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SUSTAINABLE TRANSPORT



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GEF Annual Performance Report 2019:

Sustainable Transport

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Cover: Bus rapid transit system in Dar es Salaam, Tanzania. Photo by Hendri Lombard/World Bank.

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Foreword

The Independent Evaluation Office (IEO) of the Global Environment Facility (GEF) is pleased to present Annual Performance Report (APR) 2019. The report is divided into two sections: the first provides an account of the performance of completed GEF projects and the Management Action Record; the second presents the findings of an evaluation of the GEF sustainable transport portfolio. The report was presented to the GEF Council during its June 2019 meeting as part of the GEF IEO's Semi-Annual Evaluation Report.

APR 2019 shows that completed GEF projects maintained their solid track record of outcome achievements, although sustainability remains a concern. The report also shows that the trend in improvement of project monitoring and evaluation design has continued.

This year, the GEF IEO undertook an evaluation of the GEF's sustainable transport portfolio, as no detailed assessment of the performance of this portfolio had previously been made. The evaluation found that GEF support for sustainable transport in recipient countries is correlated with country share in global urban population. It provides evidence of the contributions made by the GEF in facilitating

the use of low-carbon technologies, enhancing the efficiency of public transit and freight transport, promoting nonmotorized transport, and supporting transport planning. The evaluation also provides insights into the challenges facing implementation of sustainable transport projects.

APR 2019 had two recommendations, both pertaining to the evaluation of the GEF's sustainable transport portfolio. The first calls for a project's monitoring and evaluation design to be consistent with its theory of change; the second for prioritizing funding for capacity development, urban and transport planning, and policy and regulatory framework-related activities. The two recommendations were endorsed by the GEF Council.

I would like to thank everyone who actively supported preparation of APR 2019.



Juha I. Uitto
Director, GEF Independent Evaluation Office

Acknowledgments

Annual Performance Report (APR) 2019 was led by Neeraj Kumar Negi, Senior Evaluation Officer in the Global Environment Facility's Independent Evaluation Office (GEF IEO); he was also the lead author of the report. Molly Watts Sohn, GEF IEO Evaluation Analyst, and Cody Parker, Consultant, were members of the core team.

The terminal evaluation review for fiscal year 2017 was coordinated by Molly Watts Sohn and Cody Parker. They prepared terminal evaluation review reports, along with Consultants Spandana Battula, Yuliya Gosnell, and Ritu Kanotra.

Neeraj Negi led the evaluation of the sustainable transport portfolio. Cody Parker and Molly Watts Sohn assisted in the conduct of this evaluation.

Preparation of APR 2019 benefited from guidance and oversight provided by Juha Uitto, Director of the IEO; quality control was provided by Geeta Batra, IEO Chief Evaluation Officer. The study team

was supported by Evelyn Chihuguyu, IEO Program Assistant. Nita Congress edited, designed, and laid out the report.

The GEF's annual performance reports rely on information provided by the GEF partner Agencies through terminal evaluations and terminal evaluation reviews prepared by their offices. We also acknowledge the support received from the Agencies during conduct of the fieldwork for the evaluation of the sustainable transport portfolio.

The GEF IEO is grateful to all of these individuals and institutions for their contributions. Final responsibility for this report remains firmly with the Office.

Abbreviations

ADB	Asian Development Bank	M&E	monitoring and evaluation
APR	annual performance report	Mt	metric ton
BRT	bus rapid transit	NMT	nonmotorized transport
CEO	Chief Executive Officer	PMIS	Project Management Information System
CNG	compressed natural gas	SIDS	small island developing states
CO ₂ e	carbon dioxide equivalent	STAR	System for Transparent Allocation of Resources
CUTPP	GEF–World Bank–China Urban Transport Partnership Program	TEEMP	Transport Emissions Evaluation Models for Projects
GEF	Global Environment Facility	UNDP	United Nations Development Programme
GHG	greenhouse gas	UNEP	United Nations Environment Programme
IEO	Independent Evaluation Office	UNIDO	United Nations Industrial Development Organization
LDC	least developed country		
LDCF	Least Developed Countries Fund		
MAR	management action record		

Note: All dollar amounts are U.S. dollars unless otherwise indicated. The nominal GEF replenishment periods are as follows:

Pilot phase: 1991–94	GEF-4: 2006–10
GEF-1: 1995–98	GEF-5: 2010–14
GEF-2: 1999–2002	GEF-6: 2014–18
GEF-3: 2002–06	GEF-7: 2018–22

Executive summary

The 2019 Annual Performance Report of the Global Environment Facility (GEF) covers 1,566 completed projects which together account for \$6.9 billion in GEF grants. The 2019 cohort comprises 186 projects, accounting for \$574.6 million in GEF grants, for which terminal evaluations were received and validated during 2018–19 and these projects constitute the 2019 cohort. Although 10 GEF Agencies are represented in the 2019 cohort, most of the projects (58 percent) were implemented by the United Nations Development Programme (UNDP), followed by the United Nations Environment Programme (12 percent) and the World Bank (11 percent).

APR 2019 presents the usual topics addressed in APRs—project outcomes and the likelihood of their sustainability, quality of project implementation and execution, cofinancing trends, quality of project monitoring and evaluation (M&E) systems, coverage of terminal evaluation reports, and a summary of the Management Action Record (MAR)—along with an evaluation of the GEF sustainable transport portfolio. This evaluation was conducted because the GEF Independent Evaluation Office (IEO) had not covered sustainable transport adequately in its past work, and this continues to be an area relevant in addressing climate change mitigation.

An important change in reporting practice is that the GEF IEO has aligned the APR year with that in which the report it is presented to the GEF Council. Thus, from 2019 onwards, the APR presented to the Council in a given year will use that year in its title. The same practice will be followed for determining the year of terminal evaluation cohorts and the MAR. This is to avoid any confusion or impression of delayed reporting conveyed by presenting, e.g., APR 2018 in 2019.

Key findings and conclusions

PERFORMANCE OF COMPLETED PROJECTS

Overall, the outcomes of 80 percent of all completed GEF projects are rated in the satisfactory range ($n = 1,546$). Of the 2019 cohort, 78 percent of completed projects are similarly rated ($n = 180$). Compared to the portfolio average of 62 percent ($n = 1,478$), 59 percent of the projects of the 2019 cohort are rated in the likely range for sustainability of outcomes ($n = 171$). The difference between the GEF portfolio average and the 2019 cohort is not statistically significant for either outcome and sustainability ratings.

Compared to the portfolio average of 80 percent ($n = 1,330$), 85 percent of the projects of the 2019 cohort were rated in the satisfactory range for quality of implementation ($n = 175$). Seventy-eight percent of the projects of the 2019 cohort are rated in the satisfactory range for quality of execution ($n = 169$); this is close to the portfolio average of 80 percent.

The 2019 cohort shows improvement in M&E design ratings. Compared to the portfolio average of 65 percent of projects ($n = 1,477$) rated in the satisfactory range for M&E design, a significantly higher percentage—82 percent—of the 2019 cohort are so rated ($n = 181$). Additionally, compared to the long-term portfolio average of 65 percent ($n = 1,366$), 71 percent of the projects in the 2019 cohort are rated in the satisfactory range for M&E implementation ($n = 169$). This difference for M&E implementation is not statistically significant, although the direction of the difference is consistent with a trend of improvement.

The expected level of cofinancing materialized for 46 percent of projects in the 2019 cohort ($n = 150$), compared to the portfolio average of 57 percent ($n = 1,293$). At least 90 percent of the expected cofinancing materialized for 54 percent of the 2019 cohort, compared to the long-term average of 67 percent. Thus, cofinancing materialized for a significantly lower percentage of the 2019 cohort. However, in other areas, an improving trend was maintained. The ratio of realized cofinancing to GEF grant funding for the 2019 cohort is 9.5 to 1—higher than the portfolio average of 6.4 to 1.

MANAGEMENT ACTION RECORD

MAR 2018 reports on the level of adoption of decisions based on 12 recommendations from seven GEF IEO evaluations endorsed by the GEF Council and the Least Developed Countries Fund/Special Climate Change Fund Council.

The GEF IEO rates adoption of the Council decisions to be substantial for six evaluations and medium for one. Five of the six rated by the GEF IEO as adopted to a substantial degree were so rated by management as well. The ratings differed for a Council decision based on APR 2015, which called for tracking tools to be simplified and the reporting burden on Agencies reduced. Management judged adoption to be high; while the GEF IEO cited it as substantial, acknowledging that the tool has been simplified but still involves some reporting burden. This decision has been graduated because further opportunity for changes in the tracking tools will be available during preparation for the GEF-8 cycle.

The GEF IEO and management both rate as medium the level of adoption of a decision based on the Joint GEF-UNDP Small Grants Programme Evaluation, which called for reconsideration of the criteria for upgrading countries; these remained unchanged for GEF-7.

The GEF IEO will continue to track the rest of the decisions in the next MAR.

EVALUATION OF THE GEF SUSTAINABLE TRANSPORT PORTFOLIO

The GEF has cumulatively provided \$501 million in grants for 80 sustainable transport projects. The Evaluation of the GEF Sustainable Transport Portfolio assessed the type of activities the GEF has supported, the results of the supported activities, lessons learned from implementation experience, and the value added by the GEF.

Project portfolio

CONCLUSION 1: GEF support for sustainable transport is relevant and is correlated with the distribution of the urban population across GEF recipient countries.

Ninety-six percent of the GEF sustainable transport projects, which account for 94 percent of GEF funding for sustainable transport, are focused on urban transport. This focus is appropriate because urban transport provides substantial greenhouse gas (GHG) emissions abatement opportunities.

GEF support for sustainable transport across regions is also associated with their respective share in the total urban population of GEF recipient countries. Specifically, Asia accounts for 56 percent of the total urban population of GEF recipient countries, Latin America and the Caribbean for 18 percent, Africa for 15 percent, and Europe and Central Asia for 11 percent. The share of these regions in GEF sustainable transport portfolio funding shows a similar pattern: Asia, 56 percent; Latin America and the Caribbean, 22 percent; Africa, 13 percent; and Europe and Central Asia, 9 percent.

The demand for GEF financing for sustainable transport is relatively higher from upper-middle-income countries. Most of the large emerging economies—including Brazil, China, Mexico, the Russian Federation, and South Africa—are represented in this group. From GEF-4 to GEF-6, upper-middle-income countries accounted for a 44 percent share in System for Transparent Allocation of Resources (STAR) country allocations for climate change. In comparison, during the same period, these countries accounted for 61 percent of GEF commitments to national projects focused on sustainable transport. Thus, the upper-middle-income countries used their STAR climate change allocations for sustainable transport at a higher rate than did other GEF recipient countries.

CONCLUSION 2: The GEF portfolio of sustainable transport projects has evolved from an initial focus on low-carbon technologies to supporting transport planning, modal shifts, traffic demand management, and commercialization of electric mobility technologies using integrated approaches.

During GEF-2, when the GEF first began to support sustainable transport, it focused on encouraging the use of fuel cell and electric/hybrid bus technologies through projects in Brazil, China, and the Arab Republic of Egypt. However, since these technologies were in their development phase, they were too expensive for large-scale adoption. Thus, in GEF-3, the GEF shifted to providing more support for bus rapid transit (BRT) which was comparatively cost-effective and better at targeting the urban poor.

Over the past two decades, the GEF portfolio has evolved to include projects that address BRT or BRT-style improvements (38 projects), nonmotorized transport (38 projects) and freight and logistics (8 projects). A few projects promote efficiency in metro rail (three projects), waterways (two projects), and ground transportation in aviation (one project). Twenty-six projects promote low-carbon technologies. However, recent projects that promote technologies focus more on commercialization and the development of supporting infrastructure, and address technology promotion within the larger framework of urban transport systems.

Eighty-nine percent of GEF-financed sustainable transport projects provide financing for capacity development. Such activities aim to develop capacities of decision makers, key institutions engaged in transport, and transport professionals. They typically include training and workshops, seminars and conferences, visits, establishing institutions and platforms for consultation, and launching academic courses. A majority of the projects also finance activities aimed at changes in the legal, policy, and regulatory framework (69 percent) and in facilitating urban and land use planning (58 percent).

In 2008, the GEF began using programmatic approaches as a modality for providing GEF funding. Two sustainable transport projects were approved under the framework of a strategic

program focused on energy-related concerns in West Africa. The Asian Sustainable Transport and Urban Development Program during GEF-5 and the Sustainable Cities Impact Program during GEF-6 have also provided support for several sustainable transport projects. While the former has focused on providing support for BRT systems, the latter has used a city-centric approach to address sustainable transport and other environmental and development concerns through an integrated lens. During GEF-7, the GEF is providing support to recipient countries through a program to facilitate uptake of electric mobility.

Outcomes of the sustainable transport portfolio

CONCLUSION 3: The GEF has made valuable contributions to facilitating the use of low-carbon technologies, enhancing the efficiency of public transit and freight transport, promoting nonmotorized transport, and energy efficiency benchmarking for marine transport.

The GEF has facilitated market transformation for electric/hybrid and fuel cell-based mobility technologies in China. GEF support to electric/hybrid mobility technologies was timely. The technologies developed at a fast rate and have found considerable traction among manufacturers and city governments in China. The GEF is now supporting large-scale adoption of these technologies in Malaysia and South Africa, as well. The GEF's focus is shifting to connecting the use of these technologies with the renewable energy grid to reduce carbon footprints.

Fuel cell bus technology was initially piloted when it was still in development; its progress toward financial viability was slower than expected. Early experience showed that the technology was too expensive. Therefore, several projects that focused on the promotion of fuel cell technologies in Egypt, India, and Mexico were dropped

during preparation. Over time, fuel cell technologies have become cheaper and are now being commercialized in China with GEF support. Several other independent projects not funded by the GEF are following up on progress made through GEF support. The GEF is playing an important role in promoting the use of the technology in several Chinese cities.

Most of the completed projects that address public transit focus on establishing and/or improving the efficiency of BRT (17 projects). The GEF has generally provided funding for BRT planning, changes in legal and policy frameworks, and capacity development. In particular, capacity development activities were instrumental in enhancing the capabilities of key institutions and decision makers to develop, manage, and expand BRT systems. GEF financing helped lay the groundwork for BRT systems in several major cities including Mexico City and Dar-es-Salaam. Dissemination activities combined with demonstrations have facilitated replication in other cities. Other GEF projects have addressed heavy/light rail and maritime transport, but too few projects have been completed in these areas to make generalizations about findings.

Of the completed projects, 20 have promoted non-motorized transport—often in conjunction with support to BRT. The supported activities include construction and/or repair of bike lanes and walkways, spaces for bike parking, demonstration of the bike-share business model, awareness campaigns, and preparation of a nonmotorized transport plan. In most instances, these activities were implemented effectively. However, tracking of environmental results has been limited, and it is difficult to report on the extent to which these activities contributed to low-carbon transport.

One project, Transforming the Global Maritime Transport Industry towards a Low Carbon Future through Improved Energy Efficiency, aimed at building the capacities of 10 developing countries

to improve the efficiency of their shipping industry. The project benchmarked country performance to help them develop and implement maritime energy efficiency strategies. One project result was that the participating countries identified lead agencies and established a national task force to address efficiency-related concerns on a sustained basis.

Four GEF-supported projects that addressed sustainable transport were designed to be implemented in tandem with a major sporting event—the Olympics, the World Cup, and Commonwealth Games. Two of the projects were implemented as planned and achieved their intended results; the results of the other two were mixed. A key takeaway is that such projects should be developed well in advance of the mega-events with in-built flexibility to take timely corrective action if originally planned activities become less relevant or are unlikely to be completed in time.

CONCLUSION 4: The effectiveness of transport planning and traffic demand management activities depends on the level of support from, and alignment with, the vision of local leadership.

The GEF supported integrated land use and transport planning activities in 15 completed transport projects. In addition to sustainable urban transport plans, a major focus was transit-oriented development, which aims to maximize density around public transit facilities. GEF activities generally centered on studies to support the development or update of a city master plan or mobility strategy.

Support to transport and land use planning encourages transit-oriented development and efficient management of urban transit systems. GEF support facilitated transit-oriented development in Changsha, China, and Mexico City. In other cities—including Dushanbe, Tajikistan, and Tianjin, China—similar efforts were less successful, as they were either not aligned with the vision of local

decision makers, or policy and regulatory barriers hampered progress.

Eight completed transport projects included GEF-supported activities specifically aimed at traffic demand management. Financial incentives such as congestion pricing and paid parking were used, along with nonfinancial regulations such as limits on parking spaces, and infrastructure improvements such as park-and-ride facilities at rail/metro stations.

Traffic demand management measures are likely to be successful when they are based on “win-win” situations. For example, the GEF provided support for park-and-ride improvements and integration of stations with pedestrian and cycling infrastructure in 16 suburban railway stations in Cape Town, which benefited all users. These measures also led to GHG emissions reduction through increased use of public transit facilities. But in situations where trade-offs are required—e.g., congestion pricing, parking pricing, and vehicle usage restrictions—commitment from political leadership and public support becomes important. For example, a quota on the number of car licenses in Guangzhou was effective in reducing car use and led to GHG emissions abatement because the measure had the city leadership’s support. On the other hand, electronic road pricing in Jakarta and implementation of a congestion pricing plan in Santiago could not move forward because of a lack of adequate political support.

CONCLUSION 5: The large emerging economies have a higher percentage of completed higher percentage of completed sustainable transport projects rated as having satisfactory outcomes than other recipient countries. Sustainability ratings are similar across these country groups.

Seventy-two percent of completed sustainable transport projects have satisfactory outcomes ($n = 32$), and 70 percent are rated as likely to be

sustainable ($n = 30$). These ratings are comparable to the rest of the GEF portfolio.

Sustainable transport projects in the large emerging economies are more likely to be rated in the satisfactory range (92 percent) compared to other recipient countries (50 percent). While low outcome achievement was due to factors specific to each project, a few issues with implementation are highlighted across several underachieving projects. These include high turnover of project personnel, poor coordination, challenges in procurement, insufficient government commitment/ownership, and low capacity of executing agencies. There is no difference in the sustainability ratings between these two groups.

Aggregate GHG emissions abatement for completed projects has been lower than expected at project start. For 20 completed projects that report information on GHG emissions abatement, the aggregate adjusted lifetime total is 11.0 metric tons of carbon dioxide equivalent.¹ This is lower than the adjusted 92.9 metric tons of carbon dioxide equivalent expected at project start. Eight of the 20 projects (40 percent) met at least 80 percent of their target. The average cost of GHG emissions abatement is \$11.50 per metric ton, with a median of \$12.70.

Of the completed projects, 53 percent (17 of 32 projects) promoted changes in legal, policy, and/or regulatory frameworks. Recommendations on reform or the creation of national, regional, and metropolitan-level legal and policy frameworks for sustainable transport development were more likely to be adopted by government agencies.

¹ To ensure consistency in reporting, the GHG emissions abatement estimates provided in the terminal evaluations have been adjusted based on the standards suggested in the Transport Emissions Evaluation Models for Projects (TEEMP). Where no, or only negligible, attribution is possible, the GHG benefits of a GEF project have been adjusted accordingly.

Information gathered through interviews and from terminal evaluations suggests that GEF stakeholders regard capacity building as the GEF's most significant contribution to sustainable transport projects. Of the 32 completed projects, 26 (81 percent) contributed to capacity development in recipient countries. GEF-supported capacity development activities have not only improved the ability of municipal governments to pursue sustainable transport initiatives but have also facilitated knowledge sharing among cities and countries.

Value added by GEF support

CONCLUSION 6: GEF funding generally adds value to conventional transport projects through mainstreaming of low-carbon approaches. In a significant number of projects, GEF funding supports speedier adoption and/or enhances viability of low-carbon approaches.

In 58 of the 80 approved GEF sustainable transport projects (73 percent), GEF financing supports mainstreaming low-carbon approaches in a conventional project. In such cases, the conventional project is likely to be implemented regardless of whether GEF financing is provided. However, without GEF financing, mainstreaming of low-carbon approaches would either not be possible or would be possible to a lesser extent. These projects usually involve capital-intensive activities and high levels of cofinancing. Mainstreaming of low-carbon approaches often involves providing technical assistance to city governments so they can make optimal decisions regarding urban transport systems and related investment. It also involves capacity development so transport agencies are able to identify opportunities for using low-carbon approaches and to implement them.

Other overlapping ways through which GEF financing adds value include enhancing speed, viability, and the scale of supported activities. In about 20 percent of projects, GEF financing adds value by helping speedier implementation of low-carbon

approaches than would otherwise be possible or enhances the viability of the promoted low-carbon technologies and approaches by incentivizing their use. In 10 percent of projects, GEF financing significantly enhances the scale of activities by expanding and/or deepening coverage. Such projects tend to be entirely focused on the generation of global environmental benefits—e.g., targeted research, and/or the preparation of strategies and action plans.

The GEF adds value through enhancement in viability and speed to a larger percentage of projects implemented by UN organizations than those implemented by development banks. In comparison, development banks generally use GEF funding to mainstream low-carbon approaches in their conventional urban transport projects more than do UN organizations.

Factors affecting results

CONCLUSION 7: Sustainable transport projects receive relatively higher cofinancing commitments and perform as well as, or better than, other projects in terms of realized cofinancing.

The cofinancing ratio for sustainable transport projects is \$19 per dollar of GEF grant. This is substantially higher than the ratios achieved by other projects in the GEF portfolio. For example, other climate change projects achieve a cofinancing ratio of \$9 per dollar of GEF grant; the cofinancing ratio for the entire portfolio of comparable GEF projects is \$6.

Recipient countries account for the majority of cofinancing. Data from the GEF Project Management Information System for 73 sustainable transport projects show that the recipient governments account for 57 percent of total promised cofinancing, GEF Agencies (mostly multilateral development banks) account for 29 percent, and private sector organizations account for 4 percent.

Compared to other projects in the GEF portfolio, realized cofinancing vis-à-vis cofinancing commitments at project approval is higher for sustainable transport projects: 136 percent versus 189 percent, respectively. Cofinancing commitments are fully met or exceeded in 55 percent of completed sustainable transport projects, which is comparable to the percentage for other climate change projects and for the GEF project portfolio (59 percent).

CONCLUSION 8: Sustainable transport projects are complex and are likely to face challenges in procurement and coordination. The quality of project monitoring plans is an area of concern.

During implementation, sustainable transport projects often face difficulties in procurement and coordination. Only 68 percent of completed sustainable transport projects have been rated in the satisfactory range on quality of implementation compared to 82 percent of the overall GEF portfolio. Information from terminal evaluations and stakeholders indicates that sustainable transport projects require coordination among multiple agencies and face procurement-related difficulties. While project staff turnover is also often reported as a major concern, it is difficult to know whether this is more pervasive among sustainable transport projects. Concerns related to coordination, procurement, and staff turnover are reported more frequently in recipient countries that are not large emerging economies. The percentage of projects requiring extensions of at least a year is similar to that for other projects in the GEF portfolio, which suggests that, despite challenges in implementation, sustainable transport projects in general do not need long extensions for completion.

Quality of M&E design and M&E implementation for sustainable transport projects are of concern: only 37 and 46 percent of completed sustainable transport projects were rated in the satisfactory range for quality of M&E design and M&E implementation, respectively, compared to 67 percent

and 66 percent for the GEF portfolio overall. There is a considerable gap in the specification of results indicators for sustainable transport projects, as only 42 percent of approved sustainable transport projects specify indicators to track GHG emissions abatement and/or fuel savings.

Designing a robust M&E plan and specifying appropriate indicators for sustainable transport projects are a challenge, because GEF support is often concentrated in activities focused on capacity development; update of legal, policy, and regulatory frameworks; and knowledge management. Moreover, impacts of legal, policy, and regulatory contributions are difficult to track within a project's time frame. This issue will continue to be a challenge for projects under the Sustainable Cities Impact Program that address sustainable transport, as most of these promote planning for transit-oriented development. In the absence of indicators that monitor behavioral and policy changes in response to GEF interventions, it will be difficult to capture GEF contributions.

The GEF's comparative advantage and future considerations

The GEF portfolio of sustainable transport projects has evolved to meet the needs of GEF recipient countries. GEF support is needed, as the demand for sustainable transit increases in low-income and low-middle-income countries—especially those experiencing rapid growth in urban population.

The GEF should continue to use both integrated city-centric approaches and approaches that target specific transport sectors. The Sustainable Cities Impact Program can harness opportunities to promote urban and transport planning, especially transit-oriented development, through engaging a wide range of relevant agencies working at the city level. However, ensuring coordination among a wide range of stakeholders may be difficult, and little evidence is available on

how this is working on the ground. Program monitoring to assess on-the-ground progress is critical so that corrective actions may be taken as needed in a timely manner. During GEF-7, the GEF has opened up a climate change mitigation funding window to provide support for electric mobility. The GEF should also continue to support freight and logistics to help countries make efficiency gains at the national or provincial scale by working closely with relevant industry and government agencies.

The GEF should continue to support activities that are relevant and are especially valued by its partner Agencies and recipient countries. These include urban and transport planning; development of legal, policy, and regulatory measures; and capacity development. Measures that affect traffic demand and reduce congestion in urban roads continue to be relevant, although in cases where trade-offs are involved, progress may stall in the absence of adequate political support.

The GEF should explore opportunities in emerging areas related to sustainable transport, including the development of policies and regulations related to the use of autonomous vehicles and ride share, and the promotion of technical solutions that promote transit efficiencies such as the development of multimodal travel planning applications based on open source and standardized data.

Recommendations

RECOMMENDATION 1: The M&E design used for monitoring the results of sustainable transport projects should be consistent with the project's theory of change.

GEF projects should specify clear assumptions on how a project will achieve its long-term intended results, and a clear methodology should be applied across projects to assess GHG emissions abatement. GEF projects currently clearly specify their

total GHG reduction and include activities supported through cofinancing. The GEF should also track the incremental benefits achieved from GEF funding so a clear metric is available to assess the GEF's efficiency in delivering a unit of GHG emissions abatement. For projects where the primary focus of GEF funding is capacity development, knowledge management, and changes in legal, policy, and regulatory measures, the GEF should monitor progress based on process and behavioral change/policy reform indicators. This approach will be particularly helpful in monitoring results for the Sustainable Cities Impact Program with its focus on urban and transport planning, capacity building, and knowledge exchange.

RECOMMENDATION 2: The GEF should continue to prioritize funding for capacity development, urban and transport planning, and policy and regulatory framework development activities. The GEF should restrict support for civil works to piloting and/or demonstration of sustainable transport approaches.

GEF financing is generally used for transport planning, capacity development, policy and regulatory reform, and information dissemination. This focus is relevant and appropriate because it facilitates speedier adoption of sustainable transport approaches and could lead to optimal design and management of transit infrastructure. In some instances, GEF funding has also been used to partly finance civil works such as the construction and repair of bike lanes and roads. Such funding should be limited to pilot or demonstration projects.

Overview

The annual performance report (APR) of the Independent Evaluation Office (IEO) of the Global Environment Facility (GEF) brings together findings from the portfolio of completed GEF projects, as well as analysis of some key factors affecting performance. In addition, it often covers specific themes and topics that may shed light on the performance of the GEF portfolio and/or a specific category of projects within the portfolio. This year, APR 2019 features an extensive analysis of the GEF's sustainable transport portfolio.

1.1 Scope and coverage

Section 1 of the report provides GEF portfolio-wide analysis, as follows:

- **Performance of completed projects.** An overview of the extent to which GEF projects are achieving expected outcomes and are likely to be sustainable is presented in [chapter 2](#). The chapter also reports on project implementation, quality of monitoring and evaluation (M&E), and materialization of cofinancing.
- **Management action record (MAR).** The GEF MAR assesses the degree to which relevant GEF Council decisions based on IEO

recommendations have been adopted by GEF management. [Chapter 3](#) presents a summary of this year's MAR.

The GEF-wide portfolio discussed in section 1 consists of 1,566 completed GEF projects that together account for \$6.9 billion in GEF grants. Terminal evaluations for 186 projects accounting for \$574.6 million in GEF grants were received and validated during 2018–19; these projects constitute the APR 2019 cohort. Projects approved in GEF-5 (34 percent), GEF-4 (45 percent), and GEF-3 (20 percent) make up the bulk of the 2019 cohort. Although 10 GEF Agencies are represented in the cohort, 3 Agencies accounted for most of the projects: the United Nations Development Programme (UNDP—58 percent), the United Nations Environment Programme (UNEP—12 percent), and the World Bank (11 percent). A detailed list of projects included in the 2019 cohort is provided in [annex A](#). The data set on performance ratings of the completed projects is available at the GEF IEO [website](#).

Section 2 focuses on aspects and analyses of the GEF sustainable transport portfolio:

- **Context and methodology.** [Chapter 4](#) discusses the broader context of GEF support

for sustainable transport. It describes the key questions the recent Evaluation of the GEF Sustainable Transport Portfolio sought to answer and the methodology used.

- **Project portfolio.** [Chapter 5](#) provides information on the GEF portfolio of sustainable transport projects, including on the relevance of GEF support, GEF Agency shares of the portfolio, the types of projects included and the themes covered, and broader trends.
- **Outcome achievements.** [Chapter 6](#) discusses the outcome achievements of the GEF's sustainable transport projects. It looks at the outcome ratings of the completed projects, along with their contributions to greenhouse gas emissions abatement. It also provides information on GEF contributions to the development of policy and regulatory measures, capacity development, urban and transport planning, and traffic demand management.
- **GEF contributions and value added.** [Chapter 7](#) discusses GEF experience with specific sustainable transport themes such as technology transfer, public transit, and nonmotorized transport (NMT), freight and logistics, and projects designed around mega-events. It also discusses the value added by GEF financing and provides information on how GEF projects aim to generate global environmental benefits.
- **Factors affecting results.** [Chapter 8](#) discusses the project cycle, monitoring, materialization of cofinancing, inclusiveness of vulnerable groups, and Agency performance with respect to the GEF sustainable transport portfolio.

The Evaluation of the GEF Sustainable Transport Portfolio is based on 80 approved GEF projects. Of these, 33 have been completed; for 32 of these, terminal evaluations are available. These 32 projects are a subset of the 1,566 completed projects covered by APR 2019. Because the GEF started supporting sustainable transport activities in GEF-2, only approved projects from GEF-2 onward

have been considered in comparing the ratings and performance of sustainable transport projects with the GEF portfolio overall. Therefore, GEF portfolio figures used for comparison with the sustainable transport portfolio are not the same as those based on the full GEF portfolio of approved and/or completed projects.

An important change in reporting practice is that the GEF IEO has aligned the APR year with that in which the report it is presented to the GEF Council. Thus, from 2019 onwards, the APR presented to the Council in a given year will use that year in its title. The same practice will be followed for determining the year of terminal evaluation cohorts and the MAR. This is to avoid any confusion or impression of delayed reporting conveyed by presenting, e.g., APR 2018 in 2019.

1.2 Conclusions and recommendations

The sustainable transport evaluation yielded several conclusions; these are elaborated on in the next section of this report and summarized below:

- GEF support for sustainable transport is relevant and is correlated with the distribution of the urban population across GEF recipient countries.
- The GEF portfolio of sustainable transport projects has evolved from an initial focus on low-carbon technologies to supporting transport planning, modal shifts, traffic demand management, and commercialization of electric mobility technologies using integrated approaches.
- The GEF has made valuable contributions to facilitating the use of low-carbon technologies, enhancing the efficiency of public transit and freight transport, promoting nonmotorized transport, and energy efficiency benchmarking for marine transport.

- The effectiveness of transport planning and traffic demand management activities depends on the level of support from, and alignment with, the vision of local leadership.
- The large emerging economies have a higher percentage of completed higher percentage of completed sustainable transport projects rated as having satisfactory outcomes than other recipient countries. Sustainability ratings are similar across these country groups.
- GEF funding generally adds value to conventional transport projects through mainstreaming of low-carbon approaches. In a significant number of projects, GEF funding supports speedier adoption and/or enhances viability of low-carbon approaches.
- Sustainable transport projects receive relatively higher cofinancing commitments and perform as well as, or better than, other projects in terms of realized cofinancing.
- Sustainable transport projects are complex and are likely to face challenges in procurement and coordination. The quality of project monitoring plans is an area of concern.

Based on these conclusions, the IEO poses the following recommendations:

RECOMMENDATION 1: The M&E design used for monitoring the results of sustainable transport projects should be consistent with the project's theory of change.

GEF projects should specify clear assumptions on how a project will achieve its long-term intended results, and a clear methodology should be applied across projects to assess GHG emissions abatement. GEF projects currently clearly specify their total GHG reduction and include activities supported through cofinancing. The GEF should also track the incremental benefits achieved from GEF funding so a clear metric is available to assess the GEF's efficiency in delivering a unit of GHG

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RECOMMENDATION 2: The GEF should continue to prioritize funding for capacity development, urban and transport planning, and policy and regulatory framework development activities. The GEF should restrict support for civil works to piloting and/or demonstration of sustainable transport approaches.

GEF financing is generally used for transport planning, capacity development, policy and regulatory reform, and information dissemination. This focus is relevant and appropriate because it facilitates speedier adoption of sustainable transport approaches and could lead to optimal design and management of transit infrastructure. In some instances, GEF funding has also been used to partly finance civil works such as the construction and repair of bike lanes and roads. Such funding should be limited to pilot or demonstration projects.

section 1

GEF-wide portfolio

Performance of completed projects

This chapter provides an update on the performance ratings of completed GEF projects, including ratings on project outcomes, the sustainability of these outcomes, the quality of project implementation and execution, the quality of project M&E, and cofinancing trends. The discussion presented here is brief, because these topics were analyzed in detail in the Sixth Comprehensive Evaluation of the GEF (OPS6); although the performance of the annual cohorts covered by that report and this differs somewhat, the underlying causal relationships are basically unchanged.

The reporting is based on evidence provided in terminal evaluations for 1,566 completed GEF projects. These projects account for \$6.9 billion in GEF grants. Terminal evaluations for 186 projects accounting for \$574.6 million in GEF grants were received and validated during 2018–19; these projects constitute the APR 2019 cohort. Projects approved in GEF-5 (34 percent), GEF-4 (45 percent) and GEF-3 (20 percent) together account for most of the 2019 cohort. Although 10 GEF Agencies are represented in the cohort, most of the projects have been implemented by UNDP (58 percent), UNEP (12 percent), and the World Bank (11 percent). A full list of projects comprising the APR 2019 cohort is in [annex A](#).

2.1 Methodology

Performance of completed GEF projects is assessed and rated by the GEF IEO and/or the Agency evaluation offices. Evidence presented in project terminal evaluations and other documents such as project implementation reports and other independent assessments is considered in assigning these ratings.

Project outcomes, project implementation and execution, and M&E design and implementation are rated on a six-point scale ranging from highly satisfactory to highly unsatisfactory, with the top three ratings constituting the satisfactory range and the bottom three the unsatisfactory range. The sustainability of project outcomes is measured on a four-point scale, ranging from likely to unlikely. The methodology used in rating project performance is detailed in [annex B](#).

2.2 Findings

Overall, 80 percent of completed GEF projects with terminal evaluations have an outcome rating in the satisfactory range. In comparison, a nominally lower 78 percent of the 2019 cohort of closed projects was so rated; these projects accounted

for 83 percent of GEF funding (table 2.1). Within the GEF portfolio, the percentage of projects with an outcome rating in the satisfactory range moves within a narrow band of 78 to 82 percent from GEF-1 to GEF-4 (figure 2.1). For GEF-5 approvals, 87 percent of the completed projects are rated in the satisfactory range. However, most of the projects from GEF-5 are still under implementation, so the figures for this period may change as more projects are completed.

Assessment of sustainability estimates the extent to which a project's outcomes are durable and it is likely to achieve its expected long-term impact.

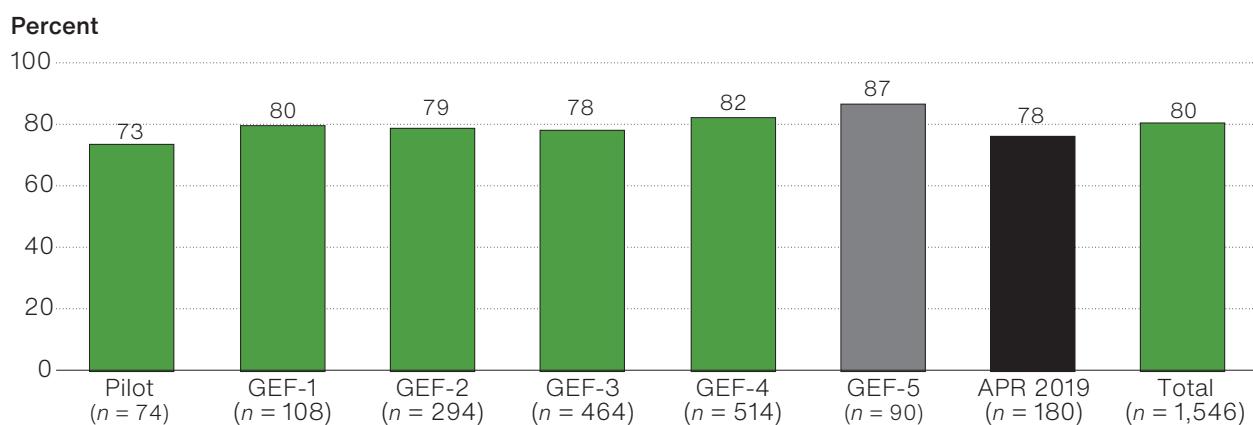
Compared to the GEF portfolio average of 62 percent, 59 percent of the projects in the 2019 cohort are rated in the likely range for outcome sustainability (figure 2.2). This difference between the portfolio average and the 2019 cohort is not statistically significant. Improving the sustainability of GEF project outcomes has been a long-standing concern of GEF stakeholders. Although ratings for the projects approved during GEF-4 and GEF-5 are somewhat higher than for earlier replenishment periods, the percentage of projects where outcomes are rated as sustainable is still low. The GEF IEO will continue tracking performance on this dimension.

TABLE 2.1 Outcome ratings of GEF projects: APR 2019 versus other cohorts

Outcome rating	Percentage of projects		Percentage of GEF funding	
	APR 2019 cohort (n = 180)	All other projects (n = 1,285)	APR 2019 cohort (\$574.6 million)	All other projects (\$5.87 billion)
Highly satisfactory	3	4	4	3
Satisfactory	36	38	36	36
Moderately satisfactory	39	38	43	37
Mod. satisfactory or above	78	81	83	77
Moderately unsatisfactory	16	15	12	17
Unsatisfactory	6	5	4	6
Highly unsatisfactory	0	<1	0	1

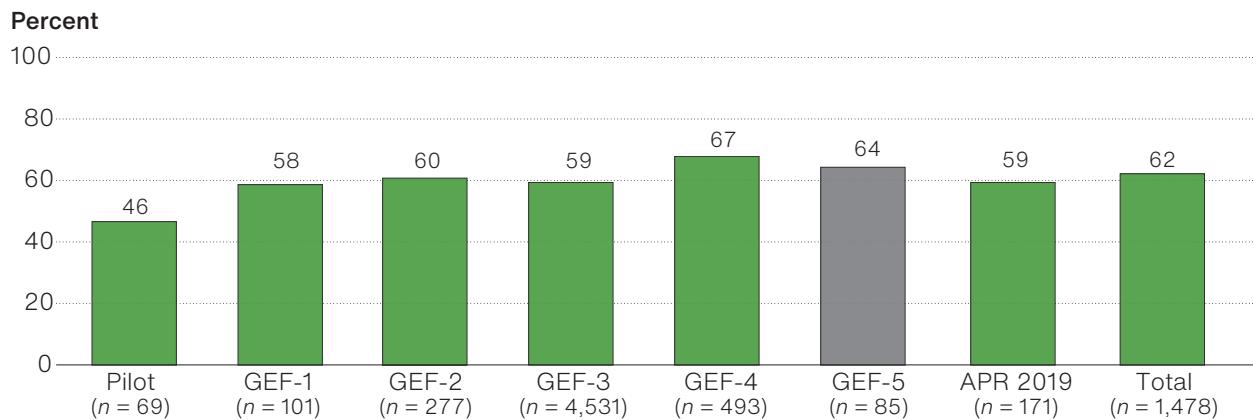
SOURCE: GEF IEO terminal evaluation review data set.

FIGURE 2.1 Projects with outcomes rated in the satisfactory range by GEF replenishment period



SOURCE: GEF IEO terminal evaluation review data set.

FIGURE 2.2 Projects with outcome sustainability rated in the likely range by replenishment period



SOURCE: GEF IEO terminal evaluation review data set.

2.3 Implementation and execution

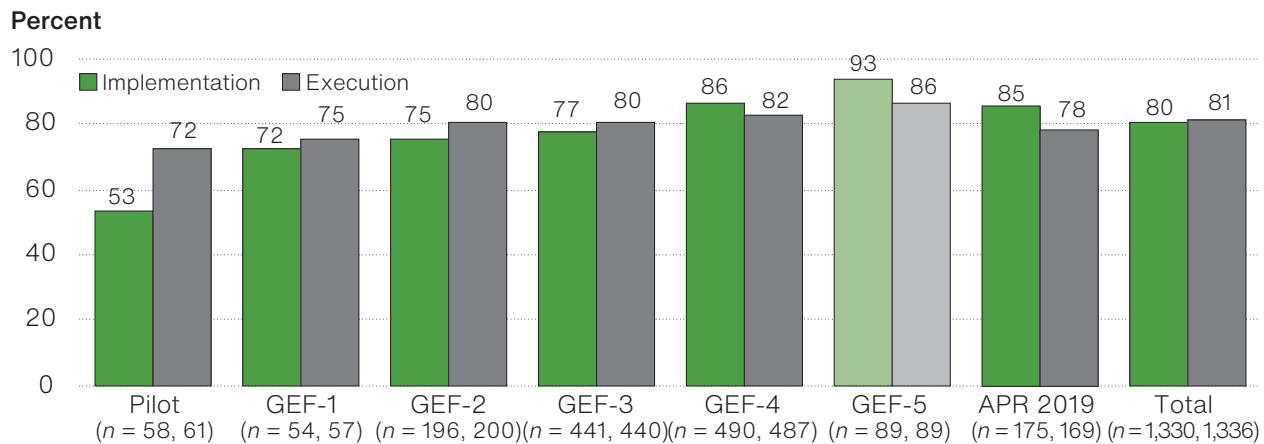
To date 1,330 completed projects have been rated on quality of project implementation; 175 of these projects are from the 2019 cohort. Of the rated projects, 80 percent are in the satisfactory range (figure 2.3). In comparison, 85 percent of the projects of the 2019 cohort were rated in the satisfactory range. Seventy-eight percent of the projects of the 2019 cohort are rated in the

satisfactory range for quality of execution, which is close to the portfolio average of 81 percent. Overall, ratings for quality of project implementation and execution have improved across GEF phases, with both reaching their highest level in GEF-5.

2.4 Project monitoring

The 2019 cohort shows improvement in M&E design ratings. Compared to the portfolio average of 65 percent of projects rated in the satisfactory

FIGURE 2.3 Projects with implementation/execution quality rated in the satisfactory range by GEF replenishment period



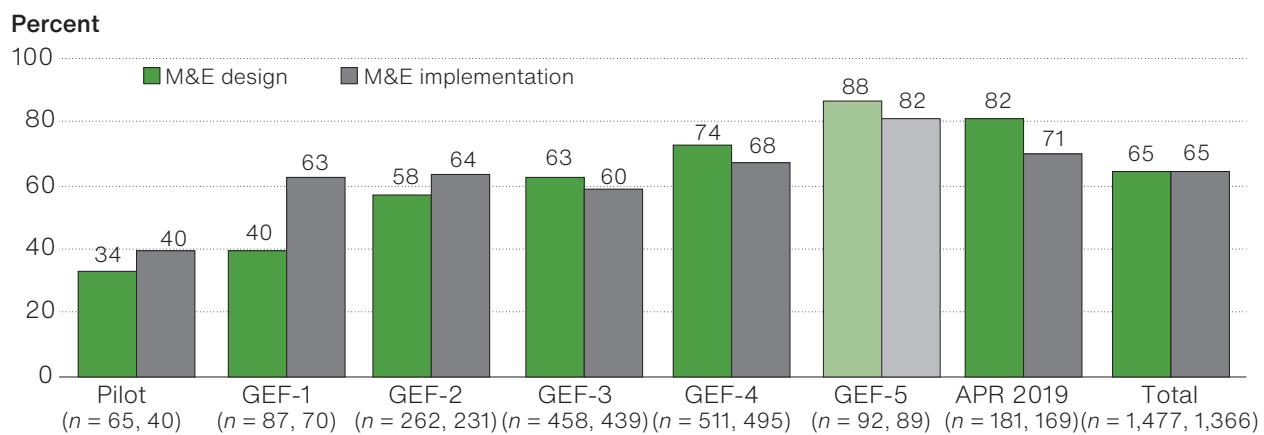
SOURCE: GEF IEO terminal evaluation review data set.

range for M&E design ($n=1,477$), a significantly higher 82 percent of the 2019 cohort are so rated ($n=181$). Over the GEF replenishment periods, there has been an improving trend in quality of M&E design (figure 2.4). The performance of the 2019 cohort is consistent with this trend. Compared to the portfolio average of 65 percent ($n=1,366$), 71 percent of the projects in the 2019 cohort are rated in the satisfactory range for M&E implementation ($n=169$). The difference is not statistically significant. The improving trend across replenishment periods is also evident for quality of M&E implementation.

2.5 Cofinancing

Expected levels of cofinancing materialized for 46 percent of the projects in the 2019 cohort ($n=150$), compared to the portfolio average of 57 percent ($n=1,293$). At least 90 percent of the expected cofinancing materialized for 54 percent of the 2019 cohort, compared to the portfolio average of 67 percent—meaning that, compared to the long-term average, cofinancing materialized for a significantly lower percentage of the APR 2019 projects. However, there were other areas where an improving trend was maintained. The ratio of realized cofinancing to GEF grant dollars for the 2019 cohort is 9.5 to 1.0. This is higher than the portfolio average of 6.4.

FIGURE 2.4 Projects with M&E design/implementation rated in the satisfactory range by GEF replenishment period



SOURCE: GEF IEO terminal evaluation review data set.

Management Action Record 2018

The GEF MAR tracks the level of adoption of GEF Council and Least Developed Countries Fund/Special Climate Change Fund (LDCF/SCCF) Council decisions based on recommendations of the evaluations conducted by the GEF IEO. The GEF Secretariat and/or the GEF Agencies—referred to collectively as GEF management—are responsible, as applicable, for adoption of Council decisions. The MAR serves two purposes:

(1) to provide Council a record of its decisions based on the evaluation reports presented by the GEF IEO, the proposed management actions, and the actual status of these actions; and (2) to increase the accountability of GEF Management regarding Council decisions on monitoring and evaluation issues. (GEF IEO 2005, 1)

MARs are published as a separate document by the GEF IEO. MAR 2018 reports on the level of adoption of decisions based on GEF IEO recommendations from seven evaluation reports:

- “Semi-Annual Evaluation Report of the GEF Independent Evaluation Office: June 2015,” section on the Joint GEF-UNDP Small Grants Programme Evaluation (GEF IEO 2015)
- *Evaluation of the GEF-Civil Society Organization Network* (GEF IEO 2016a)

- *GEF Annual Performance Report 2015* (GEF IEO 2017)
- *Evaluation of GEF Engagement with Indigenous Peoples* (GEF IEO 2018b)
- *Review of the GEF Policy on Agency Minimum Standards on Environmental and Social Safeguards* (GEF IEO 2018d)
- *Program Evaluation of the Least Developed Countries Fund* (GEF IEO 2016b)
- *Program Evaluation of the Special Climate Change Fund* (GEF IEO 2018c)

Of the seven evaluation reports, five were presented to, and their recommendations endorsed by, the GEF Council. The remaining two were presented to, and their recommendations endorsed by, the LDCF/SCCF Council.

During 2017, the GEF Council endorsed 58 GEF IEO recommendations included in the May and November 2017 Semi-Annual Evaluation Reports. These recommendations were not covered in MAR 2017 because insufficient time had passed for management to implement the decisions. MAR 2018 tracks and reports on progress in adoption of eight of these recommendations, five pertaining to the Evaluation of GEF Engagement

with Indigenous Peoples and three to the Review of the GEF Policy on Agency Minimum Standards on Environmental and Social Safeguards. The remaining 50 recommendations will be covered in future MARs.

3.1 Ratings approach

For each tracked decision, self-ratings are provided by GEF management on the level of adoption, along with commentary as necessary. Ratings and commentary on tracked decisions are also provided by the GEF IEO for verification. The rating categories on progress of adoption of Council decisions were agreed upon by the GEF IEO, the GEF Secretariat, and the GEF Agencies through a consultative process. The categories are as follows:

- **High**—fully adopted and fully incorporated into policy, strategy, or operations
- **Substantial**—largely adopted but not fully incorporated into policy, strategy, or operations as yet
- **Medium**—adopted in some operational and policy work, but not to a significant degree in key areas
- **Negligible**—no evidence or plan for adoption, or plan and actions for adoption are in a very preliminary stage
- **Not rated or not possible to verify yet**—ratings or verification will have to wait until more data are available or proposals have been further developed
- **N.A.**—not applicable or no rating provided (see commentary)

Council decisions may be graduated or retired from the MAR for one or more of the following reasons:

- **Graduation** due to a high—or, where appropriate, substantial—level of adoption of the Council decision

- **Retirement**, as the Council decision has become less relevant, or subsequent Council decisions have made a high level of adoption of the decision difficult, or because further progress on adoption of the decision is likely to be slow and drawn out; decisions are automatically retired if they have been reported on in the MAR for five years

3.2 Findings

Of the seven evaluation reports, the GEF IEO rates adoption of the Council decisions to be substantial for six and medium for one. The Council decision based on *GEF Annual Performance Report 2015* that asked management to reconsider the burden and utility of its biodiversity tracking tools has been graduated after its adoption was rated as substantial.

SUBSTANTIAL ADOPTION

The GEF Council decision based on the **Evaluation of the GEF Civil Society Organization Network** encourages the network to establish a working group with balanced representation to interact with the Council Working Group based on an updated vision for the network, including governance, policies, and cooperation mechanisms. The GEF IEO and GEF management agree that there has been substantial progress in adopting this Council decision. The updated vision establishes guidelines for engagement of the Civil Society Organization Network at GEF Council meetings. The GEF Secretariat has also updated the template for GEF-7 projects, which now requires information on civil society organization engagement in project preparation and implementation for project appraisal.

The Council decision endorsed the recommendation of the **GEF Annual Performance Report 2015** that the GEF should assess the burden and utility of its biodiversity tracking tools and other

alternatives. The GEF IEO agrees that, consistent with the Council decision, the biodiversity tracking tool—i.e., the Management Effectiveness Tracking Tool (METT)—has been simplified and the reporting burden reduced. While GEF management assesses the level of adoption to be high, the GEF IEO assesses adoption to be substantial. The Office's reasoning is that, although reduced, the tool still involves some burden and there may be creative ways to reduce this even further in future. This Council decision has been graduated from the MAR. The rationale for graduation is that the next opportunity to revise the results framework would be at the start of GEF-8, and further revisions during GEF-7 would be burdensome for the Agencies.

The GEF IEO recommendations in the **Evaluation of GEF Engagement with Indigenous Peoples** called for dedicated funding opportunities for indigenous people's organizations, updating policies and guidelines, reviewing the role of the indigenous peoples' advisory group, and improving reporting on engagement of indigenous peoples and relevant results through midterm reviews and terminal evaluations. Both the GEF IEO and management assessed the overall progress on adoption of the recommendations to be substantial. A new policy for indigenous peoples has been prepared and approved by the Council. The programming directions for GEF-7 emphasize engagement of indigenous peoples and local communities in GEF activities, especially in those related to biodiversity conservation and Small Grants Programme. The GEF IEO will continue to monitor progress on adoption of other aspects of the evaluation recommendations.

The **Review of the GEF Policy on Agency Minimum Standards on Environmental and Social Safeguards** recommended that the GEF should review its minimum standards for environmental and social safeguards; improve monitoring of safeguards and reporting; and support capacity development,

convening of experts, and communications. The GEF IEO and GEF management agree that progress on adoption of these recommendations has been substantial. The Secretariat led a collaborative process with adequate representation of relevant experiences and expertise to update policy on environmental and social safeguards. The policy, which has been approved by the Council, strengthens monitoring and reporting on safeguards. Management has not yet developed a plan to support capacity development, convening of experts, and communications.

The **Program Evaluation of the Least Developed Countries Fund** recommended that the GEF Secretariat should explore and develop mechanisms that ensure the predictable, adequate, and sustainable financing of the LDCF; make efforts to improve consistency regarding understanding and application of the GEF Gender Mainstreaming Policy and the Gender Equality Action Plan to the LDCF; and ensure that data in the GEF Project Management Information System (PMIS) are up to date and accurate. In MAR 2017, the GEF IEO had rated progress on adoption of the Council decision to be medium. However, this year, it assesses progress to be substantial, which is consistent with management's self-assessment. On July 1, 2018, the GEF Policy on Gender Equality, which is also applicable to LDCF activities, came into effect (GEF 2017). The GEF IEO regards progress on adoption of the gender mainstreaming-related recommendation as substantial. Although some progress is noted in updating the PMIS, the new portal still has some glitches that have limited its efficacy.

The **Program Evaluation of the Special Climate Change Fund** called on the GEF Secretariat to prioritize sustainable financing for the fund, to articulate the SCCF's niche within the global adaptation finance landscape, and to ensure that PMIS data are up to date and accurate. The GEF IEO assesses overall progress on adoption of these recommendations to be substantial. Much of the

progress made is in terms of the GEF Programming Strategy on Adaptation for the Special Climate Change Fund for 2018–2022. Progress on ensuring sustainable funding and on the PMIS has been assessed as medium.

MEDIUM ADOPTION

The GEF IEO's assessment also agrees with management's assessment on the level of adoption of the decision based on the **Joint GEF-UNDP Small Grants Programme Evaluation**. The Council's decision called for reconsideration of the upgrading criteria for participating countries. Management reports that it has reconsidered these criteria but has continued without change for the GEF-7 period. Although Malaysia was upgraded

during the reporting period, the criteria remained unchanged; therefore, both the GEF IEO and Management assessed the level of adoption of this recommendation to be medium.

GRADUATION

The GEF Council decision based on the **GEF Annual Performance Report 2015**—which called for reconsideration of the GEF approach to tracking tools—has been graduated. The decisions based on the six other evaluations that have been reported on in MAR 2018 will be tracked in MAR 2019.

section 2

Sustainable transport portfolio

Context and methodology

4.1 Context

People need to travel for various reasons, and economies need to transport goods to meet market demand. Among the many modes of transportation are road-based modes, aviation, railways, waterways, and nonmotorized transport (NMT). Most of these modes depend upon fossil fuels for energy. Of total energy-related carbon dioxide-equivalent (CO_2e) emissions, the transportation sector accounts for about 23 percent, of which road-based modes account for more than two-thirds (Sims et al. 2014).

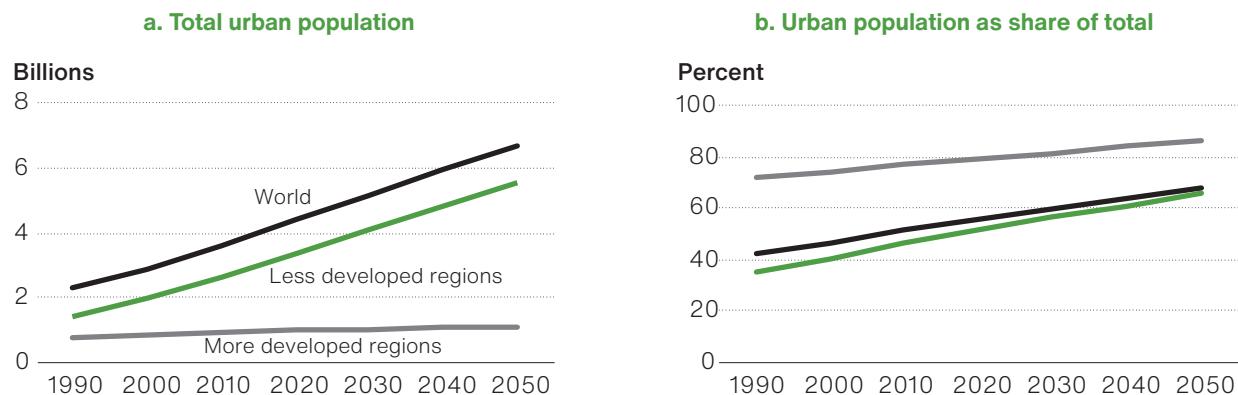
During the next three decades, demand for transportation is expected to increase substantially because of an increase in population, affluence, and urban sprawl. The Organisation for Economic Co-operation and Development estimates that from 2010 to 2050 the global passenger transport volume could grow two and a half times and freight volume by a factor of four (OECD 2012). The global population is expected to increase from 7.6 billion in 2017 to 9.8 billion in 2050.¹ The share of the

world's population residing in urban areas—where use of energy for transportation is more intensive—is expected to increase from 55 percent in 2017 to 68 percent in 2050 (figure 4.1). Further, income is likely to more than double during the next 30 years, which is likely to spur increased demand for local and international travel (Paulley et al. 2006; Valdes 2015). Expansion of cities through urban sprawl also increases demand for transportation (García-Palomares 2010; Zhao 2010). Much of the growth in demand for transportation will take place in developing countries, where there will be a substantial increase in population migrating to cities (Schäfer 2007).

The increased demand for transport is reflected in the increased use of transport services and vehicles. For example, globally, sales and use of vehicles have been increasing steadily (figure 4.2). Several new metro systems are under construction in developing countries, and the number of passengers using services (in 178 metro systems) increased from 45 billion in 2012 to 54 billion in 2017 (UITP 2018). Similarly, the International Air Transport Association expects the number of air travelers to increase from about 4 billion in 2016 to 7.8 billion in 2036; China, India, and Indonesia, along with the United States, will account for

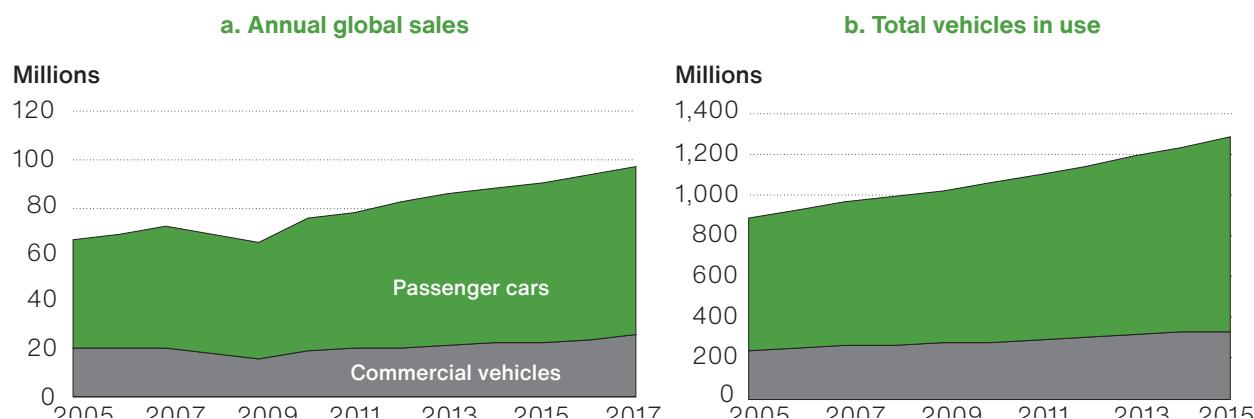
¹Source: United Nations, "World Urbanization Prospects: The 2018 Revision," <https://population.un.org/wup/DataQuery/>, accessed May 2019.

FIGURE 4.1 Projected urban population and as a share of total population, 1990–2050



SOURCE: United Nations, "World Urbanization Prospects: The 2018 Revision," <https://population.un.org/wup/DataQuery/>, accessed March 2019

FIGURE 4.2 Estimated global sales and use of vehicles, 2005–15



SOURCE: International Organization of Motor Vehicle Manufacturers, Sales and Production Statistics, <http://www.oica.net/>; accessed March 2019.

much of this increase (IATA 2016). An increase in transportation implies increased demand for energy—which thus far has also translated into increased greenhouse gas (GHG) emissions.

Reducing GHG emissions from transportation requires improved urban and transport planning, a shift to low-carbon modes of transportation, and adoption of efficient technologies. Since 1999, the GEF has cumulatively provided \$501 million in financing for 80 sustainable transport projects.²

² This amount includes funding provided for project preparation, project implementation, and project fees.

GEF partners have committed to providing \$8.4 billion in cofinancing to these projects. GEF support is highly relevant to the United Nations Sustainable Development Goal on sustainable cities and communities (Goal 11), which recognizes the need to provide people safe, affordable, accessible, and sustainable transport systems.³

³ Source: United Nations Sustainable Development Goals, <https://www.un.org/sustainabledevelopment/>; accessed December 2019.

4.2 Evolution of GEF sustainable transport strategies

GEF involvement in sustainable transport started during the second replenishment period. In 1998, the GEF Council reviewed “Elements of a GEF Operational Program on Transport” (GEF 1998) and requested the Secretariat to develop the operational program based on the document. Beginning in 1999, the GEF started financing sustainable transport projects.

Over the past two decades, the GEF strategies to support sustainable transport have evolved. There have been four major phases in this evolution, as delineated below.

GEF-2 AND GEF-3

The focus of GEF support during this period was on providing grants for activities that supported modal shifts and cutting-edge technologies. The priorities for this period are described in Operational Program 11: Promoting Environmentally Sustainable Transport (GEF 2001), which was developed by the Secretariat based on consultations with the GEF Scientific and Technical Advisory Panel and the GEF Agencies. The program identified six priority areas:

- Modal shifts to more efficient and less polluting forms of public and freight transport through measures such as traffic management and avoidance and increased use of cleaner fuels
- NMT
- Fuel cell or battery-operated two- and three-wheelers designed to carry more than one person
- Hydrogen-powered fuel cell or battery-operated vehicles for public transport and goods delivery
- Internal combustion engine/electric hybrid buses

- Advanced technologies for converting biomass feedstock to liquid fuels

Although promotion of both modal shift and advanced technologies was prioritized by OP-11, allocation of GEF financing initially focused on piloting technologies such as fuel cell buses. Of the six projects approved up to June 2002, five piloted technologies. This circumstance led to the criticism that the GEF was promoting expensive approaches instead of more affordable ones such as bus rapid transit (BRT) that also benefit the urban poor (GEF STAP 2002). In response, public transit received greater attention during GEF-3. Support for measures that promoted public transit increased along with a decline in support for technology-focused measures. The GEF also provided support for projects that addressed NMT; urban and transport planning; and legal, policy, and regulatory concerns.

GEF-4

During GEF-4, the GEF moved from operational programs to strategic objectives—specifically, Strategic Objective 7, Facilitating Mobility in Urban Areas, which included sustainable transport-related priorities. The objective emphasized modal shifts through traffic demand management, support for transport infrastructure (BRT systems and NMT), and land use, urban planning, and regulation (GEF 2005).

Concurrently in GEF-4, the GEF implemented its System for Transparent Allocation of Resources (STAR) to determine indicative country allocations for the biodiversity and climate change focal areas. This allowed recipient countries to prioritize the use of their allocations.

The introduction of programmatic approaches was another development that affected GEF operations. In April 2008, the GEF Council approved a policy document that promoted the use of

programmatic approaches in providing GEF funding (GEF 2008). In the same year, the GEF Strategic Program for West Africa: Energy Component (GEF ID 3789), implemented by the United Nations Industrial Development Organization (UNIDO), was approved. Within the framework of this program, two transportation projects implemented by the World Bank were approved in GEF-4: Ouagadougou Transport Modal Shift (GEF ID 2876) in Burkina Faso and Nigeria Urban Transport (GEF ID 3827).

Another important development during this period was that the GEF started using major global events as a platform to showcase and demonstrate the effectiveness of low-carbon transport approaches. For example, the 2008 Beijing Summer Olympics was used as a platform to demonstrate the efficacy of electric buses for urban transportation; similarly, the 2010 World Cup in South Africa was an avenue to demonstrate the efficacy of BRT systems across South African cities.

GEF-5

During GEF-5, the GEF began promoting integrated approaches to address sustainable transport-related challenges. Objective 4 of the GEF-5 period aimed at promoting energy efficient, low-carbon transport and urban systems, and called for addressing urban transport systems in an integrated manner. Several projects that piloted and/or demonstrated technologies were also approved. However, a major difference in GEF-5 compared to GEF-2 was that the demonstration of low-carbon technologies was embedded within a broader framework of addressing the sustainable transport concerns of the targeted urban system.

The GEF also approved the Asian Sustainable Transport and Urban Development Program, implemented by the Asian Development Bank (ADB), which was aimed at improving the knowledge base

and planning resources available to cities implementing sustainable transport projects, especially those related to BRT. Five projects implemented by ADB were prepared within the framework of this program.

GEF-6 AND GEF-7

GEF-6 saw a greater focus on cross-sectoral synergies. Unlike previous replenishment periods, transportation was no longer represented by one strategic priority. Instead, transport and planning-related interventions were included in climate change programs—i.e., CC-1 Program 1: Promote the timely development, demonstration, and financing of low-carbon technologies and mitigation options, and CC-2 Program 3: Promote integrated low-emission urban systems (GEF Secretariat and World Bank 2014). An important development during the period was launch of the Sustainable Cities Integrated Approach Pilot, a global program that aims to support cities in pursuing sustainable urban planning and assisting them in moving to low-carbon solutions in buildings, waste management, and transportation, along with land use changes. Of the projects prepared under this program, eight include sustainable transport-related activities in their design.

The strategic approach for GEF-7 builds on the GEF-6 approach. The GEF-7 programming document includes sustainable transport under two climate change objectives: (1) promote innovation and technology transfer for sustainable energy breakthroughs and (2) demonstrate mitigation options with systemic impacts (GEF 2018). The Sustainable Cities Impact Program, which is aimed at delivering on Objective 2, is a continuation of the program piloted during GEF-6. It will address transport systems within the context of land use planning and policy changes. During GEF-7, the GEF is also providing support to recipient countries

through a program to facilitate the uptake of electric mobility.

4.3 Key evaluation questions

Given the continued importance of sustainable transport in the GEF portfolio, this evaluation analyzed the performance of this portfolio and drew lessons from it. The GEF IEO has covered some sustainable transport projects in previous evaluations. For example, the Climate Change Mitigation Impact Evaluation included sustainable transport projects in China and Mexico (GEF IEO 2014). Similarly, the country portfolio evaluations of Philippines and Brazil covered sustainable transport projects implemented in these countries (GEF IEO 2008, 2012a). However, the IEO had not conducted an evaluation of the sustainable transport portfolio overall because of the limited number of projects. At this point, with 80 approved and 33 completed projects, the portfolio is sufficiently mature.

This evaluation of the GEF sustainable transport portfolio addressed the following questions:

- **What are the activities that GEF has financed to support sustainable transport?** This evaluation examined the extent to which the GEF has encouraged transport avoidance, modal shifts, and improvements in transport. It also assesses the extent to which the GEF provides support for technology adoption, capacity building, development of legal and regulatory frameworks, knowledge management, and stakeholder involvement.
- **What are the lessons from the implementation experience?** The evaluation examined the experience of projects that are under implementation or have been completed. It examined project implementation and execution, M&E, mobilization of cofinancing, and arrangements to promote inclusiveness to identify both good practices and concerns.

- **What are the results of the completed sustainable transport projects?** The evaluation assessed the extent to which completed sustainable transport projects deliver on their expected outcomes. It examined the extent to which outcomes such as CO₂ emissions abatement, legal and regulatory changes, urban and transport planning, and capacity building are achieved. It documented transformative changes in the targeted transport themes along with unintended impacts.
- **What is the value added by GEF support?** The evaluation assessed the extent to which GEF involvement adds value to a project over the baseline business-as-usual scenario.

4.4 Data sources and methodological approach

The following summarizes the evaluation's methodology and data sources.

LITERATURE REVIEW

Publications relevant to transportation from journals and documents authored by international agencies that implement or support sustainable transport projects were reviewed. Special attention was given to evaluations undertaken by the evaluation units of the GEF Agencies. The focus was on understanding the context in which GEF interventions are implemented and to learn from other experiences.

SURVEY OF PROJECTS

Approved projects. Project documents submitted to the GEF Secretariat during the project appraisal process were surveyed. This includes project identification forms, Chief Executive Officer (CEO) endorsement or approval request forms, and documents that provide information on project design. In all, documents for 80 sustainable

transport projects approved through June 2018 were included (table 4.1; [annex C](#)). Information was organized to facilitate categorization and aggregation of project-level data ([annex D, section D.1](#)).

Projects under implementation. Of the 80 approved projects, 24 were under implementation. The project implementation reports, which provide an account of implementation progress on an annual basis, were surveyed and information on issues relevant at this stage was collected ([annex D, section D.2](#)).

Completed projects. The GEF IEO reviews terminal evaluations of completed projects on a rolling basis. Some of the included analysis on outcome achievements, M&E, and implementation is based on these review reports. Additional information on results, M&E, implementation, stakeholder involvement, and unintended impacts was collected through a supplementary survey of terminal evaluations and, where available, postcompletion verification reports ([annex D, section D.3](#)). At the time of the evaluation, 33 projects had been completed and terminal evaluations were available for 32; these were included in the survey. For several completed projects, independent postcompletion verifications had been conducted by the GEF IEO or the evaluation units of the GEF Agencies. Information from these sources was also considered.

Field verification. Field verification of completed projects was carried out by the evaluation team in Brazil and China. These countries were selected because they have received substantial GEF support for sustainable transport. Four completed projects were visited: in Brazil, Hydrogen Fuel Cell Buses for Urban Transport (GEF ID 6; UNDP) and the Latin America and the Caribbean Regional Sustainable Transport and Air Quality Project (GEF ID 2767; World Bank); and in China, the GEF–World Bank–China Urban Transport Partnership Program (CUTPP; GEF ID 2609) and Eco-Transport in City Clusters (GEF ID 4156; World Bank).

DATA SETS

Several data sets were used in the evaluation's analysis, including the following:

- The GEF PMIS (<https://www.gefpmis.org/>), along with data generated from the project document-based surveys, to analyze the GEF portfolio
- The GEF IEO's terminal evaluation review data set (<https://www.gefieo.org/data-ratings>) for project performance ratings
- Data from the United Nations Population Division (<https://population.un.org/wup/>) to assess demographic shifts that affect demand for transport

TABLE 4.1 Types of documents and number of projects covered

Project status	Number of projects	Project documents	Project implementation reports	Terminal evaluations	Independent postcompletion verifications
Yet to be implemented	23	23	n.a.	n.a.	n.a.
Under implementation	24	24	22	n.a.	n.a.
Completed	33	33	29	32	8
Total	80	80	51	32	8

SOURCE:

NOTE: n.a. = not applicable.

- The World Bank DataBank (<https://databank.worldbank.org/home.aspx>) for data on income levels of GEF recipient countries at different points in time
- Data from the International Organization of Motor Vehicle Manufacturers (<http://www.oica.net/>) to assess trends in vehicle sales and use

INTERVIEWS

Several key informants with knowledge of issues related to sustainable transport were interviewed. Those interviewed included individuals with experience in design and supervision of sustainable transport projects, knowledge of broader trends in the area, and/or a leadership role in international organizations on energy and sustainable transport-related issues. Some individuals were interviewed to gather more information on experiences related to specific projects. In addition, GEF Secretariat staff involved in managing transportation-related activities were interviewed to understand more about their approach to programs that address transportation-related concerns. In all, 52 interviews were conducted, covering 8 interviewees from five GEF Agencies; 3 from the GEF Secretariat; and 41 from executing agencies, recipient country governments, and other organizations ([annex E](#)).

4.5 Analytical framework

GEF-supported activities to promote low-carbon transportation may be assessed along different perspectives depending on whether the project focused on transport avoidance, modality shift, or technological improvements; the type of activity supported; and geographical distribution. Similarly, patterns across the portfolio may be better understood by analyzing data from the perspective of the GEF replenishment period, the GEF implementing Agency, the promoted technologies, and the

targeted modes. Some of the perspectives used to understand the GEF portfolio are discussed in this section.

THE AVOID-SHIFT-IMPROVE FRAMEWORK

This framework, developed by the Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ), provides a basis for understanding how GEF-supported sustainable transport activities would reduce GHG emissions. The framework identifies three generic strategies to GHG emissions from transport: avoid or reduce the need to travel, shift to or maintain the share of low-carbon modes, and improve the energy efficiency of transport technologies (GIZ 2011).

- The avoid or reduce strategy focuses on improving systemic efficiency through integrated urban and transport planning to reduce the need to travel both in terms of number and distance of trips.
- The shift or maintain strategy focuses on trip efficiency and promotes low-carbon and energy efficient modes such as public transit and NMT over carbon-intensive modes.
- The improve strategy focuses on making a given transportation mode and trip more efficient. It addresses efficiency concerns related to vehicles, fuels, and transport infrastructure.

While GEF support to sustainable transport may be understood using this framework at an abstract level, tracking results that may be attributable to GEF activities—especially those related to the avoidance strategy—during the project time frame is difficult.

CATEGORIZATION OF GEF-SUPPORTED ACTIVITIES

It is useful to classify and aggregate GEF support into broad categories for analysis and synthesis. Based on the information gathered from surveying GEF-supported sustainable transport projects, project activities were classified into the following overlapping categories: technology; public transit; NMT; freight and logistics; urban and transport planning; traffic demand management; legal, policy, and regulatory framework; and capacity development.

SCALE

GEF support for transportation activities may be provided at a global/regional, national, or local scale. Each of these scales requires engagement with a different set of partners and stakeholders. The national and local scales are especially important for transportation projects; most of the activities focused on legal, policy, and regulatory measures are targeted at changes at these levels. Also, targeting an entire sector or industry may require actions at the national level. Most of the activities related to integrated urban and transport planning, infrastructure improvement, and vehicle and fuel technology improvement are likely to be targeted at the individual city level.

PERFORMANCE

The performance of GEF activities has been assessed in terms of environmental outcomes; contributions to legal, policy, and regulatory framework; capacity development; the added value of GEF financing; implementation; M&E; materialization of cofinancing; and inclusion of vulnerable groups. Methods used to assess performance on most of these parameters are detailed in [annex B](#) and [annex D](#). Transformative and unintended impacts have also been reported.

EMISSIONS AVOIDANCE BENEFITS

GEF-supported activities that promote low-carbon transportation aim at the reduction or avoidance of GHG emissions. Therefore, assessing project achievements in terms of GHG emissions reduction or avoidance is important. Given the variety of interventions, targeted scale, and strategies, and differences in the incremental cost logic for GEF support, it is difficult to use a single methodology to measure emissions reduction benefits.

The GEF introduced use of the Transport Emissions Evaluation Models for Projects (TEEMP) approach to assess GHG emissions abatement for its transportation projects in 2011. However, the majority of projects covered in this review were designed before the TEEMP's use was introduced. To ensure consistency in reporting, GHG emissions abatement estimates provided in the terminal evaluations have been adjusted based on TEEMP-suggested standards.

This evaluation also assessed the extent to which reported benefits may be attributed to GEF support. In cases where no attribution—or only a negligible attribution—is possible, the GHG benefits of a given GEF project have been adjusted accordingly.

ADDED VALUE OF GEF FINANCING

The evaluation assessed the added value of GEF financing to determine how GEF funding may improve upon the business-as-usual (baseline) scenarios. The business-as-usual scenario generally implies the situation if GEF funding did not materialize. The GEF IEO has addressed this topic in several of its past evaluations (GEF IEO 2012b, 2014, 2018a).

Preliminary survey of project documents showed that the GEF adds value through enhancing scale, increasing financial viability, speeding

implementation, and mainstreaming low-carbon approaches in a conventional baseline project. A project may be classified into one or more categories based on how it intends to add value to the business-as-usual scenario.

4.6 Limitations

Aggregation of data on GHG emissions abatement is a challenge. Much of the data used for aggregation were reported by the GEF Agencies using frequently inconsistent methodologies. There are also issues related to attribution for GEF-supported activities. The evaluation addressed these concerns through retroactive application of the TEEMP approach to the data and revising estimates after accounting for attribution-related challenges. However, it cannot be claimed that all inconsistencies and sources of error have been addressed. Consequently, the GHG emissions abatement figures presented in this report should be taken as indicative estimates.

Reporting practices on what constitutes cofinancing and its materialization vary across Agencies, and GEF guidance allows for reporting of different types of contributions as cofinancing. Because reporting practices vary, the extent to which Agency performance may be compared is limited.

Several of the project documents and terminal evaluations were prepared at a time when adequate attention was not given to reporting on stakeholder involvement and consultations. There is also variability across terminal evaluations in terms of quality of reporting. This variation poses challenges in determining the extent to which specific activities have been accomplished and reported on.

4.7 Conduct of the evaluation

Preliminary work on the evaluation, including literature review and field visits, was undertaken in June 2018. The concept note was prepared in November 2018. Desk review of documents commenced in December 2018 and continued until March 2019. The interviews conducted were spread over the June 2018–April 2019 period. The interview notes used were originally prepared for the 2017 Formative Review of the Integrated Approach Pilot, which covered the pilot on sustainable cities. A draft version of this report was shared with GEF management. This report addresses management comments and feedback.

Project portfolio

This chapter presents an overview of the portfolio of sustainable transport projects. It discusses GEF financing and modalities, maturity of the portfolio, the GEF Agencies involved in project implementation, the relevance of GEF support, and cities and themes covered through GEF support of these projects.

5.1 Financing, modalities, and project cycle stage

Following a steady allocation from GEF-3 to GEF-5, committed GEF financing for transport projects increased substantially during GEF-6. The GEF has so far committed \$501 million in funding to 80 projects that address sustainable transport (table 5.1).¹ GEF partners have committed \$8.4 billion to these projects. A large part of the recent increase is due to a greater reliance on projects that address multiple environmental concerns along with sustainable transport. Of the \$177 million committed in GEF-6, \$104 million is for eight projects under the framework of the Sustainable Cities Integrated Approach Pilot, which

TABLE 5.1 Funding for GEF sustainable transport project portfolio

GEF period	No. of projects	GEF funding		Promised cofinancing
		Million \$		
GEF-2	6	30	27	
GEF-3	11	80	799	
GEF-4	19	110	2,094	
GEF-5	22	104	2,496	
GEF-6	22	177	2,984	
Total	80	501	8,401	

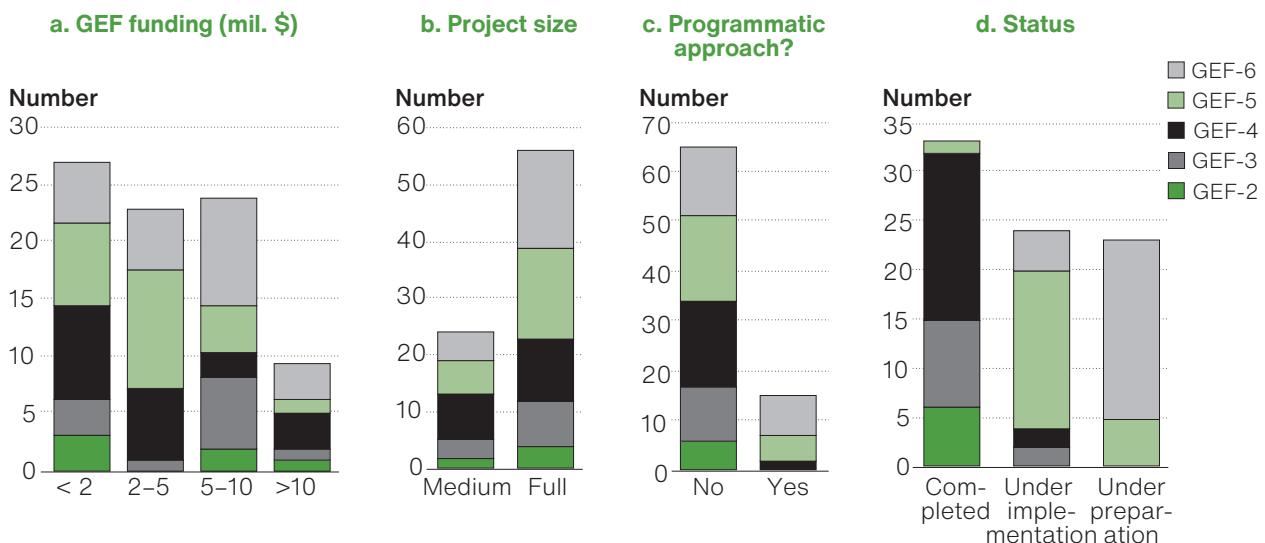
SOURCE: GEF PMIS through June 2018.

address sustainable transport along with other city-centered environmental priorities; this makes the funding envelope for sustainable transport comparable to that in GEF-4 and GEF-5.

The GEF commitment for individual sustainable transport projects ranges from \$0.7 million to \$32.7 million, and most projects (60 percent) involve GEF funding of \$5.0 million or less (figure 5.1a). The projects that involve substantial GEF funding—\$10 million or above—are either regional (two projects) or national projects implemented in large emerging economies such as

¹ This amount includes funding provided for project preparation, project implementation, and project fees.

FIGURE 5.1 Number of GEF sustainable transport projects by funding, size, approach, and status



SOURCE: GEF PMIS through June 2018.

China (three projects), Brazil (two projects), India (one project), and South Africa (one project).

Most of the sustainable transport projects (70 percent) are, and almost all of the GEF funding (93 percent) is for, full size projects (figure 5.1b). Although 30 percent of the projects are medium-size projects, their total share in GEF funding for the portfolio is small (7 percent).²

The GEF is increasingly using programmatic approaches to develop and support sustainable transport projects. In 2008, during GEF-4, the GEF Council approved the use of programmatic approaches (GEF 2008). During GEF-4, only two sustainable transport projects were prepared within the framework of the programmatic approach, although use of this approach has subsequently increased. During GEF-6, eight projects were prepared within the framework of a programmatic approach (figure 5.1c). Programs that have

supported the development of sustainable transport projects include the Strategic Program for West Africa (two projects in GEF-4), the Asian Sustainable Transport and Urban Development Program (five projects in GEF-5), and the Sustainable Cities Integrated Approach Pilot (eight projects in GEF-6).

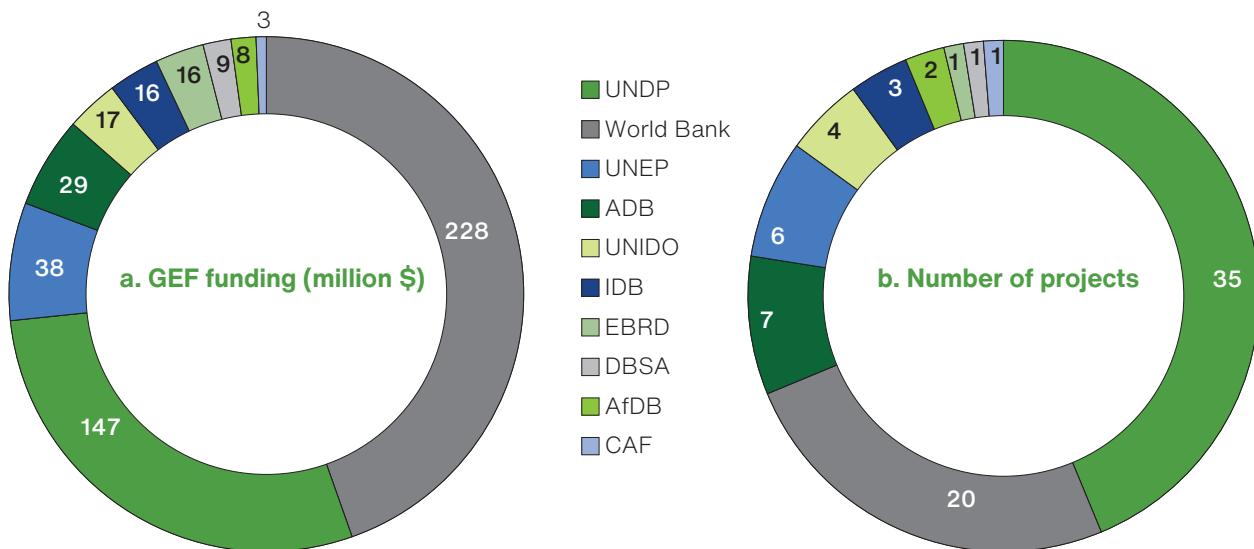
GEF sustainable transport projects are at different stages of the project cycle: 33 have been completed, 24 are under implementation, and 23 are in some aspect of preparation (figure 5.1d). Most of the completed projects were approved during GEF-2, GEF-3, or GEF-4. Most of those that are under implementation are from GEF-5, and most of those that are under preparation are from GEF-6.

5.2 GEF Agencies

UNDP and the World Bank together account for two-thirds of the number of, and GEF funding for, sustainable transport projects (figure 5.2). Of the 18 GEF Agencies, 10 have prepared and/or implemented GEF sustainable transport projects. In

² In January 2013, the limit for medium-size projects was raised from \$1 million to \$2 million. All projects exceeding this limit are considered full-size projects.

FIGURE 5.2 Distribution of GEF funding and number of sustainable transport projects by Agency



SOURCE: GEF PMIS through June 2018.

NOTE: AfDB = African Development Bank; CAF = Development Bank of Latin America; DBSA = Development Bank of Southern Africa; IDB = Inter-American Development Bank.

addition to UNDP and the World Bank, UNEP, ADB, and UNIDO also significantly figure in the portfolio. All 18 sustainable transport projects approved during GEF-2 and GEF-3 were implemented by either UNDP, UNEP, or the World Bank. During GEF-4 and GEF-5, project proposals from several Agencies—ADB, the Inter-American Development Bank, and UNIDO—were approved. During GEF-6, project proposals from several new Agencies, including the Development Bank of Latin America and the Development Bank of Southern Africa, were approved.

Both UNDP and the World Bank touch on a broad range of themes in their respective sustainable transport portfolios (table 5.2), with UNDP better represented in technology piloting and demonstration, and the World Bank more focused on urban and transport planning (80 percent). As the other GEF Agencies have implemented only a few projects each, patterns of thematic emphasis are difficult to assess. Nonetheless, the data suggest that ADB has focused more on public transit and

technology demonstration; UNEP on public transit, NMT, and urban and transport planning; and UNIDO on technology promotion and on improving the legal, policy, and regulatory framework.

5.3 Relevance of GEF support

Ninety-six percent of GEF sustainable transport projects are focused on urban transport; these account for 94 percent of GEF funding for sustainable transport. In comparison, urban transport accounts for a relatively small share of the transport portfolios of the international development banks: just 15 percent of the ADB transportation portfolio (ADB 2019) and 3 percent of the African Development Bank's (IDEV 2014). The GEF focus on urban transport is appropriate because this area provides for substantial GHG emissions abatement opportunities.

TABLE 5.2 Sustainable transport themes as a percentage of GEF Agency project portfolios

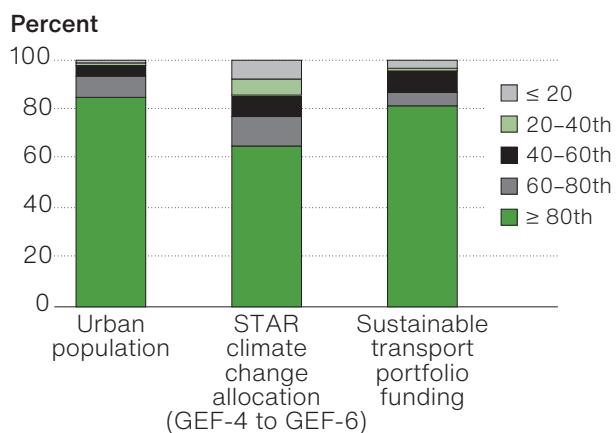
Theme	UNDP	UNEP	World Bank	ADB	UNIDO	Other	Total
Technology	37	33	10	57	100	13	33
Public transit	49	83	70	71	0	13	53
NMT	46	67	55	14	25	63	48
Freight and logistics	14	0	10	0	0	13	10
Traffic demand management	43	50	45	0	0	63	40
Urban/transport planning	51	83	80	14	0	75	58
Legal/policy/regulatory	71	50	75	29	100	75	69
Capacity building	86	83	100	71	100	88	89
Number of projects	35	6	20	7	4	7	80

SOURCE: GEF PMIS through June 2018.

NOTE: Only activities that are at least partially funded by the GEF are considered.

GEF support for sustainable transport is closely associated with the size of the urban population in recipient countries. This association may be because opportunities and demand for supporting sustainable transport projects are higher in countries with large urban populations. In figure 5.3, GEF recipient countries have been grouped into percentiles by the total size of their urban population; the figure shows the relative shares for these percentile groups of total urban population, total STAR climate change country allocation, and total GEF sustainable transport portfolio funding. Those countries that constitute the top 20th percentile of recipient countries by total size of their urban population account for 86 percent of the total urban population of GEF recipient countries, 65 percent of the STAR climate change allocation for the GEF-4 to GEF-6 period, and 82 percent of GEF commitments to national sustainable transport projects. Thus, recipient countries with a large urban population (the top 20th percentile) have used a relatively larger share of their STAR climate change allocation for sustainable projects than have other recipient countries that have a smaller urban population.

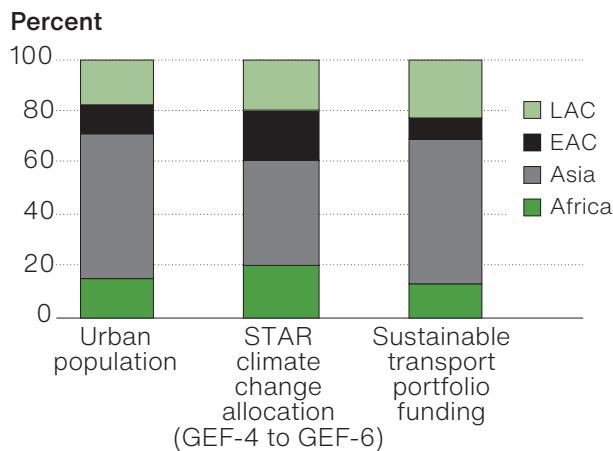
FIGURE 5.3 Shares in urban population, STAR climate change allocation, and sustainable transport portfolio funding by level of urban population of GEF recipient countries



SOURCE: GEF PMIS through June 2018.

GEF support for sustainable transport across regions is also associated with their respective share in total urban population among GEF recipient countries. By region, Asia accounts for 56 percent of the total urban population of GEF recipient countries, Latin America and the Caribbean for 18 percent, Africa for 15 percent, and Europe and Central Asia for 11 percent (figure 5.4).

FIGURE 5.4 Shares in urban population, STAR climate change allocation, and sustainable transport portfolio funding by GEF region



SOURCE: GEF PMIS through June 2018.

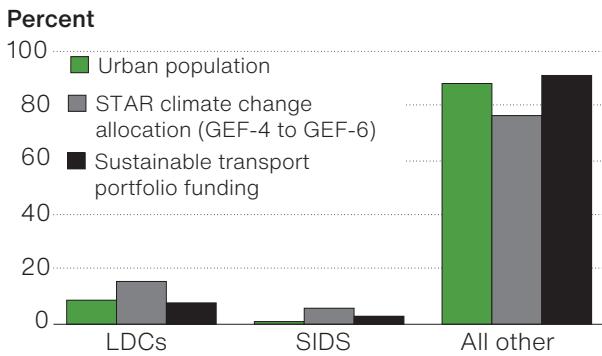
NOTE: ECA = Europe and Central Asia; LAC = Latin America and the Caribbean.

Regional shares of GEF sustainable transport portfolio funding shows a similar pattern: Asia accounts for 56 percent, Latin America and the Caribbean for 22 percent, Africa for 13 percent, and Europe and Central Asia for 9 percent.

Least developed countries (LDCs) and small island developing states (SIDS) account for a smaller share of GEF funding for national projects that address sustainable transport compared to their share in the STAR climate change allocation (figure 5.5). The GEF Council has prioritized funding to LDCs and SIDS through the use of a per capita gross domestic product-based index and through application of floors in the STAR allocation. But recipient countries decide how to use their indicative country allocation for activities within and across focal areas. It is likely that LDCs and SIDS have used a smaller share of their STAR climate change allocations for sustainable transport projects than have other recipient countries.

There is relatively higher demand from upper-middle-income recipient countries for GEF funding for sustainable transport projects

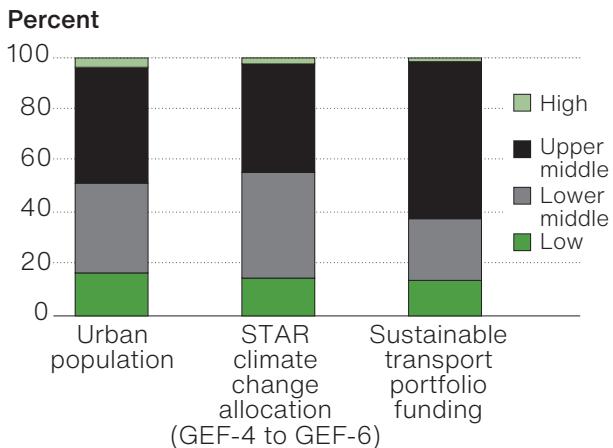
FIGURE 5.5 Shares in urban population, STAR climate change allocation, and sustainable transport portfolio funding by country category



SOURCE: GEF PMIS through June 2018.

(figure 5.6. Comparing shares in STAR climate change allocations and in GEF grants for sustainable transport by country income category demonstrates this premise. Using the World Bank DataBank's income categorization by country (low, lower middle, upper middle, and high) at the start of each GEF replenishment period shows that demand for sustainable transport projects is relatively higher in upper-middle-income countries.

FIGURE 5.6 Shares in urban population, STAR climate change allocation, and sustainable transport portfolio funding by country income category



SOURCE: GEF PMIS through June 2018.

This finding is partly explained by the fact that most GEF recipient countries in the high-income category are SIDS, where demand for urban transportation projects is likely to be lower given lower population levels, fewer congestion-related concerns, and fewer opportunities to operate at scale for sustainable transport.

5.4 Coverage of cities

GEF-supported sustainable transport projects have been implemented in 136 cities in 49 countries. Of the 80 sustainable transport projects, 71 involve activities that address sustainable transport-related concerns for specific cities. Forty-two projects (59 percent) cover only one city; 29 (41 percent) cover two or more cities. Sixty-seven of the 136 cities (49 percent) are in Asia, 28 (21 percent) are in Latin America and the Caribbean, 26 (19 percent) are in Africa, and 15 (11 percent) are in Europe and Central Asia. Most

cities have one project, but 14 have two or more projects (figure 5.7a). Thirteen cities received cumulative GEF funding commitments of more than \$5 million (figure 5.7b).

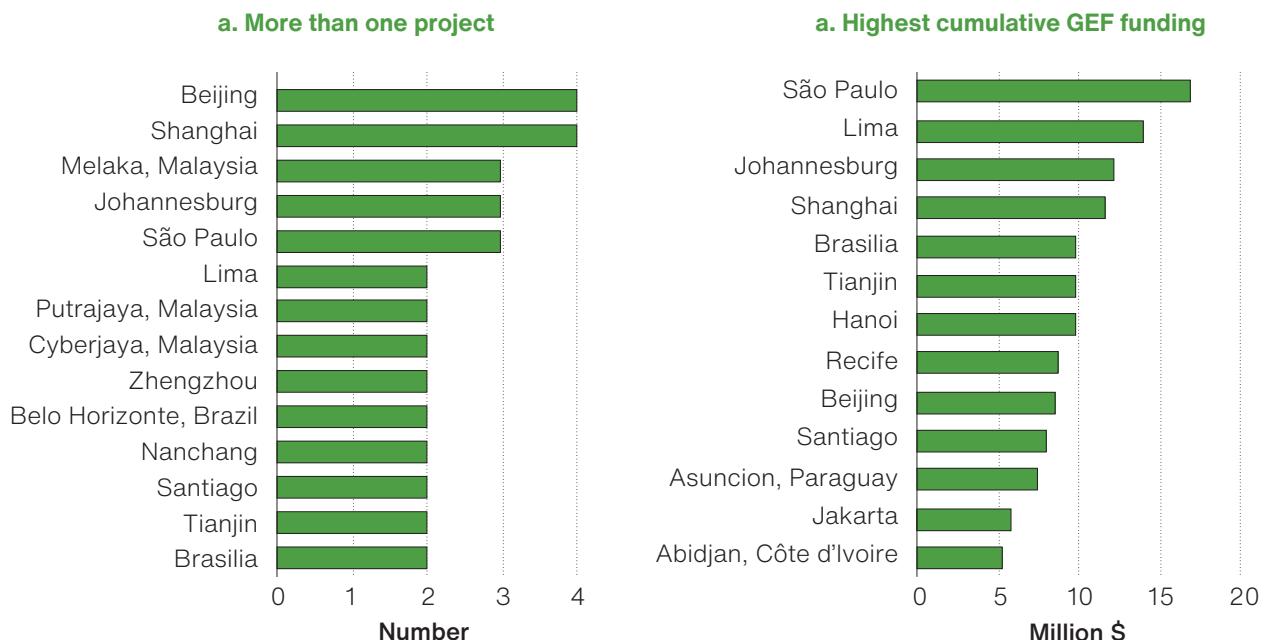
Countries with projects in five or more cities include China (35 cities), India (10 cities), South Africa (8 cities), Brazil (6 cities), Malaysia (6 cities), the Russian Federation (6 cities), Mexico (5 cities), and Thailand (5 cities). Of these, Brazil and China have three cities each with more than \$5 million in cumulative GEF funding for sustainable transport.

5.5 Themes³

The GEF sustainable transport portfolio has evolved over the past 20 years. During GEF-2,

³This discussion primarily pertains to activities that were supported through GEF funding or were at least partly funded through GEF activities.

FIGURE 5.7 City coverage of GEF sustainable transport projects



SOURCE: GEF PMIS through June 2018.

when the GEF first began providing support to sustainable transport, it initially focused on piloting fuel cell and electric/hybrid bus technologies. In GEF-3, the GEF provided more support to BRT because—compared to fuel cell and electric/hybrid bus technologies—it was relatively cost effective and better at targeting the urban poor. Cumulatively, the GEF sustainable transport portfolio includes 26 projects focused on pilots and demonstration of low-carbon vehicular technologies, 38 that address BRT or BRT-style improvements, 38 that demonstrate the efficacy of NMT, and 8 projects that address efficiency in freight and logistics. A few projects also promote efficiency in metro

rail (two projects), waterways (two projects), and ground transportation in aviation (one project).

The majority of GEF-financed sustainable transport projects provide financing for capacity development (89 percent); for activities aimed at changes in the legal, policy, and regulatory framework (69 percent); and for urban and transport planning (58 percent). Support for traffic demand management is provided by 40 percent of the portfolio's projects.

Outcome achievements

This chapter presents information on the outcome achievements of completed GEF sustainable transport projects. It includes an analysis of outcome and sustainability ratings; GHG emissions abatement results; and contributions to changes in legal, policy, and regulatory frameworks, capacity development, urban and transport planning, and traffic demand management. The information discussed here draws on the terminal evaluations for 32 completed GEF projects along with information gathered from independent postcompletion reports, and field verifications. Performance ratings are drawn from the GEF IEO's terminal evaluation review data set.

Seventy-two percent of completed sustainable transport projects have satisfactory outcomes. This percentage is similar to that for the overall GEF portfolio. However, projects in the large emerging economies are more likely to be rated in the satisfactory range for outcomes than are projects in other recipient countries. Seventy percent of completed sustainable transport projects are rated in the likely range for outcome sustainability, which is similar to the percentage of other climate change projects but nominally higher than for non-climate change projects in the GEF portfolio.

Seventeen completed projects (53 percent) promoted changes in legal, policy, and/or regulatory frameworks. Activities focused on the reform or creation of national, regional, and metropolitan legal frameworks enabling or emphasizing sustainable transport development were more likely to be adopted by government agencies. Some locally targeted measures such as parking fees, use of roads, congestion pricing, and restrictions in use of vehicles often faced barriers because of low levels of political support.

Information gathered from interviews and terminal evaluations shows that GEF stakeholders regard capacity building as the GEF's most significant contribution to sustainable transport projects. Twenty-six of the completed projects (81 percent) contributed to capacity development in recipient countries. GEF-supported capacity development activities have not only improved the ability of municipal governments to pursue sustainable transport initiatives but have also facilitated knowledge sharing among cities and countries.

Twelve completed projects (38 percent) supported transport and land use planning to encourage transit-oriented development and efficient management of urban transit systems. GEF support

facilitated transit-oriented development in such cities as Mexico City and Changsha. In other cities, including Dushanbe and Tianjin, these efforts were less successful as they were either not aligned with the vision of local decision makers, or policy and regulatory barriers hampered progress.

Eight completed projects (25 percent) addressed traffic demand management. Experience from these projects shows that traffic demand management measures are likely to be successful when they are based on “win-win” situations. For example, in general there is lot of support for park-and-ride improvements and integration of stations with pedestrian and cycling infrastructure. But in situations where trade-offs are required—e.g., congestion pricing, parking pricing, and vehicle usage restrictions—commitment from political leadership and public support becomes important.

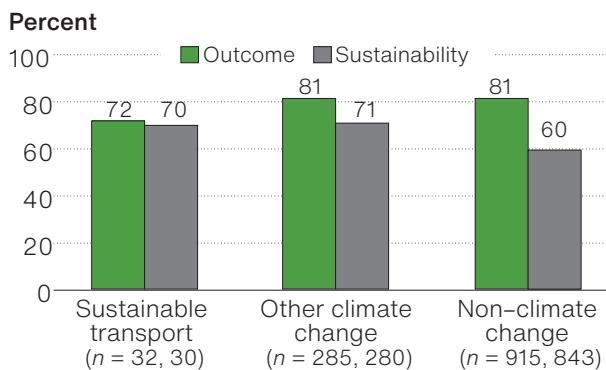
6.1 Outcome ratings

Outcomes are defined as “the likely or achieved short-term and medium-term effects of an intervention’s outputs” (OECD DAC 2002).

Of the 32 completed sustainable transport projects, 72 percent were rated as having outcome achievements in the satisfactory range; this is not statistically different from the rest of the GEF portfolio, even though the number is lower (figure 6.1). Completed sustainable transport projects rated in the satisfactory range account for 83 percent of the funding for the portfolio. Projects implemented in large emerging economies are more likely to be rated in the satisfactory range (92 percent, $n = 13$) than those in other recipient countries (50 percent, $n = 14$).¹ This difference is statistically significant despite the small number of observations.

¹ The recipient countries included among the large emerging economies are Brazil, China, India, Mexico, Russia, and South Africa.

FIGURE 6.1 Percentage of projects in different categories with performance ratings in the satisfactory/likely range



SOURCE: GEF IEO terminal evaluation review data set.

Reasons cited for low performance ratings as reported in the terminal evaluations include high turnover of personnel, procurement delays, difficulties in coordination, and low capacity of executing agencies. Of these, procurement delays tended to be more of a problem in large emerging economies.

Seventy percent of the completed sustainable transport projects were rated likely for sustainability of their outcomes; this is similar to other climate change projects in the overall GEF portfolio and nominally higher than non-climate change projects.

6.2 GHG emissions abatement benefits

GEF support for sustainable transport aims to reduce the level of GHG emissions from transportation. Consequently, the extent to which supported projects contribute to GHG emissions abatement is an important parameter in assessing performance. As noted earlier, aggregating GHG emissions from completed projects is challenging given the variety of interventions, levels of GEF support, and the extent to which GEF support may be linked with the reported emissions abatement.

Overall, aggregate GHG emissions abatement for completed projects has been lower than was expected at project start. Of the 27 completed projects for which reporting on GHG emissions reduction are expected, 20 terminal evaluations provide this information. For 20 completed projects that report information on GHG emissions abatement, the aggregate adjusted lifetime total is 11.0 metric tons (Mt) CO₂e. This is lower than the adjusted 92.9 Mt CO₂e expected at project start. Of the 20 projects, 8 (40 percent) met or exceed their individual targets. The average cost of GHG emissions abatement is \$11.50 per metric ton, with a median of \$12.70.

The evaluation retroactively applied a consistent approach to reported GHG emissions abatement data to facilitate comparisons. Of the 20 projects that reported direct GHG emissions, 8 used guidance developed for the TEEMP approach—the “Manual for Calculating Greenhouse Gas Benefits for Global Environment Facility Transportation Projects” (ITDP 2010). To make figures comparable, the lifetime of the benefit stream was standardized based on TEEMP guidance.² An adjusted GEF-attributable reduction figure was then calculated. To determine attribution, incremental reasoning for GEF involvement and actual use of funds in different activities was accounted for. The figures were adjusted to account for the extent to which the reported emissions abatement could be attributed to GEF support.

Similarly, an adjusted ex ante estimate was calculated based on GEF-supported activities as indicated in project documents. There is less discrepancy between the reported and adjusted

ex ante figures than between the ex post. This is primarily because a number of activities initially meant to be supported by the GEF were either canceled or ultimately achieved without GEF funding. For example, a bus scrapping activity to be conducted under the Lima Urban Transport project (GEF ID 1081; World Bank) was projected to account for a significant share of emissions reduction, but was eventually funded through government funds. Note that adjusted ex ante estimates are conservative, as several estimates were orders-of-magnitude higher and not always disaggregated by activity, making the role of GEF support in projected GHG reductions impossible to quantify. Generally, more specific ex post reporting allows for a more detailed understanding of the GEF’s role in emissions reduction.

Although the unadjusted aggregate of 27.4 Mt CO₂e was reported in terminal evaluations, the evaluation identified five projects where the attributable benefits need to be scaled down so that the benefits claimed are consistent with the principle of incremental costs; this is especially true for projects where reported CO₂ emissions were from activities for which the GEF had not provided any support. In some instances, although GHG emissions abatements were reported, these were from project components that the GEF had not funded and the emissions abatement from activities that the GEF had funded had not been tracked. Eight of the 20 projects (40 percent) achieved 80 percent or more of their emissions abatement target.

The projects that focused on technology, particularly those approved in GEF-2, yielded low CO₂ emissions abatement when compared to GEF funding. Although BRT projects accounted for the largest share in CO₂ emissions abatement, the reported benefits were substantially lower than the projected benefits at project start (table 6.1).

Based on the analysis, about 50 percent of total reported GHG reductions may be attributed to

² “The CO₂eq reductions reported are cumulative reductions, calculated for the lifetimes of the investments. In absence of more detailed guidance, 10 years for vehicles and 20 years for infrastructure may be used. No GEF projects may claim impacts for more than 20 years” (ITDP 2010, 15).

TABLE 6.1 CO₂ emissions abatement in GEF sustainable transport projects by source of reductions (thousand tonnes)

Project focus	Tech-nology	BRT	NMT	Policy/planning	Other ^a	Multiple ^b	Total
Projected emission reduction at start	4.7	61,681.6	216.8	2,851.2	204.0	30,096.5	95,054.8
Adjusted projected reduction at start	3.6	59,781.7	216.8	2,851.2	0.0	30,096.5	92,949.8
Reported abatement	1.2	18,816.9	26.0	303.7	807.4	7,446.6	27,401.8
Direct	1.2	14,173.1	26.0	224.1	807.4	6,373.4	21,605.2
Indirect ^c	0.0	4,643.8	0.0	79.6	0.0	1,073.2	5,796.6
Adjusted total abatement	0.1	5,674.1	26.0	224.1	0.0	5,043.4	10,967.7
Number of projects	3	11	1	1	1	3	20

SOURCE: Compiled from project documents and terminal evaluations.

a. This project reported reductions only from the construction of two intermodal passenger terminals.

b. These three projects reported significant reductions from BRT and NMT; BRT and planning; and policy, traffic demand management, and technology (renewal of bus fleet).

c. These figures represent indirect estimates for the five projects that reported them. Other projects are likely to have had long-term indirect effects through replication, etc., but made no attempt to quantify them in the terminal evaluation.

GEF support. This is a rough estimate, because it is not possible to precisely disaggregate the source of reductions in all cases. Given the GEF's strong focus on capacity building, knowledge transfer, and institutional strengthening—as opposed to capital-intensive activities—it is often difficult to credit the GEF for reported reductions. This inability does not suggest that the GEF should focus on capital-intensive activities that would better link with direct emissions reductions, but highlights the complexities in providing a realistic estimate of GEF contributions to GHG emissions abatement.

BRT generates the highest levels of GHG emissions abatement. Reporting on BRT is supported by the presence of established and relatively clear guidelines for estimating emissions abatement results. However, when the reported GHG emissions abatement is adjusted based on the level and type of GEF support, BRT GHG emissions are reduced by 60 percent.³ Despite the drop,

BRT-focused projects account for 50 percent of the GHG emissions abatement achieved for the portfolio.

Projects focused on technology pilots such as clean-tech buses (fuel cell, electric) provided very little direct mitigation. This circumstance reflects the catalytic nature of the projects, which were generally aimed at testing and demonstrating the readiness of low-carbon technologies for buses, rather than directly driving the adoption of these technologies at scale. Some of the emissions reduction benefits reported for fuel cell buses include trial runs which did not include riders on an actual trip. While these trial runs are important in providing efficiency-related information and in

³ This decrease in reported emissions is because GEF involvement in these projects often took the form of technical assistance and capacity-building activities to support the development of a BRT/light rail transit

system, while in most instances nearly all the costs were borne by the city government and other cofinancers, and the reported benefits included emissions abatement from baseline activities. Although GEF support is an important part of the project package, it is difficult to attribute all or most of the CO₂ emissions abatement directly to GEF support or make a case that activities supported exclusively through cofinancing would not have materialized in the absence of GEF support.

calculating future benefits, they cannot be used to estimate actual benefits.

The GEF can claim credit for a small portion of the modest GHG reductions from tech projects; most of these came from the replacement of 50 diesel buses with electric buses in Beijing, of which the GEF funded 4. However, this should not minimize the role that GEF projects have played in facilitating the commercialization of fuel cell and electric vehicle technologies in China. While GEF contributions to market transformation have been significant, it is difficult to estimate GHG emissions, especially at project completion when the results have yet not materialized. The technology projects that are presently under implementation may provide a different experience, as these are focused on commercialization. It is likely that the direct benefits of these projects will be easier to track, and the cost of GHG emissions abatement is likely to be lower.

6.3 Legal, policy, and regulatory framework

An enabling legal, policy, and regulatory framework facilitates behavioral change and adoption of low-carbon transit technologies and approaches. Interventions in this area generally require engagement with national and/or provincial governments, especially the relevant government departments. In several instances, engagement with city government is also relevant. Sixty-nine percent of the approved sustainable transport projects (55 projects), and 53 percent of the completed projects (17 projects), include activities that aim at changes in the legal, policy, and regulatory framework. Most of these projects seek to change policies and/or regulations, although a few also aim at changes in relevant laws.

Information from terminal evaluations shows that the targeted scale of activities seeking changes

in legal, policy, and regulatory frameworks varies from national policies promoting sustainable transport development to city-specific regulations. Activities focused on reform or creation of national, regional, and metropolitan legal frameworks enabling or emphasizing sustainable transport development were more likely to be adopted by government agencies. In comparison, locally targeted measures—such as parking fees, use of roads, congestion pricing, and restrictions in the use of vehicles—often faced resistance, because these may require local authorities to make trade-offs and some users may be worse off.

GEF support for changes in the legal, policy, and/or regulatory framework is often provided along with support for public transit, NMT, technology promotion, and/or capacity development activities. Thirteen of the 17 projects seeking reforms included support for BRT systems, which often included an analysis and recommendations to persuade authorities to mandate separate lanes for buses and/or establish a public agency to manage the bus rapid system through law. Several projects promoting electric vehicles have also included support for policies and regulations that incentivize the use of such technologies; these include Accelerating the Development and Commercialization of Fuel Cell Vehicles in China (GEF ID 5728; UNDP) and Energy Efficient Low-Carbon Transport in Malaysia (GEF ID 5741; UNIDO). NMT interventions have been supported through complementary policy and regulatory measures that mandate the inclusion of NMT lanes in future road development. Incorporating Non-Motorized Transport Facilities in the City of Gaborone (GEF ID 2014; UNDP) facilitated inclusion of NMT measures in Botswana's national integrated transport policy, as well as in the Gaborone city master plan.

At the national level, GEF contributions take the form of guidelines that are incorporated by recipient countries in their national, provincial, and/or local policies. For example, the Latin America and

the Caribbean Regional Transport and Air Quality project conducted studies that served as guidelines and references to the Mexican cities in which the project was implemented, and which helped them develop new urban mobility policy frameworks and regulations. The CUTPP developed a National Public Transport Strategy for China, which was then adopted and enforced through National Guidance on Prioritizing Urban Transport Development in Chinese Cities (Directive 64). Information gathered through interviews suggests that this guidance has facilitated cities in incorporating provisions for public transit in master plans for their respective metropolitan areas. One interviewee noted, however, that some stipulations of the directive related to land use change are too restrictive.

Changes at the local level related to regulatory interventions in parking, the use of roads, congestion pricing, and restrictions in the use of vehicles are more challenging to achieve. The Bus Rapid Transit and Pedestrian Improvements in Jakarta project (GEF ID 2954; UNEP) established a legal basis for road pricing, and the Sustainable Transport and Air Quality for Santiago project (GEF ID 1349; World Bank) conducted a study on congestion pricing. In neither instance were the recommended measures implemented. A few successful examples have been reported. Tajikistan's Support to Sustainable Transport Management in Dushanbe (GEF ID 3027; UNDP) promoted a citywide policy that led to the introduction of a 30-minute earlier start time for schools and universities, which was effective in reducing morning traffic congestion.

GEF support has helped harmonize policies and regulations across sectors and facilitated cooperation among stakeholders. The Introduction of Climate Friendly Measures in Transport project (GEF ID 1155; World Bank) identified the lack of cross-sectoral synergies among existing policies in Mexico City as a barrier to sustainable transport development. Although the metropolitan

authorities had already developed comprehensive sector policies identifying priority areas in transport, air quality, and urban development, these policies were not harmonized. The project merged the various sectoral plans into a Metropolitan Climate Change Action Program, paving the way for future coordinated actions. Similarly, GEF support has facilitated cooperation among stakeholders to ensure their buy-in for legal and policy framework updates. The Tajikistan project mentioned above facilitated the involvement of nongovernmental organizations in drafting a new national transport code along with relevant government departments. Kazakhstan's Sustainable Transport in the City of Almaty project (GEF ID 4013; UNDP) developed a strategy for integrated planning that linked different modes of transit, bringing them in sync with city development. The project facilitated the participation of more than 20 organizations in deliberations that led to the design of several key elements included in the city's action plan.

Despite low levels of support from political leadership, the legal, policy, and regulatory measures introduced by GEF projects often laid the groundwork for future reforms. For example, GEF support in Dushanbe played a key role in the development of a national transport code, including provisions promoting sustainable transport. Although approval of the code was pending at project completion, stakeholders felt that without GEF support development of the code would have taken several years more. The Sustainable Mobility in the City of Bratislava project (GEF ID 3433; UNDP) developed a parking reform policy to promote a modal shift away from car use. The policy was brought before the City Council, where it was narrowly defeated. However, given the strong public support the proposed policy enjoyed, it formed a basis for future regulations.

6.4 Capacity development

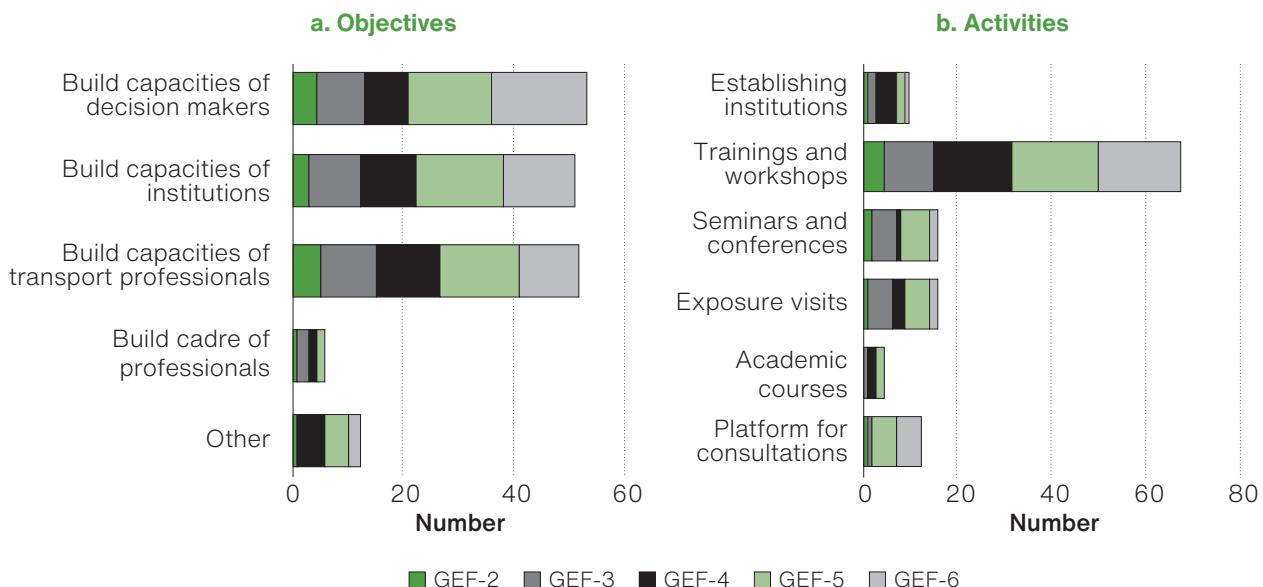
Eighty-nine percent of the approved sustainable transport projects (71 projects), and 81 percent of completed projects (26 projects), include GEF-funded activities aimed at capacity development. In most projects, these activities are aimed at developing the capacities of decision makers, institutions, and transport professionals (figure 6.2a). A few projects have also aimed at developing a cadre of professionals (when such professionals were in short supply) and at establishing new institutions. The GEF has provided funding for activities such as trainings and workshops, seminars and conferences, exposure visits, establishing a platform for consultations, establishing institutions, and introducing academic courses on sustainable transport (figure 6.2b). Information gathered from terminal evaluations, postcompletion verifications, and interviews suggests that GEF-supported capacity development activities have improved the ability of municipal governments to pursue sustainable

transport initiatives and have facilitated knowledge sharing among cities and countries.

Training and workshops were the most common capacity development activities funded. These generally covered transport planners, engineers, and technical staff such as bus drivers and mechanics. Training and workshops for planners and engineers was often aimed at facilitating the use of sustainable urban transport principles in integrated transport and land use planning. Training and workshops for bus drivers and technical staff generally focused on adapting to changes brought about by BRT or cleantech buses and facilitating the use of techniques such as eco-driving. In some cases, training was also provided to law enforcement officials to strengthen enforcement of new or existing regulations such as bus-only lanes and parking restrictions.

Capacity development activities are valued by GEF partners as investments that drive postproject replication and dissemination of low-carbon transit

FIGURE 6.2 Capacity-building objectives and activities supported by approved GEF sustainable transport projects



SOURCE: Compiled from project documents.

approaches. The Latin America and the Caribbean Regional Transport and Air Quality project included training and tour-related activities focused on BRT, NMT, and an update of the policy framework in participating countries. Information from the terminal evaluation and interviews suggests capacity development was the most significant contribution of this project and caused project—and nonproject—cities to undertake follow-up activities with other sources of funding. Another regional project, Promoting Sustainable Transport in Latin America (GEF ID 2178; UNEP), conducted dissemination workshops and training on implementation of sustainable transportation systems for transport professionals, resulting in the development of BRT and NMT projects in cities throughout the region.

Several GEF-financed projects have contributed to establishing and/or enhancing the capacities of transit-related institutions. The Reducing GHG Emissions from Road Transport in Russia's Medium-Sized Cities project (GEF ID 4008; UNDP) established traffic/transit management centers in two cities. These centers now facilitate efficient management of traffic flows. The Nigeria Urban Transport project established three transportation planning units, along with activities such as staff training courses, workshops, and exposure visits. These activities not only strengthened the capacities of established institutions in strategic planning, regulation, and coordination, but also enabled them to function as a knowledge hub for other African cities. Mexico's Introduction of Climate Friendly Measures in Transport project developed a methodology for monitoring local GHG emissions, creating a basis for the local government to evaluate the environmental efficacy of project activities and identify areas of concern for future sustainable transport interventions. Transforming the Global Maritime Transport Industry towards a Low Carbon Future through Improved Energy Efficiency (GEF ID 5508; UNDP) benchmarked performance of 10 countries to help them develop and implement

maritime energy efficiency strategies. The countries identified lead agencies and each established a national task force to address efficiency-related concerns on a sustained basis.

Capacity development activities have catalyzed cooperation and coordination among different agencies and organizations within recipient countries. For example, although the Brazilian federal government had mandated development of sustainable urban transport plans for all cities, limited technical capacities at local levels prevented cities from complying with the mandate. The Brazil component of the Latin America and the Caribbean Regional Transport and Air Quality project addressed this gap. The project developed an online training course to assist local government staff in developing the legally required plans. In India, the Sustainable Urban Transport Program (GEF ID 3241; World Bank) strengthened the country's Institute of Urban Transport by expanding its operations and services, enabling it to provide technical and advisory assistance to states and cities in support of the National Urban Transport Policy. The CUTPP trained around 1,500 government officials, transit company staff, transport practitioners, and students from 14 participating cities in urban and transport planning. These training workshops facilitated coordination and lesson learning among project cities and helped those making slow progress to catch up with the others.

More narrowly focused trainings have also been effective in facilitating behavior change, although the effects tend to be smaller. Support to Sustainable Transport in the City of Belgrade (GEF ID 3759; UNDP) provided training in eco-driving—optimizing driving techniques to reduce emissions. The training program was credited with a 4.5 percent reduction in fuel use among participating public transit drivers. The program's success motivated the transport company to expand the use of the optimized driving techniques after project completion.

Capacity building has been a key feature in technology-focused projects, both in terms of developing a cadre of knowledgeable technical staff and promoting cooperation among key players including manufacturers. Through GEF-supported fuel cell bus projects in China, 20 hydrogen station operators, 17 fuel cell bus mechanics, and 21 fuel cell bus drivers were trained—creating a small but significant basis for further fuel cell demonstrations and expansion. Meanwhile, workshops within China and study tours to potential vendors abroad facilitated the development of partnerships among Chinese groups and foreign suppliers, resulting in substantial information exchange on fuel cell technology and opportunities to decrease the cost of its commercialization.

Capacity development activities do not encounter substantial implementation challenges, but a lack of follow-up support limits long-term impact. For example, South Africa's Sustainable Public Transport and Sport: A 2010 Opportunity (GEF ID 2604; UNDP) trained 51 graduate students and young professionals in sustainable transport. The training was well received but discontinued at project completion due to a lack of resources for further deepening of acquired skills. The Sustainable Transport in the City of Almaty project helped establish a dedicated department to manage public transit, but once a new local government came to power, the department was merged with the department of roads—leading to less focused attention on public transit management.

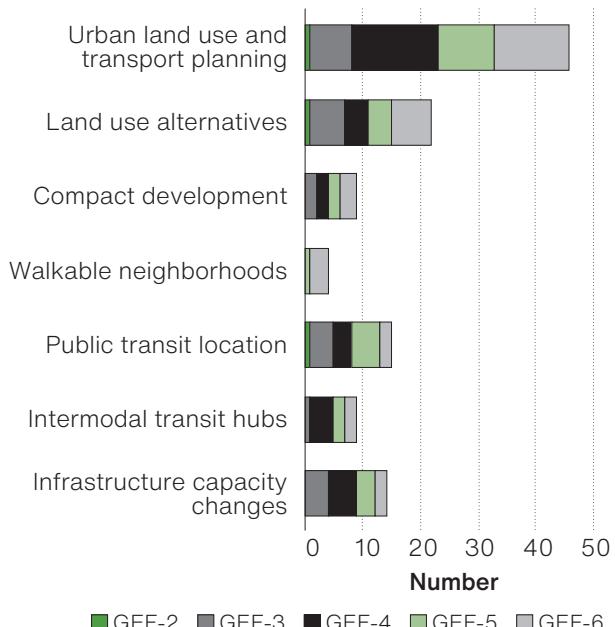
6.5 Urban and transport planning

Urban and transport planning facilitates spatial development of urban centers to reduce the need to travel; it also seeks to provide easy access to mass public transit facilities and other travel options. To achieve these ends, urban

and transport planners locate residential neighborhoods, employment centers, retail and entertainment facilities, restaurants, health facilities, schools, and transit facilities optimally. Urban and transport planning—including transit-oriented development—is critical in addressing the avoid and shift dimensions of avoid-shift-improve strategies. Forty-six (58 percent) of the GEF's approved sustainable transport projects, and 15 completed projects (47 percent), include activities to support urban and transport planning. Figure 6.3 provides information on the types of activities included in the project designs.

GEF activities to promote urban and transport planning have generally included studies to support the development or update of a city master plan and/or mobility strategy. Several projects have promoted transit-oriented development aimed to maximize density around public transit facilities. For example, in Mexico City, the Introduction of Climate Friendly Measures in Transport project led to

FIGURE 6.3 Urban and transport planning themes covered in GEF sustainable transport projects



SOURCE: Compiled from project documents.

the development of a Citywide Climate Action Program, under which bike lanes were constructed to facilitate access to public transit and bike parking was introduced at five metro stations; these initial measures were later expanded. China's Eco-Transport in City Clusters project led to the development of two multimodal terminals in Changsha not only connecting metro, bus, car, and other modes, but leading to dense residential and business development around the terminals. This multimodal approach is believed to have contributed to increased use of public transit and reduced congestion—in turn leading to an estimated 50 percent reduction in the CO₂ emissions associated with the trips made through the terminals.

The Latin America and the Caribbean Regional Sustainable Transport and Air Quality Project facilitated improvement of transport plans in Curitiba and Belo Horizonte in Brazil. Although integrated land use/transport planning was well established in these cities—as they have been pioneers in this field since the 1970s—the plans needed an update to meet the needs of the city's poorer settlements. The project undertook a climate and socioeconomic assessment in Curitiba, and developed plans for urban redevelopment around Belo Horizonte's ring road and BRT line based on a transit-oriented development approach.

In some other cities, including Dushanbe in Tajikistan and Tianjin in China, the GEF's urban and transport planning efforts were less successful due to coordination-related difficulties or failure to adequately address policy and regulatory barriers. The Dushanbe project carried out several training courses on integrated planning for city transport professionals, but leadership still lacked an understanding of how transport plans would be integrated in the city's land use planning. The terminal evaluation for the project reports that this gap is a result of the project's not taking the city's land use plans into account when developing the transport plans. Consequently, there is a high risk

that the transport planning activities will not be effective.

The Sino-Singapore Tianjin Eco-City Project (GEF ID 3824; World Bank) was planned based on a transit-oriented development approach. However, the planning gave greater attention to construction and engineering dimensions and less to issues related to policies, regulation, and incentives to attract people to the eco-city. According to an independent review of the terminal evaluation by the World Bank Independent Evaluation Group (2017), the eco-city was planned to accommodate 350,000 residents and 190,000 jobs by 2020. However, the pace of population growth and job creation have been slower than expected; by 2016, the city only had about 40,000 residents. Consequently, the climate change mitigation benefits from the city development may be lower than expected. Nonetheless, Flynn et al. (2016) found that for nonwork activities, residents were using their cars less than they were before moving to the eco-city.

The GEF's Sustainable Cities Impact Program may harness opportunities to promote transit-oriented development by facilitating engagement among a wider range of government agencies working at the city level. Of the projects developed under the program, eight include activities that address sustainable transport in their design. One project that focuses on transit-oriented development, the GEF China Sustainable Cities Integrated Approach Pilot (GEF ID 9223; World Bank), is already under implementation. It is funded by a \$32.7 million GEF grant and more than \$1 billion in cofinancing. The project specifically addresses rail transit planning and covers several major cities including Beijing, Tianjin, Shijiazhuang, Ningbo, Nanchang, Guiyang, and Shenzhen. It also provides technical assistance to the national Ministry of Housing and Urban-Rural Development. Project activities are at various stages of implementation across the cities (GPSC 2018a, 2018b). As more of the Sustainable Cities

Impact Program projects are implemented, more lessons may be learned from their experiences in promoting urban and transport planning.

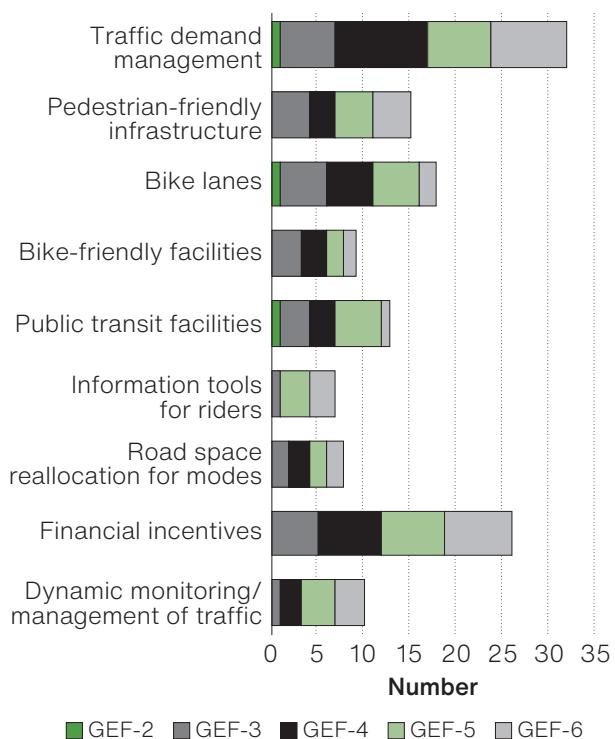
6.6 Traffic demand management

Effective management of traffic demand helps in addressing the growth of, and periodic shifts in, traffic. Without proper management, transportation infrastructure is often inadequate to deal with congestion and may result in inefficient travel. These problems in turn are linked with higher fuel consumption and GHG emissions. Depending on the local context, several measures may be effective in addressing traffic demand management, including improving the availability of real-time traffic information, increasing occupancy in private vehicles, promoting NMT or public transit options, congestion pricing, and rationalizing road space allocation across modes. Measures may also include adoption of efficient technologies, and improvements in and better integration of private transit, public transit, and NMT.

Thirty-two approved GEF sustainable transit projects (40 percent), and eight completed projects (25 percent), include activities aimed at traffic demand management. Figure 6.4 provides information on the broad categories of traffic demand activities in GEF projects, and Figure 6.5 highlights the financial/economic incentives used by approved sustainable transport projects.

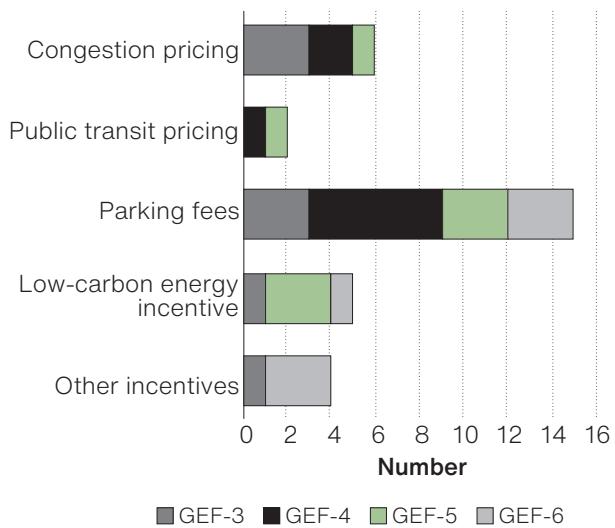
Several traffic demand measures have been effective in reducing GHG emissions. Under the CUTPP, measures in Guangzhou focused on imposing a quota on the number of car licenses issued. This activity was credited with 2.1 Mt of CO₂e abatement—more than any other project activities (mostly BRT and NMT) and at a lower cost of \$5 per metric ton of GHG emissions abatement. South Africa's Sustainable Public Transport and Sport

FIGURE 6.4 Traffic demand management activities in GEF sustainable transit projects



SOURCE: Compiled from project documents.

FIGURE 6.5 Financial incentives in GEF sustainable transit projects



SOURCE: Compiled from terminal evaluations.

project funded park-and-ride improvements, along with integration of stations with pedestrian and cycling infrastructure in 16 suburban railway stations in Cape Town. This effort led to a 15 percent increase in rail passengers at the upgraded stations; 58 percent of these additional passengers had previously used cars. Carpooling initiatives were implemented successfully by GEF projects in Cape Town, where they mitigated an estimated 2,700 metric tons of CO₂e over 10 years; and in Bratislava.

Without buy-in from political leadership, traffic demand management-related financial incentives or disincentives are unlikely to be implemented. In the Bus Rapid Transit and Pedestrian Improvements in Jakarta project, a legal basis for road pricing was established, but no regulation was implemented. Although an electronic road pricing trial was announced after project completion in 2014, it had not been implemented through 2018. Similarly, in the Sustainable Transport and Air Quality for Santiago project, a study on the

sustainability impacts of various congestion pricing plans was carried out successfully, but no plan was implemented. The experience shows that congestion pricing measures may not gain traction without political support. These measures often require trade-offs between the interests of those who will be able to travel faster and those who will be priced out.

Pricing schemes may also face challenges because of the unpredictability of the political process and implementation delays. In Bratislava, despite sustained efforts for an increase in parking fees and strong public support, the measure to enact such an increase failed narrowly. Similarly, a paid parking program could not be implemented in Dushanbe because of a delay in implementation of project activities. The project did, however, facilitate enactment of enforcement measures to reduce illegal parking in bus/trolleybus corridors to address congestion.

GEF contributions and value added

Completed GEF sustainable transport projects address several themes that form a basis for reporting on their shared and distinct experiences. These include projects focused on technology pilots and demonstration, public transit, freight and logistics, NMT, and projects designed around mega-events. This chapter covers these experiences in detail along with drawing upon the information on other approved projects. It concludes with a section looking at the GEF value added to the sustainable transport sector.

7.1 Technology

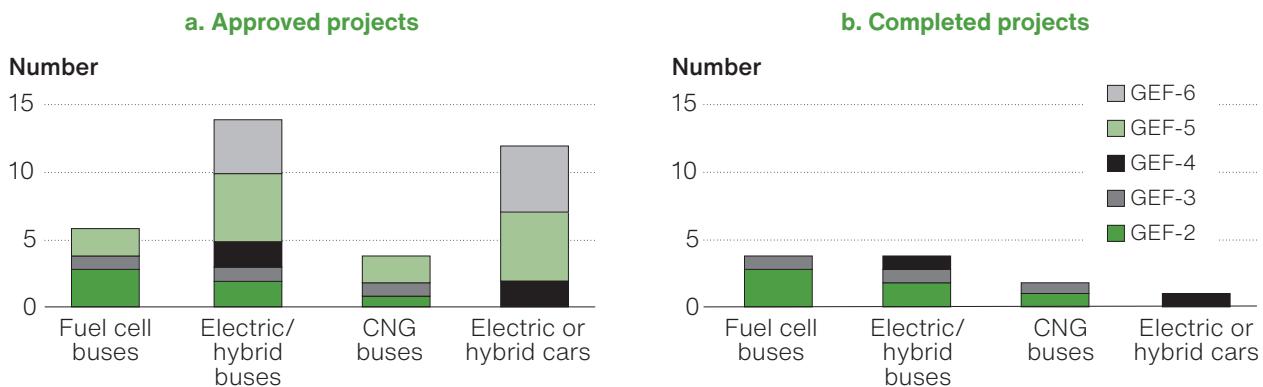
The GEF has piloted and demonstrated several low-carbon bus and vehicle technologies through 26 projects, 9 of which are completed. These projects pilot and demonstrate technologies such as fuel cell buses, electric buses, hybrid buses, compressed natural gas (CNG) buses, and electric and hybrid cars (figure 7.1a). The focus of the projects undertaken in GEF-2 and GEF-3 was on generating information on the technical performance of fuel cell, hybrid, and CNG bus technologies. During GEF-5, some projects that focused on their commercialization were approved. The GEF began supporting projects aimed at promoting electric

buses and electric or hybrid cars from GEF-4 onwards. Demand for these technologies showed a marked increase during GEF-5 and GEF-6.

Among the recipient countries, China (eight projects), Malaysia (three projects), and Chile (two projects) account for multiple technology-focused projects.

Nine projects that pilot and demonstrate technologies have been completed; these have covered several types of technologies (figure 7.1b). The fuel cell and electric/hybrid technologies provide different experiences. Fuel cell bus technology was piloted well before the technology was commercially viable. In addition, technology development was slower than expected at approval of the first series of projects. As a result, there was slow pickup of the technology by the market. Fuel cell technologies are now much cheaper and are being commercialized in China with GEF support and through several other independent projects. GEF support to electric and hybrid bus technologies was timely. The technologies also developed at a faster rate than fuel cell technologies. As a result, they found greater traction across cities and in the manufacturing industry. In both sets of projects, the nature of support provided by the GEF has evolved

FIGURE 7.1 GEF projects that promote clean bus and car technologies, by project status



SOURCE: Compiled from project documents and terminal evaluations.

based on the maturity of the technologies and the needs of the recipient countries.

FUEL CELL BUSES

Fuel cell buses use hydrogen as a fuel and do not produce direct CO₂ emissions. The GEF made funding commitments to five fuel cell bus technology-focused projects, of which four have been completed. The experience so far shows that progress in adoption of fuel cell bus technology has been slow because it was introduced before the technology was ready for commercialization. Further, the technology did not develop at the rate that was expected at the time projects were approved. During the past decade, however, the technology has matured. There is evidence in China that, building on the foundation laid by GEF projects, fuel cell bus technologies are being upscaled with and without GEF support.

Of the five projects implemented so far, three are in China, one in Brazil, and one is a global project. Cumulatively, the GEF has provided \$32.8 million for these projects along with cofinancing commitments of \$85.9 million. The Hydrogen Fuel Cell Buses for Urban Transport project in Brazil and two phased projects on Demonstration of Fuel Cell Bus Commercialization in China (GEF

ID 941 and 2257; UNDP) aimed at demonstrating the technology and refueling infrastructure, along with capacity development and knowledge management activities. The third project, Accelerating the Development and Commercialization of Fuel Cell Vehicles in China in China—which is still under implementation by UNDP—seeks to facilitate commercial production of fuel cell vehicles, development of infrastructure for refueling, and policy change and capacity development. The Chinese projects may be considered together as a multi-stage program building on incremental progress. The global project, Fuel Cell Bus and Distributed Power Generation Market Prospects and Intervention Strategy Options (GEF ID 819; UNEP), aimed at assessing the potential for fuel cell buses and distributed electricity generation, and at developing options and strategies for market intervention.

The projects in China and Brazil effectively demonstrated the potential of the fuel cell bus technology and operation of refueling infrastructure. China used the 2008 Beijing Olympics and 2010 Shanghai Expo to showcase the fuel cell bus technology. Although the projects were effective in raising the profile of the technology, commercialization was slow. Fifteen years after the first project began, China is only now moving toward upscaling fuel cell bus technology in several cities. Cost has been the

main deterrent to rapid uptake. During the early 2000s, the technology was still too costly to allow cities to adopt it from their own resources. And even over time, costs have not dropped as quickly as had been initially projected.

Direct CO₂ emissions abatement from fuel cell vehicle demonstration has been limited, although most of the distance-related targets of bus operation were met. Notably, only a few buses—four in São Paulo, three in Beijing, and six in Shanghai—were involved in the demonstrations. Further, in Shanghai, the buses were used for passenger transport on a special permit basis only for the duration of the Shanghai Expo. After the Expo ended, a permit for passenger operation was denied due to a lack of relevant regulations, leaving the demonstrations to be carried out with dummies.

The main challenge faced during implementation was timely procurement of fuel cell buses. In São Paulo, it was difficult to find manufacturers capable of and willing to deliver the buses and in obtaining permission to establish refueling stations. Cumulative delays at different stages of implementation led the project to be completed nine years behind schedule. Projects in China also faced challenges related to bus procurement (Beijing) and operating permits (Shanghai). Additionally, the Shanghai demonstration that was initially included in the first fuel cell project was implemented as part of the second—which had both positive and negative effects. On the one hand, the demonstration was implemented much later than originally planned; on the other, the delay enabled the city to procure more advanced buses at a lower cost.

The GEF's main contribution in fuel cell bus projects has been capacity development. In China, the GEF financed several trainings, workshops, and exposure visits for professionals and entrepreneurs, which has facilitated partnerships between Chinese groups and foreign suppliers. Skills development among the relevant professionals has

helped China move forward in upscaling promotion of fuel cell bus technology in several cities. UNDP, the GEF Agency that has implemented most of the GEF-supported fuel cell bus technology projects, has been working with the Chinese government to develop avenues for further progress in the area. In São Paulo, capacities to operate fuel cell buses have been developed, but long-term impact will depend on further uptake of the technology. Nonetheless, institutional capacities developed as part of the project have been useful in other projects promoting low-carbon public transit in the city.

Evidence shows that without GEF support it would not have been possible to demonstrate the effectiveness of fuel cell bus technology in Beijing, Shanghai, and São Paulo. The GEF was a major source of funding for these projects implementing a technology that was promising but costly at that point in time. Although a promising technology, fuel cell buses did not find quick, wide acceptance. In hindsight, there seem to be two reasons for this: the technology was demonstrated before it was ready for commercialization, and the decline in its cost was much slower than anticipated. Fuel cell bus technology is now finding traction in China, where the nexus of a fast-maturing technology, strong manufacturing base, demand for low-carbon and pollution-free transit, and institutional capacities provides a fertile ground for further upscaling and adoption. However, there has been little progress in Brazil.

HYBRID AND ELECTRIC BUSES

The GEF has provided support to promote electric and hybrid bus technologies since 1999. So far, the GEF has provided funding for 15 such projects that have addressed a varied set of challenges related to adoption of these technologies. The projects taken up during GEF-2 and GEF-3 focused primarily on field testing of hybrid and electric bus technologies to assess their performance in field conditions. The

projects supported during GEF-5 and GEF-6 are qualitatively different, as they focus more on promoting widespread adoption through development of supporting infrastructure, integration of renewable energy in the electric supply for charging the buses, and development of an enabling legal and regulatory framework. GEF-7 programming directions give special attention to promoting electric mobility by using a programmatic approach.

Cumulatively, the GEF has provided \$47.8 million for the 15 projects promoting hybrid and electric bus technologies. Most of these projects (80 percent) involve less than \$5.0 million in GEF funding. In fact, the average level of GEF funding per project is \$3.2 million, which is far lower than the \$6.0 million average for other sustainable transport projects. GEF partners committed cofinancing of \$967 million for these 15 projects; more than half of this went to two ADB-implemented projects in China.

Hybrid and electric bus technologies have been promoted across nine countries, three of which account for multiple projects: China (four projects), Malaysia (three projects), and Chile (two projects). Several GEF Agencies have implemented hybrid and electric bus technologies-focused projects: UNDP (five projects), UNIDO (four projects), ADB (three projects), the World Bank (two projects), and the Development Bank of Latin America (one project). While UNDP and the World Bank were among the more active Agencies up to GEF-4, from GEF-5 involvement by ADB and UNIDO has increased.

GEF projects have played an important role in advancing the spread of hybrid and electric bus technologies across developing countries. To date, four of these projects have been completed, providing vastly different experiences. Three—Introduction of Viable Electric and Hybrid-Electric Bus Technology in the Arab Republic of Egypt (GEF ID 31; UNDP), Mexico's Introduction of Climate Friendly Measures in Transport, and Chile's Sustainable Transport and Air Quality for

Santiago—included activities to field test hybrid and electric bus technologies so their technical effectiveness and potential could be assessed.

- In Mexico, these tests provided information that aided in the use of hybrid buses in public transit and, along with other project activities, paved the way for adoption of a BRT system in Mexico City.
- In Egypt, two electric/hybrid buses were tested in Giza. Although the technical demonstration was implemented successfully, further progress stalled because of a lack of additional funding for follow-up activities.
- In Chile, while most other project activities were completed, activities for field testing electric and hybrid buses were not implemented because (1) it was difficult to procure buses, and (2) the commercial potential of the technology in the near term was assessed as suspect by the executing agency.

Promoting Clean Electric Buses for the Beijing Olympics (GEF ID 3534; UNDP) aimed at showcasing the use of these technologies, raising awareness about their potential, and collecting data through actual use in ferrying passengers during the Olympics. Using such a global event raised the profile of the technology more than it otherwise would have. Several cities in China have now adopted electric and hybrid bus technologies for public transit.

The implementation of completed projects in China and Mexico was time bound and efficient, but projects in Chile and Egypt faced challenges. The project in Chile faced challenges in procurement due to a lack of bidders. Another challenge was that the activities related to the promotion of electric and hybrid buses did not receive adequate attention from local counterparts, as they were prioritizing introduction of the Transantiago integrated BRT system. Egypt experienced delays in tendering contracts and in processing the imported

buses through customs. Delayed processing of the buses led to technical problems requiring maintenance assistance. Moreover, communications with U.S. suppliers broke down in the aftermath of the September 11, 2001, terrorist attacks.

Most of the 15 GEF projects promoting electric and hybrid vehicles is either under implementation (6 projects) or in preparation (5 projects). In general, these projects focus less on establishing technical viability than on facilitating wider-scale adoption, commercialization, and linking the technologies with clean sources of energy. Compared to fuel cell buses, electric and hybrid bus technologies seem to have broader application and have garnered more interest from cities around the world. The GEF has tailored its support to promotion of electric and hybrid bus technologies according to the needs of the specific countries. This approach has helped in accelerating the process of country adoption of greener technologies in meeting their public transit needs.

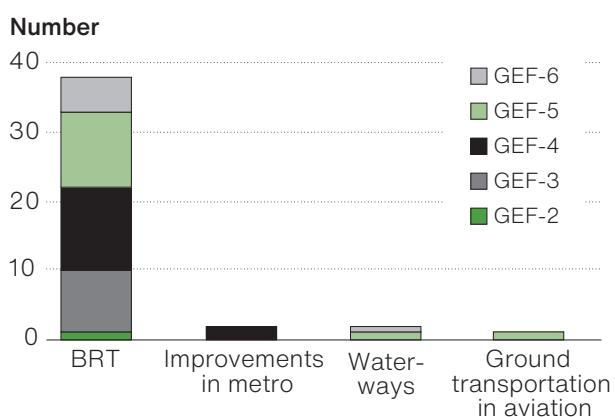
7.2 Public transit

The GEF has provided funding for establishing or improving public transit systems through 42 projects, 38 of which promote BRT. Through this portfolio, the GEF has also provided financing for a few projects that address efficiency issues in metro systems, waterways and ground transportation in aviation (figure 7.2). Of the 32 completed GEF public transit projects, 19 addressed public transit-related themes such as BRT, light or heavy rail, and maritime transit. Seventeen completed projects addressed BRT, with some also addressing other public transit themes as well.

BUS RAPID TRANSIT

BRT refers to high-quality bus-based transit systems capable of delivering fast and cost-effective

FIGURE 7.2 Approved GEF projects that address the efficiency of public transit systems



SOURCE: Compiled from terminal evaluations.

service at or near metro-level capacities.¹ Despite its initial push toward technology-focused projects, the GEF began supporting BRT projects toward the end of GEF-2 as it appraised these projects to be more cost-effective in delivering GHG emissions abatement along with targeting the urban poor (GEF STAP 2002). GEF support for BRT projects reached its peak during GEF-4 and GEF-5, but dropped thereafter during GEF-6. This trend is consistent with the GEF's shift in focus over time toward addressing transport within the broader context of sustainable city development rather than through specific pilot projects such as BRT corridors.

GEF support to BRT systems and BRT-style upgrades has generally focused on technical assistance and planning, such as the development of feasibility studies, origin-destination surveys, and environmental impact studies for BRT corridors. GEF funding has also been used for capacity building; updating the legal, policy, and regulatory framework; and knowledge management. The most capital-intensive aspects of BRT

¹ Source: Institute for Transportation and Development Policy website, <https://www.itdp.org/our-work/public-transport/>; accessed January 2020.

implementation, particularly the physical construction of busways and stations, have generally been covered by cofinancing.

Seventeen completed projects addressed improvements to urban bus systems through at least one component of the project. Twelve of these included either the development of a BRT system or BRT-style upgrades to an existing bus system; four consisted of bus and/or trolleybus system upgrades aimed at effecting a modal shift to buses and/or reducing emissions from buses or trolleybuses; and one was broadly targeted at capacity development, covering several themes including BRT. Two projects—the Ouagadougou Transport Modal Shift project and Reducing GHG Emissions from Road Transport in Russia’s Medium-Sized Cities—addressed bus system upgrades but not BRT per se. And in the Sino-Singapore Tianjin Eco-City Project, GEF funds were used in planning a public transit system based on buses, but only to the extent of upstream planning and not for physical system development.

Two projects were not able to implement planned BRT-relevant activities. For the Lima Urban Transport project, the bus scrapping activity financed through GEF funds was canceled; instead, funds were used to identify additional BRT corridors for Lima and to prepare preliminary designs for an additional corridor. Similarly, in the Sustainable Transport and Air Quality for Santiago project, GEF funds for a bus scrapping program were used to support NMT activities; the government ultimately used its own funds for this activity.

Projects that address BRT generally needed extensions for completion. Of the 16 projects addressing BRT, 10 were completed one year or more after their expected closing date. Of these, three were completed two years or more later than planned. The projects faced challenges in procurement for civil works and poor contractor performance. Some of these issues were difficult to anticipate during

project preparation. For example, the Nigeria Urban Transport project faced unexpected technical issues with a planned fare integration system. The system consequently had to rely on a paper ticket system while the electronic system was repaired, which significantly reduced the time savings realized from BRT and public goodwill.

GEF support to BRT projects has influenced replication in nonproject cities and in other corridors within project cities. In the case of the Lima Urban Transport project, the GEF funded feasibility studies for implementation and optimization of future BRT corridors; these have since been implemented. In the multicity South Africa project, GEF support failed to establish a BRT line in Nelson Mandela Bay by the time of project closure (the line was established after project completion), but the experience gained from the GEF’s successful involvement in negotiations with local taxi/minibus drivers provided a useful lesson for other cities. China’s CUTPP experience stoked the interest of many cities that had not been involved in the original project. Later, authorities from 38 of these cities approached the National Project Management Office and/or transport institutes affiliated with the project to request technical assistance for BRT planning and implementation.

Several GEF-supported projects have been instrumental not only in developing a BRT system but also in facilitating postproject expansion and replication. The Introduction of Climate Friendly Measures in Transport project used GEF funding to lay the groundwork for Mexico City’s first BRT corridor and to prepare a citywide climate change action plan under which the BRT system was expanded. The action plan included complementary sustainable transport measures such as NMT infrastructure and taxi and minibus substitution. The BRT system—Metrobus—is viewed internationally as a highly successful example, and the lessons generated by the project have influenced the development of BRT systems in other Mexican cities.

GEF-supported activities have also affected broader adoption of BRT globally. A component of the global Reducing Greenhouse Gas Emissions with Bus Rapid Transit project (GEF ID 1917; UNEP) was development of the BRT Planning Guide, published and disseminated by the Institute for Transportation and Development Policy, the world's leading nongovernmental organization for BRT. While GEF funding was only a small part of the total for the guide, its contribution was crucial to its development. The guide's first edition was widely disseminated and catalyzed the development of BRT systems in other developing countries.

GEF support has been especially important to the development of BRT systems in Africa, one of the most recent regions to introduce them. For example, the terminal evaluation reports that in Dar-es-Salaam, no local officials had seen or visited a BRT system until the GEF-supported Reducing Greenhouse Gas Emissions with Bus Rapid Transit project. GEF-funded technical assistance activities such as preparation of a BRT business plan, establishment of a BRT authority, public relations, and training for relevant staff helped Dar-es-Salaam develop a BRT system—which in turn demonstrated BRT benefits to other African cities. The BRT system in Dar-es-Salaam is widely regarded as a successful example and won the Sustainable Transport Award in 2018.

GEF involvement has often helped champions of sustainable transport address sociopolitical realities more effectively. For example, South Africa's Sustainable Public Transport and Sport project catalyzed investment in BRT in several South African cities. Although the cities already had the idea of implementing BRT, highly organized and politically powerful blocs of taxi drivers had obstructed its introduction. GEF funding supported dialogues and negotiations with these drivers and their powerful associations, making BRT politically feasible. Progress has varied across cities, however. For example, substantial progress was

made in Johannesburg but not in Nelson Mandela Bay, where there were conflicts between the local government and taxi unions over profit sharing. A project supporting BRT in Cartagena, was influential in bringing Colombian bus drivers on board with the new system by helping them find employment opportunities in driving BRT buses.

GEF-supported BRT projects have achieved impact primarily through complementary planning activities and by enhancing institutional capabilities and knowledge. The planning activities have helped enhance the benefits of BRT at the city level. Increased institutional capabilities and knowledge have catalyzed the development of BRT in smaller cities not directly targeted through the GEF projects. These results support the GEF's reliance on an integrated approach to sustainable transportation and its focus on capacity development measures.

LIGHT/HEAVY RAIL TRANSIT

Three GEF-funded projects supporting activities related to light or heavy rail transit have been completed. GEF funding was involved in planning the rail transit lines in two of these. The CUTPP supported urban transit planning in Nanchang and Zhengzhou, which helped these cities access World Bank funding for construction of metro rail lines. The planning also helped in constructing intermodal transit hubs in Zhengzhou and Dongguan. Kazakhstan's Sustainable Transport in the City of Almaty project funded a feasibility study for light rail transit in the city. The study was used by the municipal government to develop the tender requirements for a light rail transit line. The Sustainable Mobility in the City of Bratislava project helped the city design a signal priority for trams (light rail transit) at two intersections. The intervention reduced the waiting time for trams substantially, which in turn encouraged the city government to replicate the approach at other intersections along the line. These three projects involved relatively modest GEF funding.

However, because the GEF support was timely and well targeted, it facilitated substantial downstream investments.

MARITIME TRANSPORT

Transforming the Global Maritime Transport Industry towards a Low Carbon Future through Improved Energy Efficiency was a global project involving 10 countries and GEF funding of \$1.9 million. The project aimed at building capacities in developing countries to implement technical and operational measures for energy efficient shipping. The project was implemented by UNDP and executed by the International Maritime Organization. It helped the countries develop and implement maritime energy efficiency strategies, and benchmarked country performance in maritime energy efficiency. The countries identified lead agencies and had national task forces address efficiency-related concerns on a sustained basis. The project developed toolkits to address both ship and port-based GHG emissions. The project conducted 32 workshops—at least 2 in each of the covered countries—training 800 participants.

7.3 Nonmotorized transit

Well-planned cities encourage residents to shift to nonmotorized transit modes—such as walking or biking—instead of motorized options. This shift can reduce congestion on city roads, reduce energy use, and provide health benefits. Use of NMT may be encouraged through the development of requisite infrastructure, along with supportive policies and increased awareness.

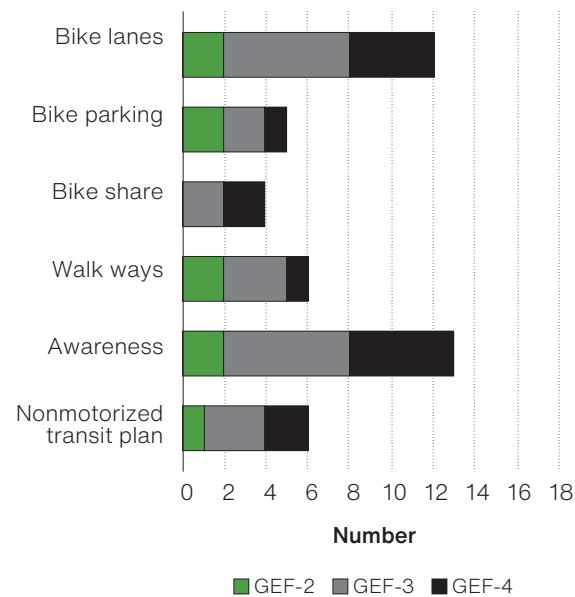
Starting in 2000, the GEF has provided support for NMT through 38 projects covering more than 30 countries. More than two-thirds of these projects have been implemented by UNDP (16 projects) or the World Bank (11 projects). Within a project, GEF support for NMT often complements its support for BRT. GEF financing is generally used for NMT

planning, although in some cases it has been used for civil works as well.

Sixteen GEF-funded NMT projects have been completed to date. The completed projects generally implemented NMT-focused activities such as construction and/or repair of bike lanes and walkways, spaces for bike parking, demonstration of a bike-share business model, awareness campaigns, and preparation of an NMT plan (figure 7.3). A few projects also included planning traffic signals and ramps, use of renewable energy for street lighting, and targeted research.

Reporting on results is patchy and difficult to aggregate. However, most terminal evaluations for completed NMT-focused projects report on at least some indicators of project results. Eight terminal evaluations report on the length of bike lanes constructed or repaired—a total of 575 kilometers was constructed or repaired with varying degrees of GEF involvement. Increased bike usage was reported in projects in Bratislava, Manila, Mexico

FIGURE 7.3 Nonmotorized transit activities implemented by completed projects



SOURCE: Compiled from terminal evaluations.

City, and Santiago. In projects in Lima and Gaborone, however, this increase was far below the target. Projects in Lima and Rosario (through the Latin America and the Caribbean Regional Sustainable Transport and Air Quality Project) constructed 688 and 1,000 bike parking facilities, respectively. The GEF has had much better results in helping cities develop NMT-friendly action plans (e.g., Introduction of Climate Friendly Measures in Transport, Latin America and the Caribbean Regional Sustainable Transport and Air Quality Project, Sustainable Mobility in the City of Bratislava) that have helped them mainstream NMT-friendly measures into their urban transport plans.

In most instances, NMT-related activities did not face major challenges during implementation, although they did experience some delays. Of the 16 projects, 10 (63 percent) were completed after a moderate delay of more than a year; in 4 of these, implementation completion was delayed by more than two years. The delays were generally related to other components of the projects, with NMT-related components facing challenges during implementation in a couple of projects. The Santiago project had difficulties in procuring docking stations for bike parking. In Gaborone, because identification and design of bike routes took more time than originally planned, route construction was not complete at project closure.

Although NMT leads to a low-carbon footprint for a given city, it is important to assess whether GEF support to the activities is incremental and is likely to be effective in reducing CO₂ emissions. For example, some NMT activities may lead to modal shifts, but others may only increase the number of trips for recreational purposes. In most instances, the GEF has avoided supporting civil works, which is appropriate. The GEF role in providing support for NMT planning and demonstrating bike-share business models is justifiable, because it may lead to modal shifts at a faster pace than would otherwise be possible—if appropriate plans are not

made, a city would be locked into a transit infrastructure that is not bike and pedestrian friendly.

7.4 Freight and logistics

To date, the GEF has committed funding to eight projects that promote efficiency in freight and logistics. Most of these projects address efficiency in trucks and efficient transport of goods as well as the development of policies and regulations. UNDP implements five of the eight projects. In contrast, the Catalyzing Environmental Finance for Low-Carbon Urban Development project in Bosnia and Herzegovina (GEF ID 9151; UNDP) focuses on route optimization for waste recycling and management.

Of the eight projects that address freight transport, two have been completed. The Latin America and the Caribbean Regional Sustainable Transport and Air Quality Project covered a wide range of transportation-related concerns, including a component focused on rationalization of freight traffic. In Mexico, the project financed a study to facilitate freight management in the city of Ciudad Juárez, including a framework to optimize freight vehicle flows and recommendations to improve regulations. In Brazil, an origin-destination survey was undertaken for freight in São Paulo. The city also implemented a night delivery scheme on a pilot basis which reduced travel time. In both countries, the GEF-supported activities gained a lot of traction and have high potential for follow-up and replication.

The Pakistan Sustainable Transport Project (GEF ID 3539; UNDP) included a component focused on improving energy efficiency in truck freight transport. The project successfully completed 10 studies on truck freight policies and conducted capacity-building activities. However, overall progress on freight-related concerns was not adequate, because the project was not effective in facilitating truck fleet modernization and demonstrating public-private partnership business models.

7.5 Results of projects designed around mega-events

Four GEF-supported transportation projects—all implemented by UNDP—were designed to be implemented concurrently with large international sporting events. These projects aimed to exploit the events' high visibility to promote sustainable transport along with other environmental objectives. The projects varied in scope: South Africa's Sustainable Public Transport and Sport project targeted a variety of long-term transport improvements in seven cities with an \$11 million GEF grant; the other three projects received \$1 million or less in GEF funding and focused on strategy development and awareness raising. The performance of the four projects also varied in terms of their effectiveness.

The Sustainable Public Transport and Sport project used the 2010 World Cup as a catalyst for implementing large-scale reform in the public transit systems of seven South African cities, including the introduction of BRT systems and NMT infrastructure. The activities were not specifically linked to the World Cup, but were undertaken in cities hosting World Cup matches to showcase the efficacy of sustainable public transit. The project's key achievement was the development of the Rea Vaya BRT system in Johannesburg; this was accomplished through negotiations with stakeholders with diverging interests. Some project activities became less relevant due to delayed startup. By the time implementation of the GEF project began, some of its planned activities had already been implemented by the cities—raising the possibility of making GEF support redundant.

Promoting Clean Electric Buses for the Beijing Olympics was aimed at raising public awareness of electric vehicles for transit through demonstrations. Fifty electric buses were procured, including four through the GEF grant, replacing

conventional buses. These buses ferried passengers and contributed to modest GHG reductions. GEF resources were also aimed at promotional activities. The successful demonstration was credited with making official policy on electric buses and other transportation alternatives more forward-looking, as evidenced by the subsequent Chinese government's order for 50 more electric and 860 hybrid-electric buses.

Greening 2014 Sochi Olympics: A Strategy and Action Plan for the Greening Legacy (GEF ID 4030; UNDP) aimed to produce a greening strategy and action plan for low-carbon transport along with promotion of green building standards, energy efficiency, renewable energy technologies, a carbon offset program, and public awareness and advocacy. Project preparation took longer than expected; by the time the project was approved, the planning phase for the event was almost complete. Consequently, any strategies or action plans developed could not have affected the event in any meaningful way. The project thus should have been canceled or restructured significantly. Yet it was not until 2012 that the focus of implementation shifted to “greening legacy” activities such as the transfer of carbon footprint assessment know-how and climate change awareness-raising activities. Ultimately, the only transport-related output that was delivered was an action plan featuring parking zones and intersection management.

The broad focus of the Low Carbon Campaign for Commonwealth Games 2010 Delhi project (GEF ID 4215; UNDP) included sustainable transport along with several other low carbon-relevant concerns. While the project successfully implemented several training and awareness-raising activities, their impact could not be quantified. Also, given the one-time nature of the campaign, the terminal evaluation questioned the long-term benefit of the message imparted. As in Sochi, a late project start resulted in reduced effectiveness.

GEF involvement in projects centered around special events has thus garnered mixed results, with positive achievements in South African transit systems and cleantech bus demonstration in China, but low or uncertain impact in India and Russia. A key takeaway is that these projects should be developed well in advance of the mega-event, and with sufficient flexibility to take timely corrective actions if originally planned activities become less relevant or are unlikely to be accomplished in time.

7.6 Value added by GEF support

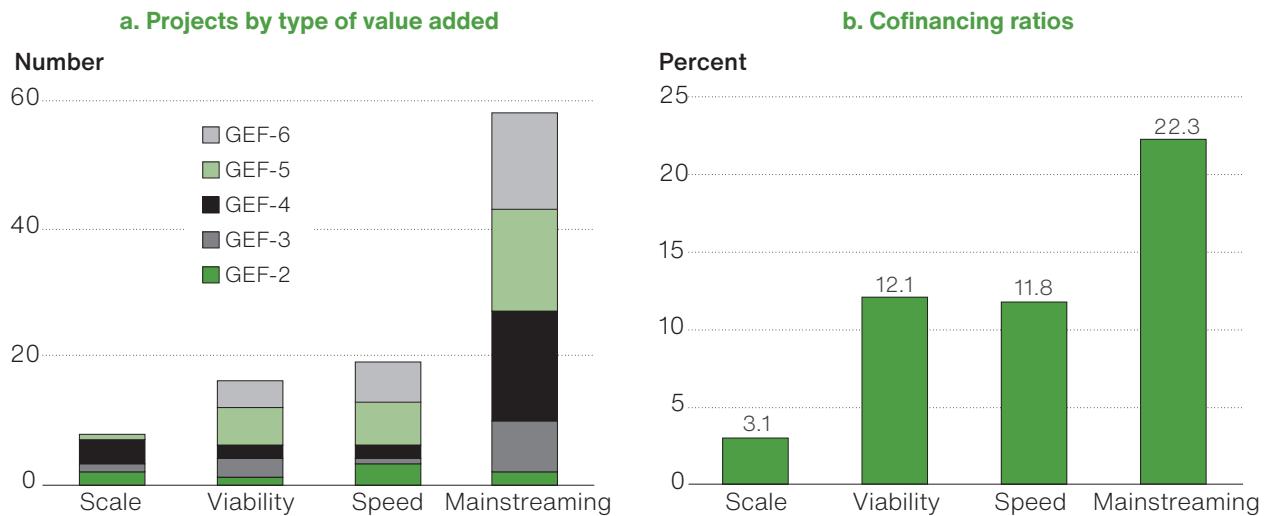
GEF funding supports the incremental costs of generating global environmental benefits. It seeks to avoid using its funds for activities that recipient countries and/or other partners would have been able to fund through their own resources.

Past work of the GEF IEO and this evaluation find that the GEF adds value in sustainable transport projects through increasing scale, increasing project viability, speeding implementation, and/or mainstreaming sustainable transport approaches.

The evaluation identified eight projects where scale was increased (figure 7.4a). Several of these projects included components related to targeted research, preparation of toolkits for emissions estimation, or preparing strategies and action plans. For example, for the Fuel Cell Bus and Distributed Power Generation Market Prospects and Intervention Strategy Options global project, the GEF provided \$0.7 million with cofinancing of \$0.2 million. The project conducted research to assess the effectiveness of future fuel cell interventions in GEF-eligible countries. In the absence of GEF funding, the project would either not have been implemented or would have covered fewer countries. The average cofinancing ratio (cofinancing per dollar of GEF grant) was lower for the projects that increased scale than for other categories (figure 7.4b).

Projects where GEF funding enhances the viability of the activities supported tend to focus on facilitating the use of low-carbon technologies/approaches instead of cheaper conventional technologies/approaches. Viability in this context implies situations where a project (or project key component) would probably not move forward without support from the GEF or another donor.

FIGURE 7.4 GEF value added for sustainable transport projects by type and cofinancing ratio



SOURCE: Compiled from project documents.

GEF support needs to be sufficient to encourage recipient countries to move toward the use of low-carbon technologies/approaches but should not reach a point where the GEF supports baseline costs as well. In 16 projects, GEF support has enhanced the viability of the promoted technologies/approaches. Projects in this category provided support for demonstration and commercialization of fuel cell and electric mobility technologies, and technology and policy measures for traffic demand management. On average, these projects included cofinancing of \$12 per dollar of GEF grant; this is higher than for other projects in the GEF portfolio, but comparable to the portfolio of sustainable transport projects.

GEF support also adds value by speeding implementation of activities that promote low-carbon technologies/approaches. By helping early adoption, the GEF contributes to emissions abatement. The incremental benefit corresponds to the time by which adoption and its downstream effects are advanced. GEF support was aimed at speeding the adoption of low-carbon technologies/approaches in 19 projects. These projects, on average, included cofinancing of \$12 dollars per dollar of GEF grant—which is again high compared to other projects in the GEF portfolio, but moderate compared to other categories of sustainable transport projects.

Most of the sustainable transport projects that involve capital-intensive activities are likely to have taken place regardless of whether the GEF

grant materialized, although mainstreaming of low-carbon approaches would not have been feasible. Mainstreaming low-carbon approaches often takes the form of helping cities plan these activities better and build capacities to identify opportunities for, and implement, low-carbon approaches. Such efforts may also prevent cities from getting locked into inefficient and carbon-intensive infrastructure and approaches. The evaluation identified 58 projects where GEF support was focused at mainstreaming low-carbon approaches; this was generally built around a capital-intensive baseline project. The average cofinancing is \$22 per dollar of GEF grant, which is higher than for either other categories of sustainable transport projects or other projects in the GEF portfolio.

The GEF adds value to a higher percentage of UN organization-implemented projects through enhancement in viability and speed than to projects implemented by development banks. Development banks tend to use GEF funding to mainstream low-carbon approaches in their conventional urban transport projects more than UN organizations do (table 7.1). This pattern is consistent with a model wherein UN organizations are more likely to build a project around GEF support, while development banks use GEF funding to mainstream low-carbon approaches in a capital-intensive activity they were already financing.

TABLE 7.1 Distribution of value added by the GEF by implementing Agency type (%)

Type of value added	UN organization	Development bank	Total
Scale	11	9	10
Viability	27	11	20
Speed	33	11	24
Mainstreaming	62	86	73
Number of projects	45	35	80

SOURCE: Compiled from project documents.

Factors affecting results

Several factors related to project design and implementation may affect project performance. Appropriate project design and effective implementation are critical to ensure a project's inputs are converted into outputs in an efficient and timely manner, and that these are consistent with a project's theory of change. During project implementation, several gaps in the project design and monitoring plan may become apparent. Similarly, cofinancing commitments may not materialize in a timely manner, and a project may face exogenous shocks that are beyond the control of project management. This chapter explores factors that may affect GEF sustainable transport project results; this is based on information for 32 completed projects from terminal evaluations, other independent reports, and field verifications.

Overall, sustainable transport projects perform as well as or better than other projects in the GEF portfolio in terms of realized cofinancing. However, quality of project implementation and M&E appears to be lower than the GEF portfolio. Sustainable transport projects tend to face challenges in procurement, coordination, and monitoring environmental results.

Although 71 percent of sustainable transport projects—compared to 41 percent of other projects in the GEF portfolio—require an extension of six months or more, their performance in terms of incidence of excessive extension of two or more years at 19 percent is the same as for other projects in the GEF portfolio. Thus, challenges faced during implementation seem to be leading to some, but not excessive, delays in project completion.

Implementation experience shows that sustainable transport interventions could enhance the mobility of covered populations and provide them with easier access to socioeconomic opportunities. It also shows that social and environmental safeguards are important to minimize reputational risks for the GEF.

The evidence from completed sustainable transport projects does not suggest a major difference in performance across the GEF Agencies. In large part, this finding stems from the fact that the number of completed projects is still too small to detect statistically significant differences.

8.1 Project implementation

How well GEF Agencies implement projects affects the extent to which projects achieve expected results. The GEF Agencies are responsible for project identification and preparation, startup, supervision, application of GEF policies and procedures, and project M&E. When gaps in project design and implementation are found, the Agencies are expected to take timely corrective action. GEF Agencies partner with executing agencies to accomplish planned activities. They supervise the work of the executing agencies and provide support and guidance to them.

A few projects were restructured due to slow progress, gaps in project design, and changes in project context, minimizing the shortfall in project achievements. Of the 32 projects that have been completed and for which terminal evaluations are available, 3 were restructured during implementation. The Bus Rapid Transit and Pedestrian Improvements in Jakarta project added two new objectives to address gaps in the original design. The change allowed the project to give attention to improving capacities of Transjakarta, a transit company owned by the Jakarta government, and to ensure adequate supply and quality of CNG for BRT. The outcomes of this project were rated in the satisfactory range.

The regional project Promoting Sustainable Transport in Latin America was restructured due to slow progress in Panama City. Consequently, activities related to bus regulation and planning were dropped in Panama City and instead implemented in Concepción, Chile. The Lima Urban Transport project was restructured to replace bus scrapping activities with a study to integrate and rationalize the public transit system. The change was prompted by the partner transit agency's decision to finance bus scrapping through other sources of funds. In both of these projects, some infrastructure development activities were not implemented

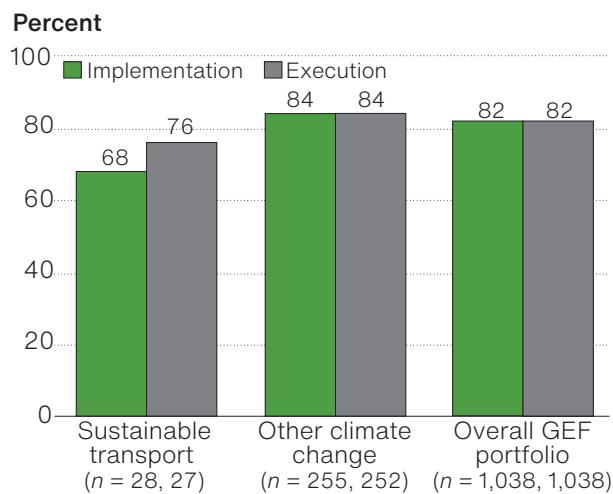
satisfactorily, and their outcomes were rated in the unsatisfactory range.

One project presently under implementation is being restructured: Brazil's Low-Carbon Urban Mobility for Large Cities (GEF ID 4949; Inter-American Development Bank). Although the project objectives will remain the same, some activities are being changed due to slow progress on pilot subprojects. This slow progress stemmed from low administrative capacities on the part of the original executing agency. Its contract has been terminated and a new executing agency selected. Another reason for project restructuring was that the research conducted by the project showed that a focus on the Brazilian policy framework for electro-mobility (electric vehicles, ride sharing, etc.) would be more useful than the originally planned activity on bike lanes. These changes are better aligned with the GEF-7 strategy.

A smaller percentage of completed sustainable transport projects are rated in the satisfactory range for quality of implementation than are other projects in the GEF portfolio; this is because of procurement challenges and government agency coordination issues (figure 8.1). Challenges reported frequently in the terminal evaluations include difficulties encountered in procurement (22 percent), coordination among key partners (16 percent), and recruitment and continuity of key staff (16 percent). These findings are consistent with information received through interviews. Several respondents noted that sustainable transport projects require coordination among multiple agencies and often pose procurement-related challenges, which adds to their complexity and affects quality of implementation. Quality of execution ratings for sustainable transport projects are not statistically different from the overall GEF portfolio.

Project extensions are also similar to findings for the overall GEF portfolio. Despite excessive use of extensions reported for a few projects such as the

FIGURE 8.1 Percentage of GEF projects rated in the satisfactory range for quality of project implementation and execution



SOURCE: GEF IEO terminal evaluation review data set.

Hydrogen Fuel Cell Buses for Urban Transport in Brazil and the global Reducing Greenhouse Gas Emissions with Bus Rapid Transit, where completion was delayed by more than nine and six years, respectively, these are the exceptions rather than the rule. Figure 8.2 shows the cumulative percentages for various subsets of completed GEF projects

by number of months' extension required for completion. Although a higher percentage of sustainable transport projects required an extension of up to six months, the percentage of extensions of two years or more for these projects is not significantly different from that of non-climate change projects in the GEF portfolio. Thus, for sustainable transport projects, implementation challenges have generally not resulted in excessive project extensions.

8.2 Project monitoring

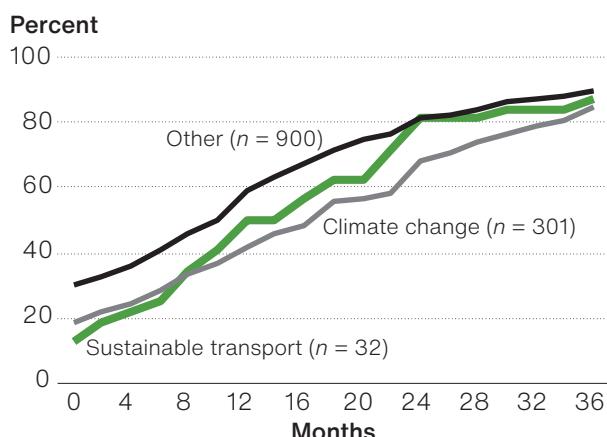
Project monitoring enables tracking of implementation progress and results, facilitates adaptive management and learning, and ensures credible reporting to external stakeholders. GEF Agencies develop project M&E plans that specify process and results indicators, responsibilities, frequency, reporting procedures, and a budget to support these activities. The Agencies are responsible for updating these plans, as required, and for their implementation.

Less than half the projects were rated as having satisfactory M&E design and implementation; this proportion is lower than for both the overall GEF and climate change portfolios (figure 8.3). Only 37 percent of the completed sustainable transport projects were rated in the satisfactory range for M&E design and 46 percent for M&E implementation, compared to 67 percent and 66 percent, respectively, for the entire GEF portfolio. Gaps in specification of indicators are prevalent (figure 8.4).

8.3 Cofinancing

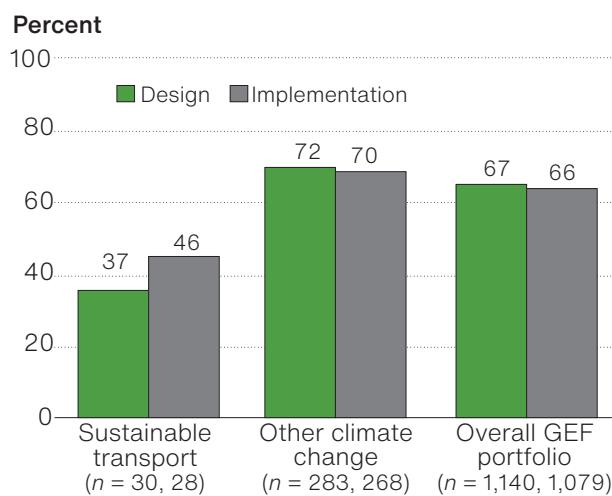
On average, sustainable transport projects obtain higher cofinancing commitments per dollar of GEF grant than other projects in the GEF portfolio. The demand for sustainable transport projects is relatively higher in upper-middle-income countries (and countries with larger urban populations); thus,

FIGURE 8.2 Cumulative distribution of completed GEF projects by number of months' extension required



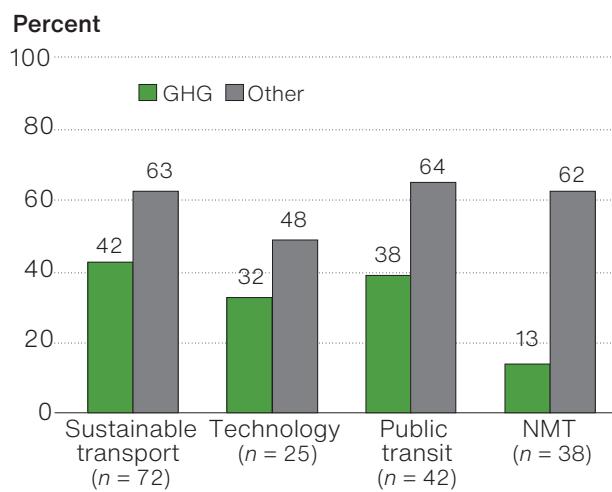
SOURCE: GEF IEO terminal evaluation review data set.

FIGURE 8.3 Percentage of GEF projects rated in the satisfactory range for quality of M&E



SOURCE: GEF IEO terminal evaluation review data set.

FIGURE 8.4 Completed sustainable transit projects with GHG-relevant indicators specified in the monitoring plan



SOURCE: GEF IEO terminal evaluation review data set.

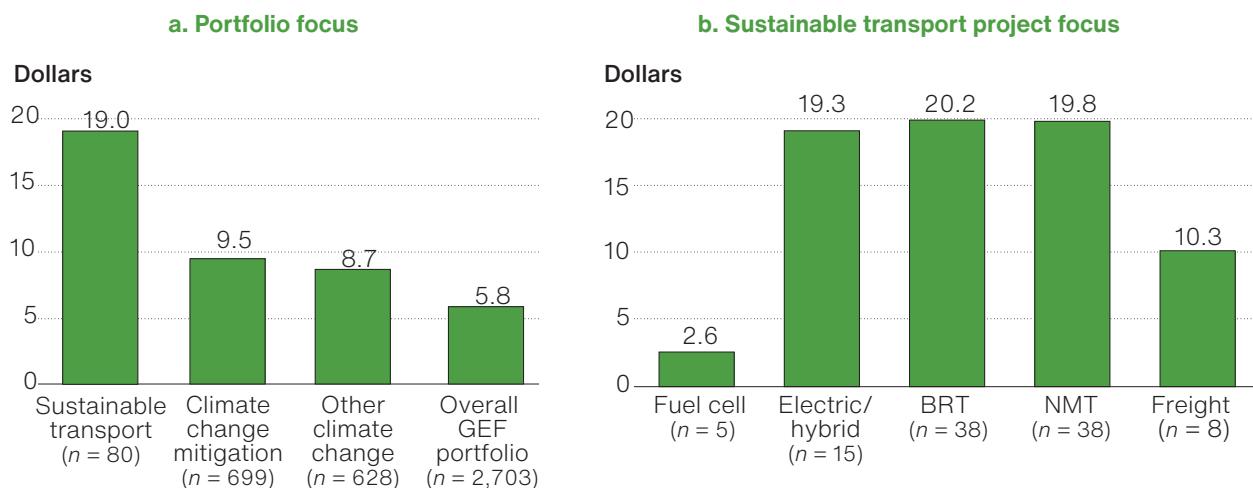
the higher cofinancing ratio is consistent with the GEF policy of seeking higher levels of cofinancing in these countries. Figure 8.5a presents a comparison of various overlapping project categories based on average cofinancing commitments per dollar of GEF grant.

Fuel cell bus projects received relatively low levels of cofinancing commitments compared to other projects (figure 8.5b). Two reasons underlie this. First, four out of the five fuel cell bus projects were approved in GEF-2, when cofinancing was not as high a priority for the GEF. Second, the fuel cell bus technology-focused projects were supported at a time when the technology was still quite expensive. Although the recipient countries were eager to document and learn from the bus trials, they were not as willing to make significant commitments upfront. Other categories of sustainable transport projects generate higher level of cofinancing commitments.

The GEF PMIS provides information on sources of promised cofinancing. Data for 73 sustainable transport projects are available; these show that recipient governments account for 57 percent of total promised cofinancing, GEF Agencies—mostly multilateral development banks—for 29 percent, private sector organizations for 4 percent, and other entities for the remainder.

A higher level of cofinancing was realized for sustainable transport projects compared to other projects in the GEF portfolio. Compared to the GEF portfolio average of 136 percent materialization compared to promised cofinancing, the average materialization of cofinancing for sustainable transport projects is 189 percent (figure 8.6a). However, a few large projects drive the average. In terms of the extent to which cofinancing commitments were fully met or exceeded, there is little difference between sustainable transport projects, climate change projects, and the GEF project portfolio as a whole (figure 8.6b). A low level of materialization may hamper projects, as some activities may be dropped or curtailed.

FIGURE 8.5 Promised cofinancing per dollar of GEF grant by portfolio focus and type of sustainable transport project



SOURCE: Compiled from project documents.

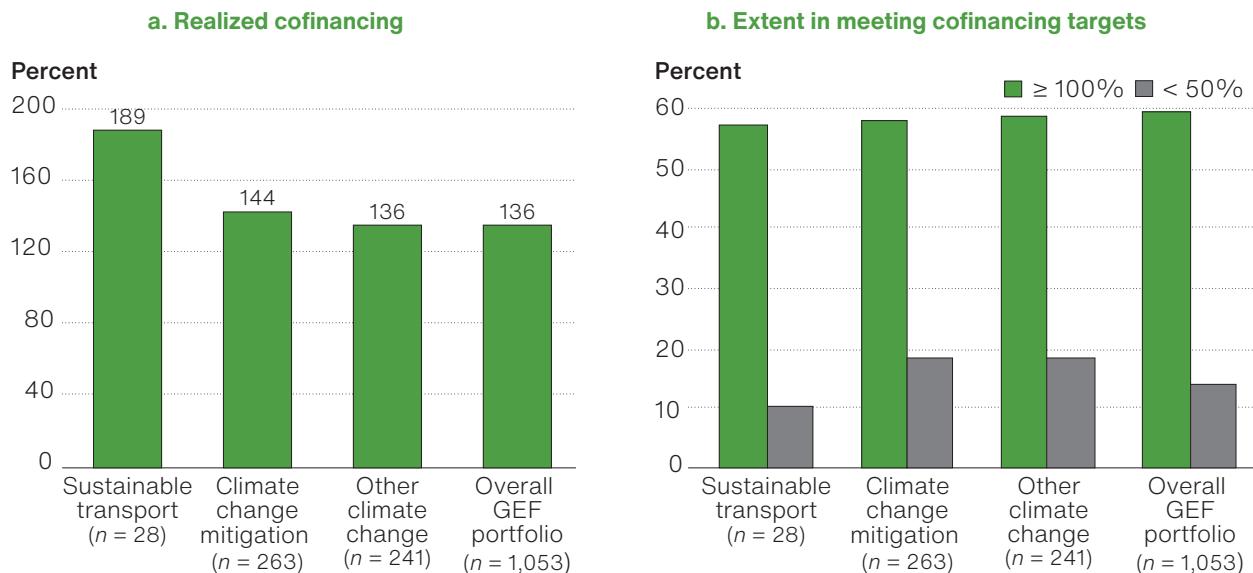
8.4 Inclusion of vulnerable groups

Sustainable transport interventions can enhance the mobility of covered populations and provide easier access to socioeconomic opportunities. Depending on the context, environmentally sustainable interventions can mitigate or aggravate socioeconomic inequities or be neutral. For example, BRT systems developed under separate GEF projects in Mexico City, Santiago, and Lagos enhance the mobility of poor communities that use this mode of transit more than do other income groups. However, if such infrastructure is targeted toward the population with relatively higher incomes, it may exacerbate inequalities. Socioeconomic safeguards are thus very important. To minimize the risk of harm to the covered population, especially of vulnerable groups, they should have a voice in the design and implementation of GEF activities.

Implementation experience from sustainable transport projects shows why social and environmental safeguards are important to minimize reputational risks for the GEF. The terminal evaluation for Metro

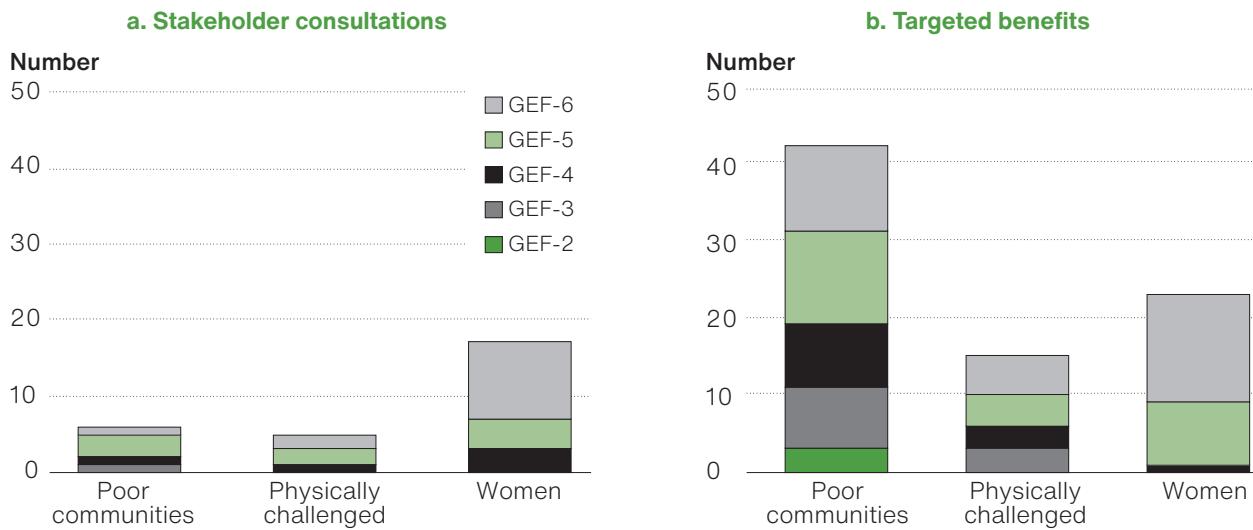
Manila Urban Transport Integration Project (GEF ID 785; World Bank) notes that some people had to be relocated after providing compensation. The process for land acquisition and resettlement took considerable time and led to delays, and a few cases were still under trial at the time of project completion. The pedestrian improvements for BRT stations implemented as part of the Bus Rapid Transit and Pedestrian Improvements in Jakarta were not designed to provide access to people with physical disabilities; therefore, the improvements did little to improve mobility options for this group. Both projects were designed before the GEF social and environmental safeguard policies were adopted. Consultations with vulnerable groups can help reduce these risks. However, relatively few approved projects reported having consulted with vulnerable groups during project preparation—although increasingly a higher percentage of projects are incorporating consultations with women's groups in their design (figure 8.7a). A larger number of projects include specific activities aimed at benefiting vulnerable communities (figure 8.7b). More recent projects are being designed to enhance benefits for women.

FIGURE 8.6 Materialized cofinancing by portfolio focus



SOURCE: Compiled from project documents and terminal evaluations.

FIGURE 8.7 GEF sustainable transport project inclusion of vulnerable groups in project design



SOURCE: Compiled from project documents and terminal evaluations.

NOTE: n = 80.

The information from terminal evaluations for the 32 completed projects indicates that a sizable proportion of projects provided benefits or are likely to provide benefits to poor communities (34 percent),

physically challenged (19 percent), and women (19 percent). But consultations with physically challenged people, poor communities, and women's groups were almost nonexistent.

8.5 Agency performance

GEF Agencies play an important role in project design and implementation. Most of the completed projects in the sustainable transport portfolio were implemented by UNDP and the World Bank. Although there is little difference in quality ratings among the projects implemented by the two

Agencies, those implemented by UNDP are more likely to be rated in the satisfactory range for M&E design and M&E implementation (table 8.1). The number of completed projects implemented by UNEP is too small to make inferences.

TABLE 8.1 Projects with performance ratings in the satisfactory/likely range by Agency

Agency	Outcomes		Sustainability		M&E design		M&E implementation		Quality of implementation		Quality of execution	
	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.
UNDP	32	16	69	16	60	15	60	15	64	14	73	15
UNEP	75	4	100	3	0	3	67	3	75	4	75	4
World Bank	75	12	60	10	17	12	20	10	70	10	80	10
Total	72	32	70	30	37	30	46	28	68	28	76	29

SOURCE: GEF IEO terminal evaluation review data set.

APR 2019 project cohort

GEF ID	Name	Agency	Country	GEF period	Out-come rating
1901	Bangladesh: Improving Kiln Efficiency for the Brick Industry	UNDP	Bangladesh	GEF-3	MU
1917	Reducing Greenhouse Gas Emissions with Bus Rapid Transit	UNEP	Global	GEF-3	S
2261	Building Regional Partnerships to Assist Developing Countries to Reduce the Transfer of Harmful Aquatic Organisms in Ships' Ballast Water (GloBallast Partnerships)	UNDP	Global	GEF-4	HS
2403	LDC/SIDS Portfolio Project: Capacity Building for Sustainable Land Management	UNDP	Mauritius	GEF-3	S
2416	Mainstreaming Biodiversity in Lao PDR's Agricultural and Land Management Policies, Plans and Programmes	UNDP	Lao PDR	GEF-4	MS
2505	Sustainable Forest Management in the Transboundary Gran Chaco American Ecosystem	UNEP	Regional	GEF-4	MU
2568	Marshall Islands: Action for the Development of Marshall Islands Renewable Energies (ADMIRE)	UNDP	Marshall Islands	GEF-4	U
2602	WB/GEF MED: Alexandria Coastal Zone Management Project	WB	Egypt, Arab Rep.	GEF-4	S
2693	Strengthening Biodiversity Conservation through the National Protected Areas Program	WB	Peru	GEF-4	MS
2732	Institutional Strengthening and Coherence for Integrated Natural Resources Management	UNDP	Iran, Islamic Rep.	GEF-4	MS
2753	Participatory Coastal Zone Restoration and Sustainable Management in the Eastern Province of Post-Tsunami Sri Lanka	IFAD	Sri Lanka	GEF-3	MS
2824	Support the Implementation of the National Biosafety Framework	UNEP	Egypt, Arab Rep.	GEF-3	MS
2924	Development, Empowerment and Conservation in the Greater St. Lucia Wetland Park and Surrounding Region	WB	South Africa	GEF-4	MS
2927	Environmentally Sustainable Management of Medical Waste in China	UNIDO	China	GEF-4	MS
2941	Market Transformation for Energy Efficiency in Buildings	UNDP	Brazil	GEF-4	MS
2949	Critical Ecosystem Partnership Fund Project – Phase 2	WB	Global	GEF-3	S
2951	Energy Efficiency Financing	WB	China	GEF-4	S

GEF ID	Name	Agency	Country	GEF period	Outcome rating
2995	Demonstrating and Promoting Best Techniques and Practices for Managing Health Care Waste and PCBs	WB	Tunisia	GEF-4	S
3040	Support the Implementation of the National Biosafety Framework of Liberia	UNEP	Liberia	GEF-4	MU
3045	Implementation of the National Biosafety Framework for Ghana	UNEP	Ghana	GEF-4	S
3132	Sustainable Land Management of the Upper Watersheds of Southwestern Haiti	IDB	Haiti	GEF-4	MU
3176	LDC/SIDS Portfolio Project: Capacity Building in and Mainstreaming of Sustainable Land Management in East Timor	UNDP	Timor-Leste	GEF-3	MS
3213	LDC/SIDS Portfolio Project: Capacity Building for Sustainable Land Management in Niue	UNDP	Niue	GEF-3	MU
3216	Standards and Labels for Promoting Energy Efficiency in Russia	UNDP	Russian Fed.	GEF-4	U
3242	Adaptation to Climate Change in the Nile Delta through Integrated Coastal Zone Management	UNDP	Egypt, Arab Rep.	GEF-4	MU
3313	SP-SFIF: Kenya Coastal Development Project	WB	Kenya	GEF-3	MS
3383	Agricultural and Rural Rehabilitation and Development Initiative	IFAD	Niger	GEF-4	S
3398	SIP: Eastern Nile Transboundary Watershed Management in Support of ENSAP Implementation	WB	Regional	GEF-4	MS
3432	LDC/SIDS Portfolio Project: Sustainable Land Management	UNDP	Angola	GEF-3	MS
3456	LDC/SIDS Portfolio Project: Capacity Building for Sustainable Land Management in the Dominican Republic	UNDP	Dominican Republic	GEF-3	MS
3457	Global Market Transformation for Efficient Lighting	UNEP	Global	GEF-4	S
3460	LDC/SIDS Portfolio Project: Capacity Building for Sustainable Land Management in the Commonwealth Dominica	UNDP	Dominica	GEF-3	S
3475	LDC/SIDS Portfolio Project: Mainstreaming and Capacity Building for Sustainable Land Management in Belize	UNDP	Belize	GEF-3	S
3481	LDC/SIDS Portfolio Project: Sustainable Land Management in Guinea-Bissau	UNDP	Guinea-Bissau	GEF-3	MU
3486	LDC/SIDS Portfolio Project: Capacity Building and Mainstreaming of Sustainable Land Management in Suriname	UNDP	Suriname	GEF-3	U
3487	LDC/SIDS Portfolio Project: Capacity Building for Sustainable Land Management in Jamaica	UNDP	Jamaica	GEF-3	MS
3488	LDC/SIDS Portfolio Project: Capacity Building for Sustainable Land Management in Kiribati	UNDP	Kiribati	GEF-3	MS
3489	LDC/SIDS Portfolio Project: Capacity Building for Sustainable Land Management in the Solomon Islands	UNDP	Solomon Islands	GEF-3	U
3491	LDC/SIDS Portfolio Project: Capacity Building and Mainstreaming of Sustainable Land Management in St. Vincent and the Grenadines	UNDP	St. Vincent and the Grenadines	GEF-3	MS
3492	LDC/SIDS Portfolio Project: Capacity Building for Sustainable Land Management for Nauru	UNDP	Nauru	GEF-3	MS
3493	LDC/SIDS Portfolio Project: Capacity Building and Mainstreaming of Sustainable Land Management	UNDP	Fiji	GEF-3	S
3494	LDC/SIDS Portfolio Project: Capacity Building for Sustainable Land Management in St. Kitts and Nevis	UNDP	St. Kitts and Nevis	GEF-3	S
3495	LDC/SIDS Portfolio Project: Capacity Building for Sustainable Land Management in Tonga	UNDP	Tonga	GEF-3	MU
3496	LDC/SIDS Portfolio Project: Capacity Building for Sustainable Land Management in the Republic of Marshall Islands	UNDP	Marshall Islands	GEF-3	MU

GEF ID	Name	Agency	Country	GEF period	Outcome rating
3497	LDC/SIDS Portfolio Project: Capacity Building for Sustainable Land Management in Barbados	UNDP	Barbados	GEF-3	U
3498	LDC/SIDS Portfolio Project: Capacity Building for Sustainable Land Management in the Federated States of Micronesia	UNDP	Micronesia	GEF-3	MS
3500	LDC/SIDS Portfolio Project: Capacity Building and Mainstreaming of Sustainable Land Management in Saint Lucia	UNDP	St. Lucia	GEF-3	MS
3501	LDC/SIDS Portfolio Project: Capacity Building for Sustainable Land Management for Mitigation of Land Degradation in Palau	UNDP	Palau	GEF-3	S
3502	LDC/SIDS Portfolio Project: Capacity Building and Mainstreaming for Sustainable Land Management in Vanuatu	UNDP	Vanuatu	GEF-3	MU
3503	LDC/SIDS Portfolio Project: Capacity Building for Sustainable Land Management in Papua New Guinea	UNDP	Papua New Guinea	GEF-3	MU
3504	LDC/SIDS Portfolio Project: Capacity Building for Sustainable Land Management in Tuvalu	UNDP	Tuvalu	GEF-3	MS
3505	LDC/SIDS Portfolio Project: Building Capacity and Mainstreaming Sustainable Land Management in Maldives	UNDP	Maldives	GEF-3	MU
3508	LDC/SIDS Portfolio Project: Capacity Building for Sustainable Land Management in the Cook Islands	UNDP	Cook Islands	GEF-3	S
3510	LDC/SIDS Portfolio Project: Capacity Building for Sustainable Land Management in Sierra Leone	UNDP	Sierra Leone	GEF-3	
3512	LDC/SIDS Portfolio Project: Capacity Building and Mainstreaming of Sustainable Land	UNDP	Grenada	GEF-3	S
3516	LDC/SIDS Portfolio Project: Capacity Development and Mainstreaming for Sustainable Land Management in Guyana	UNDP	Guyana	GEF-3	MS
3526	Expanding Coverage and Strengthening Management Effectiveness of the Terrestrial Protected Area Network on the Island of Mauritius	UNDP	Mauritius	GEF-4	MS
3534	Promoting Clean Electric Buses for the Beijing Olympics	UNDP	China	GEF-4	S
3542	Capacity Building for Environmentally Sound PCBs Management and Disposal	UNIDO	Mongolia	GEF-4	S
3555	Energy Efficiency Improvements in Commercial Buildings	UNDP	India	GEF-4	MS
3558	SP-SFIF: West Africa Regional Fisheries Program	WB	Regional	GEF-3	MS
3575	Support for the Consolidation of a Protected Area System in Guinea-Bissau's Forest Belt	UNDP	Guinea-Bissau	GEF-4	S
3593	Market Transformation Programme on Energy Efficiency in Greenhouse Gas-Intensive Industries in Russia	EBRD	Russian Fed.	GEF-4	S
3598	Buildings Sector Energy Efficiency Project	UNDP	Malaysia	GEF-4	MU
3618	Sustainable Management of Nyika Transfrontier Conservation Area	WB	Regional	GEF-4	MS
3623	Argentina: Establishment of Incentives for the Conservation of Ecosystem Services of Global Significance	UNDP	Argentina	GEF-4	MU
3633	Implementation of the National Biosafety Framework	UNEP	Peru	GEF-4	MU
3636	Building Capacity for the Detection and Monitoring of Living Modified Organisms in Cambodia Biosafety Program	UNEP	Cambodia	GEF-4	MU
3644	Institutional Capacity Building Towards the Implementation of the Biosafety Act 2006 and Related Obligations to the Cartagena Protocol on Biosafety	UNEP	Namibia	GEF-4	S
3651	Development and Institution of a National Monitoring and Control System (Framework) for Living Modified Organisms and Invasive Alien Species	UNEP	Cameroon	GEF-4	MU

GEF ID	Name	Agency	Country	GEF period	Out-come rating
3655	Support for the Implementation of the National Biosafety Framework of Nigeria	UNEP	Nigeria	GEF-4	S
3659	Building Energy Efficiency in the North West of Russia	UNDP	Russian Fed.	GEF-4	MU
3695	Project for Market and Pasture Management Development	IFAD	Mongolia	GEF-4	S
3699	Promotion of Agrofuel Use in Mali	UNDP	Mali	GEF-4	MS
3716	Integrating Adaptation to Climate Change into Agricultural Production and Food Security	IFAD	Sierra Leone	GEF-4	MS
3717	SFM Sustainable Management of Biodiversity and Water Resources in the Ibarra-San Lorenzo Corridor	IFAD	Ecuador	GEF-4	U
3743	Provincial Energy Efficiency Scale-Up Program	WB	China	GEF-4	S
3748	Launching Protected Area Network Management and Building Capacity in Post-Conflict Southern Sudan	UNDP	South Sudan	GEF-4	MU
3755	Phasing out Incandescent Lamps through Lighting Market Transformation in Vietnam	UNEP	Vietnam	GEF-4	S
3761	Sustainable Management of the Mbe River Forested Watershed through the Development of a Payments for Ecosystem Services Mechanism	UNDP	Gabon	GEF-4	U
3763	Expansion and strengthening of Mali's Protected Area system	UNDP	Mali	GEF-4	MS
3771	Chiller Energy Efficiency Project	WB	Philippines	GEF-4	S
3821	Sustainable Community-Based Management and Conservation of Mangrove Ecosystems in Cameroon	FAO	Cameroon	GEF-4	S
3825	Mountains and Markets: Biodiversity and Business in Northern Pakistan	UNDP	Pakistan	GEF-4	S
3827	SPWA-CC: Nigeria Urban Transport	WB	Nigeria	GEF-4	MS
3831	Conservation and Sustainable Use of Biodiversity and Land in the Andean Vertical Ecosystems	IDB	Bolivia	GEF-4	NR
3841	Improvement of Early Warning System to Reduce Impacts of Climate Change and Capacity Building to Integrate Climate Change into Development Plans	UNEP	Lesotho	GEF-4	MS
3858	Sustainable Financing and Management of Eastern Caribbean Marine Ecosystems	WB	Regional	GEF-4	S
3873	Developing and Demonstrating Replicable Protected Area Management Models at Nam Et-Phou Louey National Protected Area	WB	Lao PDR	GEF-4	MS
3884	Country Partnership Programme for Sustainable Land Management: Sub-Programme for the Centre-West Region	UNDP	Burkina Faso	GEF-3	S
3889	Mainstreaming Biodiversity Conservation through Low-Impact Ecotourism in the National Protected Areas System	IDB	Panama	GEF-4	S
3908	Industrial Energy Efficiency for Malaysian Manufacturing Sector	UNIDO	Malaysia	GEF-4	S
3909	Mainstreaming Biodiversity Conservation into Russia's Energy Sector Policies and Operations	UNDP	Russian Fed.	GEF-4	S
3922	SPWA-CC: Promoting Renewable Energy Based Mini Grids for Productive Uses in Rural Areas in The Gambia	UNIDO	Gambia, The	GEF-4	S
3930	Energy Efficient Standards and Labels in Colombia	UNDP	Colombia	GEF-4	HS
3933	Sustainable Management of Protected Areas and Forests of the Northern Highlands of Peru	IFAD	Peru	GEF-4	S
3941	Mainstreaming Coastal and Marine Biodiversity Conservation into Production Sectors in the Sindhudurg (Malvan) Coast, Maharashtra State, India	UNDP	India	GEF-4	MS

GEF ID	Name	Agency	Country	GEF period	Out-come rating
3942	AFLDC: Capacity Strengthening and Technical Assistance for the Implementation of Stockholm Convention National Implementation Plans in African Least Developed Countries of the SADC Subregion	UNEP	Regional	GEF-4	MS
3951	Expanding FSC Certification at Landscape-Level through Incorporating Additional Eco-System Services	UNEP	Global	GEF-4	HS
3968	AFLDC: Capacity Strengthening and Technical Assistance for the Implementation of Stockholm Convention National Implementation Plans in African Least Developed Countries of the COMESA Subregion	UNEP	Regional	GEF-4	MS
3969	AFLDC: Capacity Strengthening and Technical Assistance for the Implementation of Stockholm Convention National Implementation Plans in African Least Developed Countries of the ECOWAS Subregion	UNEP	Regional	GEF-4	MS
3972	Vietnam Clean Production and Energy Efficiency Project	WB	Vietnam	GEF-4	S
3979	Integrating Climate Resilience into Agricultural Production for Food Security in Rural Areas of Mali	FAO	Mali	GEF-4	S
3984	SPWA-BD: Development of a Trans-frontier Conservation Area Linking Forest Reserves and Protected Areas in Ghana and Cote d'Ivoire	FAO	Regional	GEF-4	MS
4000	PAS: Low Carbon-Energy Islands – Accelerating the Use of Energy Efficient and Renewable Energy Technologies in Tuvalu, Niue and Nauru	UNEP	Regional	GEF-4	MS
4001	MED: Sustainable Governance and Knowledge Generation	WB	Global	GEF-4	MS
4008	Reducing GHG Emissions from Road Transport in Russia's Medium-Sized Cities	UNDP	Russian Fed.	GEF-4	MS
4014	Management of PCBs Stockpiles and Equipment Containing PCBs	UNDP	Rwanda	GEF-4	MS
4026	SPWA: Rationalising and Strengthening the Conservation Role of Togo's National System of Protected Areas System	UNDP	Togo	GEF-4	MS
4067	Support for the Implementation of the National Biosafety Framework	UNEP	Turkey	GEF-4	MS
4077	Capacity Building for the Implementation of the National Biosafety Framework of Swaziland	UNEP	Swaziland	GEF-4	S
4080	SPWA: Participatory Biodiversity Conservation and Low Carbon Development in Pilot Ecovillages in Senegal	UNDP	Senegal	GEF-4	MS
4082	National Biodiversity Project	UNDP	Angola	GEF-5	MU
4083	CBSP: Integrated Management of Mangrove and Associated Wetlands and Coastal Forests Ecosystems of the Republic of Congo	FAO	Congo, Rep.	GEF-4	MS
4085	Amazon Region Protected Areas Program Phase 2	WB	Brazil	GEF-4	MS
4149	Mitigating Climate Change through Sustainable Forest Management and Capacity Building in the Southern States of Mexico (States of Campeche, Chiapas and Oaxaca)	IFAD	Mexico	GEF-4	NR
4157	Promotion of Biomass Production and Utilization in Georgia	UNDP	Georgia	GEF-4	U
4160	Technology Transfer and Market Development for Small Hydropower in Tajikistan	UNDP	Tajikistan	GEF-4	MS
4165	Promoting Energy Efficiency in Commercial Buildings in Thailand	UNDP	Thailand	GEF-4	MS
4221	SPWA: Protected Area Buffer Zone Management in Burkina Faso	UNDP	Burkina Faso	GEF-4	MS
4228	Improving Energy Efficiency in Residential Buildings in the Republic of Belarus	UNDP	Belarus	GEF-4	MS
4234	Climate Change Adaptation Project in the Areas of Watershed Management and Water Retention	IFAD	Senegal	GEF-5	NR

GEF ID	Name	Agency	Country	GEF period	Outcome rating
4254	Mitigation Options of Greenhouse Gas Emissions in Key Sectors in Brazil	UNEP	Brazil	GEF-4	MS
4276	Adaptation in the Coastal Zones of Mozambique ^a	UNDP	Mozambique	GEF-5	MU
4368	Promoting a Value Chain Approach to Climate Change Adaptation In Agriculture in Ghana	IFAD	Ghana	GEF-5	MU
4383	Fifth Operational Phase of the GEF Small Grants Programme in India	UNDP	India	GEF-5	MS
4417	Developing National Capacity for Environmentally Sound Management and Disposal of PCBs in Colombia	UNDP	Colombia	GEF-5	HS
4447	Strengthening Climate Resilience and Reducing Disaster Risk in Agriculture to Improve Food Security in Haiti Post Earthquake	FAO	Haiti	GEF-5	S
4468	Landscape Approach to Management of Peatlands Aiming at Multiple Ecological Benefits	UNDP	Belarus	GEF-5	S
4479	Sustainable Forest Management and Biodiversity Conservation	UNDP	Guatemala	GEF-5	MS
4489	A Transboundary Waters Assessment Programme: Aquifers, Lake/Reservoir Basins, River Basins, Large Marine Ecosystems, and Open Ocean to Catalyze Sound Environmental Management	UNEP	Global	GEF-5	S
4494	Integrated Ecosystem Approach to Biodiversity Mainstreaming and Conservation in the Buffer Zones of the Obo and Principe Natural Parks	IFAD	São Tomé and Príncipe	GEF-5	NR
4544	Improved Management Effectiveness of the Chobe Linyanti Protected Area Cluster	UNDP	Botswana	GEF-5	U
4554	Effective Governance for Small-Scale Rural Infrastructure and Disaster Preparedness in a Changing Climate	UNDP	Lao PDR	GEF-5	MU
4560	5th Operational Phase of the GEF Small Grants Program in Brazil	UNDP	Brazil	GEF-5	S
4562	Mongolia's Network of Managed Resource Protected Areas	UNDP	Mongolia	GEF-5	S
4569	Improve the Health and Environment of Artisanal and Small-Scale Gold Mining Communities by Reducing Mercury Emissions and Promoting Sound Chemical Management	UNIDO	Regional	GEF-5	NR
4570	Adapting Agriculture Production in Togo	IFAD	Togo	GEF-5	MU
4584	Improving Sustainability of PA system in Desert Ecosystems through Promotion of Biodiversity-Compatible Livelihoods in and around PAs	UNDP	Kazakhstan	GEF-5	S
4585	Enhancing the Resilience of Tourism-Reliant Communities to Climate Change Risks	UNDP	Samoa	GEF-5	MU
4586	Mainstreaming Biodiversity Conservation into Tourism Sector Development in Jordan's Petra	UNDP	Jordan	GEF-5	S
4609	Strengthening the Resilience of Post Conflict Recovery and Development to Climate Change Risks in Sri Lanka	UNDP	Sri Lanka	GEF-5	MS
4619	Third National Communication to the UNFCCC	UNDP	Colombia	GEF-5	S
4692	Strengthening Resilience of Farming Communities' Livelihoods against Climate Changes in the Guinean Prefectures of Gaoual, Koundara and Mali	UNDP	Guinea	GEF-5	S
4696	Strengthening the Resilience of Small Scale Rural Infrastructure and Local Government Systems to Climatic Variability and Risk	UNDP	Timor-Leste	GEF-5	MS
4720	Land Rehabilitation and Rangelands Management in Small Holders Agro-Pastoral Production Systems in South Western Angola	FAO	Angola	GEF-5	S
4729	Strengthening the Capacity of the Protected Area System to Address New Management Challenges	UNDP	Namibia	GEF-5	HS
4741	Integrated and Environmentally Sound PCBs Management in Ecuador	UNDP	Ecuador	GEF-5	MS

GEF ID	Name	Agency	Country	GEF period	Out-come rating
4742	Green Urban Lighting	UNDP	Armenia	GEF-5	S
4749	Small Decentralized Renewable Energy Power Generation	UNDP	Lebanon	GEF-5	MS
4765	Strengthening National and Decentralized Management for Global Environmental Benefits	UNDP	Togo	GEF-5	S
4777	Mainstreaming of the Use and Conservation of Agrobiodiversity in Public Policies through Integrated Strategies and <i>in situ</i> Implementation in Three Provinces in the Andean Highlands	FAO	Ecuador	GEF-5	MS
4836	Conservation, Sustainable Use of Biodiversity, and Maintenance of Ecosystem Services of Internationally Important Protected Wetlands	UNDP	Costa Rica	GEF-5	HS
4868	CBPF-MSL: Strengthening the Management Effectiveness of the Protected Area Network in the Daxinganling Landscape	UNDP	China	GEF-5	MS
4870	CBPF-MSL: Strengthening the Management Effectiveness of the Wetland Protected Area System in Hubei Province	UNDP	China	GEF-5	MS
4896	CBPF-MSL: Strengthening the Management Effectiveness of the Wetland Protected Area System in Anhui Province	UNDP	China	GEF-5	MS
4913	Integrating Rio Convention Provisions into Ukraine's National Environmental Policy Framework	UNDP	Ukraine	GEF-5	MS
4933	Third National Communication to the UNFCCC	UNDP	Indonesia	GEF-5	S
4954	Community Agricultural Resource Management and Competitiveness	WB	Armenia	GEF-5	S
4967	Scaling-up Risk Transfer Mechanisms for Climate Vulnerable Agriculture-Based Communities in Mindanao	UNDP	Philippines	GEF-5	S
4991	Strengthening Climate Information and Early Warning Systems in Tanzania for Climate Resilient Development and Adaptation to Climate Change	UNDP	Tanzania	GEF-5	MS
4992	Strengthening Climate Information and Early Warning Systems	UNDP	Ethiopia	GEF-5	MS
4993	Strengthening Climate Information and Early Warning Systems	UNDP	Uganda	GEF-5	MS
4994	Early Warning Systems	UNDP	Malawi	GEF-5	U
5026	Badia Ecosystem and Livelihoods Project	WB	Jordan	GEF-5	S
5028	CCCD: Capacity Building for Mainstreaming MEA Objectives into Inter-Ministerial Structures and Mechanisms	UNDP	Costa Rica	GEF-5	MS
5040	Investment Promotion on Environmentally Sound Management of Electrical and Electronic Waste in East Africa with Focus on Ethiopia	UNIDO	Ethiopia	GEF-5	MU
5045	CCCD: Integrating Global Environment Commitments in Investment and Development Decision-Making	UNDP	Fiji	GEF-5	MU
5068	Protect Human Health and the Environment from Unintentional Releases of POPs and Mercury from the Unsound Disposal of Health Care Waste in Kyrgyzstan	UNDP	Kyrgyzstan	GEF-5	S
5146	Cleantech Program for SMEs in Malaysia	UNIDO	Malaysia	GEF-5	S
5157	Transforming the Market for Urban Energy Efficiency in Moldova by Introducing Energy Service Companies	UNDP	Moldova	GEF-5	U
5164	Capacity for Implementing Rio Conventions in Samoa	UNDP	Samoa	GEF-5	MS
5222	Pilot Project on the Development of Mercury Inventory in the Russian Federation	UNEP	Russian Fed.	GEF-5	S
5310	Enabling Transboundary Cooperation and Integrated Water Resources Management in the Chu and Talas River Basins	UNDP	Kyrgyzstan	GEF-5	MS
5355	Mainstreaming Biodiversity Conservation into Moldova's Territorial Planning Policies and Land-Use Practices	UNDP	Moldova	GEF-5	S

GEF ID	Name	Agency	Country	GEF period	Outcome rating
5399	Improvement of the Decision-Making Process through Introduction of Mechanisms of Economic Assessment of Fulfilling National Obligations under Global Environmental Agreements	UNDP	Kazakhstan	GEF-5	S
5420	Promoting the Application of the Nagoya Protocol through the Development of Nature-Based products, Benefit-Sharing and Biodiversity Conservation in Costa Rica	UNDP	Costa Rica	GEF-5	S
5439	Fighting against Wildlife Poaching and Illegal Trade in Africa: The Case of African Elephants	WB	Global	GEF-5	S
5450	Transforming the Global Aviation Sector: Emissions Reductions from International Aviation	UNDP	Global	GEF-5	MS
5464	Reducing Greenhouse Gas and Ozone Depleting Substance Emissions through Technology Transfer in Industrial Refrigeration	UNIDO	Vietnam	GEF-5	MS
5466	Reducing Greenhouse Gases and Ozone Depleting Substance Emissions through Technology Transfer in the Industrial Refrigeration and Air Conditioning Sector	UNIDO	Gambia, The	GEF-5	MU
5508	Transforming the Global Maritime Transport Industry towards a Low Carbon Future through Improved Energy Efficiency (GloMEEP)	UNDP	Global	GEF-5	S
5596	Sustainable Land Management in Churia Range, Nepal	WWF	Nepal	GEF-5	S
5789	Mainstreaming Sustainable Land Management to Improve the Makgadikgadi Ecosystem to Sustain the Livelihoods of Livestock Dependent Communities in the Makgadikgadi Area	UNDP	Botswana	GEF-5	MS
5838	Sustainable Urban Mobility Program for San José	IDB	Costa Rica	GEF-5	MS
9163	Enabling the Use of Global Data Sources to Assess and Monitor Land Degradation at Multiple Scales	CI	Global	GEF-6	S

SOURCES: GEF PMIS; GEF IEO terminal evaluation review data set.

NOTE: Agencies: CI = Conservation International; EBRD = European Bank for Reconstruction and Development; FAO = Food and Agriculture Organization of the United Nations; IDB = Inter-American Development Bank; IFAD = International Fund for Agricultural Development; WB = World Bank; WWF = World Wildlife Fund. Outcome ratings: HS = highly satisfactory, S = satisfactory, MS = moderately satisfactory, MU = moderately unsatisfactory, U = unsatisfactory, HU = highly unsatisfactory, NR = not rated.

a. Funded by the LDCF.

Terminal evaluation report review guidelines

The assessments in the terminal evaluation reviews are based largely on the information presented in the terminal evaluation report. If insufficient information is presented in a terminal evaluation report to assess a specific issue—such as, for example, quality of the project’s M&E system or a specific aspect of sustainability—then the preparer of the terminal evaluation reviews will briefly indicate so in that section and elaborate more if appropriate in the section of the review that addresses quality of the report. If the review’s preparer possesses other first-hand information—such as, for example, from a field visit to the project—and this information is relevant to the terminal evaluation reviews, then it should be included in the reviews only under the heading “Additional independent information available to the reviewer.” The preparer of the terminal evaluation review takes into account all the independent relevant information when verifying ratings.

A.1 Criteria for outcome ratings

Based on the information provided in the terminal evaluation report, the terminal evaluation review will make an assessment of the extent to

which the project’s major relevant objectives were achieved or are expected to be achieved,¹ relevance of the project results, and the project’s cost-effectiveness. The ratings on the outcomes of the project will be based on performance on the following criteria:²

- **Relevance.** Were project outcomes consistent with the focal area/operational program strategies and country priorities? Explain.
- **Effectiveness.** Are project outcomes commensurate with the expected outcomes (as described in the project document) and the problems the project was intended to address (that is, the original or modified project objectives)?

¹ Objectives are the intended physical, financial, institutional, social, environmental, or other development results to which a project or program is expected to contribute (OECD DAC 2002).

² Outcomes are the likely or achieved short-term and medium-term effects of an intervention’s outputs. Outputs are the products, capital goods, and services that result from a development intervention; these may also include changes resulting from the intervention that are relevant to the achievement of outcomes (OECD DAC 2002). For the GEF, environmental outcomes are the main focus.

- **Efficiency.** Include an assessment of outcomes and impacts in relation to inputs, costs, and implementation times based on the following questions: Was the project cost-effective? How does the project's cost/time versus outcomes equation compare to that of similar projects? Was the project implementation delayed due to any bureaucratic, administrative, or political problems and did that affect cost-effectiveness?

An overall rating will be provided according to the achievement and shortcomings in the three criteria ranging from highly satisfactory, satisfactory, moderately satisfactory, moderately unsatisfactory, unsatisfactory, highly unsatisfactory, and unable to assess.

The reviewer of the terminal evaluation will provide a rating under each of the three criteria (relevance, effectiveness, and efficiency). Relevance of outcomes will be rated on a binary scale: a satisfactory or an unsatisfactory rating will be provided. If an unsatisfactory rating has been provided on this criterion, the overall outcome achievement rating may not be higher than unsatisfactory. Effectiveness and efficiency will be rated as follows:

- **Highly satisfactory.** The project had no shortcomings.
- **Satisfactory.** The project had minor shortcomings.
- **Moderately satisfactory.** The project had moderate shortcomings.
- **Moderately unsatisfactory.** The project had noticeable shortcomings.
- **Unsatisfactory.** The project had major shortcomings.
- **Highly unsatisfactory.** The project had severe shortcomings.
- **Unable to assess.** The reviewer was unable to assess outcomes on this dimension.

The calculation of the overall outcomes score of projects will consider all three criteria, of which the relevance criterion will be applied first: the overall outcome achievement rating may not be higher than unsatisfactory. The second constraint applied is that the overall outcome achievement rating may not be higher than the effectiveness rating. The third constraint applied is that the overall rating may not be higher than the average score of the effectiveness and efficiency criteria calculated using the following formula:

$$\text{Outcomes} = (b + c) \div 2$$

In case the average score is lower than the score obtained after application of the first two constraints, then the average score will be the overall score. The score will then be converted into an overall rating with midvalues rounded upward.

A.2 Impacts

Has the project achieved impacts, or is it likely that outcomes will lead to the expected impacts? Impacts are understood to include positive and negative, primary and secondary, long-term effects produced by a development intervention. They could be produced directly or indirectly and could be intended or unintended. The terminal evaluation review's preparer will take note of any mention of impacts, especially global environmental benefits, in the terminal evaluation report including the likelihood that the project outcomes will contribute to their achievement. Negative impacts mentioned in the terminal evaluation report should be noted and recorded in Section 2 of the terminal evaluation review template in the subsection on "Issues that require follow-up." Although project impacts will be described, they will not be rated.

A.3 Criteria for sustainability ratings

Sustainability will be understood as the likelihood of continuation of project benefits after completion of project implementation (GEF 2000). To assess sustainability, the terminal evaluation reviewer will identify and assess the key risks that could undermine continuation of benefits at the time of the evaluation. Some of these risks might include the absence of or inadequate financial resources, an enabling legal framework, commitment from key stakeholders, and enabling economy. The following four types of risk factors will be assessed by the terminal evaluation reviewer to rate the likelihood of sustainability of project outcomes: financial, socio-political, institutional framework and governance, and environmental.

The following questions provide guidance to assess if the factors are met:

- a. **Financial resources.** What is the likelihood that financial resources will be available to continue the activities that result in the continuation of benefits (income-generating activities and trends that may indicate that it is likely that in future there will be adequate financial resources for sustaining project outcomes)?
- b. **Sociopolitical.** Are there any social or political risks that can undermine the longevity of project outcomes? What is the risk that the level of stakeholder ownership is insufficient to allow for project outcomes/benefits to be sustained? Do the various key stakeholders see it as in their interest that the project benefits continue to flow? Is there sufficient public/stakeholder awareness in support of the long-term objectives of the project?
- c. **Institutional framework and governance.** Do the legal frameworks, policies, and governance structures and processes pose any threat to the continuation of project benefits?

While assessing this parameter, consider if the required systems for accountability and transparency, and the required technical know-how, are in place.

- d. **Environmental.** Are there any environmental risks that can undermine the future flow of project environmental benefits? The terminal evaluation should assess whether certain activities in the project area will pose a threat to the sustainability of project outcomes. For example, construction of a dam in a protected area could inundate a sizable area and thereby neutralize the biodiversity-related gains made by the project.

The reviewer will provide a rating under each of the four criteria (financial resources, sociopolitical, institutional, and environmental) as follows:

- **Likely.** There are no risks affecting that criterion of sustainability.
- **Moderately likely.** There are moderate risks that affect that criterion of sustainability.
- **Moderately unlikely.** There are significant risks that affect that criterion of sustainability.
- **Unlikely.** There are severe risks affecting that criterion of sustainability.
- **Unable to assess.** Unable to assess risks on this dimension.
- **Not applicable.** This dimension is not applicable to the project.

A.4 Criteria for assessment of quality of project M&E systems

GEF projects are required to develop M&E plans by the time of work program inclusion to appropriately budget M&E plans and to fully carry out the M&E plans during implementation. Project managers are also expected to use the information generated by the M&E system during project implementation

to improve and adapt the project to changing situations. Given the long-term nature of many GEF projects, projects are also encouraged to include long-term monitoring plans that measure results (such as environmental results) after project completion. Terminal evaluation reviews will include an assessment of the achievement and shortcomings of M&E systems.

a. M&E design. Projects should have a sound M&E plan to monitor results and track progress in achieving project objectives. An M&E plan should include a baseline (including data, methodology, and so on), SMART (specific, measurable, achievable, realistic, and timely) indicators and data analysis systems, and evaluation studies at specific times to assess results. The time frame for various M&E activities and standards for outputs should have been specified. The questions to guide this assessment include: In retrospect, was the M&E plan at entry practicable and sufficient (sufficient and practical indicators identified; timely baseline; targets created; effective use of data collection; analysis systems including studies and reports; practical organization and logistics in terms of what, who, and when for M&E activities)?

b. M&E plan implementation. The M&E system was in place and allowed the timely tracking of results and progress toward project objectives throughout the project. Annual project reports were complete, accurate, and with well-justified ratings. The information provided by the M&E system was used to improve and adapt project performance. An M&E system should be in place with proper training for parties responsible for M&E activities to ensure that data will continue to be collected and used after project closure. The questions to guide this assessment include: Did the project M&E system operate throughout the project? How was M&E information used during the project? Did it allow for tracking of progress toward project objectives?

Did the project provide proper training for parties responsible for M&E activities to ensure data will continue to be collected and used after project closure?

c. Other questions. These include questions on funding and whether the M&E system was a good practice.

- Was sufficient funding provided for M&E in the budget included in the project document?
- Was sufficient and timely funding provided for M&E during project implementation?
- Can the project M&E system be considered a good practice?

A number rating of 1–6 will be provided for each criterion according to the achievement and shortcomings, with highly satisfactory = 6, satisfactory = 5, moderately satisfactory = 4, moderately unsatisfactory = 3, unsatisfactory = 2, highly unsatisfactory = 1, and unable to assess = no rating. The reviewer of the terminal evaluation will provide a rating under each of the three criteria (M&E design, M&E plan implementation, and M&E properly budgeted and funded) as follows:

- **Highly satisfactory.** There were no shortcomings in that criterion of the project M&E system.
- **Satisfactory.** There were minor shortcomings in that criterion of the project M&E system.
- **Moderately satisfactory.** There were moderate shortcomings in that criterion of the project M&E system.
- **Moderately unsatisfactory.** There were significant shortcomings in that criterion of the project M&E system.
- **Unsatisfactory.** There were major shortcomings in that criterion of the project M&E system.
- **Highly unsatisfactory.** There was no project M&E system.

GEF sustainable transport projects

GEF ID	Name	Agency	Country	GEF period	GEF funding (mil. \$)	Status
6	Brazil: Hydrogen Fuel Cell Buses for Urban Transport	UNDP	Brazil	GEF-2	12.27	C
31	Introduction of Viable Electric and Hybrid-Electric Bus Technology	UNDP	Egypt, Arab Rep.	GEF-2	0.75	C
785	Metro Manila Urban Transport Integration Project – Marikina Bikeways Project Component	WB	Philippines	GEF-2	1.30	C
819	Fuel Cell Bus and Distributed Power Generation Market Prospects and Intervention Strategy Options	UNEP	Global	GEF-2	0.69	C
941	Demonstration of Fuel Cell Bus Commercialization in China (Phase II-Part I)	UNDP	China	GEF-2	5.82	C
1081	Lima Urban Transport	WB	Peru	GEF-3	7.93	C
1155	Introduction of Climate Friendly Measures in Transport	WB	Mexico	GEF-2	5.80	C
1349	Sustainable Transport and Air Quality for Santiago	WB	Chile	GEF-3	6.98	C
1917	Reducing Greenhouse Gas Emissions with Bus Rapid Transit	UNEP	Global	GEF-3	0.72	C
2014	Incorporating Non-Motorized Transport Facilities in the City of Gaborone	UNDP	Botswana	GEF-3	0.89	C
2178	Promoting Sustainable Transport in Latin America	UNEP	Regional	GEF-3	0.96	C
2257	Demonstration of Fuel Cell Bus Commercialization in China, Phase 2	UNDP	China	GEF-3	5.77	C
2368	Hanoi Urban Transport Development	WB	Vietnam	GEF-3	9.80	C
2604	Sustainable Public Transport and Sport: A 2010 Opportunity	UNDP	South Africa	GEF-4	10.97	C
2609	GEF-World Bank-China Urban Transport Partnership Program	WB	China	GEF-4	21.00	C
2767	LAC Regional Sustainable Transport and Air Quality Project	WB	Regional	GEF-3	20.80	C
2776	Sustainable Transport	UNDP	Egypt, Arab Rep.	GEF-3	6.90	NC
2801	Promotion of Environmentally Sustainable Transport in Metropolitan Managua	UNDP	Nicaragua	GEF-3	3.88	NC
2876	SPWA-CC: Ouagadougou Transport Modal Shift	WB	Burkina Faso	GEF-4	0.91	C
2954	Bus Rapid Transit and Pedestrian Improvements in Jakarta	UNEP	Indonesia	GEF-3	5.81	C

GEF ID	Name	Agency	Country	GEF period	GEF funding (mil. \$)	Status
3027	Support to Sustainable Transport Management in Dushanbe	UNDP	Tajikistan	GEF-4	0.97	C
3241	Sustainable Urban Transport Program	WB	India	GEF-4	22.50	C
3433	Sustainable Mobility in the City of Bratislava	UNDP	Slovak Republic	GEF-4	0.93	C
3461	Promoting Sustainable Transport Solutions for East Africa	UNEP	Regional	GEF-4	2.85	NC
3534	Promoting Clean Electric Buses for the Beijing Olympics	UNDP	China	GEF-4	1.00	C
3539	Pakistan Sustainable Transport Project	UNDP	Pakistan	GEF-4	4.80	C
3759	Support to Sustainable Transport in the City of Belgrade	UNDP	Serbia	GEF-4	0.95	C
3824	Sino-Singapore Tianjin Eco-City Project	WB	China	GEF-4	6.16	C
3827	SPWA-CC: Nigeria Urban Transport	WB	Nigeria	GEF-4	4.50	C
4008	Reducing GHG Emissions from Road Transport in Russia's Medium-Sized Cities	UNDP	Russian Fed.	GEF-4	5.40	C
4013	Sustainable Transport in the City of Almaty	UNDP	Kazakhstan	GEF-4	4.89	C
4030	Greening 2014 Sochi Olympics: A Strategy and Action Plan for the Greening Legacy	UNDP	Russian Fed.	GEF-4	0.90	C
4130	Kathmandu Sustainable Urban Transport Project	ADB	Nepal	GEF-4	2.52	NC
4156	Eco-Transport in City Clusters: Model Development & Pilots	WB	China	GEF-4	4.80	C
4210	The Chiang Mai Sustainable Urban Transport Project	WB	Thailand	GEF-4	0.73	C
4215	Low Carbon Campaign for Commonwealth Games 2010 Delhi	UNDP	India	GEF-4	0.95	C
4488	Green Energy Schemes for Low-Carbon City in Shanghai, China	WB	China	GEF-5	4.35	NC
4500	GEF Large-City Congestion and Carbon Reduction Project	WB	China	GEF-5	18.18	NC
4921	Efficient and Sustainable City Bus Services	WB	India	GEF-5	9.20	NC
4931	ASTUD: Greater Dhaka Sustainable Urban Transport Corridor Project	ADB	Bangladesh	GEF-5	4.63	NC
4949	Low-Carbon Urban Mobility for Large Cities	IDB	Brazil	GEF-5	6.00	NC
5055	ASTUD: Mongolia Urban Transport Development Investment Program	ADB	Mongolia	GEF-5	1.39	NC
5086	Achieving Low Carbon Growth in Cities through Sustainable Urban Systems Management in Thailand	UNDP	Thailand	GEF-5	3.15	NC
5329	Green Technology Application for the Development of Low Carbon Cities	UNDP	Malaysia	GEF-5	4.35	NC
5358	Mainstreaming Climate Change in the National Logistics Strategy and Roll-Out of Integrated Logistics Platforms	UNDP	Morocco	GEF-5	2.27	NC
5372	Belarus Green Cities: Supporting Green Urban Development in Small and Medium Sized Cities in Belarus	UNDP	Belarus	GEF-5	3.09	NC
5373	Greening the Logistics Industry in Zhejiang Province	UNDP	China	GEF-5	2.91	NC
5396	National Urban Transport Improvement Project	WB	Russian Fed.	GEF-5	9.13	NC
5411	ASTUD: Jiangxi Fuzhou Urban Integrated Infrastructure Improvement Project	ADB	China	GEF-5	2.55	NC
5450	Transforming the Global Aviation Sector: Emissions Reductions from International Aviation	UNDP	Global	GEF-5	1.95	NC
5468	Green Cities: Integrated Sustainable Transport in the City of Batumi and the Achara Region	UNDP	Georgia	GEF-5	0.85	NC
5508	Transforming the Global Maritime Transport Industry towards a Low Carbon Future through Improved Energy Efficiency (GloMEEP)	UNDP	Global	GEF-5	1.90	C

GEF ID	Name	Agency	Country	GEF period	GEF funding (mil. \$)	Status
5582	ASTUD: Jiangxi Ji'an Sustainable Urban Transport Project	ADB	China	GEF-5	2.55	NC
5627	ASTUD PRC Clean Bus Leasing	ADB	China	GEF-5	2.32	NC
5728	Accelerating the Development and Commercialization of Fuel Cell Vehicles in China	UNDP	China	GEF-5	8.23	NC
5737	Energy Efficient Low-Carbon Transport	UNIDO	South Africa	GEF-5	1.30	NC
5741	Energy Efficient Low-Carbon Transport in Malaysia	UNIDO	Malaysia	GEF-5	2.00	NC
5838	Sustainable Urban Mobility Program for San Jose	IDB	Costa Rica	GEF-5	1.78	NC
6974	Improving Mobility in Parakou	AfDB	Benin	GEF-6	1.83	NC
9038	San Salvador Low-Emission Urban Development Path	UNDP	EI Salvador	GEF-6	2.42	NC
9042	Moldova Sustainable Green Cities: Catalyzing Investment in Sustainable Green Cities in the Republic of Moldova Using a Holistic Integrated Urban Planning Approach	UNDP	Moldova	GEF-6	2.64	NC
9047	Green Logistics Program	EBRD	Regional	GEF-6	15.00	NC
9123	Cities-IAP: Sustainable Cities Initiative	WB	Senegal	GEF-6	8.72	NC
9127	Cities-IAP: Asuncion Green City of the Americas: Pathways to Sustainability	UNDP	Paraguay	GEF-6	7.49	NC
9130	Cities-IAP: Abidjan Integrated Sustainable Urban Planning and Management	AfDB	Cote d'Ivoire	GEF-6	5.25	NC
9142	Promoting Sustainable Cities in Brazil through Integrated Urban Planning and Innovative Technologies Investment	UNEP	Brazil	GEF-6	22.64	NC
9145	Cities-IAP: Building a Resilient and Resource-Efficient Johannesburg: Increased Access to Urban Services and Improved Quality of Life	DBSA	South Africa	GEF-6	8.09	NC
9146	Vientiane Sustainable Urban Transport Project	ADB	Lao PDR	GEF-6	1.84	NC
9147	Sustainable-City Development in Malaysia	UNIDO	Malaysia	GEF-6	2.75	NC
9151	Catalyzing Environmental Finance for Low-Carbon Urban Development	UNDP	Bosnia-Herzegovina	GEF-6	2.37	NC
9223	GEF China Sustainable Cities Integrated Approach Pilot	WB	China	GEF-6	32.73	NC
9226	Integrated Adoption of New Energy Vehicles in China	UNIDO	China	GEF-6	8.93	NC
9279	Sustainable Cities: Integrated Green Urban Development in Ashgabat and Awaza	UNDP	Turkmenistan	GEF-6	6.06	NC
9367	Bhutan Sustainable Low-Emission Urban Transport Systems	UNDP	Bhutan	GEF-6	2.64	NC
9480	Towards a Sustainable and Efficient Urban Mobility System in Uruguay	UNDP	Uruguay	GEF-6	1.72	NC
9567	Renewable Energy for the City of Marrakech's Bus Rapid Transit System	UNDP	Morocco	GEF-6	1.32	NC
9682	Achieving Efficient and Green Freight Transport Development	WB	China	GEF-6	8.25	NC
9698	National Platform for Sustainable Cities and Climate Change in Peru	IDB	Peru	GEF-6	6.42	NC
9706	Low-Carbon Transport Systems in the City of La Havana	UNDP	Cuba	GEF-6	1.96	NC
9742	Supporting the Chilean Low Emissions Transport Strategy	CAF	Chile	GEF-6	2.90	NC

SOURCE: GEF PMIS through June 2018.

NOTE: Project names: ASTUD = Asian Sustainable Transport and Urban Development; IAP = Integrated Approach Pilot; LAC = Latin America and the Caribbean; SPWA-CC = Strategic Program for West Africa–Climate Change. Agencies: AfDB = African Development Bank; CAF = Development Bank of Latin America; DBSA = Development Bank of Southern Africa; IDB = Inter-American Development Bank; WB = World Bank. Status: C = completed; NC = not completed.

Survey questions

D.1 Questions for approved projects

- Q1. Objectives and key outcomes of the project?
- Q2. Global environmental objectives of the project?
- Q3. Incremental reasoning for GEF funding?
- Focused entirely on global environmental benefits:
 - But no or little cofinancing
 - With significant cofinancing
 - Economic and financial viability of the project
 - Speeding up
 - Greening
 - No clear reasoning
 - Other (please specify)
- Q4. Which of the following types of activities will be undertaken within the framework of the project, and which of these are at least partially funded by the GEF?
- Development of transport-related legal and policy measures
 - Development of fuel efficiency and emissions-related standards
 - Capacity building of key decision makers and institutions
 - Capacity building of transportation professionals
 - Targeted research

- Land use and transportation planning (optimization, action plan, strategy development)
- Traffic monitoring and control support (hardware/software)
- Technology transfer/pilot/demonstration
- Development of transportation infrastructure (intermodal transit hubs, stations, bus rapid transit [BRT] lanes, roads, bike lanes, pedestrian bridges/tunnels, etc.)
- Knowledge management: publications, data sharing, course curriculum development, seminars, workshops, etc.
- Monitoring and evaluation
- Project management costs
- Other (please specify)

Global environmental benefits and co-benefits

- Q5. Have the Transport Emissions Evaluation Models for Projects (TEEMP) been used to calculate expected greenhouse gas benefits?
- Yes, TEEMP model used
 - No, TEEMP model not used
 - Unable to assess
 - If any other standard model was used, please specify
- Q6. What are the estimated carbon dioxide-equivalent (CO_2e) emissions abatement benefits?
- Lifetime CO_2e emissions reduction benefits (from transportation)

- Lifetime CO₂e emissions reduction benefits (from nontransportation-related activities)
- Lifetime CO₂e emissions reduction benefits (from all activities of the project)

Q7. What are the expected national, local, and private co-benefits?

- Fuel savings
- Pollution mitigation
- Health benefits
- Reduction in travel time
- Greater access to different modes of transportation
- Economic growth
- Public safety
- Mobility for economically disadvantaged groups
- Mobility for physically challenged
- Other (please specify)

Cleantech buses

- Q8. Does this project promote cleantech buses?
- Q9. Does GEF grant support at least partially support promotion of cleantech buses?
- Q10. Which types of cleantech buses are promoted by the project?
- Fuel cell buses
 - Hybrid buses
 - Electric buses
 - Fuel-efficient compressed natural gas (CNG) buses
 - Other (please specify)

Q11. Did the project support the following?

- Purchase of buses
- Construction of refuel, recharging stations
- Construction of stations
- Capacity building (of staff, technicians)
- Other (please specify)

Bus rapid transit

- Q12. Does this project provide support for BRT?
- Q13. Are the BRT-related activities undertaken as part of the project at least partially funded through the GEF grant?

Q14. What activities are being undertaken for BRT?

- Real-time information: in-bus information system, dynamic next bus information at stops, centralized bus vehicle location system
- Traffic signal prioritization
- New (cleantech) bus purchase
- Old bus retirement
- BRT stations
- Arterial streets
- High-occupancy vehicle (HOV) lane
- Busways
- Training/capacity building of BRT agency staff
- BRT planning
- Other (please specify)

Nonmotorized transport

- Q15. Does the project support nonmotorized transport (NMT)?
- Q16. Are NMT-related activities undertaken within the framework of the project at least partially funded through the GEF grant?
- Q17. What NMT activities were supported?

- Construction/improvement of bike lanes
- Bike-share arrangements
- Foot path construction/improvement
- Awareness campaign
- Other (please specify)

Cleantech cars

- Q18. Does the project support adoption of energy efficient/cleantech cars?
- Q19. Is adoption of energy efficient/cleantech cars supported through the project at least partially funded through the GEF grant?
- Q20. Which activities were undertaken by the project?

- Purchase of cleantech cars
- Subsidy for cleantech cars
- Refueling/charging stations for cleantech cars
- Awareness campaigns
- Capacity building
- Other (please specify)

Other modes

Q21. Were any of these interventions also implemented as part of the project? Also note whether these were at least partially funded by the GEF.

- Light/heavy rail transit
- Aviation
- Maritime/ship
- Freight
- Road
- Intermodal transit hubs
- None

Q22. Explain what activities would be undertaken as part of the above-specified interventions.

Urban and transport planning

Q23. Was land use and/or transport planning undertaken (or will be undertaken) as part of the project?

Q24. Is the transport planning to be undertaken as part of the project at least partially supported through the GEF grant?

Q25. Which of the following have been addressed (or will be addressed) through land use and/or transport planning?

- Land use alternatives
- Optimal location of public transit access facilities
- Compact urban development
- Walkable urban settlement
- Planning spatial distribution of retail outlets
- Planning spatial distribution of employment
- Intermodal transit hubs
- Capacity changes—assessing the optimal capacity
- Characteristics, traffic signal systems, etc., that may change capacity
- Other (please specify)

Traffic demand management

Q26. Does the project promote traffic demand management?

Q27. Are transportation/traffic demand management-related activities supported through the GEF grant?

Q28. Which of the following activities would be implemented under the transportation/traffic demand management framework?

- Promotion of ride sharing, carpooling
- Improving infrastructure for pedestrians
- Improving infrastructure for public transit users
- Bike-friendly facilities such as bike lockers, etc.
- Bike lanes
- Information infrastructure and tools for travelers
- Active traffic management: increasing peak capacity, managed lanes, etc.
- Road-space reallocation across modes
- Other (please specify)

Q29. Did the project promote any of the following fiscal measures/incentives/disincentives relevant for traffic demand management?

- Gasoline taxes
- Road/bridge tolls
- Pricing of public transit
- Parking fees
- Flex-time work schedules with employers
- Congestion pricing in highways
- Congestion pricing in cities
- Higher taxes on private vehicles
- Time, distance, and place-based road use pricing
- Restriction on vehicle use (by day/time of day/or other metrics)
- Incentives for low-carbon fuels
- Other (please specify)

Legal/policy/regulatory

Q30. Does the project provide support for changing/updating the transportation-related legal, policy, and regulatory framework?

Q31. Are these activities at least partially supported through the GEF grant?

Q32. Which of the following have been addressed by the project?

- Laws/legal framework: specify
- Transportation policy: specify
- Transportation-related regulations: specify

Capacity building

- Q33. Does the project support any capacity-building/development activities?
- Q34. Were capacity development activities at least partially supported through the GEF grant?
- Q35. What capacity-building activities were undertaken?
- Establishment of new transportation-relevant institutions
 - Training and workshops
 - Seminars and conferences
 - Exposure visits
 - Introduction of transportation courses in academic centers
 - Platform to bring together various stakeholders in transportation for regular consultations
 - Other (please specify)
- Q36. What were the capacity-building activities aimed at?
- Establishment of an agency for transportation management
 - Strengthening capacities of decision makers/local political leadership
 - Strengthening capacities of existing agencies
 - Developing a cadre of transportation professionals
 - Strengthening capacities of transportation professionals
 - Other (please specify)

Knowledge management

- Q37. Would the project undertake any knowledge management activities? (Include reports, documents, action plans, strategy papers, websites, awareness campaigns, publicly accessible databases, establishment of information centers, etc.)
- Q38. Describe the activities that are planned.
- Q39. Are the knowledge management activities supported by the GEF?

Safeguards

- Q40. Do the project documents provide any indication that groups representing poor communities were consulted, or will be consulted, in the planning and design of project activities?

- Q41. If yes, describe the process through which poor communities have been consulted or will be consulted.
- Q42. Does the project assess the likely effect of promoted policies and/or choices on people from poor communities? If yes, did it identify negative effects that some of the activities or choices may have for people from low-income groups?
- Q43. Does at least one expected result of the project benefit poor communities (e.g., access to employment, health care, education facilities, etc.)?
- Q44. Do the project documents provide any indication that groups representing physically challenged people were consulted, or will be consulted, in the planning and design of project activities? If yes, describe the process through which they have been or will be consulted.
- Q45. Does the project assess the negative effect it may have on physically challenged people? If yes, did it identify negative effects on physically challenged people? If yes, does it include remedial measures to mitigate the negative effects?
- Q46. Is at least one or some of the project activities geared toward providing benefits to physically challenged people?
- Q47. Do project documents provide any indication that women's groups were consulted, and/or will be consulted, in the planning and design of project activities? If yes, describe the process through which they have been or will be consulted.
- Q48. Does the project assess the likely effect of project activities on women? If yes, did it identify negative effects on women? If yes, does it include remedial measures to mitigate the negative effects?
- Q49. Does the project include specific activities that are targeted at women and/or are likely to benefit them? If yes, list the specific activities targeted at and/or likely to benefit women.

Cities

- Q50. Do the project activities directly cover a city?
- Q51. How many cities have been covered?
- Q52. How many cities involve at least \$100,000 in GEF grants?

- Q53. Provide information on these cities separately (i.e., city name, province, country).
- Q54. Total GEF grant provided for the project activities in this city through the project?
- Q55. Total funding provided within the framework of the project for activities in this city including the GEF grant and cofinancing?
- Q56. Within the framework of the project, what activities were undertaken in the city?
- Q57. Which of these activities were funded through the GEF grant?

D.2 Questions for projects under implementation

- Q1. GEF project ID?
- Q2. Which of the following is available?
- Project implementation report
 - Midterm review/evaluation
- Q3. Year of GEF Chief Executive Officer (CEO) approval/endorsement?
- Q4. Year of start of project implementation?
- Q5. How many months did it take from CEO approval/endorsement to project start? If it took more than 12 months from GEF CEO approval/endorsement to project start, what was/were the reason/s for delay?
- Q6. After project start, during the first year of project implementation, did project activities get delayed? If the activities were delayed, what were the reasons for the delay?
- Q7. Were changes made to project design within the first year of project start? If changes were made to the project design within the first year of project start, what were the changes? Please describe.
- Q8. Were changes made to the project's monitoring and evaluation design within the first year of project start?
- Q9. What were the changes made to the project's monitoring and evaluation design within the first year of project start? Please describe.
- Q10. Was the project restructured any time after one year of project start? Describe the changes.
- Q11. Based on information from the project implementation report and/or midterm

review/evaluation, to what extent has project implementation progress been as per expectations?

- Q12. What were the implementation-related challenges faced by the project?

D.3 Questions for completed projects

- Q1. GEF project ID?
- Q2. Which of the following documents are available?
- Project implementation report
 - Midterm review evaluation,
 - Terminal evaluation
 - Terminal evaluation validation report by the Agency evaluation unit
 - Terminal evaluation review report by the GEF Independent Evaluation Office
 - Independent postproject completion field verification or equivalent
- Q3. Amount of GEF grant in US\$?
- Q4. Promised cofinancing at project start?
- Q5. Materialized cofinancing at project completion?
- Q6. Were there any changes in the objectives and key expected outcomes of the project after project approval/endorsement? If yes, describe the changes along with reasons for the change.
- Q7. Were there any changes in the global environmental objectives of the project after project approval/endorsement? If yes, describe the changes along with reasons for the change.
- Q8. Based on the information provided in the project documents and terminal evaluation, what was the incremental reasoning for GEF funding for the project? (Check all that apply, but some options may be mutually exclusive.)
- Focused entirely on global environmental benefits:
 - But no or little cofinancing
 - With significant cofinancing
 - Economic and financial viability of the project
 - Speeding up
 - Greening
 - No clear reasoning

- Other (please specify).

Q9. Year of CEO approval/endorsement?

Q10. Year of start of project implementation?

Q11. How many months did it take from CEO approval/endorsement to project start? If it took more than 12 months from GEF CEO approval/endorsement to project start, describe the effect of the delay on project implementation and results.

Q12. What was the expected duration (in months) of project implementation at project start?

Q13. What was the actual duration (in months) of project implementation? If it took more than 12 months longer than the expected duration for implementation completion, describe the reasons for delay in project completion.

Global environmental benefits and co-benefits

Q14. At project completion, what were the estimated total greenhouse gas emissions reduction/avoidance-relevant benefits over the project lifetime?

- Direct from transportation
- Indirect from transportation
- Direct from nontransportation activities
- Indirect from nontransportation activities
- Direct total
- Indirect total

Q15. Discuss the extent to which the GEF grant may be credited for the estimated CO₂ emissions reduction reported for the project. Consider the extent to which CO₂ emissions reductions are a result of activities that were directly supported by the GEF and would have been unlikely without GEF support. Also identify activities for which emissions reduction benefits would have accrued regardless of GEF support. There may be some activities for which such a distinction is not possible; these should also be noted.

Q16. What national, local, and private co-benefits were reported at project completion? For the relevant benefits, note the indicator, and expected and actual levels of result achievement.

- Fuel savings
- Pollution mitigation

- Health benefits
- Reduction in travel time
- Greater access to different modes of transportation
- Economic growth
- Public safety
- Mobility for economically disadvantaged groups
- Mobility for physically challenged

Cleantech buses

Q17. Did this project promote technology transfer for cleantech buses?

Q18. Which types of cleantech buses are promoted by the project?

- Fuel cell buses
- Hybrid buses
- Electric buses
- Fuel-efficient CNG buses
- Other (please specify)

Q19. Did the project support the following?

- Purchase of buses
- Construction of refueling/recharging stations
- Construction of stations
- Capacity building (of staff, technicians)
- Other (please specify)

Q20. What were the key achievements for the activities focused on cleantech buses? Specify the relevant performance indicators and the level of achievement vis-à-vis targets.

Q21. Did the project team face challenges in executing activities related to cleantech buses? If so, describe the challenges along with how these were addressed.

Q22. What have been the long-term contributions of the project in promoting adoption of cleantech buses in the project's target area/recipient country?

Q23. To what extent did the GEF funding make a difference in achievements related to promotion of cleantech buses?

Bus rapid transit

Q24. Does this project provide support for BRT?

Q25. What BRT-related activities were undertaken as part of the project?

- New (cleantech) bus purchase
- Old bus retirement
- BRT stations
- Arterial streets
- High-occupancy vehicle (HOV) lane
- Busways
- Training/capacity building of BRT agency staff
- BRT planning
- Other (please specify)

Q26. What were the key achievements for the activities focused on BRT? Specify the relevant performance indicators and the level of achievement vis-à-vis targets.

Q27. Did the project team face challenges in executing activities related to BRT? If so, describe the challenges along with how these were addressed.

Q28. What have been the long-term contributions of the project in promoting BRT in the project's target area/recipient country?

Q29. To what extent did the GEF funding make a difference in achievements related to BRT?

Nonmotorized transport

Q30. Did the project support NMT?

Q31. What NMT activities were supported?

- Construction/improvement of bike lanes
- Bike-share arrangements
- Foot path construction/improvement
- Awareness campaign
- Other (please specify)

Q32. What were the key achievements for the activities focused on NMT? Specify the relevant performance indicators and the level of achievement vis-à-vis targets.

Q33. Did the project team face challenges in executing activities related to NMT? If so, describe the challenges along with how these were addressed.

Q34. What have been the long-term contributions of the project in promoting NMT in the project's target area/recipient country?

Q35. To what extent did the GEF funding make a difference in achievements related to NMT?

Cleantech cars

Q36. Does the project support adoption of energy efficient/cleantech cars?

Q37. Which of these activities were undertaken by the project?

- Purchase of cleantech cars
- Subsidy for cleantech cars
- Refueling/charging stations for cleantech cars
- Awareness campaigns
- Capacity building
- Other (specify):

Q38. What were the key achievements for the activities focused on cleantech cars? Specify the relevant performance indicators and the level of achievement vis-à-vis targets.

Q39. Did the project team face challenges in executing activities related to cleantech cars? If so, describe the challenges along with how these were addressed.

Q40. What have been the long-term contributions of the project in promoting cleantech cars in the project's target area/recipient country?

Q41. To what extent did the GEF funding make a difference in project achievements related to cleantech cars?

Other modes

Q42. Which of these interventions were also implemented as part of the project?

- Light/heavy rail transit
- Aviation
- Maritime/ship
- Freight
- Road
- Intermodal transit hubs
- None

Q43. What were the key achievements for the activities focused on these transportation themes (light/heavy rail transit, aviation, maritime/ship/waterways, freight/logistics, road/highways, intermodal transit hubs)? Specify the covered theme, relevant performance indicators, and level of achievement vis-à-vis targets.

Q44. Did the project team face challenges in executing activities related to these

transportation themes? If so, describe the challenges along with how these were addressed.

Q45. What have been the long-term contributions of the project in the transportation areas/themes covered by the project?

Q46. To what extent did the GEF funding make a difference in project achievement in the areas/themes covered by the project?

Planning

Q47. Was transportation planning undertaken as part of the project?

Q48. Which of the following alternatives were considered within the framework of transportation planning?

- Land use alternatives
- Alternative locations
- Capacity changes
- Traffic demand management policies
- Unable to assess as sufficient information has not been provided for the proposed planning exercise
- Other alternatives (please specify):

Q49. Which of the following measures were implemented/promoted as part of the project?

- Compact urban development
- Walkable urban settlement
- Planning spatial distribution of retail outlets
- Planning spatial distribution of employment
- Intermodal transit hubs
- Other (please specify)

Q50. What have been the emerging impacts of the land use and transportation planning exercise?

Q51. To what extent and in what ways has the GEF funding supported the transportation planning exercise?

Legal/policy/regulatory

Q52. Did the project provide support for changing/updating transportation-related legal, policy, and regulatory framework?

Q53. Which of the following have been addressed by the project?

- Laws/legal framework

- Transportation policy
- Transportation-related regulations
- Other (please specify)

Q54. Are these activities being undertaken with support of the GEF grant?

Q55. What progress was made as a result of the legal, policy, and regulatory measures promoted by the project? Discuss.

Capacity building

Q56. Does the project support any capacity-building/development activities?

Q57. What were the capacity-building activities aimed at?

- Establishment of an Agency for transportation management
- Strengthening capacities of decision makers/local political leadership
- Strengthening capacities of existing agencies
- Developing a cadre of transportation professionals
- Strengthening capacities of transportation professionals
-]Other (please specify)

Q58. Were capacity-building activities supported through GEF funding?

Q59. What was the implementation experience with the capacity development activities? To what extent were the capacity-building activities effective? Is there evidence to show the extent to which they led to enhanced capacities? Describe.

Knowledge management

Q60. Did the project undertake any knowledge management activities (including reports, documents, action plans, strategy papers, websites, awareness campaigns, publicly accessible databases, establishment of information centers, etc.)?

Q61. Describe the activities that were implemented along with a discussion on implementation experience.

Q62. Are the knowledge management activities supported by the GEF?

Q63. To what extent have these activities been effective? Discuss.

Unintended impacts

Q64. Did the project have any unintended impacts, positive or negative? Discuss.

Safeguards

Q65. Were groups representing poor communities consulted in planning and/or implementation of project activities? If yes, describe the process through which poor communities have been consulted and with what results.

Q66. Did the project activities have any positive or negative effects on poor communities? Discuss the type and extent of effects.

Q67. Were groups representing physically challenged people consulted in planning and/or implementation of project activities? If yes, describe the process through which people

with physical disabilities have been consulted and with what results.

Q68. Did the project have any positive or negative effects on people with physical disabilities? Discuss the type and extent of effects.

Q69. Were women's groups consulted in planning and/or implementation of project activities? If yes, describe the process through which women's groups were consulted and with what results.

Q70. Did the project have any positive or negative effects on women? Discuss the type and extent of effects.

Interviewees

June 19, 2018 – Beijing, China

Jiao Wenwen, Ministry of Transport
 Shinchin, Big City Planning, Ministry of Transport
 Song Li Chen, Research, Ministry of Transport
 Guanghou Zhang, Institute of Comprehensive Transportation
 Liya Liu, Executive Director of CUTPP project, National Development and Reform Commission

June 20, 2018 – Changsha, China

He Tao, Changsha Pilot Hengtong Commercial Management Company Limited
 Luo Jianwen, Long Xiang Group
 Hu Ronghui, Long Xiang Group
 Wang Chuanjian, Long Xiang Group
 Peng Jiantao, Traffic Office, Changsha
 Wu Yun, Traffic Office, Changsha
 Lin Jianhui, Traffic Office, Changsha
 Luo Liping, Traffic Office, Changsha
 Wang Zheng, Traffic Office, Changsha
 Zhang Wenbin, Traffic Office, Changsha
 Xie Yi, Changsha Pilot Hengtong Commercial Management Company Limited
 Zou Yong, Changsha Pilot Hengtong Commercial Management Company Limited

June 21, 2018 – Zhengzhou, China

Zhigang Zhang, Deputy Division Chief, International Division of Henan Provincial Finance Department
 Jianlin Zhang, Director, Transportation Committee of Zhengzhou City
 Yunchen Zhao, Chief Engineer, Zhengzhou Railway Traffic Limited Company
 Jihong Zhang, Deputy Director, Foreign Debt Office, Zhengzhou Finance Bureau
 Hongwei Li, Director, Planning Division, Zhengzhou Railway Management Office
 Weiguo Pang, Staff, Foreign Debt Office at the Zhengzhou Finance Bureau
 Li Song, Deputy Manager, Zhengzhou Bus Company
 Changqi Wang, Deputy Manager, Zhengzhou Bus Company
 Xinyan Li, Director of Finance Department, Zhengzhou Bus Company
 Guanzhong Hong, Deputy Director of Corporate Management Office, Zhengzhou Bus Company

July 17, 2018 – Washington, DC

Xiaomei Tan, Senior Climate Change Specialist, GEF Secretariat

February 14, 2019 – Washington, DC

Fang Xu, Senior Transport Specialist, World Bank

February 26, 2019 – phone

Ani Dasgupta, Global Director, WRI Ross Center for Sustainable Cities, World Resources Institute

March 1, 2019 – phone

Marcel Alers, Head of Energy, UNDP

March 4, 2019 – Washington, DC

Georges Bianco Darido, Lead Urban Transport Specialist, World Bank

March 11, 2019 – Washington, DC

Arturo Ardila-Gomez, Global Lead Urban Mobility & Lead Transport Economist, World Bank

March 22, 2019 – phone

Rana Ghoneim, Chief of the Energy Systems and Infrastructure Division, UNIDO

March 27, 2019 – Washington, DC

Aloke Barnwal, Senior Climate Change Specialist, GEF Secretariat

March 29, 2019 – Washington, DC

Filippo Berardi, Senior Climate Change Specialist, GEF Secretariat

April 22, 2019 – Brasilia, Brazil

Asher Lessels, Task Manager, Latin America and the Caribbean, UNEP

Paula Oliveira, Project Manager, UNEP

Marcus Barreto, Coordinator-General of External Finances, Ministry of Planning, Development and Management

Marcelo de Paula, Secretariat of International Affairs, Ministry of Planning, Development and Management

Isis Resende, Secretariat of International Affairs, Ministry of Planning, Development and Management

Nazaré Soares, Subsecretary for Management and Administration, Federal District Secretariat of the Environment

April 23, 2019 – Brasilia, Brazil

Alessandra Peres, Subsecretary for Strategic Affairs, Federal District Secretariat of the Environment

Karisa Ribeiro, Senior Transport Specialist, Inter-American Development Bank

Fernando Araldi, Ministry of Regional Development

Isabel Ferreira, Brazilian Institute of Development and Sustainability

Alejandro Muñoz, Director of Project Management, Brazilian Institute of Development and Sustainability

April 24, 2019 – Brasilia, Brazil

Cristiano Cagnin, Center for Management and Strategic Studies

April 25, 2019 – São Paulo, Brazil

Marcos Correia Lopes, Chief of the Technological Development and Environment Department, Metropolitan Urban Transport Company

Alysson Bernabel, Analyst, Metropolitan Urban Transport Company

Marcos Bicalho, Consultant, National Association for Public Transport

May 2, 2019 – phone

Isadora Freire, Architect and Urbanist, Recife Agency for Strategy and Innovation (ARIES)

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The Independent Evaluation Office of the Global Environment Facility (GEF) was established by the GEF Council in July 2003. The Office is independent from GEF policy making and its delivery and management of assistance.

The Office undertakes independent evaluations that involve a set of projects and programs implemented by more than one GEF Agency. These evaluations are typically at the strategic level, on focal areas, or on cross-cutting themes. We also undertake institutional evaluations, such as assessing the GEF resource allocation mechanism or GEF governance.

Within the GEF, the Office facilitates cooperation on evaluation issues with professional evaluation networks; this includes adopting evaluation guidelines and processes consistent with international good practices. We also collaborate with the broader global environmental community to ensure that we stay on the cutting edge of emerging and innovative methodologies.

To date, the Office has produced over 100 evaluation reports; explore these on our website: www.gefieo.org/evaluations.

