution of the project, and production of project outputs, these factors were considered and results included in report. They are now reflected in the Reconstructed Theory of Change.	Discussion of Theory of Change in: Inception Report; Preliminary Findings presentation; Draft Main Review Report. Project Information Reports (2022, 2023 and 2024)

Table 20 Overall assessment of Safeguard Standards and Management Responsiveness

Sufficiency in planning for Safeguard Standards and associated risks during project design: Highly Satisfactory
Management responsiveness to Safeguard Standards Risks identified during project implementation: Highly Satisfactory
Negative environmental and social effects from unidentified Safeguard Standards Risks: No negative effects observed or reported.

GEF Q5: What were the challenges and outcomes regarding the project's completed Knowledge Management Approach, including:

- ***Knowledge and Learning Deliverables (e.g. website/platform development);***
- ***Knowledge Products/Events;***
- ***Communication Strategy;***
- ***Lessons Learned and Good Practice;***
- ***Adaptive Management Actions***

The Zero Carbon Buildings project Knowledge Management Approach included extensive sharing of information at the country and city levels of participation (Components 1 and 2). It also included some outreach, peer-to-peer interaction and resource-sharing at the regional and global levels. The project did not create a new global platform or website specific to zero carbon buildings. Instead, WRI integrated information into the pre-existing Buildings Efficiency Accelerator global platform. The communication strategy applied best management adaptive practices in that it was hybrid (virtual plus in-person interaction). This approach driven by the need to adapt to the dynamic personnel and logistical constraints and challenges of the ongoing SARS COVID-19 pandemic and the unanticipated interruption of operations in Turkiye due to a major earthquake. Nonetheless, the Implementing and Executing Agencies were well-prepared to operate virtually and in effect were efficient in limiting expenses that might otherwise have been incurred for long-distance travel. When and where possible, in-person communication and events were conducted on a local level.

Overall, virtual communication paired with targeted in-person consultations enabled the project to reach more stakeholders and more diversity of participants than anticipated. This expansion of the stakeholder base for the project also resulted in more stakeholder technical capabilities, policy engagement and ownership of the momentum toward zero carbon buildings. The review finds that

strategic result of this knowledge capacity-building is expected to be continuity of market transformation during periodic political changeovers in national and city administrations.

The two lessons learned that reflect the project's knowledge management appoach are that: the ZCB project's in-kind support and contacts were perceived as highly valuable by country and city partners; and, the stakeholder-driven process followed in this project to create national roadmaps and subnational action plans is adaptable and replicable. Thus the reviewer recommends that UNEP follow up on the project to create a more robust virtual access point (such as a zero carbon buildings website) for project-related resources that could encourage uptake by additional countries and facilities and thereby facilitate greater long-term impact (reduced GHG emissions from the buildings sector).

GEF Q6. What are the main findings of the evaluation?

The Zero Carbon Buildings project was well-aligned with the plans and strategic priorities of UNEP and its partners. The project highlights the strong relevance of country and subnational (state and city) roadmaps, policies and actions to global, regional and national environmental priorities, and confirms the potential of the building sector to contribute to climate change mitigation via reduction of GHG emissions (GEF-7 Core Indicator 6) and the number and gender of direct project beneficiaries (GEF-7 Core Indicator 11). The project results also contribute to Sustainable Development Goals 7 (to ensure access to affordable, reliable, sustainable and modern energy for all) and 11 (sustainable cities and communities).

The quality of the project design was Satisfactory; the Theory of Change was reconstructed to better align with the elements of a zero carbon approach to the built environment. The nature of the external context was Moderately Unfavourable overall due to the SARS-COVID-19 pandemic and a major earthquake and recovery in Türkiye in early 2023. The project teams and participants responded with adaptive management and virtual communications to meet these external challenges and to complete the project with a no-cost seven-month time extension.

Financial management of the project followed UNEP policies and procedures, financial information was (nearly) complete and communication between the Fund Management Officer and Task Manager was frequent and well-informed. Overall, financial management is rated as Highly Satisfactory.

All outputs were of high quality, complete and monitored and reported in a Satisfactory manner. The project outcomes were exceeded and assessed as Highly Satisfactory. The project has a Moderately Likely rating for impact due to the difficulty of projecting total project emissions reductions and social/economic co-benefits on a long timeline (to 2050), especially post-2030.

The Zero Carbon Building project outcomes are on track for three pathways envisioned in the Theory of Change, generally corresponding to three levels of adoption of zero carbon buildings: national policy commitments, subnational action plans implemented and global platforms supporting enhanced stakeholder capacities. The outcomes of the pathways have begun to converge resulting in an Intermediate State, where by 2030, "at least two countries, [a number of] cities and hundreds of stakeholders apply increased capacity, finance and access to accelerate zero carbon building roadmaps, policies and technologies that deliver towards the mitigation goals of the Paris Agreement; and, motivate additional countries, cities and stakeholders to follow suit." So far, two countries have national zero carbon building roadmaps and some related policies in place, or, at a subnational level, one state and nine cities have published and are implementing zero carbon building action plans.

Most of the assumptions in the Reconstructed Theory of Change hold and the drivers are in place for progress toward market transformation and impact. The project's overall sustainability is

Moderately Likely, with some reliance of country and subnational partners on external market transformation support and improvements in local supply and production of zero carbon building materials.

Overall, factors affecting performance were rated as Highly Satisfactory. Only communication and public awareness was rated as Moderately Satisfactory, due to the lack of a centralized, publicly accessible point for documenting the project's zero carbon building resources, publications, case studies, events and other project outputs or outcomes.

Based on the findings from this review, the project demonstrates performance at the Highly Satisfactory level. The Zero Carbon Buildings project demonstrated strongest performance in the areas of Strategic Relevance due to its alignment with the priorities of the Implementing and Executing Agencies and their partners and the relevance of the project to the priorities of the participating country and city partners. The project areas that would have benefited from further attention include sustainability with respect to long-term political and financial commitments to instituting zero carbon building requirements and funding. Also, the project could have contributed to greater impact—via future replication by additional national and subnational entities— if it had established a more centralized, virtual point of communication to raise global public awareness via access to the technical resources and case study results of the project.

ANNEX IV. KEY DOCUMENTS CONSULTED

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GlobalABC, https://globalabc.org/
International Finance Corporation-EDGE: Excellence in Design for Greater Efficiencies, https://edgebuildings.com/
Seed Capital Assistance Facility I and II, https://scaf-energy.org and https://www.unep.org/resources/factsheet/seed-capital-assistance-facility
United for Efficiency, https://united4efficiency.org/
UrbanShift, https://www.unep.org/topics/cities/integrated-planning/urbanshift-programme
WRI Ross Center for Sustainable Cities, https://www.wri.org/cities
Zero Carbon Building Accelerator, https://www.wri.org/initiatives/zero-carbon-building-accelerator

ANNEX V. PROJECT BUDGET AND EXPENDITURES

Table 21 Project Funding Sources

Funding source All figures as USD	Planned funding	% of planned funding	Secured funding	% of secured funding
Cash				
Funds from the GEF	2,000,000	100%	2,000,000	100%
Sub-total: Cash contributions				
In-kind				
Environment Fund staff-post costs				
Regular Budget staff-post costs				
Sub-total: In-kind contributions				
Co-financing				
Co-financing cash contribution				
Co-financing in-kind contribution, by partner/donor				
CCCS	150,000	2%	150,000	100%
IEA	1,400,000	20%	1,400,000	100%
IFC	1,472,760	21%	920,475	62%
Johnson Controls	200,000	3%	200,000	100%
UNEP	300,000	4%	300,000	100%
WGBC	1,378,972	20%	1,378,972	100%
WRI	1,935,692	28%	1,935,692	100%
WRI-Türkiye	100,657	1%	100,657	100%
Sub-total: Co-financing contributions	**6,938,081**	**100%**	**6,385,796**	**92%**
Total	**8,938,081**	**100%**	**8,385,796**	**94%**

*Funding from a donor to a partner which is not received into UNEP accounts, but is used by a UNEP partner or collaborating centre to deliver the results in a UNEP – approved project.

[Source: ZCBA Co-Finance Report July 2022 - June 2023 Final Draft (Signed) March 2024]

Table 22 Project cost at design versus actual cost

Component/sub-component/output *All figures as USD*	Estimated cost at design	Actual Cost / expenditure	Expenditure ratio (%, actual/planned)
Component 1 / Outcome 1	773,579	801,487	1.04
Component 2 / Outcome 2	649,518	635,964	0.98
Component 3 / Outcome 3	375,474	378,068	1.01

Sources: Estimated cost at design: PCA 2021; Actual cost expenditure: WRI final report as of 30 September 2023; Expenditure ratio: calculated by Reviewer.

ANNEX VI. FINANCIAL MANAGEMENT

Table 23 Financial Management Table (EO template 21.03.23)

Financial management components:		Rating	Evidence/ Comments
1. Adherence to UNEP's policies and procedures:		**HS**	
Any evidence that indicates shortcomings in the project's adherence[46] to UNEP or donor policies, procedures or rules		No	
2. Completeness of project financial information[47]:			
Provision of key documents to the reviewer (based on the responses to A-H below)		**HS**	
A.	Co-financing and Project Cost's tables at design (by budget lines)	Yes	By component
B.	Revisions to the budget	Yes	PCA Rev 1
C.	All relevant project legal agreements (e.g. SSFA, PCA, ICA)	Yes	
D.	Proof of fund transfers	No	Not provided to Reviewer
E.	Proof of co-financing (in-kind only)	Yes	Letters from co-financers; Reports noting participation of co-financers; comments from interviewees; Final report[48]
F.	A summary report on the project's expenditures during the life of the project (by budget lines, project components and/or annual level)	Yes	UNEP provided approved reports to Reviewer on 2 April 2024
G.	Copies of any completed audits and management responses *(where applicable)*	Yes	One audit, for FY 2021. Final audit from WRI pending; due by 30 September 2024
H.	Any other financial information that was required for this project (list):	N/A	Yes, interview with FMO completed in April 2024
3. Communication between finance and project management staff		**HS**	
Project Manager and/or Task Manager's level of awareness of the project's financial status.		HS	Yes, each TM interviewed was well informed on finances
Fund Management Officer's knowledge of project progress/status when disbursements are done.		HS	Excellent.
Level of addressing and resolving financial management issues among Fund Management Officer and Project Manager/Task Manager.		HS	Excellent: frequent communication and updates.
Contact/communication between by Fund Management Officer, Project Manager/Task Manager during the preparation of financial and progress reports.		HS	Updates provided by both parties as needed.

[46] If the Review raises concerns over adherence with policies or standard procedures, a recommendation maybe given to cover the topic in an upcoming audit, or similar financial oversight exercise.
[47] See also document 'Criterion Rating Description' for reference
[48] Final report: ZCBA Co-Finance Report July 2022 - June 2023 Final Draft (Signed) March 2024

Financial management components:	Rating	Evidence/ Comments
Project Manager, Task Manager and Fund Management Officer responsiveness to financial requests during the review process	HS	Excellent.
Overall rating	**HS**	

Table 24 Original and revised project budgets (Rev 1)

Budget summary by Umoja Class	Original (USD)	Rev 1 (USD)	Variance (USD)	Variance (%)
010 - Staff & Personnel (Including Consultants)	769,223	613,048	(156,175)	(0)
120 - Contract Services	39,795	34,949	(4,846)	(0)
125 - Operating & Other Costs	132,271	84,183	(48,088)	(0)
130 - Supplies, Commodities & Materials	23,192	12,544	(10,648)	(0)
135 - Equipment, Vehicles & Furniture	-	-	-	-
140 - Transfers & Grants to Implementing Partners	992,504	1,254,938	262,434	0
160 – Travel	43,015	337	(42,678)	(1)
Total	**2,000,000**	**2,000,000**	**(0)**	**(0)**
Budget summary by Project Component	**Original (USD)**	**Rev 1 (USD)**	**Variance (USD)**	**Variance (%)**
Component 1: National commitments and roadmaps towards zero carbon buildings policies	773,579	801,487	27,907	4%
Component 2: City strategies towards net zero carbon building implementation	649,518	635,964	(13,554)	-2%
Component 3: Pipelines of additional local and national governments for future scaling through platform-wide capacity building and technical assistance	375,474	378,068	2,594	1%
Monitoring and Evaluation	30,000	30,000	-	0%
Project Management Costs (PMC)	171,429	154,481	(16,947)	-10%

ANNEX VII. PROJECT STEERING COMMITTEE

The representatives of organizations in the ZCB Project's Steering Committee who were recorded in the Minutes of the four Steering Committee are listed below, by organization.

ICLEI-Local Governments for Sustainability
Maryke van Staden

International Energy Agency
Brian Motherway

International Finance Corporation-EDGE
Corinne Figueredo

PEEB-GIZ
Isabel Geppert
Christiana Hageneder
Anna Zinecker

Saint-Gobain
Emmanuel Normant

Sustainable Energy for All
Elizabeth Chege
Brian Dean

United Nations Environment Programme
Geordie Colville
Tania Daccarett
Jonathan Duwyn
Sonja Malicevic
Mahima Moolbharati
Martina Otto

UNEP-GlobalABC Secretariat
Nora Steurer

World Green Building Council
Victoria Burrows
Dominika Czerwinska
Cristina Gamboa

World Resources Institute
Marc Daniels
Michael Doust
Shannon Hilsey
Jennifer Layke
Fairuz Loutfi
Sumedha Malaviya
Clay Nesler
Kayla Rakes
Natalie Thomure
Rogier van den Berg

ANNEX VIII. BRIEF CV OF THE REVIEWER

Kathryn M. Conway

Profession	Research and evaluation consultant
Nationality	USA
Country experience	• Europe: France, Germany, Sweden • Americas: Canada, Chile, USA • Asia: China, Japan, India, The Philippines • Oceania: New Zealand
Education	• MS in Technical Communication, Rensselaer Polytechnic Institute • BA in Biology, Swarthmore College • Board-certified Editor in the Life Sciences (BELS)

Short biography

Ms. Conway is an independent consultant with more than three decades of experience developing, managing and evaluating international market transformation programs that respond to stakeholder needs and environmental concerns. Since 2001 her consultancy, Conway & Silver, Energy Associates LLC, has advised multilateral development banks and organizations, technical associations and private sector companies on strategies to speed the adoption of high efficiency technologies that have great potential to sustain human health and well-being while also reducing greenhouse gas emissions. Conway has authored or edited more than 65 publications on energy and buildings topics and technologies.

From 2012 to 2015, Conway served as UNEP Programme Officer for the UNEP/GEF "en.lighten initiative." Subsequently, she authored or edited the following UNEP publications:

- 2022. Interim Review of the United Nations Environment Programme "Seed Capital Assistance Facility II," Project 124.4 and PIMS 1657, January 2018 to June 2022.
- 2022. Terminal Review of the Cities and Lifestyles Work of UNEP under "PoW 618 UN Environment Cities Hub" and "PIMS ID 02069" July 2019 to June 2022.
- 2021. Interim Review of the United Nations Environment Programme Global Alliance for Buildings and Construction (GlobalABC) PIMS ID 2069, December 2015 to June 2021.
- 2021. Mid Term Review Report: UNEP/GEF Global Program 9083 to Leapfrog Markets to Energy Efficient Lighting, Appliances and Equipment and Project 9337.
- 2018. Terminal Evaluation of the UNEP/GEF Project: Scaling up the Sustainable Energy for All Building Efficiency Accelerator.
- 2016. [Technical copy editor.] UNEP/International Resource Panel's Green Energy Choices: The Benefits, Risks and Trade-Offs of Low-Carbon Technologies for Electricity Production.
- 2015. Terminal Review of the UNEP Project: Nationally Appropriate Mitigation Action (NAMA) Development for the Building Sector in Asia.

Prior to 2001, Conway was employed by: Rensselaer Polytechnic Institute, School of Architecture, and, School of Humanities and Social Sciences; New York State Department of Education, Science Service; and, the United States Department of Agriculture, Agriculture Research Service.

ANNEX IX. REVIEW TERMS OF REFERENCE (WITHOUT ANNEXES)

TERMS OF REFERENCE

Terminal Review of the UNEP project GEFID 10321 "Zero Carbon Buildings for All: from Energy Efficiency to Decarbonization"

Section 1: PROJECT BACKGROUND AND OVERVIEW

Project General Information

Table 1. Project summary

UNEP PIMS/SMA[49] ID:	**44218**		
Donor ID:	GEFID 10321		
Implementing Partners:	UNEP, Industry and Economy Division, Energy Branch, Climate Change Mitigation Unit		
SDG(s) and indicator(s)	SDG-7: Ensure access to affordable, reliable, sustainable and modern energy for all **Target 7.a: By 2030, enhance international cooperation to facilitate access to clean energy research and technology, including renewable energy, energy efficiency and advanced and cleaner fossil-fuel technology, and promote investment in energy infrastructure and clean energy technology** • Indicator 7.a.1: International financial flows to developing countries in support of clean energy research and development and renewable energy production, including in hybrid systems **Target 7.b: By 2030, expand infrastructure and upgrade technology for supplying modern and sustainable energy services for all in developing countries, in particular, least developed countries, small island developing States and landlocked developing countries, in accordance with their respective programmes of support** • Indicator 7.b.1: Installed renewable energy-generating capacity in developing countries (in watts per capita) **Target 7.3. By 2030, double the global rate of improvement in energy efficiency** • Indicator 7.3.1: Energy intensity measured in terms of primary energy and GDP		
Sub-programme:	Climate action	**Expected Accomplishment(s):**	1(B) Countries and stakeholders have increased capacity, finance and access to technologies to deliver on the adaptation and mitigation goals of the Paris Agreement.

[49] Acronym for ID assigned by the Integrated Planning, Monitoring and Reporting (IPMR) system.

UNEP approval date:	19 February 2021	**Programme of Work Output(s):**	1.2 Carbon neutrality and resilience are integrated into climate planning and policy and regulatory frameworks at all levels. 1.5 Private and public financial flows are aligned with the goals of the Paris Agreement. 1.7 Public support and political engagement for climate action are catalysed.
***Expected* start date:**	19 February 2021	**Actual start date:**	18 March 2021
***Planned* operational completion date:**	28 February 2023	**Actual operational completion date:**	30 September 2023
Planned* total project budget at approval *(show breakdown of individual sources/grants):	GEF: USD 2,000,000	**Actual total expenditures reported as of 30 June 2023:**	USD 1,565,298.45
***Expected* co-financing:**	USD 6,938,081	**Secured co-financing[50]:**	USD 5,940,312
First disbursement:	08 April 2021	**Planned date of financial closure:**	30 September 2024
No. of project revisions:	2	**Date of last approved project revision:**	22 February 2023
No. of Steering Committee meetings:	4	**Date of last/next Steering Committee meeting:**	**Last:** 25 April 2023 **Next:** n/a
Mid-term Review/ Evaluation[51] *(planned date):*	n/a	**Mid-term Review/ Evaluation (actual date):**	n/a
Terminal Review *(planned date):*	October 2023	**Terminal Review (actual date):**	xx
Coverage - Country(ies):	Colombia and Türkiye	**Coverage - Region(s):**	Global
Dates of previous project phases:	GEFID 9947 "The SEforALL Building Efficiency Accelerator (BEA): Expanding Local Action and Driving National Change" (BEA2) (5 September 2018 – 30 September 2020)	**Status of future project phases:**	TBD

[50] State whether co-financing amounts are cash or in-kind.
[51] UNEP policies require projects with planned implementation periods of 4 or more years to have a mid-point assessment of performance. For projects under 4 years, this should be marked as N/A.

Project Rationale[52]

The building sector is a major contributor to global warming. Buildings account for 36% of global final energy use and nearly 40% of energy related of greenhouse gas emissions.[53] The buildings sector presents perhaps the world's best climate mitigation opportunity, but is showing insufficient progress toward 2020 milestones that would put the world on the path towards remaining under 1.5°C warming.[54] Buildings are not only off track to meet the 1.5°C target, they are heading in the wrong direction. Emissions from buildings have risen for two years in a row, creeping back to their 2013 peak.[55]

Though there has been significant progress on building efficiency by leading countries, cities, and developers, that progress has been more than offset by population growth, urbanization trends, and increases in the overall size and numbers of buildings, thereby increasing final energy demand from buildings.[56] The global building stock is set to double by 2060—without dramatic energy efficiency improvements and decarbonization of the energy used in buildings globally, building energy demand will continue to drive massive absolute increases in carbon emissions. With these macro trends, policymakers must look to energy efficiency strategies in the building sector to contribute significantly to stabilizing energy demand to meet a global 1.5-degree pathway. According to the Global Alliance for Buildings and Construction (GlobalABC), building energy intensity will need to fall 30% by 2030 to meet even a 2-degree scenario.

And today, with the global population increasing from 54% urban to over 70% urban by 2050, we risk locking in a high carbon, low-efficiency built environment if cities are not rapidly upgrading building construction and renovation practices.

Buildings are the largest source of demand-side carbon emissions globally and rates of building efficiency improvement are not keeping pace with increases in energy demand, resulting in rapidly increasing emissions. But buildings also offer the biggest, most cost-effective climate mitigation opportunity—the combination of efficiency and on- or off-site renewables generation is emerging as a powerful tool for tackling buildings-related emissions and focusing more on what matters – carbon – rather than energy alone. The IEA found in its model of least-cost approaches that the global buildings sector can contribute emissions declines of 42 percent between 2012 and 2050 (around 80 $GtCO_2$).

In addition, not only are buildings among the largest sources of carbon emissions, improving their energy performance is the cheapest way we have to reduce emissions globally.[57] Crucially, improved buildings deliver substantial societal co-benefits, many of which are key to UN Sustainable Development Goals: health, cost of living, economic development, cost of public service provision, and more.[58] Efficient buildings powered by clean energy tend to enhance urban resilience through design features such as cool or green roofs, which reduce urban heat islands and surface water runoff.[59] Yet, despite the extraordinary potential for improved buildings to drive climate solutions and a more sustainable future, 80% of economically viable energy savings in buildings remain untapped.[60]

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[52] Grey =Info to be added

[53] International Energy Agency and UN Environment Programme (2018): Global Alliance for Buildings and Construction 2018 Global Status Report Towards a zero-emission, efficient and resilient buildings and construction sector

[54] Tracking Progress of the 2020 Climate Turning Point, 2019, World Resources Institute

[55] IEA "Tracking Clean Energy Progress" 2019 https://www.iea.org/tcep/buildings/

[56] Ibid.

[57] Global GHG Cost Curve V2.1 beyond BAU – 2030 by McKinsey & Company

[58] WorldGBC, PRP, Skanska, Grosvenor, Estidama "The Business Case for Green Buildings", 2013

[59] Green and low-carbon buildings even help manage mitigation-adaptation tradeoffs, especially in rapidly growing cities. Urban density, for instance, increases the efficiency of urban energy use and thus reduces power related GHG emissions, but simultaneously worsens urban heat island effects and surface runoff conditions (Gill et al. 2007).

[60] World Bank Energy Sector Management Assistance Program 2019

Thus, to meet Paris Agreement goals, the world's building stock must be carbon neutral by 2050 — success here will require an alignment of policy, investment, development, and private sector action. However, the world's policymakers are by and large not pursuing the massive opportunity that buildings present. Much greater ambition around buildings policy will be needed to create the frameworks and send the signals that will inspire private sector action.

To address the complex human and institutional nature of the barriers identified above, and to contribute to rapid decarbonization of the building sector by 2050, this project seeks to scale the impact of its work by deepening ambition through national and local stakeholders working on policy and through private markets. Its objective is to link local policy action and capacity building with national policies and programs, all supported and informed by private sector market implementation experience. It does so by supporting the rapid increase in ambition for zero carbon new and existing buildings, working with national governments to create policy and program roadmaps to support and enable this ambition, working with cities and sub-national jurisdictions in their pursuit of building improvements, and connecting national and sub-national governments to increase the alignment, ambition, and impact of actions to decarbonize buildings.

This project embodies a strong coalition of national and municipal actors aligning on roadmaps, enabling policies, and demonstration programs that will drive the decarbonization of the global building stock. These policies and commitments will send strong and compelling market signals to the private sector and will mobilize financial and local industry players to deliver a net zero carbon building sector by mid-century. This will lead to dramatic GHG emissions reductions and deliver a healthier, more productive environments to billions of people.

Project Results Framework

As stated in the Terminal Review TOR, the goal of the project is to reduce greenhouse gas emissions by supporting market transformations that will facilitate decarbonization of the building sector. Technical assistance delivered via three components aimed to engage partners in linking global market experience, national policy, local action and capacity building.

Component 1: National commitments and roadmaps towards zero carbon buildings policies

Component 2: City strategies towards net zero carbon building implementation

Component 3: Pipelines of additional local and national governments for future scaling through platform-wide capacity building and technical assistance

Project outcome and outputs are summarized in the table below:

Table 25. ZCB Project components, outcomes and outputs

Project Components	Project Outcomes	Project Outputs
1. National commitments and roadmaps towards zero carbon buildings policies	1. Two national governments link NDCs and/or other national strategies with zero carbon buildings and develop approaches to support subnational governments, utilities, the private sector and civil society to accelerate the market transformation towards zero carbon buildings	1.1. Outreach: Outreach activities are performed using tools from the national market and global partners to encourage national governments to adopt public commitments on net zero carbon buildings 1.2 Dialogue: National/local governments, utilities, the private sector and civil society explore how to achieve ZCB commitments through in-country policy dialogues facilitated by the project 1.3 Plan. Long-term national roadmaps, including short/medium-term action plans, linked to the NDCs and/or other national strategies to achieve net zero carbon

Project Components	Project Outcomes	Project Outputs
		buildings by 2050 are developed and adoption is initiated 1.4 Enable: Enabling policies are developed and adoption is initiated to support subnational governments, utilities, private sector and civil society to accelerate the market transformation towards ZCBs
2. City strategies towards net zero carbon building implementation	2. City governments in two countries use newly gained tools and knowledge to achieve socially, environmentally and economically viable GHG mitigation in buildings to advance towards ZCBs	2.1. Dialogue: In a total of 4 cities (2 in each selected country), stakeholders from the public and private sectors explore options to advance local action towards zero carbon buildings through dialogues facilitated by the project 2.2 Assess: In 3 cities, appropriate methods to quantify social, environmental and economic costs and benefits of ZCB policies and investments are demonstrated to inform local government decisions 2.3 Act: In 3 cities, policies and actions to move towards a decarbonized building sector are developed and adoption is initiated 2.4 Monitor: In 2 cities, innovative methods for monitoring progress are tested and lessons learned are provided to national ministries for future policy design 2.5 Invest. In at least 2 cities, a business model for investing in ZCBs is developed in cooperation with at least one development bank and in consultation with the private sector
3. Pipelines of additional local and national governments for future scaling through platform-wide capacity building and technical assistance	3. National, subnational, and city governments, beyond those in components 1 and 2, advance actions towards zero carbon buildings	3.1. Platform: The BEA global platform is enhanced in order to provide capacity building and technical assistance on ZCBs 3.2. Scale: Support provided through the global platform facilitates 6 additional city or subnational governments to make public commitments towards zero carbon buildings 3.3. Replicate: Support provided through the global platform enables 3 additional city or subnational governments to develop and initiate implementation of ZCB roadmaps

In the CEO Endorsement document, it is mentioned that the theory of change remains the same as proposed for the previous phase project and it is presented in the table below:

Table 26. Theory of change

First level Intermediate States	Second level Intermediate States	Impact
Leveraged finance/funding for Energy Efficiency projects and buildings	Improved capacity to implement Energy Efficiency projects and policies on buildings	Increased energy saving and reduced GHG emissions *via project objective*: Reduce greenhouse gas emissions by supporting market transformations that would enable a doubling of the rate of energy efficiency improvements in buildings by 2030, by linking global market experience, national policy, and local action and capacity building
Facilitated dialogue, information exchange and awareness on Energy Efficiency policy and project opportunities	Increased Energy Efficiency technology deployment	
Facilitated local actions at national and subnational levels for support of Energy Efficiency measures in buildings		
Better building energy consumption data and local capacity to improve scalable assessment methods		

Executing Arrangements

The Climate Change Mitigation Unit, Energy Branch, Industry and Economy Division was the Implementing Agency of the project. It was responsible to the GEF for the project's oversight, the use of resources, or any amendments agreed to it by all donors. The IA worked with the Executing Agency, World Resources Institute (WRI) to oversee implementation of the project and provide supervision to ensure that the project met UNEP and GEF policies. WRI has been guided by a Project Steering Committee, which was selected in consultation with the Implementing Agency. The Steering Committee included members who were able to provide inputs from the city, national, global and industry perspectives. It had also served to facilitate coordination with other major efforts in this space.

Funding for on-the-ground engagement by country and city leads had been passed through to partner organizations selected for engagement leadership through standardized subgrant and contracting processes. WRI managed subgrant funding passed to partner organizations through thorough partner vetting and risk assessment, detailed quarterly financial reporting, and narrative reporting as determined by the needs of the project – in this case, through regular check-in calls and biannual written reports. Subgrant partners have been vetted based on project needs and priorities, while contractors were subject to competitive procurement and/or as-needed sole source justification. All subgrants were subject to fiscal oversight in line with funder requirements and project documents by WRI's dedicated Grants & Contracts team. In the case of this engagement-focused project, primary leads have been determined based on the strength of technical expertise and necessary relationships in-location. Following subgrant establishment, funds have been transferred to subgrant partners in quarterly installments according to the needs of the scope of work and only after proper financial reporting from the prior quarter.

Other elements of the governance structure provide an inclusive structure for multi-stakeholder oversight and early-stage input to project activities. The structure had allowed for fast near-term action and build on experiences with the successful structure used through the previous project phase (Building Efficiency Accelerator from 2016-2020). The structure is presented in the diagram below.

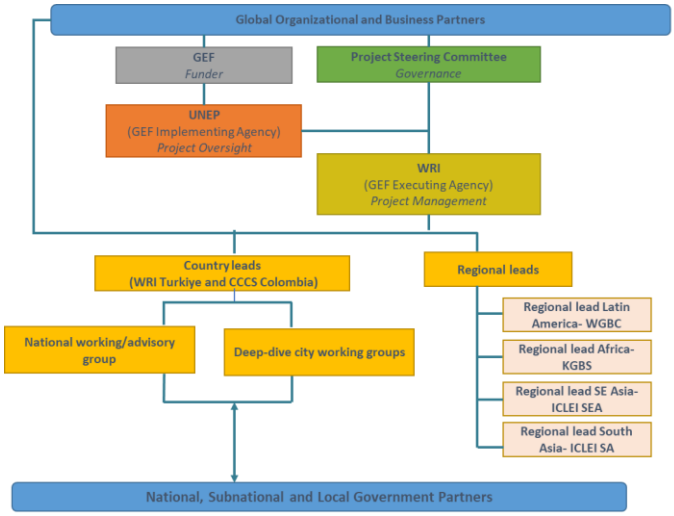

Figure 17. Project organizational structure

Project Cost and Financing

Table 27 presents the project budget at design, broken down per component and funding source.

Table 27. Project budget

Project Component	GEF Project Financing (USD)	Co-financing (USD)
Component 1: National commitments and roadmaps towards zero carbon buildings policies	773,579	2,331,611
Component 2: City strategies towards net zero carbon building implementation	649,518	2,121,097
Component 3: Pipelines of additional local and national governments for future scaling through platform-wide capacity building and technical assistance	375,474	1,864,716
Monitoring & evaluation	30,000	
Subtotal	**1,828,571**	**6,317,424**
Project Management Cost	**171,429**	**620,657**
Total budget	**2,000,000**	**6,938,081**

Table 28 shows the disbursement amounts to from UNEP as the Implementing Agency to WRI as the Executing Agency.

Table 28. Disbursement amounts and schedule

Disbursement date	Amounts (USD)
8 April 2021	500,000.00
1 April 2022	539,342.00
3 October 2022	27,340.45
3 March 2023	498,616.00
18 January 2024	306,201.55

	r[61]
Total	**1,970,000**

Implementation Issues

No Mid-Term Review has been undertaken during the project implementation. As per GEF policy, for Medium Size projects of less than USD 2,000,000 that are for a period of less than four years of implementation, Mid-Term Reviews are optional.

UNEP's internal Half-Yearly Progress Reports and GEF-mandated Project Implementation Reports do not mention any major issues during the implementation of the project. Some challenges and delays were nevertheless experienced as follows:

- Due to political changes in Colombia and Türkiye, as well as additionally committed national, subnational, and city governments (e.g., Kenya), high turnover of relevant staff in the city and/or partner organization and changes in existing climate policies led to delays in implementation.
- COVID-19 pandemic has disrupted the start of the project and made in-person meetings challenging, especially during the first two years of the project implementation.
- The national government of Türkiye had expressed preference for two cities (Konya and Gaziantep) to be deep dive city engagements. However, neither of these cities were previous BEA "deep dives", which forced building new city contacts.
- Due to catastrophic earthquakes in Türkiye in February 2023, the local government staff (especially in Gaziantep) had not been readily available during the short period of recovery.

To address the above-mentioned challenges project has had two sets of revisions with no change to the overall cost of the project:

- March 2022 (internal revision cleared by the UNEP Task Manager): Revision of the project budget to align with the delayed start of the project, reduce the travel budget due to COVID-19 pandemic, reflect the changes in the Executing Agency staffing, and increase the subgrant amounts for Component 3 for development of city roadmaps.
- February 2023 (official revision approved by Industry and Economy Division Director): No-cost extension of the technical completion date from 28 February 2023 to 30 September 2023 associated with budget and workplan revision due to delays in the project implementation. The project has experienced delays in project start related to COVID-19, as well as delays in implementation due to political changes in the project countries on both local and national level, particularly in Colombia and Türkiye, and the massive earthquake that took place in Türkiye in early February 2023.

Section 2. OBJECTIVE AND SCOPE OF THE REVIEW

Objective of the Review

In line with the UNEP Evaluation Policy[62] and the UNEP Programme Manual[63], the Terminal Review (TR) is undertaken at operational completion of the project to assess project performance (in terms of relevance, effectiveness and efficiency), and determine outcomes and impacts (actual and potential) stemming from the project, including their sustainability. The Review has two primary purposes: (i) to provide evidence of results to meet accountability requirements, and (ii) to promote operational improvement, learning and knowledge sharing through results and lessons learned among UNEP, WRI, partnered cities, all ZCB partners (including International Finance Corporation, Johnson Controls, World Green Building Council, International Energy Agency, Consejo Colombiano de Construcción Sostenible (CCCS) or Colombia Green Building Council and WRI Türkiye Sustainable Cities). Therefore, the Review will identify lessons of operational relevance for future project formulation and implementation, especially for future phases of the project, where applicable.

Key Review principles

[61] Per TM, "remaining funds withheld until the audit for 2022 and 2023 are received"
[62] https://www.unenvironment.org/about-un-environment/evaluation-office/policies-and-strategies
[63] https://wecollaborate.unep.org

Review findings and judgements will be based on **sound evidence and analysis**, clearly documented in the Review Report. Information will be triangulated (i.e., verified from different sources) as far as possible, and when verification is not possible, the single source will be mentioned (whilst anonymity is still protected). Analysis leading to evaluative judgements should always be clearly spelled out.

The "Why?" Question. As this is a Terminal Review and similar interventions are envisaged for the future, particular attention will be given to learning from the experience. Therefore, the "*why?*" question should be at the front of the consultant(s)' minds all through the review exercise and is supported by the use of a theory of change approach. This means that the consultant(s) need to go beyond the assessment of "*what*" the project performance was and make a serious effort to provide a deeper understanding of "*why*" the performance was as it was (i.e., what contributed to the achievement of the project's results). This should provide the basis for the lessons that can be drawn from the project.

Attribution, Contribution and Credible Association: In order to *attribute* any outcomes and impacts to a project intervention, one needs to consider the difference between what has happened with, and what would have happened without, the project (i.e., take account of changes over time and between contexts in order to isolate the effects of an intervention). This requires appropriate baseline data and the identification of a relevant counterfactual, both of which are frequently not available for reviews. Establishing the *contribution* made by a project in a complex change process relies heavily on prior intentionality (e.g., approved project design documentation, logical framework) and the articulation of causality (e.g. narrative and/or illustration of the Theory of Change). Robust evidence that a project was delivered as designed and that the expected causal pathways developed supports claims of contribution and this is strengthened where an alternative theory of change can be excluded. A *credible association* between the implementation of a project and observed positive effects can be made where a strong causal narrative, although not explicitly articulated, can be inferred by the chronological sequence of events, active involvement of key actors and engagement in critical processes.

Communicating Review Results. A key aim of the Review is to encourage reflection and learning by UNEP staff and key project stakeholders. The consultant should consider how reflection and learning can be promoted, both through the review process and in the communication of review findings and key lessons. Clear and concise writing is required on all review deliverables. Draft and final versions of the main review report will be shared with key stakeholders by the UNEP Project Manager[64]. There may, however, be several intended audiences, each with different interests and needs regarding the report. The consultant will plan with the UNEP Project Manager which audiences to target and the easiest and clearest way to communicate the key review findings and lessons to them. This may include some or all of the following: a webinar, conference calls with relevant stakeholders, the preparation of a review brief or interactive presentation.

Key Strategic Questions

In addition to the review criteria outlined in Section 10 below, the Review will address the **strategic questions[65]** listed below (no more than 3 questions are recommended). These are questions of interest to UNEP and to which the project is believed to be able to make a substantive contribution:

Q1: To what extent are the results attributable to the project?

Q2: What can we conclude in terms of effectiveness of global accelerator projects versus individual local projects?

Q3: After the completion of the BEA phase 1 and 2 projects, have any of the lessons learned from the previous phases been applied to this project in terms of options for exiting or transitioning strategies for the sustainability of the actions undertaken?

For GEF-funded projects there are a series of questions that need to be uploaded to the GEF Portal. The consultant should complete the table in Annex 5 of these TOR and append it to the Final Review report.

Review Criteria

All review criteria will be rated on a six-point scale. Sections A-I below, outline the scope of the review criteria. The set of review criteria are grouped in nine categories: (A) Strategic Relevance; (B) Quality of

[64] For GEF funded projects, UNEP Project Manager refers to the Task Manager.

[65] The strategic questions should not duplicate questions that will be addressed under the standard review criteria described in section 10.

Project Design; (C) Nature of External Context; (D) Effectiveness, which comprises assessments of the availability of outputs, achievement of outcomes and likelihood of impact; (E) Financial Management; (F) Efficiency; (G) Monitoring and Reporting; (H) Sustainability; and (I) Factors Affecting Project Performance.

A suite of various tools, templates and guidelines that can help Review Consultant(s) to follow a thorough review process that meets all of UNEP's needs is available via the UNEP Project Manager.

A. Strategic Relevance

The Review will assess the extent to which the activity is suited to the priorities and policies of the donors, implementing regions/countries and the target beneficiaries. The Review will include an assessment of the project's relevance in relation to UNEP's mandate and its alignment with UNEP's policies and strategies at the time of project approval. Under strategic relevance an assessment of the complementarity of the project with other interventions addressing the needs of the same target groups will be made. This criterion comprises four elements:

i. *Alignment to the UNEP's Medium-Term Strategy[66] (MTS), Programme of Work (POW) and Strategic Priorities*

The Review should assess the project's alignment with the MTS and POW under which the project was approved and include, in its narrative, reflections on the scale and scope of any contributions made to the planned results reflected in the relevant MTS and POW. UNEP strategic priorities include the Bali Strategic Plan for Technology Support and Capacity Building[67] (BSP) and South-South Cooperation (S-SC). The BSP relates to the capacity of governments to: comply with international agreements and obligations at the national level; promote, facilitate and finance environmentally sound technologies and to strengthen frameworks for developing coherent international environmental policies. S-SC is regarded as the exchange of resources, technology and knowledge between developing countries.

ii. *Alignment to Donor/Partner Strategic Priorities*

Donor strategic priorities will vary across interventions. The Review will assess the extent to which the project is suited to, or responding to, donor priorities. In some cases, alignment with donor priorities may be a fundamental part of project design and grant approval processes while in others, for example, instances of 'softly-earmarked' funding, such alignment may be more of an assumption that should be assessed.

iii. *Relevance to Global, Regional, Sub-regional and National Environmental Priorities*

The Review will assess the alignment of the project with global priorities such as the SDGs and Agenda 2030. The extent to which the intervention is suited, or responding to, the stated environmental concerns and needs of the countries, sub-regions or regions where it is being implemented will also be considered. Examples may include: UN Development Assistance Frameworks (UNDAF) or, national or sub-national development plans, poverty reduction strategies or Nationally Appropriate Mitigation Action (NAMA) plans or regional agreements etc. Within this section consideration will be given to whether the needs of all beneficiary groups are being met and reflects the current policy priority to leave no-one behind.

iv. *Complementarity with Relevant Existing Interventions/Coherence[68]*

An assessment will be made of how well the project, either at design stage or during the project inception or mobilization[69], took account of ongoing and planned initiatives (under the same sub-programme, other UNEP sub-programmes, or being implemented by other agencies within the same

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[66] UNEP's Medium Term Strategy (MTS) is a document that guides UNEP's programme planning over a four-year period. It identifies UNEP's thematic priorities, known as Sub-programmes (SP), and sets out the desired outcomes, known as Expected Accomplishments (EAs), of the Sub-programmes. https://www.unenvironment.org/about-un-environment/evaluation-office/our-evaluation-approach/un-environment-documents

[67] http://www.unep.fr/ozonaction/about/bsp.htm

[68] This sub-category is consistent with the new criterion of 'Coherence' introduced by the OECD-DAC in 2019.

[69] A project's inception or mobilization period is understood as the time between project approval and first disbursement. Complementarity during project implementation is considered under Efficiency, see below.

country, sector or institution) that address similar needs of the same target groups. The Review will consider if the project team, in collaboration with Regional Offices and Sub-Programme Coordinators, made efforts to ensure their own intervention was complementary to other interventions, optimized any synergies and avoided duplication of effort. Examples may include work within Cooperation Frameworks or One UN programming. Linkages with other interventions should be described and instances where UNEP's comparative advantage has been particularly well applied should be highlighted.

Adaptation Fund	To encourage utilization, each evaluation should optimize relevance by ensuring (i) that the primary intended users of the evaluation and their intended uses are clearly identified and engaged at the beginning of the evaluation process; (ii) that "intended users" include funding, implementing, and beneficiary stakeholders; and (iii) that evaluators ensure these intended users contribute to decisions about the evaluation process.
Green Climate Fund	Coherence in climate finance delivery with other multilateral entities.

B. Quality of Project Design

The quality of project design is assessed using an agreed template during the review inception phase. Ratings are attributed to identified criteria and an overall Project Design Quality rating is established. The complete Project Design Quality template should be annexed in the Review Inception Report. Later, the overall Project Design Quality rating[70] should be entered in the final review ratings table (as item B) in the Main Review Report and a summary of the project's strengths and weaknesses at design stage should be included within the body of the Main Review Report.

C. Nature of External Context

At review inception stage a rating is established for the project's external operating context (considering the prevalence of conflict, natural disasters and political upheaval[71]). This rating is entered in the final review ratings table as item C. Where a project has been rated as facing either an *Unfavourable* or *Highly Unfavourable* external operating context, and/or a negative external event has occurred during project implementation, the ratings for Effectiveness, Efficiency and/or Sustainability may be increased at the discretion of the Review Consultant and UNEP Project Manager together. A justification for such an increase must be given.

D. Effectiveness

i. Availability of Outputs[72]

The Review will assess the project's success in producing the programmed outputs and making them available to the intended beneficiaries as well as its success in achieving milestones as per the project design document (ProDoc). Any *formal* modifications/revisions made during project implementation will be considered part of the project design. Where the project outputs are inappropriately or inaccurately stated in the ProDoc, reformulations may be necessary in the reconstruction of the Theory of Change (TOC). In such cases a table should be provided showing the original and the reformulation of the outputs for transparency. The availability of outputs will be assessed in terms of both quantity and quality, and the assessment will consider their ownership by, and usefulness to, intended beneficiaries and the timeliness of their provision. It is noted that emphasis is placed on the performance of those outputs that are most important to achieve outcomes. The Review will briefly

[70] In some instances, based on data collected during the review process, the assessment of the project's design quality may change from Inception Report to Main Review Report.
[71] Note that 'political upheaval' does not include regular national election cycles, but unanticipated unrest or prolonged disruption. The potential delays or changes in political support that are often associated with the regular national election cycle should be part of the project's design and addressed through adaptive management of the project team. From March 2020 this should include the effects of COVID-19.
[72] Outputs are the availability (for intended beneficiaries/users) of new products and services and/or gains in knowledge, abilities and awareness of individuals or within institutions (UNEP, 2019)

explain the reasons behind the success or shortcomings of the project in delivering its programmed outputs and meeting expected quality standards.

ii. Achievement of Project Outcomes[73]

The achievement of project outcomes is assessed as performance against the outcomes as defined in the reconstructed[74] Theory of Change. These are outcomes that are intended to be achieved by the end of the project timeframe and within the project's resource envelope. Emphasis is placed on the achievement of project outcomes that are most important for attaining intermediate states. As with outputs, a table can be used to show where substantive amendments to the formulation of project outcomes is necessary to allow for an assessment of performance. The Review should report evidence of attribution between UNEP's intervention and the project outcomes. In cases of normative work or where several actors are collaborating to achieve common outcomes, evidence of the nature and magnitude of UNEP's 'substantive contribution' should be included and/or 'credible association' established between project efforts and the project outcomes realised.

iii. Likelihood of Impact

Based on the articulation of long-lasting effects in the reconstructed TOC *(i.e. from project outcomes, via intermediate states, to impact)*, the Review will assess the likelihood of the intended, positive impacts becoming a reality. Project objectives or goals should be incorporated in the TOC, possibly as intermediate states or long-lasting impacts. The Evaluation Office's approach to the use of TOC in project reviews is outlined in a guidance note and is supported by an excel-based flow chart, 'Likelihood of Impact Assessment Decision Tree'. Essentially the approach follows a 'likelihood tree' from project outcomes to impacts, taking account of whether the assumptions and drivers identified in the reconstructed TOC held. Any unintended positive effects should also be identified and their causal linkages to the intended impact described.

The Review will also consider the likelihood that the intervention may lead, or contribute to, unintended negative effects (e.g. will vulnerable groups such as those living with disabilities and/or women and children, be disproportionally affected by the project?). Some of these potential negative effects may have been identified in the project design as risks or as part of the analysis of Environmental and Social Safeguards.

The Review will consider the extent to which the project has played a catalytic role[75] or has promoted scaling up and/or replication as part of its Theory of Change (either explicitly as in a project with a demonstration component or implicitly as expressed in the drivers required to move to outcome levels) and as factors that are likely to contribute to greater or long-lasting impact.

Ultimately UNEP and all its partners aim to bring about benefits to the environment and human well-being. Few projects are likely to have impact statements that reflect such long-lasting or broad-based changes. However, the Review will assess the likelihood of the project to make a substantive

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[73] Outcomes are the use (i.e. uptake, adoption, application) of an output by intended beneficiaries, observed as changes in institutions or behaviour, attitude or condition (UNEP, 2019)

[74] UNEP staff are currently required to submit a Theory of Change with all submitted project designs. The level of 'reconstruction' needed during a review will depend on the quality of this initial TOC, the time that has lapsed between project design and implementation (which may be related to securing and disbursing funds) and the level of any changes made to the project design. In the case of projects pre-dating 2013 the intervention logic is often represented in a logical framework and a TOC will need to be constructed in the inception stage of the review.

[75] The terms catalytic effect, scaling up and replication are inter-related and generally refer to extending the coverage or magnitude of the effects of a project. Catalytic effect is associated with triggering additional actions that are not directly funded by the project – these effects can be both concrete or less tangible, can be intentionally caused by the project or implied in the design and reflected in the TOC drivers, or can be unintentional and can rely on funding from another source or have no financial requirements. Scaling up and Replication require more intentionality for projects, or individual components and approaches, to be reproduced in other similar contexts. Scaling up suggests a substantive increase in the number of new beneficiaries reached/involved and may require adapted delivery mechanisms while Replication suggests the repetition of an approach or component at a similar scale but among different beneficiaries. Even with highly technical work, where scaling up or replication involves working with a new community, some consideration of the new context should take place and adjustments made as necessary.

contribution to the long-lasting changes represented by the Sustainable Development Goals, and/or the intermediate-level results reflected in UNEP's Expected Accomplishments and the strategic priorities of funding partner(s).

Adaptation Fund	The Review should consider, under Effectiveness, the extent to which the evaluand is reaching Strategic Results Framework indicator targets.
Adaptation Fund	The Review should consider, under Effectiveness, the extent to which the intervention demonstrates that Climate Change Adaptation can be increased or replicated at a broader scale, as well as in other contexts.
Green Climate Fund	The Review should consider, under Effectiveness, the project's Innovativeness in result areas – the extent to which interventions may lead to paradigm shift towards low-emission and climate-resilient development pathways.
Global Environment Facility	The Review should consider, under Effectiveness, the extent to which the evaluand is reaching Core Indicator targets (from GEF-6 onwards).
Global Environment Facility	The Review will determine, under Effectiveness, the project's additionality by comparing the benefits of GEF support to a scenario without GEF support. It will identify specific areas where GEF support has contributed additional results and what these additional results were. It will provide quantitative and qualitative evidence to support the findings.

E. Financial Management

Financial management will be assessed under three themes: *adherence* to UNEP's financial policies and procedures, *completeness* of financial information and *communication* between financial and project management staff. The Review will establish the actual spend across the life of the project of funds secured from all donors. This expenditure will be reported, where possible, at output/component level and will be compared with the approved budget. The Review will verify the application of proper financial management standards and adherence to UNEP's financial management policies. Any financial management issues that have affected the timely delivery of the project or the quality of its performance will be highlighted. The Review will record where standard financial documentation is missing, inaccurate, incomplete or unavailable in a timely manner. The Review will assess the level of communication between the UNEP Project Manager and the Fund Management Officer as it relates to the effective delivery of the planned project and the needs of a responsive, adaptive management approach.

Global Environment Facility	The Review will determine, under Financial Management, i) time from CEO endorsement (FSP) / CEO approval (MSP) to first disbursement; ii) disbursement balance; iii) whether the project has secured co-financing higher than 35% and iv) time between CEO Endorsement and (likely) end of Terminal Review.

F. Efficiency

Under the efficiency criterion, the Review will assess the extent to which the project delivered maximum results from the given resources. This will include an assessment of the cost-effectiveness and timeliness of project execution.

Focusing on the translation of inputs into outputs, *cost-effectiveness* is the extent to which an intervention has achieved, or is expected to achieve, its results at the lowest possible cost. *Timeliness* refers to whether planned activities were delivered according to expected timeframes as well as whether events were sequenced efficiently. The Review will also assess to what extent any project extension could have been avoided through stronger project management and identify any negative impacts caused by project delays or extensions. The Review will describe any cost or time-saving measures put in place to maximise results within the secured budget and agreed project timeframe and consider whether the project was implemented in the most efficient way compared to alternative interventions or approaches.

The Review will give special attention to efforts made by the project teams during project implementation to make use of/build upon pre-existing institutions, agreements and partnerships, data

sources, synergies and complementarities[76] with other initiatives, programmes and projects etc. to increase project efficiency.

The factors underpinning the need for any project extensions will also be explored and discussed. Consultants should note that as management or project support costs cannot be increased in cases of 'no cost extensions', such extensions represent an increase in unstated costs to UNEP and implementing parties.

G. Monitoring and Reporting

The Review will assess monitoring and reporting across three sub-categories: monitoring design and budgeting, monitoring implementation and project reporting.

i. Monitoring Design and Budgeting

Each project should be supported by a sound monitoring plan that is designed to track progress against SMART[77] results towards the achievement of the project's outputs and outcomes, including at a level disaggregated by gender, marginalisation or vulnerability, including those living with disabilities. In particular, the Review will assess the relevance and appropriateness of the project indicators as well as the methods used for tracking progress against them as part of conscious results-based management. The Review will assess the quality of the design of the monitoring plan as well as the funds allocated for its implementation. The adequacy of resources for Mid-Term and Terminal Evaluation/Review should be discussed, where applicable.

ii. Monitoring of Project Implementation

The Review will assess whether the monitoring system was operational and facilitated the timely tracking of results and progress towards project objectives throughout the project implementation period. This assessment will include consideration of whether the project gathered relevant and good quality baseline data that is accurately and appropriately documented. This should include monitoring the representation and participation of disaggregated groups, including gendered, marginalised or vulnerable groups, such as those living with disabilities, in project activities. It will also consider the quality of the information generated by the monitoring system during project implementation and how it was used to adapt and improve project execution, achievement of outcomes and ensure sustainability. The Review should confirm that funds allocated for monitoring were used to support this activity.

iii. Project Reporting

UNEP has a centralised Project Information Management System (PIMS) in which project managers upload six-monthly progress reports against agreed project milestones. This information will be provided to the Review Consultant(s) by the UNEP Project Manager. Some projects have additional requirements to report regularly to funding partners, which will be supplied by the project team. The Review will assess the extent to which both UNEP and donor reporting commitments have been fulfilled. Consideration will be given as to whether reporting has been carried out with respect to the effects of the initiative on disaggregated groups.

Global Environment Facility	For internally executed projects the Review Consultant should review the quality of regular reports and confirm they have been submitted on a timely basis.

H. Sustainability

[76] Complementarity with other interventions during project design, inception or mobilization is considered under Strategic Relevance above.

[77] SMART refers to results that are specific, measurable, achievable, relevant and time-oriented. Indicators help to make results measurable.

Sustainability[78] is understood as the probability of the benefits derived from the achievement of project outcomes being maintained and developed after the close of the intervention. The Review will identify and assess the key conditions or factors that are likely to undermine or contribute to the endurance of achieved project outcomes (i.e., 'assumptions' and 'drivers'). Some factors of sustainability may be embedded in the project design and implementation approaches while others may be contextual circumstances or conditions that evolve over the life of the intervention. Where applicable an assessment of bio-physical factors that may affect the sustainability of direct outcomes may also be included.

i. Socio-political Sustainability

The Review will assess the extent to which social or political factors support the continuation and further development of the benefits derived from project outcomes. It will consider the level of ownership, interest and commitment among government and other stakeholders to take the project achievements forwards. In particular the Review will consider whether individual capacity development efforts are likely to be sustained.

ii. Financial Sustainability

Some project outcomes, once achieved, do not require further financial inputs, e.g., the adoption of a revised policy. However, in order to derive a benefit from this outcome further management action may still be needed e.g., to undertake actions to enforce the policy. Other project outcomes may be dependent on a continuous flow of action that needs to be resourced for them to be maintained, e.g., continuation of a new natural resource management approach. The Review will assess the extent to which project outcomes are dependent on future funding for the benefits they bring to be sustained. Secured future funding is only relevant to financial sustainability where the project outcomes have been extended into a future project phase. Even where future funding has been secured, the question still remains as to whether the project outcomes are financially sustainable.

iii. Institutional Sustainability

The Review will assess the extent to which the sustainability of project outcomes (especially those relating to policies and laws) is dependent on issues relating to institutional frameworks and governance. It will consider whether institutional achievements such as governance structures and processes, policies, sub-regional agreements, legal and accountability frameworks etc. are robust enough to continue delivering the benefits associated with the project outcomes after project closure. In particular, the Review will consider whether institutional capacity development efforts are likely to be sustained.

Adaptation Fund	The Review should consider, under Human and ecological sustainability and security – the extent to which the intervention is likely to generate continued positive or negative, intended and unintended impacts beyond its lifetime, taking into consideration, social, institutional, economic, and environmental systems. Is the intervention sensitive to conflict and fragility, i.e., to what extent does it consider the political context and the sharing of natural resources? Is it contributing towards targeted communities' livelihoods and to the health or well-being of the ecosystems on which they depend?

I. Factors Affecting Project Performance and Cross-Cutting Issues

(These factors are rated in the ratings table but are discussed within the Main Review Report as cross-cutting themes as appropriate under the other review criteria, above. If these issues have not been addressed under the Review Criteria above, then independent summaries of their status within the reviewed project should be given in this section)

[78] As used here, 'sustainability' means the long-term maintenance of outcomes and consequent impacts, whether environmental or not. This is distinct from the concept of sustainability in the terms 'environmental sustainability' or 'sustainable development', which imply 'not living beyond our means' or 'not diminishing global environmental benefits' (GEF STAP Paper, 2019, Achieving More Enduring Outcomes from GEF Investment)

i. Preparation and Readiness

This criterion focuses on the inception or mobilisation stage of the project (i.e. the time between project approval and first disbursement). The Review will assess whether appropriate measures were taken to either address weaknesses in the project design or respond to changes that took place between project approval, the securing of funds and project mobilisation. In particular, the Review will consider the nature and quality of engagement with stakeholder groups by the project team, the confirmation of partner capacity and development of partnership agreements as well as initial staffing and financing arrangements. *(Project preparation is included in the template for the assessment of Project Design Quality)*.

ii. Quality of Project Management and Supervision

In some cases 'project management and supervision' may refer to the supervision and guidance provided by UNEP to implementing partners and national governments while in others it may refer to the project management performance of an implementing partner and the technical backstopping and supervision provided by UNEP. The performance of parties playing different roles should be discussed and a rating provided for both types of supervision (UNEP/Implementing Agency; Partner/Executing Agency) and the overall rating for this sub-category established as a simple average of the two.

The Review will assess the effectiveness of project management with regard to: providing leadership towards achieving the planned outcomes; managing team structures; maintaining productive partner relationships (including Steering Groups etc.); maintaining project relevance within changing external and strategic contexts; communication and collaboration with UNEP colleagues; risk management; use of problem-solving; project adaptation and overall project execution. Evidence of adaptive management should be highlighted.

Adaptation Fund	The Review should consider the extent to which the evaluand was adapted in response to lessons and reflections during implementation; and the extent to which the intervention supported the use, development, or diffusion of innovative practices, tools, or technologies to improve or accelerate Climate Change Adaptation.
Global Environment Facility	For internally executed projects the Review Consultant should review whether the segregation of responsibilities met the GEF requirements[79] (the GEF Agency must separate its project implementation and execution duties and establish each of the following: (a) A satisfactory institutional arrangement for the separation of implementation and executing functions in different departments of the GEF Agency; and (b) Clear lines of responsibility, reporting and accountability within the GEF Agency between the project implementation and execution functions.

iii. Stakeholder Participation and Cooperation

Here the term 'stakeholder' should be considered in a broad sense, encompassing all project partners, duty bearers with a role in delivering project outputs, target users of project outputs and any other collaborating agents external to UNEP and the implementing partner(s). The assessment will consider the quality and effectiveness of all forms of communication and consultation with stakeholders throughout the project life and the support given to maximise collaboration and coherence between various stakeholders, including sharing plans, pooling resources and exchanging learning and expertise. The inclusion and participation of all differentiated groups, including gender groups, should be considered.

iv. Responsiveness to Human Rights and Gender Equality

The Review will ascertain to what extent the project has applied the UN Common Understanding on the human rights-based approach (HRBA) and the UN Declaration on the Rights of Indigenous People.

[79] GEF Minimum Fiduciary Standards: Separation of Implementation and Execution Functions in GEF Partner Agencies (2019).

Within this human rights context the Review will assess to what extent the intervention adheres to UNEP's Policy and Strategy for Gender Equality and the Environment[80].

The report should present the extent to which the intervention, following an adequate gender analysis at design stage, has implemented the identified actions and/or applied adaptive management to ensure that Gender Equality and Human Rights are adequately taken into account. In particular the Review will consider to what extent project design, implementation and monitoring have taken into consideration: (i) possible inequalities (especially those related to gender) in access to, and the control over, natural resources; (ii) specific vulnerabilities of disadvantaged groups (especially women, youth and children and those living with disabilities) to environmental degradation or disasters; and (iii) the role of disadvantaged groups (especially women, youth and children and those living with disabilities) in mitigating or adapting to environmental changes and engaging in environmental protection and rehabilitation.

Adaptation Fund	The Review should consider the extent to which the project's design and implementation includes input of the designated authority (DA) and vulnerable groups such as women, youth, persons with disability, Indigenous Peoples, minorities, and other potentially marginalized groups or locations. It also encompasses the degree to which the intervention reduced or perpetuated inequalities, and how equitably benefits were accrued to vulnerable groups.

v. Environmental and Social Safeguards

UNEP projects address environmental and social safeguards primarily through the process of environmental and social screening at the project approval stage, risk assessment and management (avoidance, or mitigation of potential environmental and social risks and impacts associated with project and programme activities. The Review will confirm whether UNEP requirements[81] were met to: *review* risk ratings on a regular basis; *monitor* project implementation for possible safeguard issues; *respond* (where relevant) to safeguard issues through risk avoidance, minimization, mitigation or offsetting and *report* on the implementation of safeguard management measures taken. UNEP requirements for proposed projects to be screened for any safeguarding issues; for sound environmental and social risk assessments to be conducted and initial risk ratings to be assigned, are reviewed above under Quality of Project Design).

The Review will also consider the extent to which the management of the project minimised UNEP's environmental footprint.

vi. Country Ownership and Driven-ness

The Review will assess the quality and degree of engagement of government / public sector agencies in the project. While there is some overlap between Country Ownership and Institutional Sustainability, this criterion focuses primarily on the forward momentum of the intended projects results, i.e. either: a) moving forwards from outputs to project outcomes or b) moving forward from project outcomes towards intermediate states. The Review will consider the involvement not only of those directly involved in project execution and those participating in technical or leadership groups, but also those official representatives whose cooperation is needed for change to be embedded in their respective institutions and offices (e.g., representatives from multiple sectors or relevant ministries beyond Ministry of Environment). This factor is concerned with the level of ownership generated by the project over outputs and outcomes and that is necessary for long term impact to be realised. Ownership should extend to all gender and marginalised groups.

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[80] The Evaluation Office notes that Gender Equality was first introduced in the UNEP Project Review Committee Checklist in 2010 and, therefore, provides a criterion rating on gender for projects approved from 2010 onwards. Equally, it is noted that policy documents, operational guidelines and other capacity building efforts have only been developed since then and have evolved over time.
https://wedocs.unep.org/bitstream/handle/20.500.11822/7655/-Gender_equality_and_the_environment_Policy_and_strategy-2015Gender_equality_and_the_environment_policy_and_strategy.pdf.pdf?sequence=3&isAllowed=y

[81] For the review of project concepts and proposals, the Safeguard Risk Identification Form (SRIF) was introduced in 2019 and replaced the Environmental, Social and Economic Review note (ESERN), which had been in place since 2016. In GEF projects safeguards have been considered in project designs since 2011.

vii. Communication and Public Awareness

The Review will assess the effectiveness of: a) communication of learning and experience sharing between project partners and interested groups arising from the project during its life and b) public awareness activities that were undertaken during the implementation of the project to influence attitudes or shape behaviour among wider communities and civil society at large. The Review should consider whether existing communication channels and networks were used effectively, including meeting the differentiated needs of gendered or marginalised groups, and whether any feedback channels were established. Where knowledge sharing platforms have been established under a project the Review will comment on the sustainability of the communication channel under either socio-political, institutional or financial sustainability, as appropriate.

Section 3. REVIEW APPROACH, METHODS AND DELIVERABLES

The Terminal Review will be an in-depth review using a participatory approach whereby key stakeholders are kept informed and consulted throughout the review process. Both quantitative and qualitative review methods will be used as appropriate to determine project achievements against the expected outputs, outcomes and impacts. It is highly recommended that the consultant(s) maintains close communication with the project team and promotes information exchange throughout the review implementation phase in order to increase their (and other stakeholder) ownership of the review findings. Where applicable, the consultant(s) should provide a geo-referenced map that demarcates the area covered by the project and, where possible, provide geo-reference photographs of key intervention sites (e.g., sites of habitat rehabilitation and protection, pollution treatment infrastructure, etc.)

The findings of the Review will be based on the following:

(a) A **desk review** of:

Relevant background documentation, inter alia GEF ID 9329 "Scaling up the Sustainable Energy for All Building Efficiency Accelerator" (BEA Phase 1) and GEFID 9947 "The SEforALL Building Efficiency Accelerator (BEA): Expanding Local Action and Driving National Change" (BEA Phase 2) project documents and Terminal Evaluations/Reviews.

Project design documents (including minutes of the project design review meeting at approval); Annual Work Plans and Budgets or equivalent, revisions to the project (Project Document Supplement), the logical framework and its budget;

Project reports such as six-monthly progress and financial reports, progress reports from collaborating partners, meeting minutes, relevant correspondence and any other monitoring materials, including the annual Project Implementation Reports, etc.;

Project deliverables (e.g. publications, assessments etc), including:

Deliverable 1.1.1: Initial analysis of paths/costs/benefits of decarbonizing buildings in Colombia and Türkiye is provided to national stakeholders

Deliverable 1.3.1: Baseline assessment reports for the buildings sector in Colombia and Türkiye

Deliverable 2.3.1: Detailed implementation plans for selected local actions on building decarbonization, including assessment of risks and barriers, are created in at least 3 cities in Colombia and Türkiye

Deliverable 2.4.3: Summary of methodology, results and lessons learned for monitoring progress is prepared and disseminated to broader stakeholder groups, including local and national stakeholder consultations or working groups

Deliverable 3.1.1: Resource list compiled for city use on on-site renewable energy, off-site clean energy procurement, and use of carbon offsets as a short-term last resort

Deliverable 3.1.2: Case studies highlighting city action and national-subnational collaboration on zero carbon buildings are solicited from and disseminated across the global network

Deliverable 3.1.3: Lessons learned publication stemming from national and deep dive city engagements

Deliverable 3.3.1: Written guidance developed for scope and process for city or subnational government roadmaps to ZCBs

Evaluations/Reviews of other similar projects.

(b) **Interviews** (individual or in group) with:
UNEP Project Manager[82]:

Project management team, including the Project Manager within the Executing Agency, where appropriate, the Project Team, the Project Steering Committee, Deep dive city leads, and Regional and Country leads;

UNEP Fund Management Officer (FMO);

Portfolio Manager, where appropriate;

Project partners, including WRI, International Finance Corporation, Johnson Controls, World Green Building Council, International Energy Agency, CCCS, and WRI Türkiye Sustainable Cities and other relevant partners; "deep-dive" cities stakeholders and national governments which have committed to the ZCB (Colombia, Türkiye, and alternates Costa Rica, India and Kenya);

Relevant resource persons.

Representatives from relevant civil society and specialist groups (such as women's and trade associations, etc).

(c) **Surveys:** online surveys with relevant stakeholders of ZCB-committed cities and national governments, as deemed necessary.

a. **Other data collection tools,** as deemed necessary**.**

Review Deliverables and Review Procedures

The Review Consultant will prepare:

- **Inception Report:** (see Annex 1 for a list of all templates, tables and guidance notes) containing an assessment of project design quality, a draft reconstructed Theory of Change of the project, project stakeholder analysis, review framework and a tentative review schedule.
- **Preliminary Findings Note:** typically in the form of a PowerPoint presentation, the sharing of preliminary findings is intended to support the participation of the project team, act as a means to ensure all information sources have been accessed and provide an opportunity to verify emerging findings.
- **Draft and Final Review Report:** containing an Executive Summary that can act as a stand-alone document; detailed analysis of the review findings organised by review criteria and supported with evidence; lessons learned and recommendations and an annotated ratings table.

A **Review Brief** (a 2-page overview of the evaluation and review findings) for wider dissemination through the UNEP website may be required. This will be discussed with the UNEP Project Manager no later than during the finalization of the Inception Report.

Review of the Draft Review Report. The Review Consultant will submit a draft report to the UNEP Project Manager and revise the draft in response to their comments and suggestions. The UNEP Project Manager will then forward the revised draft report to other project stakeholders, for their review and comments. Stakeholders may provide feedback on any errors of fact and may highlight the significance of such errors in any conclusions as well as providing feedback on the proposed recommendations and lessons. Any comments or responses to draft reports will be sent to the UNEP Project Manager for consolidation. The UNEP Project Manager will provide all comments to the Review Consultant for consideration in preparing the final report, along with guidance on areas of contradiction or issues requiring an institutional response.

[82] For GEF funded projects, UNEP Project Manager refers to the Task Manager.

The UNEP Evaluation Office provides templates and tools to support the review process and provides a formal assessment of the quality of the final Terminal Review report, which is provided within this report's annexed material. In addition, the Evaluation Office formally validates the report by ensuring that the performance judgments made are consistent with evidence presented in the Review report and in-line with the performance standards set out for independent evaluations. As such the project performance ratings presented in the Review report may be adjusted by the Evaluation Office.

At the end of the review process, the UNEP Project Manager will prepare a **Recommendations Implementation Plan** in the format of a table, to be completed and updated at regular intervals, and circulate the **Lessons Learned**.

The Review Consultant

The Review Consultant will work under the overall responsibility of the UNEP Task Manager, Asher Lessels, in consultation with the Fund Management Officer, Fatma Twahir.

The Review Consultant will liaise with the UNEP Project Manager on any procedural and methodological matters related to the Review. It is, however, the consultants' individual responsibility (where applicable) to arrange for their visas and immunizations as well as to plan meetings with stakeholders, organize online surveys, obtain documentary evidence and any other logistical matters related to the assignment. The UNEP Project Manager and project team will, where possible, provide logistical support (introductions, meetings etc.) allowing the consultants to conduct the Review as efficiently and independently as possible.

The Review Consultant will be hired over a period of 8 months (15 January 2024 to 14 August 2024) and should have the following: a university degree in environmental sciences, international development or other relevant political or social sciences area is required and an advanced degree in the same areas is desirable; a minimum of 10 years of technical / evaluation experience is required, preferably including evaluating large, regional or global programmes and using a Theory of Change approach; and a good understanding of the buildings and construction sector is desired. English and French are the working languages of the United Nations Secretariat. For this consultancy, fluency in oral and written English is a requirement and knowledge of Spanish and/or Turkish is desirable. Working knowledge of the UN system and specifically the work of UNEP is an added advantage. The work will be home-based.

The Review Consultant will be responsible, in close consultation with the UNEP Project Manager, for overall quality of the review and timely delivery of its outputs, described above in Section 11 Review Deliverables, above. The Review Consultant will ensure that all review criteria and questions are adequately covered.

Schedule of the Review

The table below presents the tentative schedule.

Table 3. Tentative schedule for the Review

Milestone	Tentative Dates
Inception Report	15 February 2024
E-based interviews, surveys etc.	15 April 2024
PowerPoint/presentation on preliminary findings and recommendations	15 May 2024
Draft Review Report to UNEP Project Manager	1 June 2024
Draft Review Report shared with wider group of stakeholders	15 June 2024
Final Main Review Report	15 July 2024
Final Main Review Report submitted to the UNEP Evaluation Office for validation and quality assessment	1 August 2024
Final Main Review Report shared with all respondents	14 August 2024

Contractual Arrangements

The Review Consultant(s) will be selected and recruited by the UNEP Project Manager under an individual Special Service Agreement (SSA) on a "fees only" basis (see below). By signing the service contract with UNEP/UNON, the consultant certifies that they have not been associated with the design and implementation of the project in any way which may jeopardize their independence and impartiality towards project achievements and project partner performance. In addition, they will not have any future interests (within six months after completion of the contract) with the project's executing or implementing units. All consultants are required to sigh the Code of Conduct Agreement Form.

Fees will be paid on an instalment basis, paid on acceptance and approval by the UNEP Project Manager of expected key deliverables. The schedule of payment is as follows:

Schedule of Payment:

Deliverable	Percentage Payment
Approved Inception Report ***(as per Guidance Note)***	18%
Approved Draft Review Report ***(as per Guidance Note)***	46%
Approved Final Review Report ***(as per Report Template)***	36%

Fees only contracts: Where applicable, air tickets will be purchased by UNEP and 75% of the Daily Subsistence Allowance for each authorised travel mission will be paid up front. Local in-country travel will only be reimbursed where agreed in advance with the UNEP Project Manager and on the production of acceptable receipts. Terminal expenses and residual DSA entitlements (25%) will be paid after mission completion.

The consultant may be provided with access to UNEP's information management systems (e.g. PIMS, IPMR, Anubis, SharePoint, etc.) and, if such access is granted, the consultants agree not to disclose information from that system to third parties beyond information required for, and included in, the Review Report.

In case the consultant is not able to provide the deliverables in accordance with these guidelines, and in line with the expected quality standards by the UNEP Project Manager, payment may be withheld at the discretion of the Head of Branch/Unit until the consultants have improved the deliverables to meet UNEP's quality standards.

If the consultant fails to submit a satisfactory final product to the UNEP Project Manager in a timely manner, i.e., before the end date of their contract, UNEP reserves the right to employ additional human resources to finalize the report, and to reduce the consultant's fees by an amount equal to the additional costs borne by the project team to bring the report up to standard or completion.

ANNEX X. RESPONSE TO STAKEHOLDER COMMENTS

All feedback provided by the implementing agency was discussed, considered and incorporated in the report.

No additional comments were raised by the executing partners and key city stakeholders with whom the report was shared.

ANNEX XI. IMPLEMENTATION PLAN OF RECOMMENDATIONS

PLANS				
RECOMMENDATION	ACCEPTED (yes / no / partially)	WHAT WILL BE DONE?	EXPECTED COMPLETION DATE	REPONSIBLE OFFICER[83]
1. Create a central, virtual access point for ZCB project resources.	Yes	• The Implementing and Executing Agencies will confer and consider choosing a virtual location for centralising project deliverables as well as a means to host the ZCB project information for public access; • Global Projects will prioritize the centralization of project resources and deliverables on online platforms through the course of project design and implementation (note that knowledge management is an area of focus for GEF-8 Global Projects under development).	Three months from approval of Terminal Review Final Report.	UNEP Climate Change Division, CCM Unit, Portfolio Manager
2. For future buildings-related GEF project proposals design, monitor and update throughout the project a Theory of Change that includes at least one pathway that enhances the project participants' capabilities to quantify progress towards the Intermediate State(s) and Impacts.	Yes	The Implementing and Executing Agencies will consider developing a pathway regarding quantification of progress in each future project's Theory of Change based on the requirements of the project.	Six months from approval of Terminal Review Final Report.	UNEP Climate Change Division, CCM Unit, Portfolio Manager
3. Develop donor proposals for country-implemented demonstration projects and workforce training curricula to address ZCB market transformation barriers in developing countries.	Partially	• In future proposals, project teams will focus on donor support for country-based actions, including ZCB demonstration projects and	Twelve months from approval of Terminal Review Final Report.	UNEP Climate Change Division, CCM Unit, Portfolio Manager

[83] UNEP Climate Change Division, Climate Change Mitigation Unit

		workforce training to address ZCB barriers; • While certain Global Projects seek to provide knowledge management and capacity building support instead of carrying out direct country interventions, future Global projects will consider country-based interventions and demonstrations as well from the market transformation perspective (note that this is already being integrated into GEF-8 Global Projects)		
4. Propose the ZCB approach for both climate change mitigation and adaptation roadmaps and actions, especially to deliver direct benefits and co-benefits to vulnerable communities and women.	Yes	• The Project Teams and relevant agencies will emphasize the ZCB approach as applicable for both climate change mitigation and adaptation projects, especially calling out the enhanced capabilities and direct benefits that would accrue to vulnerable communities and women. • This will be done through the development and monitoring of gender action plans, surveys and questionnaires to assess impacts for beneficiaries, as well as through communication products such as the annual reports that would highlight stories about direct benefits and co-benefits to vulnerable communities.	Twelve months from approval of Terminal Review Final Report.	UNEP Climate Change Division, CCM Unit, Portfolio Manager

ANNEX XII. QUALITY ASSESSMENT OF THE REVIEW REPORT

Quality Assessment of the Terminal Review Report

Review Title: Terminal Review of the UNEP/GEF Project "Zero Carbon Buildings for All: from Energy Efficiency to Decarbonization" (GEF ID 10321) 2021 – 2023

Consultant: Kathryn M. Conway

All UNEP Reviews are subject to a quality assessment by the UNEP Evaluation Office. This is an assessment of the quality of the review product (i.e. Main Review Report).

	UNEP Evaluation Office Comments	Final Review Report Rating
Report Quality Criteria		
Quality of the Executive Summary Purpose: acts as a stand alone and accurate summary of the main review product, especially for senior management. To include: • concise overview of the review object • clear summary of the review objectives and scope • overall review rating of the project and key features of performance (strengths and weaknesses) against exceptional criteria • reference to where the review ratings table can be found within the report • summary response to key strategic review questions • summary of the main findings of the exercise/synthesis of main conclusions • summary of lessons learned and recommendations.	Final report *(coverage/omissions):* All required elements are addressed except for summary responses to the three strategic questions of the review, which are not directly highlighted in the Executive Summary. Detailed responses to the strategic questions are provided in section on Strategic Relevance - Responses to Terminal Review Strategic Questions, para. 140-152. Final report *(strengths/weaknesses)*: The Executive Summary provides a good, summarized overview of ratings of key evaluation criteria. The Theory of Change based assessment of likelihood of impact and sustainability is highlighted and incorporates the three pathways, assumptions and drivers. The Executive Summary would have benefited from a direct reference to the objective and project outcomes in the section on project background and more information, in summarized form, on the factors affecting performance, in particular: responsiveness to human rights and gender equity, country ownership and environmental and social safeguards.	4
Quality of the 'Introduction' Section Purpose: introduces/situates the evaluand in its institutional context, establishes its main parameters (time, value, results, geography) and the purpose of the review itself. To include: • institutional context of the project (sub-programme, Division, Branch etc) • date of PRC approval, project duration and start/end dates • number of project phases (where appropriate) • results frameworks to which it contributes (e.g. POW Direct Outcome)	Final report *(coverage/omissions):* The Introduction section covers the required elements. It provides a description of how the project contributes to UNEP's POW 2022-2023. Final report *(strengths/weaknesses):* The institutional context, the purpose of the review and partners engaged are described in sufficient detail. Another strength is the overview of in-kind contributions of project partners and the components to which the contributions were made in Table 2. The purpose of the review and target audience of the review are well described	5

	UNEP Evaluation Office Comments	Final Review Report Rating
• coverage of the review (regions/countries where implemented) • implementing and funding partners • total secured budget • whether the project has been reviewed/evaluated in the past (e.g. mid-term, external agency etc.) • concise statement of the purpose of the review and the key intended audience for the findings.		
Quality of the 'Review Methods' Section Purpose: provides reader with clear and comprehensive description of review methods, demonstrates the credibility of the findings and performance ratings. To include: • description of review data collection methods and information sources • justification for methods used (e.g. qualitative/ quantitative; electronic/face-to-face) • number and type of respondents *(see table template)* • selection criteria used to identify respondents, case studies or sites/countries visited • strategies used to increase stakeholder engagement and consultation • methods to include the voices/experiences of different and potentially excluded groups (e.g. vulnerable, gender, marginalised etc) • details of how data were verified (e.g. triangulation, review by stakeholders etc.) • methods used to analyse data (scoring, coding, thematic analysis etc) • review limitations (e.g. low/ imbalanced response rates across different groups; gaps in documentation; language barriers etc) • ethics and human rights issues should be highlighted including: how anonymity and confidentiality were protected. Is there an ethics statement? E.g. *'Throughout the review process and in the compilation of the Final Review Report efforts have been made to represent the views of both mainstream and more marginalised groups. All efforts to provide respondents with anonymity have been made.*	Final report *(coverage/omissions):* The section covers the elements required, including a section on validation of evidence and additional input and a statement of ethics. Final report *(strengths/weaknesses):* Figure 2 provides a helpful overview of management structure and interviewee pool and table 3 an overview of interview invitees and respondents, by affiliation. However, there is no clear rationale for exclusion of national level stakeholders from the study (see figure 2). Limitations of the review is not directly addressed with mitigation measures but there is mention under 'interviews' of no field missions and no interviews with stakeholders at local level.	4
Quality of the 'Project' Section	Final report *(coverage/omissions):*	4

	UNEP Evaluation Office Comments	Final Review Report Rating
Purpose: describes and verifies key dimensions of the evaluand relevant to assessing its performance. To include: • *Context:* overview of the main issue that the project is trying to address, its root causes and consequences on the environment and human well-being (i.e. synopsis of the problem and situational analyses) • *Results framework*: summary of the project's results hierarchy as stated in the ProDoc (or as officially revised) • *Stakeholders:* description of groups of targeted stakeholders organised according to relevant common characteristics • *Project implementation structure and partners:* description of the implementation structure with diagram and a list of key project partners • *Changes in design during implementation:* any key events that affected the project's scope or parameters should be described in brief in chronological order • *Project financing:* completed tables of: (a) budget at design and expenditure by components (b) planned and actual sources of funding/co-financing	The elements required are covered in the section. A sub-section on challenges encountered during project implementation is provided in addition to a section on changes in design during implementation. Final report *(strengths/weaknesses):* This section clearly defined the problem the project sought to address, the results framework and project implementation structure. Table 7 provides a useful overview of project costs at design version actual costs by the three components of the project. Figure 3 indicates locations of interventions: Project Participants by GPS coordinates but it would have been more informative with a map showing both countries and cities. In Figure 4, the roles of executing and implementing agency are interchanged and the stakeholder identification table doesn't include an analysis of the interest and power of the stakeholders. The results framework does not list indicators (baselines and targets) at outcome level which are needed to understand and assess the validity and reliability in the section on the Theory of Change.	
Quality of the Theory of Change Purpose: to set out the TOC at Review in diagrammatic and narrative forms to support consistent project performance; to articulate the causal pathways with drivers and assumptions and justify any reconstruction necessary to assess the project's performance. To include: • description of how the *TOC at Review*[84] was designed (who was involved etc) • confirmation/reconstruction of results in accordance with UNEP definitions • articulation of causal pathways • identification of drivers and assumptions • identification of key actors in the change process	Final report *(coverage/omissions):* The section provides a written and diagrammatic narrative of the Theory of Change and table with justification for the reconstructed ToC. Final report *(strengths/weaknesses):* The three pathways are described in detail and accompanied by a figure. Driver 2 and Assumption 1 mentions vulnerable groups and gender-based capacities. Outcome 2 has been slightly revised but does not describe the change expected from use of newly gained tools and does not identify key stakeholder groups in city governments. The RToC has three broad assumptions and four drivers but lacks the distinction of different stakeholders at different steps in the	4

[84] During the Inception Phase of the review process a *TOC at Review Inception* is created based on the information contained in the approved project documents (these may include either logical framework or a TOC or narrative descriptions), formal revisions and annual reports etc. During the review process this TOC is revised based on changes made during project intervention and becomes the *TOC at Review*.

	UNEP Evaluation Office Comments	Final Review Report Rating
• summary of the reconstruction/results re-formulation in tabular form. *The two results hierarchies (original/formal revision and reconstructed) should be presented as a two-column table to show clearly that, although wording and placement may have changed, the results 'goal posts' have not been 'moved'.* This table may have initially been presented in the Inception Report and should appear somewhere in the Main Review report.	three pathways, for example, an important assumption on the extent of devolution between national government and the cities, and within the city level in the project, which may support or limit the extent to which policies, initiatives and investment mobilization can be implemented.	
Quality of Key Findings within the Report Presentation of evidence: nature of evidence should be clear (interview, document, survey, observation, online resources etc) and evidence should be explicitly triangulated unless noted as having a single source. Consistency within the report: all parts of the report should form consistent support for findings and performance ratings, which should be in line with UNEP's Criteria Ratings Matrix. Findings Statements (where applicable): The frame of reference for a finding should be an individual review criterion or a strategic question from the TOR. **A finding should go beyond description and uses analysis to provide insights that aid learning specific to the evaluand.** In some cases, a findings statement may articulate a key element that has determined the performance rating of a criterion. Findings will frequently provide insight into 'how' and/or 'why' questions.	Final report *(coverage/omissions):* All evaluation criteria and sub-criteria are assessed and awarded ratings provided in the sections and ratings for sub-critieria. Findings are presented with reference to interviews, documentation, and to the RToC, when applicable. Final report *(strengths/weaknesses):* As a strength, the assessments of the criteria and sub-criteria are presented in a concise and to the point manner. The findings are mostly descriptive (answer the "what" question) and lack insights from the reviewer and therefore fall short of answering the "how" and "why" questions.	4
Quality of 'Strategic Relevance' Section Purpose: to present evidence and analysis of project strategic relevance with respect to UNEP, partner and geographic policies and strategies at the time of project approval. To include: Assessment of the evaluand's relevance vis-à-vis: • Alignment to the UNEP Medium Term Strategy (MTS), Programme of Work (POW) and Strategic Priorities • Alignment to Donor/GEF/Partners Strategic Priorities • Relevance to Regional, Sub-regional and National Environmental Priorities • Complementarity with Existing Interventions: complementarity of the project at design (or during	Final report *(coverage/omissions):* The section contains a detailed assessment of strategic relevance to towards the MTS, POW, GEF and other environmental priorities and complementarity with existing interventions. Final report *(strengths/weaknesses):* This section of the report presents a good analysis of the relevance of the project to UNEP, GEF and the target countries' priorities. It has a sub-section with responses to the review's three strategic questions – this sub-section would be better placed in the conclusions section or possibly under ToC and sustainability sections as per the focus of the questions. The sub-section on complementarity with existing interventions/ coherence mentions other UNEP projects but is weak on reference	4

	UNEP Evaluation Office Comments	Final Review Report Rating
inception/mobilisation[85]), with other interventions addressing the needs of the same target groups.	to similar initiatives by other UN agencies or donors.	
Quality of the 'Quality of Project Design' Section Purpose: to present a summary of the strengths and weaknesses of the project design, on the basis that the detailed assessment was presented in the Inception Report.	Final report *(coverage/omissions):* The section discusses strengths and weaknesses of the project design. Final report *(strengths/weaknesses):* The assessment does not refer to the detail and rating of the project design that would have been required in the inception report.	3
Quality of the 'Nature of the External Context' Section Purpose: to describe and recognise, when appropriate, key external features of the project's implementing context that limited the project's performance (e.g. conflict, natural disaster, political upheaval[86]), and how they affected performance. While additional details of the implementing context may be informative, this section should clearly record whether or not a major and unexpected disrupting event took place during the project's life in the implementing sites.	Final report (coverage/omissions): The section covers in brief the COVID-19 related effects, the political context and how they affected performance. Final report (strengths/weaknesses): Refers to specific socio-political changes in Türkiye and in Laikipia County. The section refers to project staff changes during implementation which are not to be considered under external context.	5
Quality of 'Effectiveness' Section **(i) Availability of Outputs:** Purpose: to present a well-reasoned, complete and evidence-based assessment of the outputs made available to the intended beneficiaries. To include: • a convincing, evidence-supported and clear presentation of the outputs made available by the project compared to its approved plans and budget • assessment of the nature and scale of outputs versus the project indicators and targets • assessment of the timeliness, quality and utility of outputs to intended beneficiaries • identification of positive or negative effects of the project on disadvantaged groups, including those with specific needs due to gender, vulnerability or marginalisation (e.g. through disability).	Final report *(coverage/omissions):* The section provides a detailed presentation of outputs delivered with focus on quality, delivery and availability of outputs such as websites, events, documents and publications. Final report *(strengths/weaknesses):* Although links to deliverables are provided, more systematic reflection on how these relate to the provision of the outputs, both individually and as a group, would have been useful. The section is weak on quantitative evidence of the delivery of outputs and does not provide an overview of the achievement of the outputs' indicator targets. Positive or negative effects of the project on disadvantaged groups are not addressed. The section does not present a rating of the criteria.	3

[85] A project's inception or mobilization period is understood as the time between project approval and first disbursement. Complementarity during project implementation is considered under Efficiency, see below.

[86] Note that 'political upheaval' does not include regular national election cycles, but unanticipated unrest or prolonged disruption. The potential delays or changes in political support that are often associated with the regular national election cycle should be part of the project's design and addressed through adaptive management of the project team.

	UNEP Evaluation Office Comments	Final Review Report Rating
ii) Achievement of Project Outcomes: Purpose: to present a well-reasoned, complete and evidence-based assessment of the uptake, adoption and/or implementation of outputs by the intended beneficiaries. This may include behaviour changes at an individual or collective level. To include: • a convincing and evidence-supported analysis of the uptake of outputs by intended beneficiaries • assessment of the nature, depth and scale of outcomes versus the project indicators and targets • discussion of the contribution, credible association and/or attribution of outcome level changes to the work of the project itself • any constraints to attributing effects to the projects' work • identification of positive or negative effects of the project on disadvantaged groups, including those with specific needs due to gender, vulnerability or marginalisation (e.g. through disability).	Final report *(coverage/omissions):* The section provides an assessment of achievement of the project's three outcomes with indication of the target (indicator). Final report *(strengths/weaknesses):* The report presents a good analysis of achievement of project outcomes by comparing achievement with targets, although the indicators themselves are not discussed. The assessment of achievement of outcomes makes reference to ToC assumptions and identified pathways. Table 13 presents proxy indicators and national data to test validity of pathway 2 assumption; this approach was not mentioned in the Review Methods section. The section assesses achievement of targets, but outcome 3 indicator target is not specific (refers to government beyond those in component 1 and 2).	5
(iii) Likelihood of Impact: Purpose: to present an integrated analysis, guided by the causal pathways represented by the TOC, of all evidence relating to likelihood of impact, including an assessment of the extent to which drivers and assumptions necessary for change to happen, were seen to be holding. To include: • an explanation of how causal pathways emerged and change processes can be shown • an explanation of the roles played by key actors and change agents • explicit discussion of how drivers and assumptions played out • identification of any unintended negative effects of the project, especially on disadvantaged groups, including those with specific needs due to gender, vulnerability or marginalisation (e.g. through disability).	Final report *(coverage/omissions):* The section addresses the required elements and focusses on assumptions in the RToC, efforts or commitments of WRI, and in cities in Colombia, Türkiye, India, Kenya and Costa Rica. Final report *(strengths/weaknesses):* Reference is made to the assumptions and drivers in the RToC in general in this section. The Pathways are discussed in-depth in the section on the Theory of Change. The assessment is weak due to "lack of data and uncertainty in project impact beyond 2030." Discussion of likelihood of impact addresses a timeline with moderately likely impact from 2030-2040 and significant impact from 2040-2050 based on interviews.	3
Quality of 'Financial Management' Section Purpose: to present an integrated analysis of all dimensions evaluated under financial management and include a completed 'financial management' table (may be annexed). Consider how well the report addresses the following:	Final report *(coverage/omissions):* The section addresses the required elements related to the three sub-criteria on financial management. Final report *(strengths/weaknesses):*	4

	UNEP Evaluation Office Comments	Final Review Report Rating
• *adherence* to UNEP's financial policies and procedures • *completeness* of financial information, including the actual project costs (total and per activity) and actual co-financing used • *communication* between financial and project management staff	The assessments make reference to tables and annexes elsewhere in the report, desk review by the reviewer and interviews. The assessments of the sub-criteria are highly condensed and summarized and does not allow for more detailed evidence to be presented or discussed.	
Quality of 'Efficiency' Section Purpose: to present an integrated analysis of all dimensions evaluated under efficiency (i.e. the primary categories of cost-effectiveness and timeliness). To include: • time-saving measures put in place to maximise results within the secured budget and agreed project timeframe • discussion of making use, during project implementation, of/building on pre-existing institutions, agreements and partnerships, data sources, synergies and complementarities with other initiatives, programmes and projects etc. • implications of any delays and no cost extensions • the extent to which the management of the project minimised UNEP's environmental footprint.	Final report *(coverage/omissions):* The section covers both elements of efficiency (cost effectiveness and timeliness). Final report *(strengths/weaknesses):* The section highlights the use of WRI's existing resources and use of virtual technology and briefly discusses how UNEP's environmental footprint was minimized. The no-cost extension is incorrectly presented as a cost-saving measure disregarding staff resources needed to allow for completion of all tasks.	4
Quality of 'Monitoring and Reporting' Section Purpose: to present well-reasoned, complete and evidence-based assessment of the evaluand's monitoring and reporting. Consider how well the report addresses the following: • quality of the monitoring design and budgeting *(including SMART results with measurable indicators, resources for MTE/R etc.)* • quality of monitoring of project implementation *(including use of monitoring data for adaptive management)* • quality of project reporting *(e.g. PIMS and donor reports)* \	Final report *(coverage/omissions):* The section addresses the required elements by the three sub-criteria. The section does not address quality aspects of monitoring design and budgeting and quality of monitoring of project implementation. Final report *(strengths/weaknesses):* Strengths: Examples of documentation made available by the project and by partners are presented with indication of the quality of outputs Adaptive management practices applied by partners to implement activities are presented. Weaknesses: The section doesn't assess the project monitoring plan in detail including indicators, data sources, frequency of data collection and data disaggregation. The adequacy of indicators associated with outputs and outcomes is not assessed for SMART results.	4

	UNEP Evaluation Office Comments	Final Review Report Rating
	The quality of project monitoring is assessed based mainly on meeting reports and attendance data.	
Quality of 'Sustainability' Section Purpose: to present an integrated analysis of all dimensions evaluated under sustainability (i.e. the endurance of benefits achieved at outcome level). Consider how well the report addresses the following: • socio-political sustainability • financial sustainability • institutional sustainability	Final report *(coverage/omissions):* This section of the report addresses all the three dimensions of sustainability i.e. socio-political, financial and institutional sustainability. Final report *(strengths/weaknesses):* The report presents a well-reasoned analysis of financial sustainability of project outcomes by highlighting the important role of markets in sustaining any gains. However, socio-political, financial and institutional sustainability is presented in general terms of partners and not discussed at project country level.	4
Quality of Factors Affecting Performance Section Purpose: These factors are not always discussed in stand-alone sections and may be integrated in the other performance criteria as appropriate. However, if not addressed substantively in this section, a cross reference must be given to where the topic is addressed and that entry must be sufficient to justify the performance rating for these factors. Consider how well the review report, either in this section or in cross-referenced sections, covers the following cross-cutting themes: • preparation and readiness • quality of project management and supervision[87] • stakeholder participation and co-operation • responsiveness to human rights and gender equality • environmental and social safeguards • country ownership and driven-ness • communication and public awareness	Final report *(coverage/omissions):* The section lists factors affecting performance with ratings and references to other sections in the report. The section does not present evidence and assessment of how the ratings were awarded. Final report *(strengths/weaknesses):* This section of the report provides no evidence / analysis for the ratings for the sub criteria. The report instead makes reference to other sections of the report which have limited or no evidence to support the ratings. For Country Ownership and Driven-ness a rating of Highly Satisfactory is awarded with no reference or justification provided. For the Communication and Publication Awareness factor the reference is to section V, A and recommendation 2. A recommendation does not qualify as evidence nor justify a performance rating that has been awarded.	2
Quality of the Conclusions Section **(i) Conclusions Narrative:** Purpose: to present summative statements reflecting on prominent aspects of the	Final report *(coverage/omissions):* The section contains a discussion on challenges in measuring environmental impact in energy efficiency projects, a sub-section	3

[87] In some cases 'project management and supervision' will refer to the supervision and guidance provided by UNEP to implementing partners and national governments while in others, specifically for GEF funded projects, it will refer to the project management performance of the executing agency and the technical backstopping provided by UNEP. This includes providing the answers to the questions on Core Indicator Targets, stakeholder engagement, gender responsiveness, safeguards and knowledge management, required for the GEF portal.

	UNEP Evaluation Office Comments	Final Review Report Rating
performance of the evaluand as a whole, they should be derived from the synthesized analysis of evidence gathered during the review process. To include: • compelling narrative providing an integrated summary of the strengths and weakness in overall performance (achievements and limitations) of the project • clear and succinct response to the key strategic questions • human rights and gender dimensions of the intervention should be discussed explicitly (e.g. how these dimensions were considered, addressed or impacted on)	with conclusions, summary of project findings and ratings. Final report *(strengths/weaknesses):* The conclusions section does not repeat/refer to evaluation criteria, nor directly highlighting strength and weaknesses of the project. The conclusion section introduces new ideas such as the diffusion of innovation theory and analysis that should have been included in the findings section. The discussion of challenges in measuring environmental impact would have been more appropriate in the section on the Theory of Change at Evaluation and very relevant and informative to the assessment and discussion of TOC assumptions and drivers. Table 14 with summary of project findings and ratings, and summary assessment. Some of the summary assessments, however, fall short of providing a summary of justification for the ratings awarded. The summary assessments for the sub-criteria under factors affecting performance would have been useful in the findings section. Human rights and gender dimensions are not highlighted in this section beyond the summary assessment provided in Table 14.	
ii) Utility of the Lessons: Purpose: to present both positive and negative lessons that have potential for wider application and use (replication and generalization) Consider how well the lessons achieve the following: • are rooted in real project experiences (i.e. derived from explicit review findings or from problems encountered and mistakes made that should be avoided in the future) • briefly describe the context from which they are derived and those contexts in which they may be useful • do not duplicate recommendations	Final report *(coverage/omissions):* The section presents four lessons learned in the prescribed format. Final report *(strengths/weaknesses):* The lessons are rooted in the project's implementation approach and substantive findings of the review report. The lessons learned are formulated as findings rather than as lessons wider application in mind outside the ZCB project sphere.	4
(iii) Utility and Actionability of the Recommendations: Purpose: to present proposals for specific action to be taken by identified people/position-holders to resolve concrete problems affecting the project or the sustainability of its results. Consider how well the lessons achieve the following:	Final report *(coverage/omissions):* Four recommendations are presented with recommendation, challenge, type, responsibility and timeframe as required. Final report *(strengths/weaknesses):* The recommendations are addressed to UNEP with a 3-12 months' timeframe. Table 15 provides an implementation plan of recommendations indicating that	4

	UNEP Evaluation Office Comments	Final Review Report Rating
• are feasible to implement within the timeframe and resources available (including local capacities) and specific in terms of who would do what and when • include at least one recommendation relating to strengthening the human rights and gender dimensions of UNEP interventions • represent a measurable performance target in order that the UNEP Unit/Branch can monitor and assess compliance with the recommendations. NOTES: **(i)** In cases where the recommendation is addressed to a third party, compliance can only be monitored and assessed where a contractual/legal agreement remains in place. Without such an agreement, the recommendation should be formulated to say that UNEP project staff should pass on the recommendation to the relevant third party in an effective or substantive manner. The effective transmission by UNEP of the recommendation will then be monitored for compliance. **(ii)** Where a new project phase is already under discussion or in preparation with the same third party, a recommendation can be made to address the issue in the next phase.	recommendation 1,2 and 4 are accepted and recommendation 3 is partially accepted. Recommendation 3 mentions as a challenge the need for workforce training curricula that would include women and their need for family/child care at work sites. Findings or considerations supporting recommendations 1 and 3 do not appear explicitly clear in the report.	
Quality of Report Structure and Presentation **(i) Structure and completeness of the report:** To what extent does the report follow the UNEP Evaluation Office structure and formatting guidelines? Are all requested Annexes included and complete?	Final report *(coverage/omissions):* Overall well-structured report in line with formatting requirements of the Evaluation Office, except for the location of the sub-sections with responses to strategic questions under strategic relevance, and discussion in the conclusion section, which means that the value of the information in these sections is underutilized and conflicts with the internal logic of the report. Final report *(strengths/weaknesses):* Overall well-structured. Annexes are included and complete. Some additional sections are misplaced in the report. Assessment of factors affecting performance does not include discussion or justification of ratings awarded.	4
(ii) Writing and formatting: Consider whether the report is well written (clear English language and grammar) with language that is adequate in quality and tone for an official document? Do visual aids, such as maps and graphs convey key information?	Final report *(coverage/omissions):* Overall, the report is well written in clear English language and grammar and the tone is acceptable for an official document. Final report *(strengths/weaknesses):*	6

	UNEP Evaluation Office Comments	Final Review Report Rating
	Well formatted report. Good use of table and figures throughout the report. Further formatting needed to ensure consistency of the fonts and spacing and table layouts.	
OVERALL REPORT QUALITY RATING	**MODERATELY SATISFACTORY**	**4**

A number rating 1-6 is used for each criterion: Highly Satisfactory = 6, Satisfactory = 5, Moderately Satisfactory = 4, Moderately Unsatisfactory = 3, Unsatisfactory = 2, Highly Unsatisfactory = 1. The overall quality of the review report is calculated by taking the mean score of all rated quality criteria.