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EXECUTIVE SUMMARY

1. The annual performance report (APR) provides an update on performance of the Global Environment Facility's (GEF) portfolio of completed projects. It reports on project outcomes, the likelihood of sustainability of project outcomes, the quality of project implementation and execution, co-financing trends, the quality of project M&E systems, and the coverage of terminal evaluation reports. It also includes a summary of the Management Action Record (MAR), which reports on adoption of GEF Council decisions that are based on GEF Independent Evaluation Office's (IEO) recommendations. The APR often includes a detailed review of a specific performance related concerns that are important across the GEF Partnership.
2. Reporting in the APR is primarily based on the evidence provided in the terminal evaluation reports of completed projects. All terminal evaluations and ratings are reviewed and validated by the IEO and/or the evaluation office of the respective GEF Agency. APR 2019 covers 1566 completed GEF projects which account for \$6.9 billion in GEF grants. Terminal evaluations for 193 projects, accounting for \$ 616.6 million in GEF grants, were received and validated during 2018-2019 and these projects constitute the 2019 cohort. Projects approved in GEF-5 (33 percent), GEF-4 (40 percent) and GEF-3 (20 percent) account for a substantial share of the 2019 cohort. Although 10 GEF Agencies are represented in the 2019 cohort, most of these projects have been implemented by UNDP (56 percent), with World Bank (15 percent) and UNEP (12 percent) also accounting for a significant share.
3. MAR 2019 reports on level of adoption of decisions based on recommendations of seven GEF IEO evaluations. Five of these evaluations that account for 12 recommendations were endorsed by the GEF Council, and two evaluations that account for the remainder were endorsed by the LDCF and SCCF Council.
4. APR 2019 presents usual features of the APR along with the *Evaluation of the GEF Sustainable Transport Portfolio*. GEF has cumulatively provided \$ 501 million in grants for 80 sustainable transport projects. The *Evaluation of the GEF Sustainable Transport Portfolio* assesses the type of activities that GEF has supported, the results of the supported activities, lessons from the implementation experience, and the value added by GEF. This evaluation was conducted because GEF IEO had not covered sustainable transport adequately through its past work and it continues to be an area relevant to address climate change mitigation.
5. An important change in the reporting practice has been that the GEF IEO has aligned the APR year with the year when an APR 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 name. The same practice will be followed for determining the year of terminal evaluation cohorts and the MAR. This is to avoid the confusion created by presenting an APR2018 in the 2019, as it gave an impression of delay in reporting.

KEY FINDINGS AND CONCLUSIONS

1. Performance of completed projects

6. Overall, outcome of 80 percent of all completed GEF projects are rated in the satisfactory range (n=1546). Of the 2019 cohort, 78 percent of completed projects are rated in the satisfactory range (n=187). Compared to the portfolio average of 62 percent (n=1479), 59 percent of the projects of the 2019 cohort are rated in the likely range for sustainability (n=179). The difference between the GEF portfolio average and the 2019 cohort is not statistically significant for both outcome and sustainability rating.
7. Compared to the portfolio average of 80 percent (n=1330), 83 percent of the projects of the 2019 cohort were rated in the satisfactory range for quality of implementation (n=182). Seventy seven percent of the projects of the 2019 cohort are rated in the satisfactory range for quality of execution (n=176), which is close to the portfolio average 80 percent.
8. The 2019 cohort shows improvement in M&E design rating. Compared to the portfolio average of 65 percent of projects (n=1478) rated in the satisfactory range for M&E design, of the 2019 cohort a significantly higher 80 percent (n=189) are rated in this range. Compared to the long-term portfolio average of 65 percent (n=1366), 70 percent of the projects of the 2019 cohort are rated in the satisfactory range for M&E implementation (n=172). The difference in the percentage rated in the satisfactory range for M&E implementation is not statistically significant although the direction of the difference is consistent with the trend of improvement.
9. Expected level of co-financing materialized for 49 percent of projects of the 2019 cohort (n=155), compared to the portfolio average of 58 percent (n=1293). At least 90 percent of the expected co-financing materialized for 55 percent of 2019 cohort, compared to the long-term average of 67 percent. Compared to the long-term average, co-financing materialized for a significantly lower percentage of projects. However, there were other areas where an improving trend was maintained. The ratio of realized co-financing to GEF grant for the 2019 cohort is 6.5 to 1. This is higher than the portfolio average of \$ 6.1 for completed projects.

2. Management Action Record

10. Management Action Record (MAR) 2018 reports on level of adoption of decisions based on recommendations of seven GEF IEO evaluations. Five of these evaluations that account for 12 recommendations were endorsed by the GEF Council, and the remainder were endorsed by the LDCF and SCCF Council. The evaluations are:

- (a) Joint GEF-UNDP Small Grants Programme Evaluation
- (b) Evaluation of the GEF CSO Network
- (c) Annual Performance Report 2015
- (d) Review of GEF's Engagement with Indigenous Peoples

- (e) Review of the GEF Policy on Minimum Standards on Environmental and Social Safeguards
- (f) Program Evaluation of the Least Developed Countries Fund Program
- (g) Evaluation of the Special Climate Change Fund

11. Of the seven evaluations, GEF IEO rates adoption of the Council decisions to be substantial for six evaluations and medium for one. Of the six decisions for which the GEF IEO rated adoption of the Council's decision to be substantial, in five its rating is identical to that provided by the Management. The ratings differed for the Council decision based on Annual Performance Report 2015. The Management assessed the level of adoption of the Council's decision, which called for the tracking tools be simplified and the reporting burden on Agencies be reduced, to be high were as the GEF IEO rated it to be substantial. The Management assesses the adoption to be high because it tracks only eleven core indicators during GEF-7 and has streamlined the tracking tools, especially the tracking tool to assess Protected Area Management Effectiveness. The GEF IEO assesses the adoption to be substantial acknowledging that the protected area tool has been simplified to reduce the reporting burden but that it still involves some reporting burden.

12. The GEF IEO's assessment also agrees with the Management's assessment on the level of adoption of the decision based on the Joint GEF - UNDP Small Grant Programme Evaluation. The Council's decision had called for reconsideration of the criteria for upgradation of the countries. While Malaysia was upgraded during the reporting period, the criteria has remained unchanged for GEF-7 period. Therefore, both GEF IEO and the Management assessed the level of adoption to be medium.

13. The Council decision based on *Annual Performance Report 2015* that asked the management to reconsider the burden and utility of its biodiversity tracking tools has been graduated because the further opportunity for changes in these tracking tools would be available during preparation for the GEF-8 cycle. The GEF IEO will continue to track rest of the decisions in the next MAR.

3. Evaluation of the GEF Sustainable Transport Portfolio

Project Portfolio

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

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

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

16. The demand for GEF financing for sustainable transport is relatively higher from upper-middle-income recipient countries. Most of the large emerging economies such as China, Brazil, Mexico, Russia and South Africa are represented in this group. From GEF-4 to GEF-6 upper-middle-income countries accounted for 44 percent share in STAR country allocations for climate change. In comparison, during the same period, these countries accounted for a relatively higher 61 percent in 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 other GEF recipient countries.

Conclusion 2. The GEF portfolio of sustainable transport projects has evolved from its initial focus on providing support for low carbon technologies to providing support for transport planning, modal-shift, travel demand management, and commercialization of electric mobility technologies using integrated approaches.

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

18. Over the past two decades, the GEF portfolio has evolved to include projects that address BRT or BRT style improvements (38 projects), non-motorized transit (38 projects) and freight and logistics (8 projects). A few projects also promote efficiency in metro rail (three projects), water ways (two projects) and ground transportation in aviation (one project). Projects that promote low carbon technologies are significant in the portfolio (26 projects). However, recent projects that promote technologies focus more on commercialization and development of supporting infrastructure, and address technology promotion within the larger framework of the urban transport systems.

19. Eighty nine percent of the GEF financed sustainable transport projects provide financing for capacity development. Capacity development activities aim to develop capacities of decision makers, key institutions engaged in transport, and transport professionals. These activities generally 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).

20. In 2008 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: *Ouagadougou Transport Modal Shift* (GEF ID 2876) in Burkina Faso and *Nigeria Urban Transport* (GEF ID 3827). *Asian Sustainable Transport and Urban Development Program* (ASTUD) 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 along with other environmental and development concerns through an integrated lens. During the GEF-7 period, the GEF is providing support to recipient countries through a program to facilitate uptake of electric mobility.

Outcome of sustainable transport portfolio

Conclusion 3. GEF has made valuable contributions to facilitating use of low carbon technologies, enhancing the efficiency of public transit and freight transport, promotion of non-motorized transit, and energy efficiency benchmarking for marine transport.

21. GEF has facilitated the transformation of the markets 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. GEF is now supporting large scale adoption of these technologies not only in China, but also in Malaysia and South Africa. The focus is also shifting to connecting the use of these technologies with the renewable energy grid to reduce the carbon foot print.

22. Fuel cell bus technology was initially piloted when it was still in a development stage. The technology's progress towards financial viability was slower than expected. Early experience showed that the technology was too expensive. Therefore, several projects which focused on promotion of fuel cell technologies in Mexico, Egypt and India were dropped during preparation. With time, fuel cell technologies have become cheaper and are now being commercialized in China with GEF support. Several other independent projects – that are not funded by the GEF – are also following up on the progress made through GEF support. GEF is playing an important role in promoting the use of the technology in several Chinese cities.

23. Most of the completed projects that address public transit focus on establishing and/or improving the efficiency of bus-rapid transit (BRT) (17 projects). GEF has generally provided funding for BRT planning, changes in legal and policy frameworks, and capacity development. Capacity development activities such as training and workshops, and visits to cities where the proposed intervention had already been implemented, were instrumental in enhancing capacities of the key institutions and decision makers to develop, manage, and expand bus-rapid transit systems. GEF financing helped lay the groundwork for BRT systems in several major cities such as Mexico City (Mexico) and Dar-es-Salaam (Tanzania). Dissemination activities combined with the demonstrations have facilitated replication in other cities. Other

experiences of completed projects in public transit cover heavy/light rail and maritime transport. The number of completed projects in these areas is too small to generalize findings.

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

25. *Transforming the Global Maritime Transport Industry towards a Low Carbon Future through Improved Energy Efficiency* project (GloMEEP) (GEF ID 5508) aimed at building capacities of 10 developing countries to improve efficiency of their shipping industry. The project benchmarked performance of the countries to help them develop and implement maritime energy efficiency strategies. One of the results of the project was that the participating countries identified their lead agencies and established a national task force to address efficiency related concerns on a sustained basis.

26. Four GEF-supported projects that addressed sustainable transport were designed to be implemented synchronously with a mega sporting event including Olympics, FIFA World Cup, and Commonwealth Games. Two of these were implemented as planned and achieved their intended results; the results of others were mixed. A key takeaway from the experience is that these projects should be developed well in advance of the large events along with inbuilt flexibility to take timely corrective action if the originally planned activities become less relevant or are unlikely to be completed in time.

Conclusion 4. Effectiveness of the transport planning and traffic demand management activities depend on the level of support from, and alignment with, the vision of the local leadership.

27. GEF supported integrated land-use and transport planning activities in 15 of the completed transport projects. In addition to sustainable urban transport plans, a major focus was transit-oriented development (TOD), 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.

28. Support to transport and land-use planning encourages transit-oriented development and efficient management of urban transit systems. GEF support for transport planning facilitated transit-oriented development in cities such as Mexico City (GEF ID 1155) and Changsha (GEF ID 4156). In other cities such as Dushanbe (GEF ID 3027) and Tianjin (GEF ID 3824) these efforts were less successful as they were either not aligned with the vision of the local decision makers or had not adequately addressed the policy and regulatory barriers.

29. Of the completed transport projects, eight included GEF-supported activities specifically aimed at traffic demand management (TDM). Financial incentives such as congestion pricing and paid parking were used along with non-financial regulations such as limits on parking spaces, and infrastructure improvements such as park-and-ride facilities at rail/metro stations.

30. Traffic demand management measures are likely to be successful when they are based on ‘win-win’ situations. For example, GEF provided support for ‘park-and-ride’ improvements and integration of the stations with pedestrian and cycling infrastructure in 16 suburban railway stations in Cape Town (GEF ID 2604), which benefited all users. These measures led to GHG emission reduction through increased use of public transit facilities. In cases where traffic demand management requires tradeoffs, commitment from the political leadership and public support becomes important. For example, a quota on the number of car licenses in Guangzhou (GEF ID 2609) was effective in reducing car use and led to GHG emissions abatement because the measure had the city leadership’s support. In other instances where tradeoffs were required – but support from the political leadership was missing – traffic demand management activities face hurdles. For example, electronic road pricing in Jakarta (GEF ID 2954) and implementation of congestion pricing plan in Santiago (GEF ID 1349) could not move forward due to lack of adequate political support.

Conclusion 5. Compared to other recipient countries, a higher percentage of completed sustainable transport projects in the large emerging economies are rated as having satisfactory outcomes. However, the sustainability ratings are similar across these country groups.

31. Seventy two percent (23 projects) of completed sustainable transport projects have satisfactory outcomes (n=32), and 70 percent (21 projects) are rated as likely to be sustainable. (n=30). These ratings are comparable to the rest of the GEF portfolio.

32. 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 however no difference in the sustainability ratings between these two groups.

33. Aggregate GHG emissions abatement for completed projects has been lower than that expected at project start. For 20 completed projects that report information on GHG emissions abatement, the aggregate adjusted life time total is 11.0 Mt CO₂ equivalent.¹ This is lower than

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) model. In cases where no attribution, or only a negligible attribution, is possible, the GHG benefits of GEF project have been adjusted accordingly.

the adjusted 92.9 Mt CO₂ equivalent expected at project start. Of the 20 projects, eight (40 percent) met at least 80 percent of their target. The average cost of GHG emission abatement is \$ 11.5, with a median of \$ 12.7.

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

35. Information gathered through interviews and from terminal evaluations suggests that GEF stakeholders regard capacity building as 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 the municipal governments to pursue sustainable transport initiatives but have also facilitated knowledge-sharing among cities and countries.

4. 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, GEF funding supports speedier adoption and/or enhances viability of low carbon approaches.

36. Of the 80 approved GEF sustainable transport projects, in 58 projects (73 percent) GEF financing helps in 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 co-financing. Mainstreaming of low carbon approaches often involves providing technical assistance to city governments so that they can make optimal decisions regarding their urban transport systems and related investment. It also involves capacity development so that transport agencies are able to identify opportunities for the use of low carbon approaches and are able to implement such approaches.

37. Other overlapping ways through which GEF financing adds value include enhancing speed, viability and the scale of the supported activities. In about 20 percent of the 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 a smaller number (10 percent), GEF financing significantly enhances the scale of activities by expanding and/or deepening of coverage. Such projects are generally entirely focused on generation of global environmental benefits, e.g. targeted research, preparation of strategies and action plans.

38. GEF adds value to a higher percentage of UN organizations' implemented projects through enhancement in viability and speed, than to project 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 UN organizations do.

5. Factors that affect results

Conclusion 7. Sustainable transport projects receive relatively higher co-financing commitments, and perform as well as, or better than, other projects in terms of realized co-financing.

39. The co-financing 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 co-financing ratio of \$ 9 per dollar of GEF grant, and the co-financing ratio for entire portfolio of comparable GEF projects is \$ 6 per dollar of GEF grant.

Recipient countries account for majority of co-financing. GEF PMIS data (for 73 sustainable transport projects) shows that the recipient governments account for 57 percent of the total promised co-financing, GEF Agencies (mostly multilateral development banks) 29 percent, and private sector organizations 4 percent.

40. Compared to other projects in GEF portfolio (136 percent), the realized co-financing vis-à-vis co-financing commitments at project approval is higher for sustainable transport projects (189 percent). Co-financing commitments are fully met or exceeded in 55 percent of the completed projects, which is comparable to 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.

41. During implementation sustainable transport projects often face difficulties in procurement and coordination. Sixty eight percent of completed sustainable transport have satisfactory ratings for the quality of implementation compared to 82 percent for the overall GEF portfolio. Information from terminal evaluations and respondents 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. Compared to large emerging economies, the concerns related to coordination, procurement and staff turnover are reported more frequently in other recipient countries. In terms of extension of project completion date by at least a year, performance of sustainable transport projects is the same as other projects in the GEF portfolio, which suggests that despite challenges in implementation these projects in general do not need long extensions for completion.

42. Compared to other projects in the GEF portfolio, only 37 and 46 percent of completed sustainable transport projects are satisfactory in the quality of M&E design and M&E

implementation, compared to 67 percent and 66 percent for the GEF portfolio, respectively. There is a considerable gap in the specification of results indicators for sustainable transport projects, as only 42 percent of the approved sustainable transport projects specify indicators to track GHG emissions abatement and/or fuel savings.

43. Designing a robust M&E plan and specification of appropriate indicators for sustainable transport projects is a challenge because GEF support is often concentrated in activities focused on capacity development, update of legal, policy and regulatory frameworks, and knowledge management. Further, for legal, policy and regulatory contributions the impacts are difficult to track within the project timeframe. This 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.

6. GEF's Comparative Advantage and Future Considerations

44. 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 that are experiencing rapid growth in urban population. One would argue that the time to intervene in these countries is now as the cities plan their transit systems.

45. GEF should continue the use of 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, there is a risk that ensuring coordination among a wide range of stakeholders may be difficult. So far little evidence is available on how this is working on the ground. Program monitoring is important to assess on-the-ground progress so that, if required, corrective actions may be taken in a timely manner. During GEF-7, the GEF has opened up a climate change mitigation funding window to provide support for electric mobility. This continues to be an important area where there is a case for GEF support. GEF should also continue support in freight and logistics to help countries in making efficiency gains at the national or provincial scale by working closely with the relevant industry and government agencies.

46. GEF should continue to support activities that are relevant and where its support is 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 tradeoffs are involved progress may stall in absence of adequate political support.

47. 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 development of multi-modal journey planner applications based on open source and standardized data.

7. Recommendations

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

48. GEF projects should specify clear assumptions on how a project would 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 the total GHG reduction from the GEF supported project and include activities supported through co-financing. GEF should also track the incremental benefits achieved from GEF funding so that a clear metric is available to assess GEF's efficiency in delivering a unit of GHG emissions abatement. For projects where the primary focus of GEF funding is on capacity development, knowledge management and changes in legal, policy and regulatory measures, the GEF should also 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 land use and transport planning, capacity building and knowledge exchange.

Recommendation 2. 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 pilot and/or demonstration of sustainable transport approaches.

49. GEF financing is generally used to provide funding 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 the optimal design and management of transit infrastructure. However, 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. This funding should be limited to pilots or demonstration.

I. SCOPE AND COVERAGE

1. The Annual Performance Report (APR) of the Independent Evaluation Office of the 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 performance of the GEF portfolio and/or a specific category of projects within the portfolio.

APR2019 includes the following:

- (a) **Performance of completed projects.** An overview of the extent to which GEF projects are achieving expected outcomes and are likely to be sustainable. It also reports on project implementation, quality of M&E, and materialization of co-financing.
- (b) **Management Action Record.** The Management Action Record (MAR) assesses the degree to which relevant GEF Council decisions based on IEO recommendations have been adopted by GEF management. APR 2019 presents a summary of this year's MAR.
- (c) **Sustainable Transport: Context, Key Questions and Methodology.** The chapter discusses the broader context of the GEF support for sustainable transport. It describes the key questions that the *Evaluation of the GEF Sustainable Transport Portfolio* seeks to answer and the methodology used.
- (d) **Sustainable Transport: Project Portfolio.** The chapter provides information on the GEF portfolio of sustainable transport projects. It provides information on relevance of GEF support, share of GEF Agencies, the types of projects included in the portfolio, the themes covered, and the broader trends.
- (e) **Sustainable Transport: Outcome Achievements.** This chapter provides information on the outcome achievements of the sustainable transport projects. It provides information on the outcome rating of the completed projects along with their contributions to GHG emissions abatement. It also provides information on the contributions to development of policy and regulatory measures, capacity development, urban land use and transport planning, and traffic demand management.
- (f) **Sustainable Transport: GEF contributions in various sustainable transport themes.** This chapter discusses the GEF experience in specific sustainable transport themes such as technology transfer, public transit, and non-motorized transit, freight and logistics, and projects designed around mega events.
- (g) **Sustainable Transport: value added by GEF support.** The chapter discusses the value added by GEF financing. It provides information on how GEF projects aim to generate global environmental benefits.

- (h) **Sustainable Transport: factors that affect results.** This chapter provides information on project cycle, monitoring, materialization of co-financing, inclusiveness of vulnerable groups, and agency performance.

1. Coverage

2. APR 2019 covers 1566 completed GEF projects that account for \$6.9 billion in GEF grants. Terminal evaluations for 193 projects accounting for \$ 616.6 million in GEF grants were received and validated during 2018-2019 and these projects constitute the 2019 cohort. Projects approved in GEF-5 (33 percent), GEF-4 (40 percent) and GEF-3 (20 percent) together account for most of the 2019 cohort. Although 10 GEF Agencies are represented in the 2019 cohort, most of these projects have been implemented by UNDP (56 percent), World Bank (15 percent), UNEP (12 percent). A detailed list of the projects included in 2019 cohort is provided in Annex A. The dataset on performance ratings of the completed projects is made available at the GEF IEO website.

3. The *Evaluation of the GEF Sustainable Transport Portfolio* is based on 80 approved GEF projects. Of these 33 have been completed and for 32 of these terminal evaluations are available. These 32 projects, for which terminal evaluations are available, are a subset of the 1566 completed projects that APR 2019 covers. Because GEF started supporting sustainable transport activities from GEF-2 onwards, when comparing ratings and performance of the sustainable transport projects with the GEF portfolio, only approved projects from GEF-2 onwards have been considered. 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.

II. PERFORMANCE OF COMPLETED PROJECTS

4. This chapter provides an update on performance ratings of completed projects. This includes project performance ratings on dimensions such as outcome, sustainability, the quality of project implementation and execution, quality of project M&E, co-financing trends. The discussion on these topics is brief because these topics have been discussed in detail in OPS-6, and although performance of annual cohorts differs because of the difference in the project mix, the underlying causal relationships do not change as much.

5. The reporting is based on evidence provided in terminal evaluations for 1566 completed GEF projects. These projects account for \$6.9 billion in GEF grants. Terminal evaluations for 193 projects accounting for \$ 616.6 million in GEF grants were received and validated during 2018-2019 and these projects constitute the 2019 cohort. Projects approved in GEF-5 (33 percent), GEF-4 (40 percent) and GEF-3 (20 percent) together account for most of the 2019 cohort. Although 10 GEF Agencies are represented in the 2019 cohort, most of these projects have been implemented by UNDP (56 percent), World Bank (15 percent), UNEP (12 percent). The list of projects of the APR2019 cohort is provided in Annex A.

2. Methodology

6. The performance of the completed projects is assessed and rated by the GEF IEO and/or the Agency evaluation offices. To rate, the evidence presented in the terminal evaluations, and other documents such as project implementation report (PIR), and other independent assessments, is considered.

7. Performance on dimensions such as outcome, implementation, execution, M&E design, and M&E implementation, is measured on a six-point scale: Highly Satisfactory (6), Satisfactory (5) and Moderately Satisfactory (4), that comprise the satisfactory range; and, Moderately Unsatisfactory (3), Unsatisfactory (2) and Highly Unsatisfactory (1), that comprise the unsatisfactory range. Sustainability is measured on a four-point scale: Likely (4) and Moderately Likely (3), that comprise the likely range; and, Moderately Unlikely (2) and Unlikely (1), that comprise the unlikely range. Methodology used for rating project performance is described in detailed in Annex B.

3. Findings

Outcome

8. Overall, 80 percent of all completed GEF projects with terminal evaluations have an outcome rating in the satisfactory range. Outcome rating for the 2019 cohort of closed projects was nominally lower at 78 percent, with those projects accounting for 80 percent of funding (table 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 1). However, 87 percent of the completed projects approved in GEF-5 are rated in the

satisfactory range. Most of the projects from GEF-5 are still under implementation so the figures for this period may change as more projects from the period are completed.

Table 1: Outcome rating of GEF projects: APR 2019 vs. other cohorts

Outcome rating	Percentage of projects:		Percentage of funding:	
	APR 2019 cohort (n=187)	All other projects (n=1278)	APR 2019 cohort (\$616.6m)	All other projects (\$5,886.4m)
Highly satisfactory	3%	4%	4%	3%
Satisfactory	35%	38%	35%	36%
Moderately satisfactory	40%	38%	41%	38%
Moderately satisfactory or above	78%	80%	80%	77%
Moderately unsatisfactory	16%	15%	14%	17%
Unsatisfactory	6%	5%	4%	5%
Highly unsatisfactory	0%	<1%	0%	1%

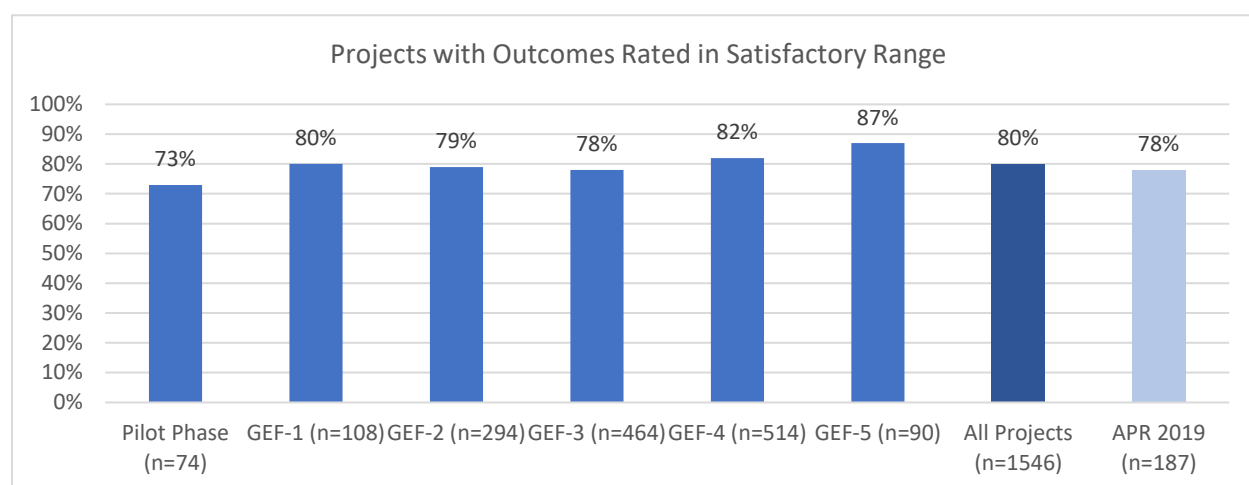


Figure 1: Projects with Outcomes Rated in Satisfactory Range

9. The assessment of sustainability estimates the extent a project's outcome is durable and it is likely to achieve its expected long-term impact. Compared to the portfolio average of 62 percent, 59 percent of the projects of the 2019 cohort are rated in the likely range for sustainability (figure 2). The difference between the portfolio average and the 2019 cohort is not statistically significant. Improving sustainability of GEF project outcome has been a long-standing concern of the GEF stakeholders. Although, ratings for the projects approved during GEF-4 and GEF-5 is somewhat higher than for earlier replenishment periods, the percentage of

projects where outcomes are rated to be sustainable is still low. GEF IEO will keep tracking performance on this dimension.

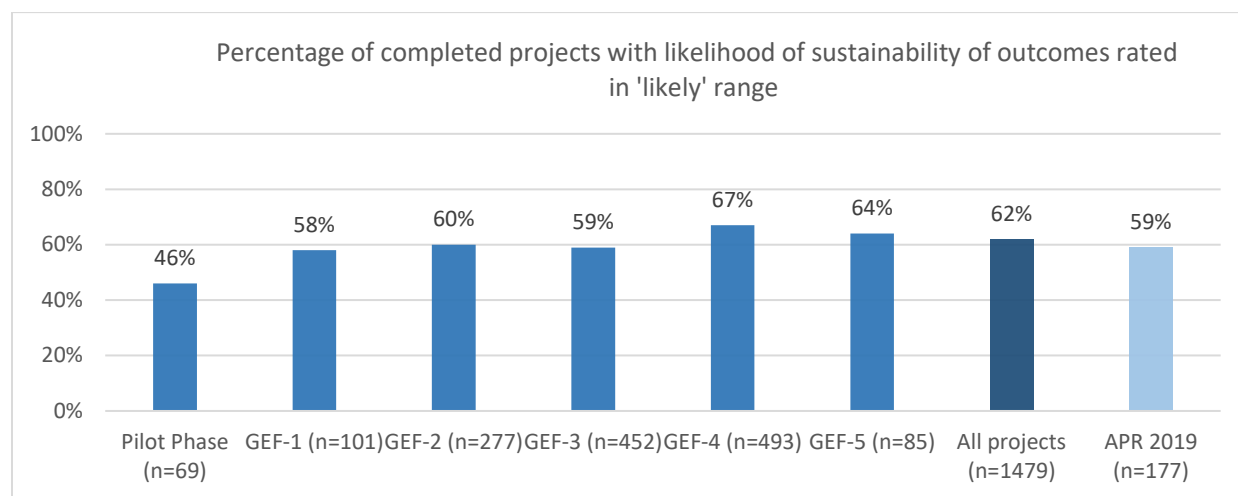


Figure 2: Percentage of completed projects with likelihood of sustainability of outcomes rated in 'likely' range

4. Implementation and Execution

10. To date 1,330 completed projects have been rated for quality of project implementation, of which 182 projects are from the 2019 cohort. Of the rated projects, 80 percent are in the satisfactory range (figure 3). In comparison, 83 percent of the projects of the 2019 cohort were rated in the satisfactory range. Seventy seven 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 80 percent. Overall, ratings for quality of project implementation and execution have improved across GEF phases, with both reaching their highest level in GEF-5.

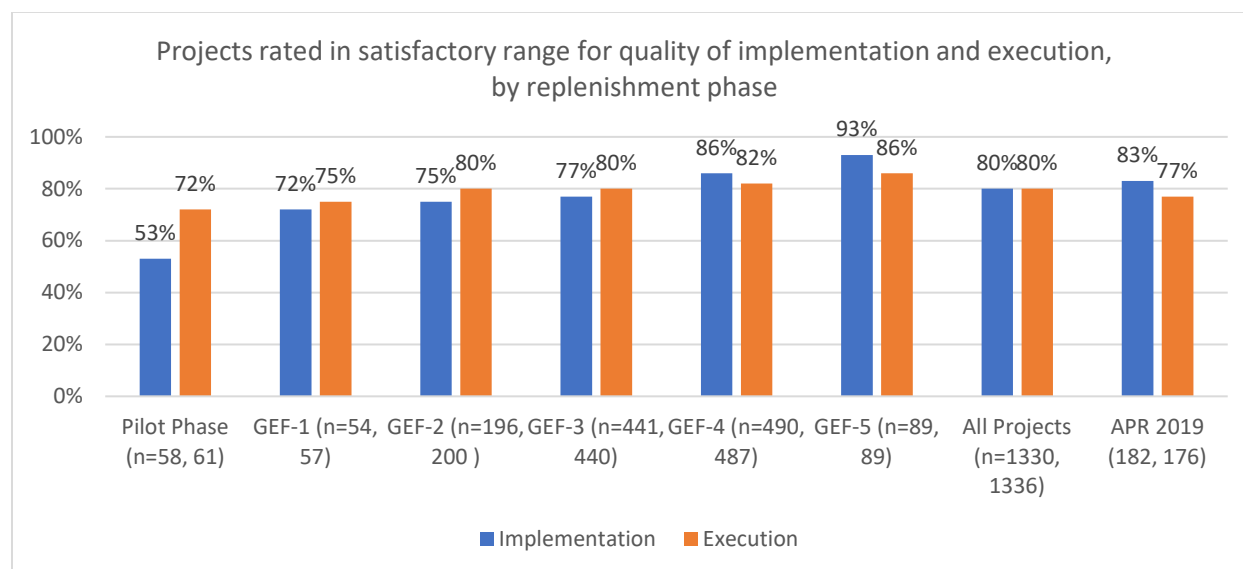


Figure 3: Projects rated in satisfactory range for quality of implementation and execution, by replenishment phase

5. Project Monitoring

11. The 2019 cohort shows improvement in M&E design rating. Compared to the portfolio average of 65 percent of projects rated in the satisfactory range for M&E design (n=1478), of the 2019 cohort a significantly higher 80 percent are rated in the satisfactory range (n=189). Across the GEF replenishment periods there has been an improving trend in quality of M&E design (Figure 4). Thus, the performance of the 2019 cohort is consistent with this trend. Compared to the portfolio average of 65 percent (n=1366), 70 percent of the projects of the 2019 cohort are rated in the satisfactory range for M&E implementation (n=172). The difference is not statistically significant. The improving trend across replenishment periods is also evident for quality of M&E implementation.

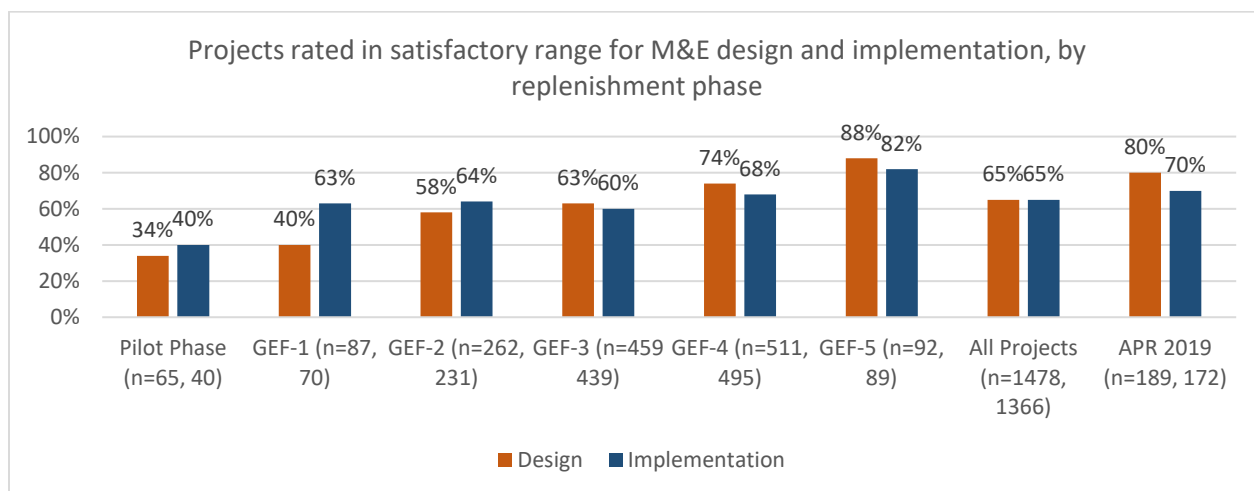


Figure 4: Projects rated in satisfactory range for M&E design and implementation, by replenishment phase

6. Co-financing

12. Expected level of co-financing materialized for 49 percent of projects of the 2019 cohort (n=155), compared to the portfolio average of 58 percent (n=1293). At least 90 percent of the expected co-financing materialized for 55 percent of 2019 cohort, compared to the portfolio average of 67 percent. Compared to the long-term average, co-financing materialized for a significantly lower percentage of projects. However, there were other areas where an improving trend was maintained. The ratio of realized co-financing to GEF grant for the 2019 cohort is 6.5 to 1. This is higher than the portfolio average of \$ 6.1.

III. MANAGEMENT ACTION RECORD 2019

13. The GEF Management Action Record (MAR) tracks the level of adoption of GEF Council and LDCF/SCCF Council decisions that are based on the recommendations of the evaluations conducted by the GEF Independent Evaluation Office (GEF IEO). The GEF Secretariat and/or the GEF Agencies, referred to as GEF Management as applicable, are responsible for adoption of the Council's decision. 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.”² MAR are published as a separate document by the GEF IEO. MAR 2019 reports on level of adoption of decisions based on GEF IEO recommendations included in seven different evaluations:

- a. Joint GEF-UNDP Small Grants Programme Evaluation (GEF/ME/C.48/02) reported in Semi-Annual Evaluation Report June 2015 (GEF/ME/C.48/02)
- b. Evaluation of the GEF CSO Network (GEF/ME/C.50/02)
- c. Annual Performance Report 2015 (GEF/ME/C.50/04)
- d. Review of GEF’s Engagement with Indigenous Peoples (GEF/ME/C.53/Inf.07) reported in Semi Annual Evaluation Report of the GEF IEO November 2017 (GEF/ME/C.53/01)
- e. Review of the GEF Policy on Minimum Standards on Environmental and Social Safeguards (GEF/ME/C.52/Inf.08) reported in Semi Annual Evaluation Report of the GEF IEO May 2017 (GEF/ME/C.52/01/Rev.02)
- f. Program Evaluation of the Least Developed Countries Fund (GEF/LDCF.SCCF.20/ME/02)
- g. Program Evaluation of the Special Climate Change Fund (GEF/LDCF.SCCF.22/ME/02)

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

15. 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 sufficient time hadn’t passed for the Management to implement the decisions. MAR2018 tracks and report on progress in adoption of eight of these 58 recommendations. Of these eight recommendations, five pertain to the Review of GEF’s Engagement with Indigenous Peoples (GEF/ME/C.53/Inf.07) and three to the Review of the GEF Policy on Minimum Standards on Environmental and Social Safeguards (GEF/ME/C.52/Inf.08). The remaining 50 recommendations will be covered in future.

² GEF Council, “Procedures and Format of the GEF Management Action Record.” GEF/ME/C.27/3., GEF Council November 2005.

7. Rating Approach

16. For each tracked GEF Council and LDCF/SCCF Council decision that is reported on, 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 for the progress of adoption of Council decisions were agreed upon by the GEF IEO, the GEF Secretariat, and the GEF Agencies, through a consultative process. Categories are as follows:

- (a) **High:** Fully adopted and fully incorporated into policy, strategy or operations.
- (b) **Substantial:** Decision largely adopted but not fully incorporated into policy, strategy or operations as yet.
- (c) **Medium:** Adopted in some operational and policy work, but not to a significant degree in key areas.
- (d) **Negligible:** No evidence or plan for adoption, or plan and actions for adoption are in a very preliminary stage.
- (e) **Not rated:** ratings or verification will have to wait until more data is available or proposals have been further developed.
- (f) **N/A:** Not-applicable.

17. The Council decisions may be graduated or retired from the MAR because of one or more of the following reasons:

- (a) **Graduated** due to high or, where appropriate, substantial level of adoption of the Council decision
- (b) **Retired** as the Council decision has become less relevant, or subsequent Council decisions have made high level of adoption of the decision difficult, or further progress on adoption of the decision is likely to be slow and long drawn. An automatic reason for retirement would be if a decision has been reported on in the MAR for five years.

8. Findings

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

Substantial adoption

19. The GEF Council decision based on the *Evaluation of the GEF CSO Network* encourages the network to establish a working group with a 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 the Management agree that there has been **substantial** progress in adopting the Council decision. The updated vision establishes guidelines for engagement of the CSO Network at the GEF Council meetings. The GEF Secretariat has also updated template for the GEF-7 projects, which now requires information on CSO engagement in project preparation and implementation for project appraisal.

20. Council decision endorsed the recommendation of the *Annual Performance Report 2015* that 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 Protected Area Management Effectiveness (METT), has been simplified and the reporting burden has been reduced. While the Management assesses the level of adoption to be **high**, the GEF IEO assesses the adoption to be **substantial**. The reason being that, although reduced, METT tool still involves some burden and there may be creative ways to reduce it 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.

21. The GEF IEO recommendations in the *Review of GEF's Engagement with Indigenous Peoples* called for: dedicated funding opportunities for indigenous people's organizations; update of policies and guidelines; review of the role of the indigenous peoples' advisory group; and improved reporting on engagement of indigenous people and relevant results through mid-term reviews and terminal evaluations. Both GEF IEO and the Management assessed the overall progress on adoption of the recommendations to be **substantial**. A new policy for indigenous people has been prepared and approved by the Council. The programming directions for GEF-7 emphasizes engagement of the indigenous people and local communities in GEF activities especially in activities related to biodiversity conservation and Small Grants Programme (SGP). The GEF IEO will continue to monitor progress on adoption of other aspects of the evaluation recommendations.

22. The *Review of the GEF Policy on Minimum Standards on Environmental and Social Safeguards* recommended that 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. GEF IEO and the Management agree that progress on adoption of these recommendations has been **substantial**. The Secretariat lead 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. The

Management has not yet developed a plan to support capacity development, convening of experts, and communications.

23. 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 Fund; make efforts to improve consistency regarding their understanding and application of the GEF gender mainstreaming policy and the Gender Equality Action Plan (GEAP) to the LDCF; and ensure that the data in the GEF PMIS is up to date and accurate. Last year (MAR2017), the GEF IEO had rated the progress in adoption of the Council decision to be medium. However, this year, it assesses the performance to be **substantial**, which is consistent with the Management's self-assessment. On July 1st, 2018, the GEF Policy on Gender Equality, which is also applicable to LDCF activities, came into effect. The GEF IEO regards it as substantial progress on the adoption of the gender mainstreaming related recommendation. Although some progress is noted in update of GEF PMIS, the new portal still has some glitches that have limited its efficacy.

24. The *Program Evaluation of the Special Climate Change Fund* called the GEF Secretariat to: prioritize sustainable financing for the fund; to describe the SCCF's niche within the global adaptation finance landscape; and, ensure that PMIS data is up to date and accurate. The GEF IEO assesses the 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 PMIS has been medium.

9. Medium adoption

25. The GEF IEO's assessment also agrees with the Management's assessment on the level of adoption of the decision based on the *Joint GEF - UNDP Small Grant Programme Evaluation*. The Council's decision had called for reconsideration of the criteria for upgradation of the participating countries. The Management reports that it has reconsidered the criteria for upgradation but has continued without any changes for the GEF-7 period. Although Malaysia was upgraded during the reporting period, the criteria has remained unchanged, therefore, both GEF IEO and the Management assessed the level of adoption to be **medium**.

10. Graduation

26. The GEF Council decision based on *Annual Performance Report 2015* – that 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 MAR2019.

IV. SUSTAINABLE TRANSPORT: CONTEXT, GEF STRATEGIES, KEY QUESTIONS, METHODOLOGY

1. Context

27. People need to travel for various reasons and economies need to transport goods to meet the market demand. There are several modes of transportation including road-based modes, aviation, railways, waterways, and non-motorized transit. Most of these modes depend upon fossil fuels for energy. Presently, of the total energy-related CO₂ equivalent emissions transport accounts for about 23 percent, of which road-based modes account for more than two thirds (IPCC 2014).

28. During the next three decades demand for transportation is expected to increase substantially because of an increase in population, affluence, and urban sprawl. OECD (2012) 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. The global population is expected to increase from 7.6 billion in 2017 to 9.8 billion in 2050 (UN 2018). The share of 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 5, 6). 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 increase in demand for transportation will take place in developing countries where there will be a substantial increase in population migrating to cities (Schäfer, 2007).

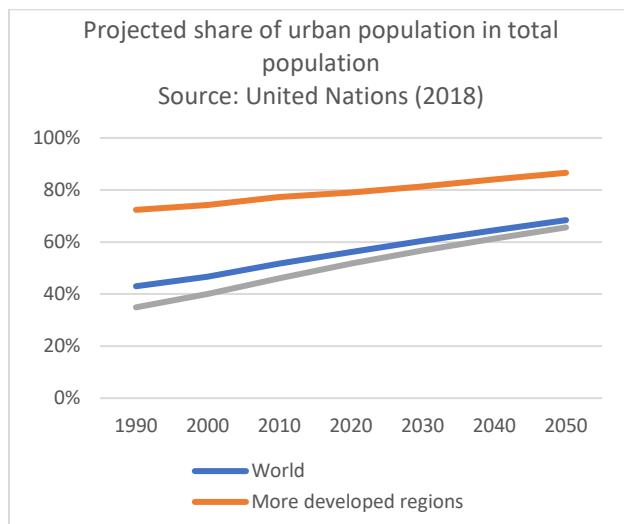


Figure 6: Projected share of urban population in total population Source: United Nations (2018)

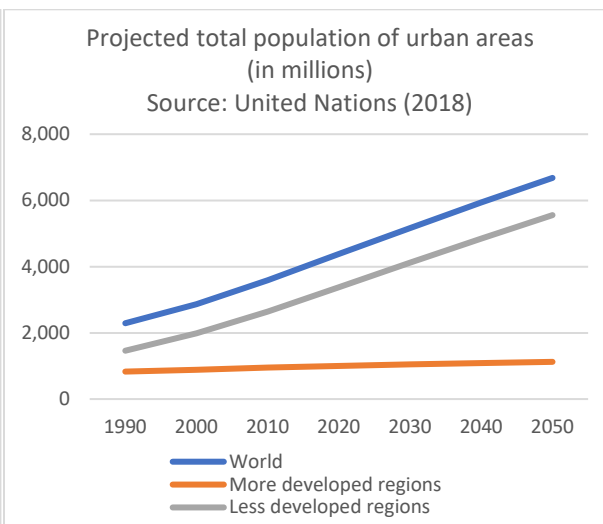


Figure 5: Projected total population of urban areas (in millions) Source: United Nations (2018)

29. The increased demand for transport is reflected in the increased use of transport services and vehicles. For example, globally sales and use of vehicles has been increasing steadily (Figure 7, 8). Several new metro systems are under construction in developing countries and 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 (IATA) expects the number of air travelers to increase from about 4 billion in 2016 to 7.8 billion in 2036, with China, India and Indonesia, along with the US, accounting for much of the increase (IATA, 2016). Increase in transportation implies increase in demand for energy, which thus far has also translated into increased GHG emissions.

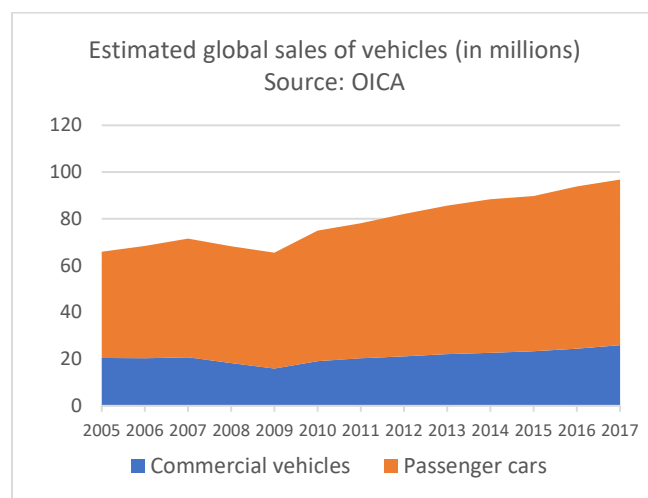


Figure 8: Estimated global sales of vehicles (in millions)
Source: OICA

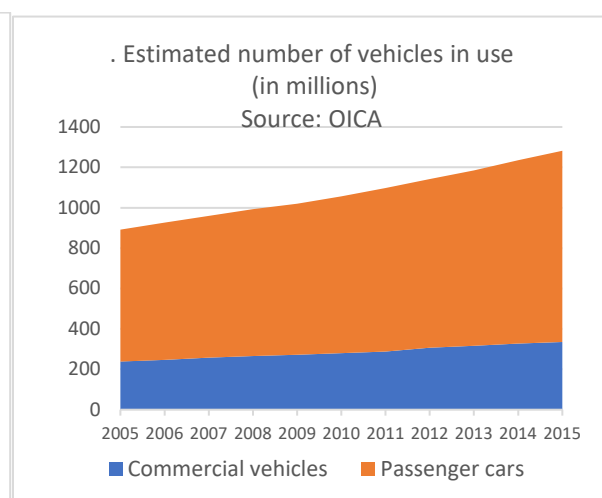


Figure 7: Estimated number of vehicles in use (in millions)
Source: OICA

30. Reducing GHG emissions from transportation requires improved urban and transport planning, shift to low carbon modes of transportation, and adoption of efficient technologies. Since 1999, the Global Environment Facility (GEF) has cumulatively provided \$ 501 million in financing for 80 sustainable transport projects³. GEF partners have committed to providing \$8.4 billion in co-financing to these projects. GEF support is highly relevant to the UN Sustainable Development Goal on sustainable cities and communities (Goal 11), which recognizes the need to provide people access to safe, affordable, accessible and sustainable transport systems (UN 2015).

2. Evolution of GEF Sustainable Transport Strategies

31. GEF involvement in sustainable transport started during the second replenishment period (1998-2002). In 1998 the GEF Council reviewed *Elements of a GEF Operational Program*

³ This includes grants provided for project preparation, implementation, and for Agency fees.

on Transport (GEF/C.12/14) and requested the Secretariat to develop the operational program based on the document. From 1999, GEF started financing sustainable transport projects.

32. During the past two decades the GEF strategies to support sustainable transport have evolved. There have been four major phases in the evolution. During the GEF-2 and GEF-3 the focus was on supporting activities related to modal-shift and cutting-edge technologies. During GEF-4, while the support for modal-shift remained, the strategy also allowed for providing support for transport infrastructure, urban and transport planning, and legal and policy measures. During GEF-5 the focus shifted to providing support for sustainable transport using integrated approaches. During GEF-6, GEF implemented the *Sustainable Cities Integrated Approach Pilot* program to implement integrated approaches targeting cities as the focus of action. In addition to this program, GEF also supported several stand-alone sustainable transport projects during the period.

GEF-2 and GEF-3 (1999-2006)

33. The focus of GEF support during this period was on providing grants for activities that supported modal-shift and cutting-edge technologies. The priorities for this period are described in *Operational Program 11: Promoting Environmentally Sustainable Transport (OP-11)* (GEF 2001), which was developed by the Secretariat based on consultations with the Scientific and Technical Advisory Panel (STAP) and GEF Agencies. However, GEF had started approving sustainable transport projects from 1999 onwards. The program identified six priority areas:

- (a) 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;
- (b) Non-motorized transport (NMT);
- (c) Fuel-cell or battery operated 2- and 3-wheelers designed to carry more than one person;
- (d) Hydrogen-powered fuel cell or battery-operated vehicles for public transport and goods delivery;
- (e) Internal combustion engine-electric hybrid buses; and
- (f) Advanced technologies for converting biomass feedstock to liquid fuels.

34. 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 led to the criticism that GEF was promoting expensive approaches instead of more affordable approaches such as bus-rapid transit that also benefit the urban poor (STAP 2002). In response to the criticism, during GEF-3, public transit received greater attention. Support for measures that promoted public transit increased along with a decline in support for the technology focused

measures. GEF also provided support for projects that addressed non-motorized transit, urban and transport planning, and legal, policy and regulatory concerns.

GEF-4 (2006-2010)

35. During GEF-4, GEF moved from operational programs to strategic objectives and strategic Objective-7, *Facilitating Mobility in Urban Areas*, included sustainable transport related priorities. The objective emphasized modal shifts through traffic demand management, support to transport infrastructure (bus-rapid transit systems and non-motorized transport), and land-use, urban planning, and regulation (GEF 2005).

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

37. The introduction of programmatic approaches was another development that affected GEF operations. In April 2008 the GEF Council approved a policy document that promoted use of programmatic approaches in providing GEF funding (GEF 2008). A strategic program focused on energy related concerns of West Africa was approved in 2008 (UNIDO, GEF ID 3789). Within the framework of this program, two transportation projects that were implemented by the World Bank were approved in GEF-4⁴.

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

GEF-5 (2010-2014)

39. **During GEF-5 (2010-2014), GEF started 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. During GEF-5 several projects that piloted and/or demonstrated technologies were also approved. However, a major difference (compared to GEF-2 period) was that the demonstration of low carbon technologies was embedded within a broader framework of addressing sustainable transport concerns of the targeted urban system. During this period GEF also approved the *Asian Sustainable Transport and Urban Development Program (ASTUD)*, implemented by the Asian Development Bank, aimed at improving the knowledge base and planning resources available to cities implementing sustainable transport

⁴ The projects are: Ouagadougou Transport Modal Shift (Burkina Faso, World Bank, GEF ID 2876); and, Nigeria Urban Transport (Nigeria, World Bank, GEF ID 3827).

projects especially those related to bus-rapid transit. Five projects implemented by ADB were prepared within the framework of this program.

GEF-6 and GEF-7 (2014-2022)

40. During GEF-6 (2014-2018), there was a greater focus on cross-sectoral synergies. Unlike previous replenishment phases, transportation was no longer represented by one strategic priority; rather, transport and planning related interventions were included under 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 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 cities 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.

41. The strategic approach for GEF-7 (2018-2022) builds on the GEF-6 approach. The programming document for GEF-7 includes sustainable transport under two climate change objectives: “Promote innovation and technology transfer for sustainable energy breakthroughs”; and, “Demonstrate mitigation options with systemic impacts”. The *Sustainable Cities Impact Program*, which is aimed at delivering on objective 2, is a continuation of the program piloted during GEF-6. The program will address transport systems within the context of land-use planning and policy changes. During the GEF-7, the GEF is also providing support to recipient countries through a program to facilitate uptake of electric mobility.

3. Key Questions

42. Given the continued importance of sustainable transport in the GEF portfolio, this evaluation will analyze the performance of this portfolio and draw lessons from it. The GEF IEO has covered some of the sustainable transport projects in previous evaluations. For example, the Climate Change Mitigation Impact Evaluation (GEF IEO 2014) included sustainable transport projects in China and Mexico. Similarly, the country portfolio evaluations of Philippines (2008) and Brazil (2012) have also covered sustainable transport projects implemented in these countries. However, the IEO has so far not conducted an evaluation of the sustainable transport portfolio because of the limited number of projects. With 80 approved and 33 completed projects, the portfolio is now sufficiently mature.

43. This evaluation of the sustainable transport portfolio addresses the following questions:

- (a) What are the activities that GEF has financed to support sustainable transport?
- (b) What are the lessons from the implementation experience?
- (c) What are the results of the completed sustainable transport projects?

(d) What is the value added by GEF support?

44. **What are the activities that GEF has financed to support sustainable transport?** This evaluation examines the extent to which the GEF has encouraged avoidance, modal shifts, and improvements, in transport. It also assesses the extent to which GEF provides support for technology adoption, capacity building, development of legal and regulatory frameworks, knowledge management, and stakeholder involvement.

45. **What are the lessons from the implementation experience?** The evaluation examines the experience of projects that are under implementation or have been completed. It examines project implementation and execution, monitoring and evaluation, mobilization of co-financing, and arrangements to promote inclusiveness, to identify both good practices and concerns.

46. **What are the results of the completed sustainable transport projects?** This evaluation assesses the extent to which the completed sustainable transport projects deliver on their expected outcomes. It examines the extent to which outcomes such as CO2 emission abatement, legal and regulatory changes, urban land use and transport planning, and capacity building, are achieved. It documents transformative changes in the targeted transport themes along with unintended impacts.

47. **What is the value added by GEF support?** The evaluation assesses the extent to which GEF involvement adds value to a project over the baseline business as usual scenario.

4. Data Sources and Methodological Approach

Information collection

48. **Review of the literature.** Publications relevant to transportation from journals and from documents of 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.

49. **Survey of approved projects.** Project documents submitted to the GEF Secretariat during the project appraisal process were surveyed. This includes Project Information Forms (PIF), 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 2, Annex C). Information was organized to facilitate categorization and aggregation of project level data (Annex D1).

50. **Survey of projects under implementation.** Of the 80 approved projects, 24 are under implementation. The Project Implementation Reports (PIRs), which provide an account of implementation progress on an annual basis, were surveyed and information on issues relevant at this stage was collected. (Annex D2).

51. **Survey of completed projects.** The GEF IEO reviews terminal evaluations of completed projects on a rolling basis. Some of the included analysis on level of 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, the post-completion verification reports (Annex D3). So far 33 projects have been completed but terminal evaluations are available for 32, which are included in the survey. For several completed projects independent post completion verifications have been conducted by the GEF IEO or the evaluation units of the GEF Agencies. Information from these sources was also considered.

Table 2: Types of documents and number of projects covered

Project status	Number of projects	Project documents	Project Implementation Reports	Terminal evaluations	Independent post completion verifications
Yet to be implemented	23	23	—	—	—
Under Implementation	24	24	22	—	—
Completed projects	33	33	29	32	8
Total	80	80	51	32	8

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

53. **Datasets.** Several datasets were used to conduct analysis for the review. These include GEF Project Management Information System (PMIS) dataset, GEF IEO's terminal evaluation review dataset, UN Population Dataset, World Bank Databank, and data from International Organization of Motor Vehicle Manufacturers (OICA). The PMIS dataset has been used, along with dataset generated from the project document-based surveys, to analyze the GEF portfolio. GEF IEOs terminal evaluation dataset provides data on project performance ratings. The UN Population Dataset has been used to assess demographic shifts that affect demand for transport. The World Bank Databank has been used to access data on income levels of GEF

recipient countries at different points in time. The data from OICA has been used to assess trends in vehicle sales and use.

54. **Interviews of key informants.** 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 with leadership role in international organizations on energy and sustainable transport related issues. Some of these were interviewed to gather more information on experiences related to specific projects. In addition, GEF Secretariat staff involved in managing the transportation related activities were interviewed to understand more about their approach to programs that address transportation related concerns. Fifty-two interviews were conducted. These include 8 interviewees from five GEF Agencies, three from GEF Secretariat, and 41 from executing agencies, recipient country government, and other organizations (Annex E).

5. Analytical framework

55. GEF-supported activities to promote low carbon transportation may be assessed using different perspectives depending on whether the project focused on avoidance, modal-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, implementing agency, promoted technologies, and targeted modes. Some of the perspectives used to understand the GEF portfolio are discussed in this section.

Avoid-Shift-Improve framework

56. *Avoid-Shift-Improve* framework (2011) developed by GIZ provides a basis to understand 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. The strategy to avoid or reduce focuses on improving systemic efficiency through integrated urban and transport planning that reduces the need to travel both in terms of number and distance of trips. The strategy to shift or maintain focuses on trip efficiency and promotes low carbon and energy efficient modes such as public transit and non-motorized transit over carbon intensive modes. The strategy to improve 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 timeframe is difficult.

Categorization of GEF supported activities

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

Scale at which activities are targeted

58. GEF activities may also be analyzed from the perspective of the targeted scale. GEF support for transportation activities may be provided at a global-regional, national or local scale. Each of these scales requires engagement with different set of partners and stakeholders. The national and local scales are especially important for transportation projects. Most of the activities which are focused on legal, policy and regulatory measures are targeted at changes at these levels. 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 assessment

59. Performance of GEF activities has been assessed in terms of environmental outcomes, contributions to legal, policy and regulatory framework, capacity development, added value of GEF financing, implementation, monitoring and evaluation, materialization of co-financing, and inclusion of vulnerable groups. Methods used for assessment of performance on most of these parameters are detailed in Annex B and Annex D of this report. Transformative and unintended impacts have also been reported.

Aggregation of GHG emission avoidance benefits

60. GEF-supported activities that promote low carbon transportation aim at the reduction or avoidance of GHG emissions. Therefore, assessment of project achievements in terms of GHG emissions reduction or avoidance is important. However, given the variety of interventions, the targeted scale, the strategies, and the differences in the incremental cost logic for GEF support, it is difficult to use a single methodology to measure the emission reduction benefits. GEF introduced the TEEMP model to assess GHG emissions abatement for its transportation projects in 2011. However, the majority of projects covered in this review were designed before the model was introduced. 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 TEEMP model. This study also assesses the extent to which the reported benefits may be attributed to GEF support. In cases where no attribution, or only a negligible attribution, is possible, the GHG benefits of GEF project have been adjusted accordingly.

Added value of GEF financing

61. The review assessed the added value of GEF financing to determine how GEF funding may improve upon the business as usual (baseline) scenarios. Business as usual scenario in such cases implies the likely scenario if the GEF funding does not materialize. GEF IEO has addressed this topic through several of its past works (GEF IEO 2012, 2014, 2018). Preliminary survey of project documents showed that GEF adds value through: enhancing scale; increasing financial viability; speeding up 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.

6. Limitations

62. Aggregation of data on GHG emissions abatement is a challenge. Much of the data that has been used for aggregation was reported by Agencies using methodologies that are often inconsistent. There are also issues related to attribution to GEF supported activities. The review addresses these concerns through retroactive application of the TEEMP approach to the data and revising the estimates after accounting for attribution related challenges. However, it is difficult to claim that all inconsistencies and sources of error have been addressed. Therefore, the GHG emissions abatement figures presented in this review should be taken as indicative estimates.

63. Reporting practices on what counts as co-financing and its materialization vary across agencies. GEF guidance on co-financing allows for reporting of different types of contributions as co-financing. Because reporting practices vary, the extent to which Agency performance may be compared is limited.

64. 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 the quality of reporting. This poses challenges in determining the extent to which specific activities are accomplished and are reported on.

7. Conduct of the evaluation

65. Preliminary work for the review, including review of literature and field visits, was undertaken in June 2018. The concept note of the review was prepared in November 2018. The desk review of the documents commenced in December 2018 and continued until March 2019. The interviews conducted for the review were spread over the June 2018 to April 2019 period. The review also used the interview notes prepared for the Formative Review of the Integrated Approach Pilot (2017), which covered the pilot on Sustainable Cities. The draft version of this report was shared with the Management. This report takes addresses the Management comments and feedback.

V. SUSTAINABLE TRANSPORT: PROJECT PORTFOLIO

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

1. Financing, modalities, and project cycle stage

67. **Following a steady allocation from GEF-3 to GEF-5, the committed financing for transport projects increased substantially during GEF-6.** The Global Environment Facility (GEF) has so far committed \$ 501 million in funding to 80 projects that address sustainable transport (table 3)⁵. GEF partners have committed \$ 8.40 billion to these projects. However, a large part of the increase is because of greater reliance on projects that address multiple environmental concerns along with sustainable transport. Of the \$ 177 million committed in GEF-6, US \$ 104 million is for eight projects under the framework of Sustainable Cities program that address sustainable transport along with other city-centered environmental priorities, making the funding envelope for sustainable transport comparable to GEF-4 and GEF-5.

Table 3: GEF portfolio of sustainable transport projects – committed financing (in \$ million)

GEF Periods	Number of Projects	GEF funding commitments	Promised co-financing
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

68. 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 9). The projects that involve substantial GEF funding – US \$ 10 million or above – are either regional (two projects) or national projects implemented in large emerging economies such as China (three projects), Brazil (two projects), India (one project) and South Africa (one project).

⁵ This includes resources provided for project preparation, project implementation, and project fees.

69. Most of the sustainable transport projects (70 percent) are, and almost all the GEF funding (93 percent) is through, full size projects (figure 10). Although medium size projects, which involve up to US \$ 2.0 million in GEF funding⁶, account for 30 percent of the projects, their share in GEF funding is small (7 percent).

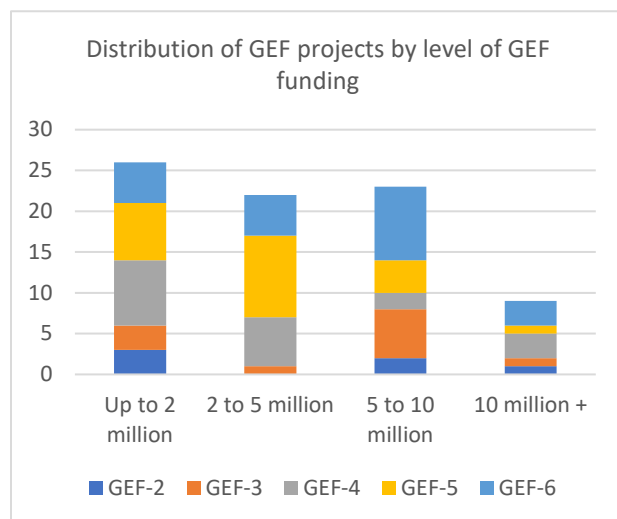


Figure 10: Distribution of GEF Projects by level of GEF funding

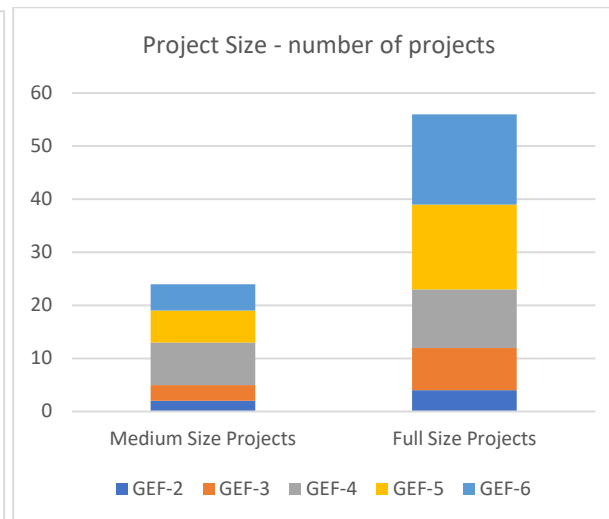


Figure 9: Project Size - number of projects

70. **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). However, during the GEF-4 period only two sustainable transport projects were prepared within the framework of the programmatic approach. Thereafter, use of programmatic approaches has increased. During GEF-6 period eight projects were prepared within the framework of a programmatic approach (figure 11). Important programs that have supported development of sustainable transport projects include the Sustainable Cities Integrated Approach Pilot (GEF-6, 8 projects), the Asian Sustainable Transport and Urban Development (ASTUD) Program (GEF-5, 5 projects), and the Strategic Program for West Africa (GEF-4, 2 projects).

⁶ From January 2013 the limit for medium size projects was raised to US \$ 2.0 million. Earlier the limit was US \$ 1.0 million. All projects over the limit for medium size projects are processed as full size projects.

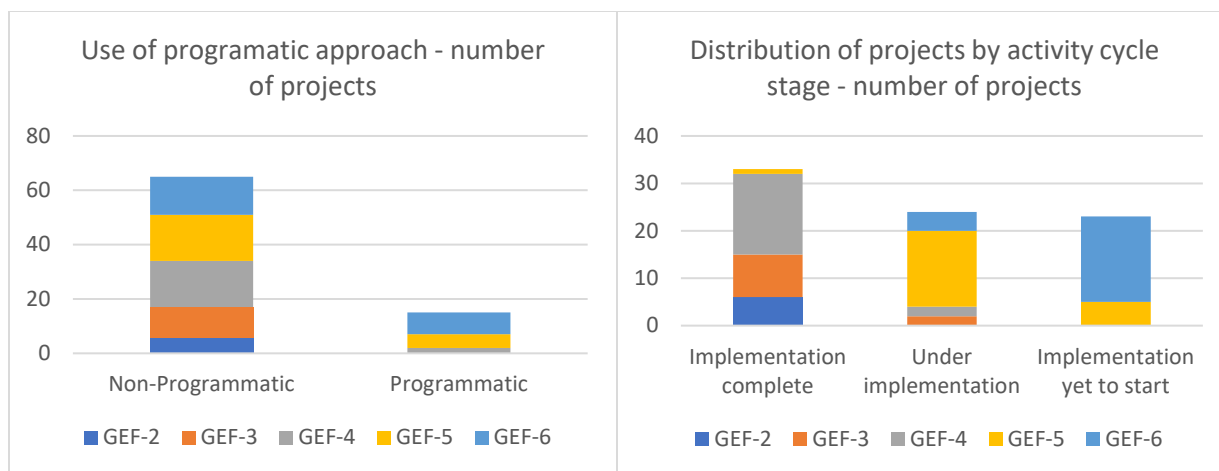


Figure 12: Use of programmatic approach - number of projects

Figure 11: Distribution of projects by activity cycle stage – number of projects

71. GEF sustainable transport projects are at different stages of project cycle: 33 have been completed, 24 are under implementation, and 23 under different stages of preparation (figure 12). Most of the completed projects were approved during GEF-2, GEF-3 or GEF-4 period. Most of the projects that are under implementation are from GEF-5 and most of those that are under preparation from GEF-6.

2. GEF Agencies

72. **UNDP and World Bank together account for two thirds of sustainable transport projects and GEF funding.** Of the 18 GEF Agencies, 10 have prepared and/or implemented GEF sustainable transport projects. Of these World Bank and UNDP have a substantial share although other Agencies such as UNEP, ADB and UNIDO also have significant presence (Figure 13, 14). All 18 sustainable transport projects that were approved during the GEF-2 to GEF-3 period were implemented by either UNDP, World Bank or UNEP. During the GEF-4- GEF-5 period, project proposals from several Agencies such as ADB, UNIDO and IADB were approved. During GEF-6, project proposals from several new Agencies such as DBSA and CAF have also been approved.

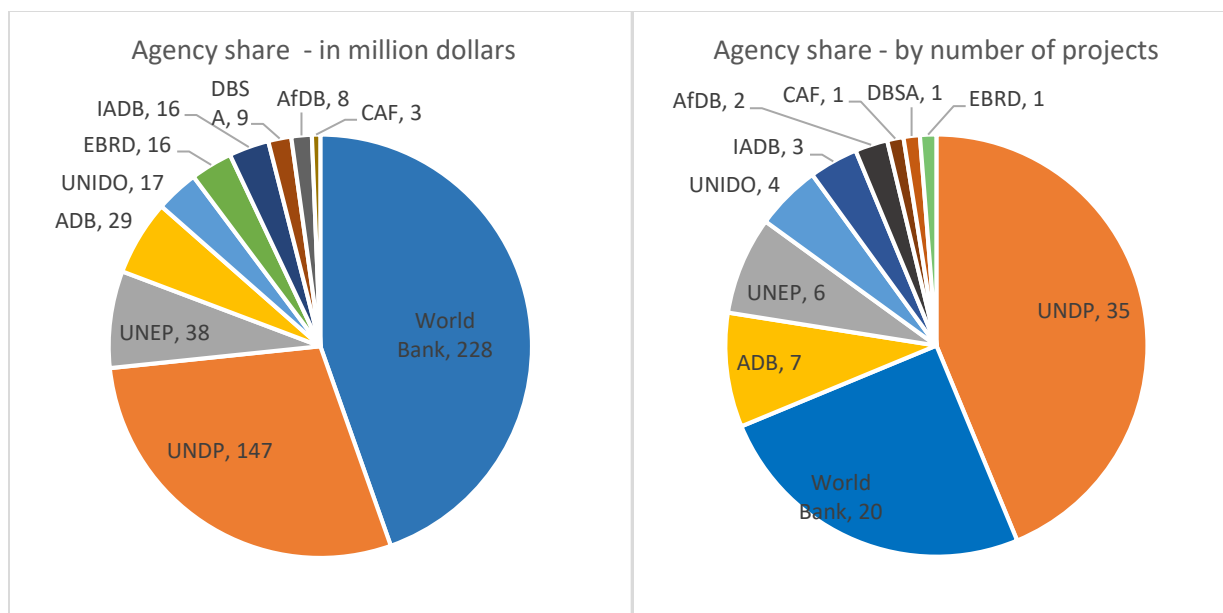


Figure 14: Agency share - in million dollars

Figure 13: Agency share - by number of projects

73. **UNDP provides the widest coverage in terms of the themes addressed by the sustainable transport projects.** UNDP implemented projects address technology pilot and demonstration (37 percent), public transit (49 percent), non-motorized transit (46 percent), urban and transport planning (51 percent), and legal, policy and regulatory framework (71 percent) (table 4). In comparison, most World Bank implemented projects address public transit (70 percent), non-motorized transit (55 percent), urban and transport planning (80 percent), and legal, policy and regulatory framework (75 percent). However, World Bank has been less involved in technology pilot and demonstration (10 percent). Other Agencies have implemented only a few projects; therefore, patterns are difficult to assess. Nonetheless, the data suggests that ADB has focused more on public transit and technology demonstration. UNEP has focused more on public transit, non-motorized transit, and urban and transport planning. UNIDO has focused on technology promotion and on improving the legal, policy and regulatory framework.

Table 4: Themes covered by Agencies – as percentage of projects in their respective portfolio

Themes	UNDP	UNEP	World Bank	ADB	UNIDO	Others	GEF Total
<i>Number of Projects</i>	35	6	20	7	4	7	80
Technology promotion	37%	33%	10%	57%	100%	13%	33%
Public transit system	49%	83%	70%	71%	0%	13%	53%
Non-motorized transport	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 changes	71%	50%	75%	29%	100%	75%	69%
Capacity building	86%	83%	100%	71%	100%	88%	89%

*Only activities that are at least partially funded by the GEF are considered

3. Relevance of GEF support

74. Ninety six percent of the GEF sustainable transport projects are focused on urban transport and they account for 94 percent of the GEF funding for sustainable transport. In comparison, urban transport accounts for a relatively small share of the transport portfolios of international development banks. For example, urban transport accounts for 3 percent of AfDB's (IDE AfDB 2014) and 15 percent of ADB's (ADB IE 2019) transport portfolio. GEF focus on urban transport is appropriate because it provides substantial GHG emissions abatement opportunities.

75. **GEF support for sustainable transport is closely associated with size of urban population of the recipient countries.** This may be because opportunities and demand for supporting sustainable transport projects is higher in countries with large urban populations. Figure 15 presents comparison of share of the GEF recipient countries in total urban population of these countries, share in STAR climate change mitigation (CCM) country allocation, and share in GEF sustainable transport funding. The countries are grouped based on the total size of their urban populations. The countries that constitute the top 20 percentile of the recipient countries by total size of their urban population account for 86 percent of the total urban population of the GEF recipient countries, 65 percent of the STAR CCM allocation during the GEF-4 to GEF-6 period, and 82 percent of the GEF commitments to national sustainable transport projects. Thus, recipient countries with a large urban population (the top 20 percentile) have used a relatively greater share of their STAR CCM allocation for sustainable projects than other recipient countries that have smaller urban population.

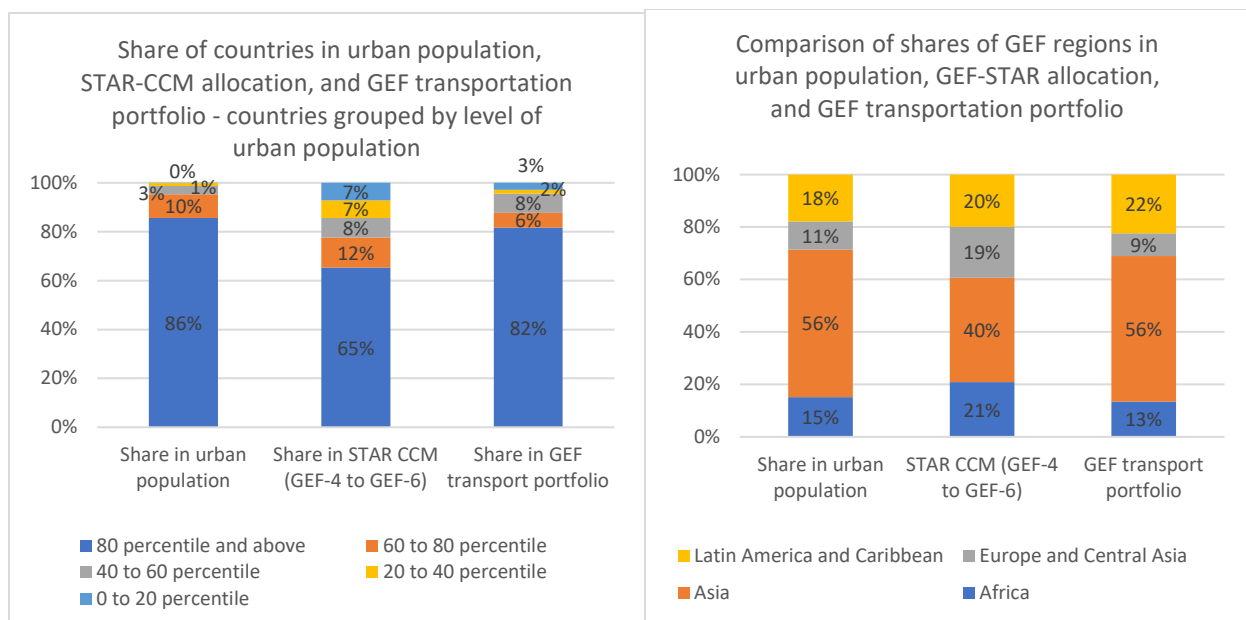


Figure 16: Share of countries in urban population, STAR-CCM allocation, and GEF transportation portfolio - countries grouped by level of urban population

Figure 15: Comparison of shares of GEF regions in urban population, GEF-STAR allocation, and GEF transportation portfolio

76. GEF support for sustainable transport across regions is also associated with their respective share in total urban population of the GEF recipient countries. Among the GEF regions, Asia accounts for 56 percent of the total urban population of GEF recipient countries, Latin America and Caribbean (LAC) for 18 percent, Africa for 15 percent, Europe and Central Asia (ECA) for 11 percent (Figure 16). The share of these regions in GEF sustainable transport portfolio funding shows a similar pattern with Asia accounting for 56 percent, LAC for 22 percent, Africa for 13 percent, and ECA for 9 percent. .

77. 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 STAR CCM allocation (Figure 17). The GEF Council has prioritized funding to LDCs and SIDS through use of per capita GDP-based index and through application of floors in STAR allocation. However, it is the recipient countries that decide how to use their indicative country allocation for activities within and across focal areas. It is likely that that LDCs and SIDS have used a smaller share of their STAR CCM allocation for sustainable transport projects than other recipient countries.

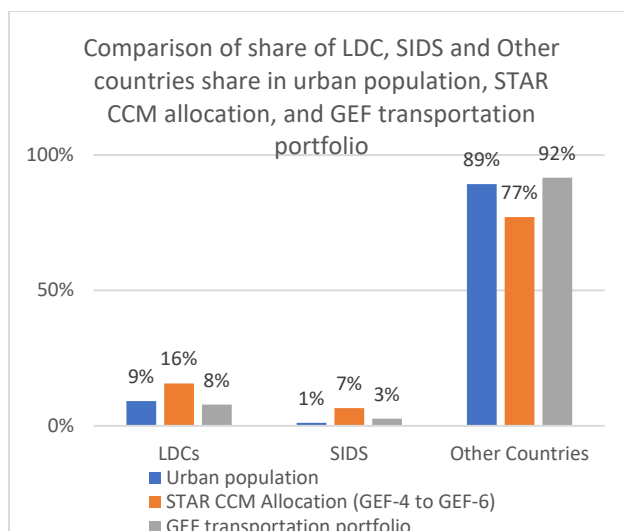


Figure 18: Comparison of share of LDC, SIDS and Other countries share in urban population, STAR CCM allocation, and GEF transportation portfolio

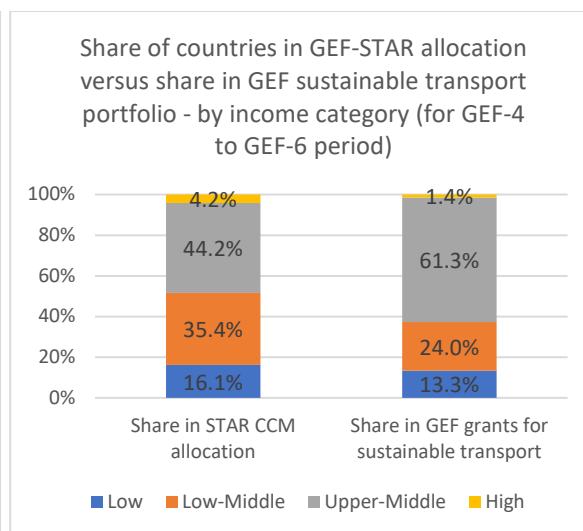


Figure 17: Share of countries in GEF-STAR allocation versus share in GEF sustainable transport portfolio - by income category (for GEF-4 to GEF-6 period)

78. There is a relatively higher demand from upper-middle-income recipient countries for GEF funding for sustainable transport projects (Figure 18). Comparison of STAR CCM allocations and share in GEF grants for sustainable transport based on recipient country income category demonstrates this. The World Bank databank provides data on a country's income category: low; low-medium; upper-middle; or high income. The data on income category of each GEF recipient country at the start of the replenishment period was used. Data on STAR CCM allocation and GEF grants for sustainable transport in recipient countries was added to the dataset. The analysis shows that demand for transportation projects is relatively higher in upper middle-income countries. Most GEF recipient countries in the high-income category are SIDS, where demand for urban transportation projects is likely to be lower because of a lower population, fewer congestion-related concerns, and fewer opportunities to operate at scale for sustainable transport.

4. Coverage of Cities

79. GEF supported sustainable transport projects have been implemented in 136 cities in 49 countries. Of the 80 sustainable transport projects, 71 projects involve activities that address sustainable transport related concerns in specific cities. Forty-two projects (59 percent) cover only one city whereas 29 (41 percent) cover two or more cities. Of the 136 cities, 67 (49 percent) are in Asia, 28 (21 percent) in Latin America and Caribbean, 26 (19 percent) in Africa and 15 (11 percent) in Europe and Central Asia. Most cities have one project, only 14 have two or more projects (figure 19). In terms of cumulative funding commitments, 13 cities received cumulative GEF funding commitments of more than US \$ 5.0 million (Figure 20).

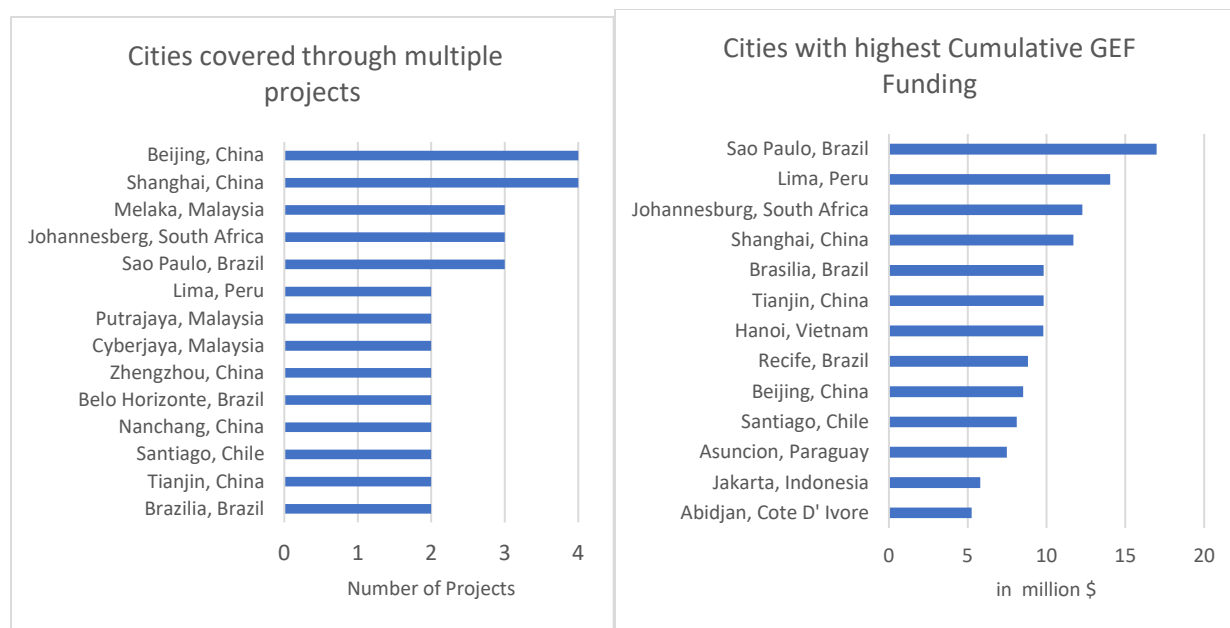


Figure 20: Cities covered through multiple projects

Figure 19: Cities with highest Cumulative GEF Funding

80. 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), Russia (6 cities), Mexico (5 cities) and Thailand (5 cities). Of these, Brazil and China have three cities each with more than \$ 5.0 million in cumulative GEF funding for sustainable transport.

Themes⁷

81. **During the past 20 years the GEF sustainable transport portfolio has evolved.** During GEF-2, when GEF first started providing support to sustainable transport, it initially focused on piloting of fuel cell and electric/hybrid bus technologies. In GEF-3, GEF provided more support to bus-rapid transit (BRT) because – compared to piloting 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 pilot and demonstration of low carbon vehicular technologies, 38 that address BRT or BRT style improvements, 38 that demonstrate efficacy of non-motorized transit, and 8 projects that address efficiency in freight and logistics. A few projects also promote efficiency in metro rail (two projects), water ways (two projects) and ground transportation in aviation (one project).

⁷ The discussion presented in this section primarily pertains to activities that were supported through GEF funding or were at least partly funded through GEF activities.

82. The majority of GEF-financed sustainable transport projects provide financing for capacity development (89 percent), for activities aimed at changes in 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 projects.

VI. SUSTAINABLE TRANSPORT: OUTCOME ACHIEVEMENTS

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

84. **Seventy two percent of completed sustainable transport projects have satisfactory outcomes, and 70 percent are in the likely range for sustainability.** This is similar to other projects in the GEF portfolio. However, projects in the large emerging economies are more likely to be rated in the satisfactory range for outcomes than projects in other recipient countries. Seventy percent of the completed sustainable transport projects are rated likely for sustainability, which is similar to other climate change projects but nominally higher than non-climate change projects.

85. Of the completed projects, 53 percent (17 projects) promoted changes in legal, policy and/or regulatory frameworks. 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 the government agencies. However, some of the locally targeted measures such as parking fees, use of roads, congestion pricing, and restrictions in use of vehicles, often faced barriers due to low political support.

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

87. Of the completed projects, 12 (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 cities such as Mexico City and Changsha. In other cities such as Dushanbe and Tianjin these efforts were less successful as they were either not aligned with the vision of the local decision makers or the policy and regulatory barriers hampered progress.

88. Eight completed projects (25 percent), addressed traffic demand management. The experience from these projects shows that these measures are likely to be successful when they are based on ‘win-wins’. For example, in general there is lot of support for ‘park-and-ride’ improvements and integration of the stations with pedestrian and cycling infrastructure. However, in situations where tradeoffs are required – e.g. congestion pricing, parking pricing, and vehicle usage restrictions – commitment from the political leadership and public support becomes important.

1. Outcome ratings

89. Outcomes may be understood as “the likely or achieved short-term and medium-term effects of an intervention’s outputs” (OECD 2002).

90. Of the completed sustainable transport projects (32 projects), 72 percent were rated in the satisfactory range for outcome achievements, which is not statistically different from the rest of the GEF portfolio even though the number is lower (figure 21). In terms of share in the funding for the portfolio, completed sustainable transport projects rated in the satisfactory range account for 83 percent. The 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)⁸. This difference is statistically significant despite the small number of observations.

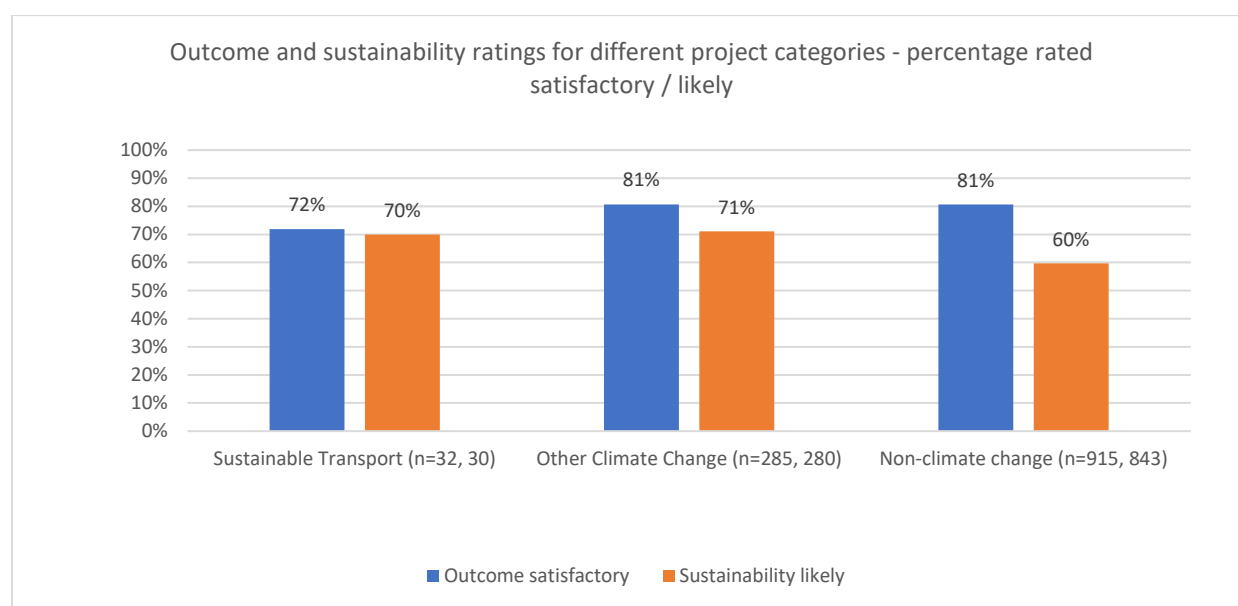


Figure 21: Outcome and sustainability ratings for different project categories - percentage rated satisfactory / likely

⁸ The recipient countries included among the large emerging economies include Brazil, China, India, Mexico, Russia, and South Africa.

91. The reasons for low performance reported in the terminal evaluations include high turnover of personnel; procurement delays; difficulties in coordination; and low capacity of executing agencies. Of these, low capacity of executing agencies, difficulties in coordination, and high turnover were reported frequently for projects implemented in countries that are not among the large emerging economies.

92. Seventy percent of the completed sustainable transport projects are rated likely for sustainability, which is similar to other climate change projects but nominally higher than non-climate change projects.

2. GHG emissions abatement benefits

93. GEF support for sustainable transport aims to reduce the level of GHG emissions from transportation. Therefore, the extent to which the supported projects contribute to GHG emissions abatement is an important parameter to assess performance. However, aggregating GHG emissions from completed projects is challenging given the variety of the interventions, level of GEF support, and the extent to which GEF support may be linked with the reported emissions abatement.

94. **Aggregate GHG emission abatement for completed projects has been lower than expected at project start.** Of the 27 completed projects for which reporting on GHG emissions reduction are expected, 20 terminal evaluations provide this data. For 20 completed projects that report information on GHG emissions abatement, the aggregate adjusted life time total is 11.0 Mt CO₂ equivalent. This is lower than the adjusted 92.9 Mt CO₂ equivalent expected at project start. Of the 20 projects, eight (40 percent) met or exceed their individual targets. The average cost of GHG emission abatement is \$ 11.5 per tonne, with a median of \$ 12.7.

95. The review retroactively applied a consistent approach to the reported GHG emissions abatement data to facilitate comparisons. Of the 20 projects that reported direct GHG emissions, eight used the TEEMP model - the Manual for Calculating Greenhouse Gas Benefits for GEF Transportation Projects. To make figures comparable, lifetime of the benefit stream was standardized based on the TEEMP model guidance.⁹ 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.

⁹ "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" (Manual for Calculating Greenhouse Gas Benefits for GEF Transportation Projects, GEF/C.39/Inf.16)

96. Likewise, 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 GEF were either canceled or ended up being achieved without GEF funding, for example, a bus-scrapping activity in *Lima Urban Transport* (GEF ID 1081) which was projected to account for a significant share of emissions reduction but was eventually funded through government funds. In addition, the adjusted ex-ante estimates are conservative, as several estimates were order-of-magnitude higher and not always disaggregated by activity, making the role of GEF support in the projected GHG reduction impossible to quantify. Generally, more specific ex-post reporting allows for a more detailed understanding of GEF's role in emissions reduction.

97. Although the unadjusted aggregate of 27.4 Mt CO₂ equivalent was reported in terminal evaluations, the review identified five projects where the attributable benefits need to be scaled down so that the benefits claimed were consistent with the principle of incremental costs. Especially for projects where the reported CO₂ emissions were from activities for which GEF had not provided any support. In some instances, although GHG emissions abatement were reported, these were from components that GEF had not funded and the emissions abatement from activities that GEF had funded had not been tracked. Of the 20 projects, 8 projects (40 percent) achieved 80 percent or more of their emissions abatement target. .

98. The projects which focused on technology, especially those approved in GEF-2 period, yielded low CO₂ emissions abatement when compared to GEF funding. Although bus rapid transit projects accounted for largest share in CO₂ emissions abatement, the reported benefits were substantially lower than the projected benefits at project start (table 5).

Table 5: CO2 emissions abatement by source of reductions (in '000 tonnes)

Project focus	Technology	BRT	NMT	Policy / Planning	Other ¹⁰	Multiple ¹¹	Totals
Number of projects	3	11	1	1	1	3	20
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	30,096.5	92,949.8
Reported direct abatement	1.2	14,173.1	26.0	224.1	807.4	6,373.4	21,605.2
Reported indirect abatement ¹²	0	4,643.8	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

99. **Based on the analysis, about 50 percent of the total reported GHG reduction may be attributed to GEF support.** This is a rough estimate because it is not possible to precisely disaggregate the source of the reductions in all cases. Given the GEF's strong focus on capacity building, knowledge transfer and institutional strengthening, compared to capital intensive activities, it is often difficult to credit GEF for the reported reduction. This does not suggest that GEF should focus on capital intensive activities that would link better with direct emissions reductions, but highlights the complexities involved in providing a realistic estimate of GEF contribution to GHG emissions abatement.

100. **Bus-rapid transit generates the highest levels of GHG emissions abatement.** Reporting on bus rapid transit is also supported by the presence of established and relatively clear guidelines for estimating its emission abatement results. However, when the reported GHG

¹⁰ This project reported reductions only from the construction of two intermodal passenger terminals.

¹¹ These 3 projects reported significant reductions from: BRT and NMT; BRT and planning; and policy, TDM, and technology (renewal of bus fleet).

¹² These represent indirect estimates for only the 5 projects which 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.

emissions abatement is adjusted based on level and type of GEF support the GHG emissions reduce by 60 percent¹³. Despite the drop, BRT-focused projects account for 50 percent of the GHG emissions abatement achieved.

101. Projects focused on technology pilots including clean-tech buses (fuel cell, electric) provided very little direct mitigation. This 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 the trial runs that did not include riders on an actual trip. While these trial runs are important for providing efficiency related information and calculation of future benefits, they cannot be used to estimate actual benefits. GEF can claim credit for a small portion of the modest GHG reductions from tech projects; most of the reductions come from the replacement of 50 diesel buses with electric buses in Beijing, of which 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 market 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 focused 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 are easier to track and cost of GHG emissions abatement is likely to be lower.

3. Legal, policy and regulatory framework

102. 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 the national and/or provincial governments, especially the relevant government departments. In several instances, engagement with the 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 aim to change policies and/or regulations although a few also aim at changes in relevant laws. Projects that include activities aimed at legal, policy and regulatory changes also address public transit, non-motorized transit and/or land use and transport planning.

¹³ This 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/LRT system, while in most instances nearly all the costs were borne by the city government and other co-financers and the reported benefits included the 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 these projects would not have materialized without it.

103. **Activities which focused on reform or creation of national, regional and metropolitan legal frameworks enabling sustainable transport development were more likely to be adopted by government agencies.** Information from terminal evaluations shows that the targeted scale of activities aimed at changes in legal, policy and regulatory framework varies: from national policies promoting sustainable transport development to city-specific regulations. The 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 the government agencies. In comparison, locally targeted measures such as parking fees, use of roads, congestion pricing, and restrictions in use of vehicles often faced resistance because these may require the local authorities to make tradeoffs and some users may be worse off.

104. The GEF support for changes in legal, policy and/or regulatory framework is often provided along with support for public transit, non-motorized transit, technology promotion; and/or capacity development activities. 13 of the 17 projects working on reforms included support for bus rapid transit systems which often included an analysis and recommendations to persuade authorities to mandate separate lanes for the buses and/or establish a public agency to manage the bus-rapid system through a law. Several projects focused on the promotion of electric vehicles (EVs) have also included support for policies and regulations which incentivize the use of such technologies, e.g. *Accelerating the Development and Commercialization of Fuel Cell Vehicles in China* (GEF ID 5728) and *Energy Efficient Low-Carbon Transport* (GEF ID 5741). Non-motor transit interventions have also been supported through complementary policy and regulatory measures that mandate the inclusion of non-motorized transit lanes in future road development. For example, *Incorporating NMT Transport Facilities in the City of Gaborone* (GEF ID 2014) facilitated inclusion of non-motorized transit measures in Botswana's national integrated transport policy along with inclusion in the Gaborone City Master Plan.

105. **At the national level GEF contributions are in form of guidelines that are incorporated by the recipient countries in their national, provincial and/or local policies.** For example, *LAC Regional Transport and Air Quality* project (World Bank, GEF ID 2767) conducted studies that were useful to the Mexican cities as guidelines and references, and which helped them develop new urban mobility policy frameworks and regulations. The *GEF-World Bank-China Urban Transport Partnership Program* (GEF ID 2609) developed a National Public Transport Strategy, which was then adopted and enforced through National Guidance on Prioritizing Urban Transport Development in Chinese Cities (Directive number 64). Information gathered through interviews suggests that the guidance has facilitated cities in incorporating provisions for public transit in the master plans for their respective metropolitan areas. This said, one interviewee noted that some of the stipulations of Directive 64 that are related to land use change are too restrictive.

106. **Changes at the local level which relate to regulatory interventions in parking, use of roads, congestion pricing, and restrictions in use of vehicles are more challenging to achieve.** *BRT and Pedestrian Improvements in Jakarta* project (GEF ID 2954) established a legal basis for road pricing and *Sustainable Transport and Air Quality for Santiago* (GEF ID 1349) conducted a

study on congestion pricing. However, the recommended measures were not implemented in both instances. A few successful examples have also been reported. *Support to Sustainable Transport Management in Dushanbe* (GEF ID 3027) 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.

107. GEF support has facilitated harmonization of policies and regulations across sectors and has facilitated cooperation among different stakeholders. The project *Introduction of Climate Friendly Measures in Transport* (GEF ID 1155) 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 the legal and policy framework updates. *Support to Sustainable Transport Management in Dushanbe* (GEF ID 3027) facilitated involvement of NGOs in the drafting of a new National Transport Code along with the relevant government departments. *Sustainable Transport in the City of Almaty* (GEF ID 4013) developed a strategy for an integrated planning that linked different modes of transit bringing them in sync with the city development. The project facilitated the participation of more than 20 organizations in deliberations that led to design of several key elements included in the city's Action Plan.

108. Despite low levels of support from political leadership, the legal, policy and regulatory measures often laid the groundwork for future reforms. For example, *Support to Sustainable Transport Management in Dushanbe* (GEF ID 3027) 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 the project completion, key stakeholders felt that without GEF support the development of the code would have taken several years more. *Sustainable Mobility in the City of Bratislava* project (GEF ID 3433) developed a parking reform policy to promote 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 the future regulations.

4. Capacity development

109. Most projects include GEF funded activities that aim to develop capacities of key decision makers, institutions and transport professionals. Eighty nine percent of the approved sustainable transport projects (71 projects), and 81 percent of the completed projects (26 projects), include GEF funded activities aimed at capacity development. In most projects capacity development activities are aimed at developing capacities of decision makers, institutions and transport professionals (Figure 22). A few projects have also aimed at developing a cadre of professionals (when such professionals were short in supply) and at establishing new institutions. GEF has provided funding for activities such as trainings and

workshops, seminars and conferences, exposure visits, establishment of a platform for consultations, establishment of institutions, and introduction of academic courses on sustainable transport (Figure 23). Information gathered from terminal evaluations, post completion verifications and interviews suggest that GEF supported capacity development activities have improved the ability of the municipal governments to pursue sustainable transport initiatives and have also facilitated knowledge-sharing among cities and countries.

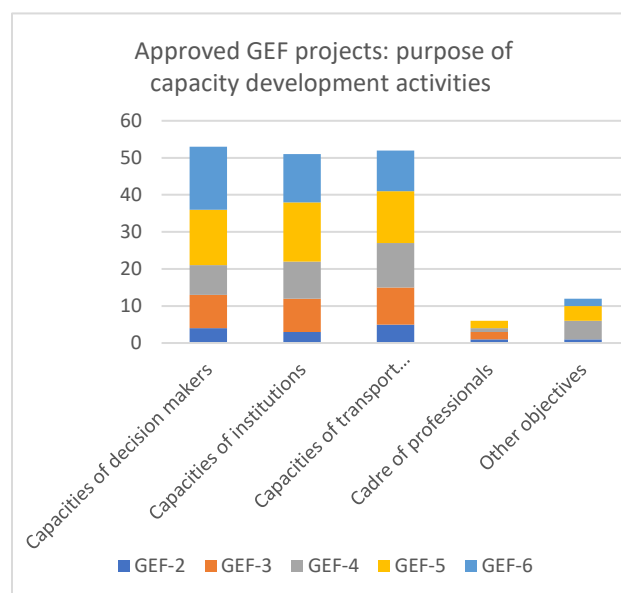


Figure 23: Approved GEF projects: purpose of capacity development activities

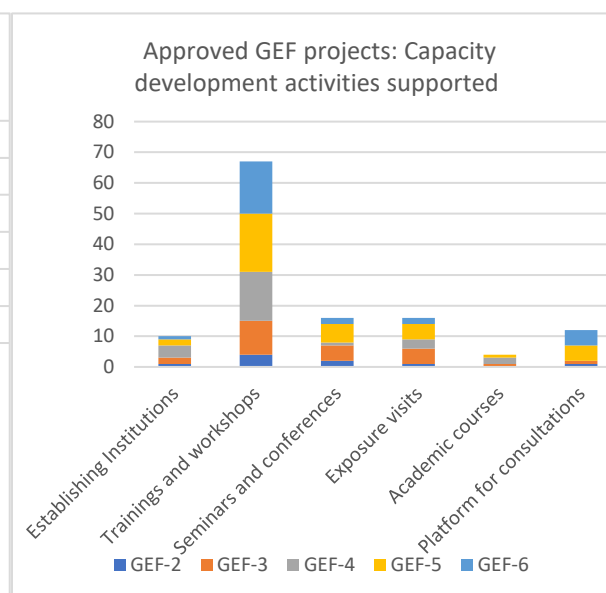


Figure 22: Approved GEF projects: Capacity development activities supported

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

111. Capacity development activities are valued by GEF partners as investments that drive post project replication and dissemination of low carbon transit approaches. LAC Regional Transport and Air Quality project (GEF ID 2767) included training and tour related activities that focused on bus-rapid transit, non-motorized transit, and update of the policy framework in participating countries. Information from the terminal evaluation and interviews suggests capacity development was the most significant contribution of the project and caused project

and non-project cities to undertake follow-up activities with other sources of funding. Another regional project, *Promoting Sustainable Transport in Latin America* (GEF ID 2178), conducted dissemination workshops and training on implementation of sustainable transportation systems for transport professionals, resulting in the development of bus-rapid transit and non-motorized transit projects in cities throughout the region.

112. Several GEF financed projects have contributed to the establishment and/or enhancing capacities of transit related institutions. *Reducing GHG Emissions from Road Transport in Russia's Medium-sized Cities* project (GEF ID 4008) established traffic/transit management centers in two cities. These centers now facilitate efficient management of traffic flows. *Nigeria Urban Transport* (GEF ID 3827) 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 the established institutions in strategic planning, regulation and coordination, but also enabled them to function as a knowledge hub for other African cities. *Introduction of Climate Friendly Measures in Transport* project (GEF ID 1155) developed a methodology for monitoring local greenhouse gas 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* project (GloMEEP) (GEF ID 5508) benchmarked performance of the countries to help them develop and implement maritime energy efficiency strategies. The 10 participating countries of the project identified their lead agencies and established a national task force to address efficiency related concerns on a sustained basis.

113. 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 *LAC 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 *Sustainable Urban Transport Program* project (GEF ID 3241) strengthened the country's Institute of Urban Transport through expansion of its operations and services, enabling the Institute to provide technical and advisory assistance to states and cities in support of the National Urban Transport Policy. *China Urban Transport Partnership Program* (GEF ID 2609) 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 cities with slow progress to catch up with others.

114. More narrowly-focused trainings were also effective in facilitating behavior change, although the effects tend to be smaller. *Sustainable Transport in the City of Belgrade* (GEF ID 3759) 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 success of the program motivated the transport company to expand the use of the optimized driving techniques after project completion.

115. Capacity building was 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. For example, through GEF-supported fuel cell bus projects in China, 20 hydrogen station operators, 17 FCB mechanics, and 21 FCB drivers were trained, providing 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.

116. **Capacity development activities do not encounter substantial implementation challenges, but the lack of follow up support limits its long-term impact.** For example, *Sustainable Public Transport and Sport: A 2010 Opportunity* (South Africa, UNDP, GEF ID 2604) trained 51 graduate students and young professionals in sustainable transport. The training was well received but discontinued at project end due to lack of resources for further deepening of acquired skills. *Sustainable Transport in the City of Almaty* project (UNDP, GEF ID 4013) facilitated the establishment of a dedicated department to manage public transit. However, once a new local government came to power the new department was merged with the department of roads leading to less dedicated attention to management of public transit.

5. Urban land use and transport planning

117. Urban land use and transport planning facilitates spatial development of urban centers to reduce the need to travel along with facilitating easy access to mass public transit facilities and other travel options. In order to achieve these ends, urban and transport planners locate residential neighborhoods, employment centers, retail, entertainment facilities, restaurants, health facilities, schools and transit facilities optimally. Urban land use and transport planning, including transit-oriented development, is important to address *avoid* and *shift* dimensions of the avoid-shift-improve strategies. Forty-six (58 percent) of the approved sustainable transport projects, and 15 of completed projects (47 percent), include activities to support urban land use and transport planning. Figure 24 provides information on the types of activities included in the project designs.

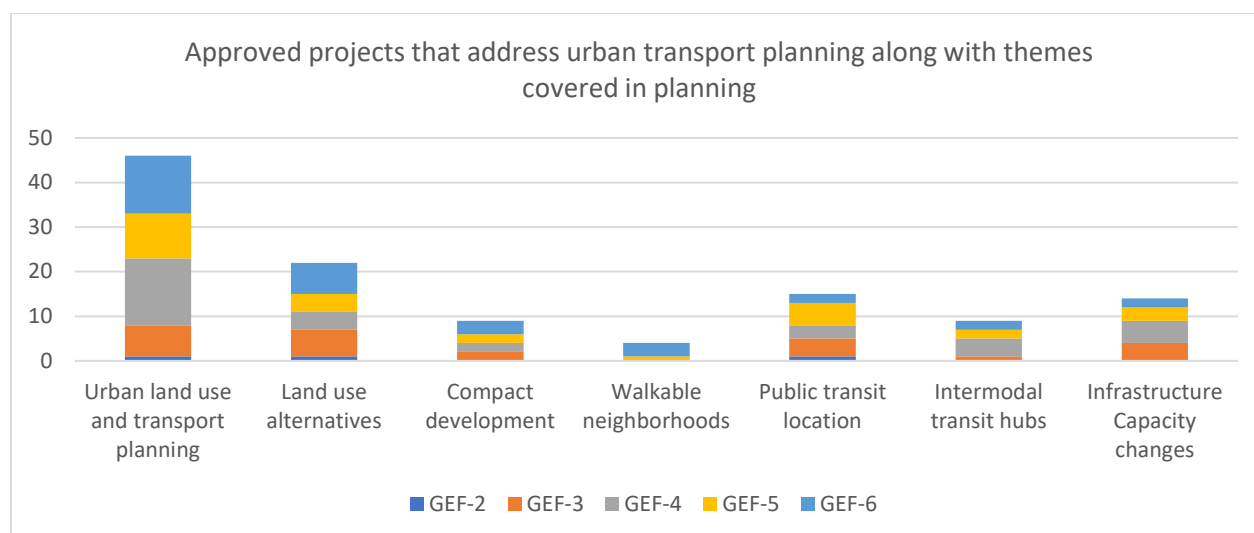


Figure 24: Approved projects that address urban transport planning along with themes covered in planning

118. GEF activities to promote urban land use and transport planning generally included studies to support development or update of a city master plan and/or mobility strategy. Several GEF projects promoted transit-oriented development aimed to maximize density around public transit facilities. For example, in Mexico City, *Introduction of Climate Friendly Measures in Transport* project (GEF ID 1155) led to 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 5 metro stations; these initial measures were later expanded. *The GEF City Cluster Eco-Transport Project* (GEF ID 4156) 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 is believed to have contributed to increased use of public transit and reduced congestion leading to an estimated 50 percent reduction in the CO₂ emissions associated with the trips that are now being made through the terminals.

119. The *Regional Sustainable Transport and Air Quality Project* (GEF ID 2767), which was implemented in Latin America, facilitated improvement of the transport plans in Curitiba and Belo Horizonte in Brazil. Although integrated land-use/transport planning was well-established in these cities – as they were pioneers in this field since the 1970s – the plans needed an update to meet the needs of the poorer settlements of the city. The project undertook a climate and socioeconomic assessment which facilitated the update of Curitiba’s master plan. Similarly, the project developed plans for urban redevelopment around Belo Horizonte’s ring road and bus-rapid transit line based on the transit-oriented development approach.

120. In some other cities such as Dushanbe (Tajikistan) and Tianjin (China), the urban and transport planning efforts were less successful due to coordination related difficulties or failure to adequately address the policy and regulatory barriers. The *Support to Sustainable Transport*

Management in Dushanbe project (GEF ID 3027) carried out several training courses on integrated planning for the transport professionals of the city, but the city leadership still lacked an understanding of how the transport plans would be integrated in the land use planning of the city. The terminal evaluation for the project reports that this gap is a result of not taking the land use plans of the city into account when developing the transport plans. Consequently, there is a high risk that the transport planning activities would not be effective.

121. The *Sino-Singapore Tianjin Eco-City* (GEF ID 3824) was planned based on the 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 (2016), 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 has been slower than expected and by 2016 the city had only 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 non-work activities, residents were using their car less than before moving there.

122. The 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 of the projects, *GEF China Sustainable Cities Integrated Approach Pilot* (GEF ID 9223), which focuses on transit-oriented development, is already under implementation. The project involves \$32.7 in GEF grant and more than a billion dollars in co-financing. The project focuses on rail transit planning and it covers several major cities such as Beijing, Tianjin, Shijiazhuang, Ningbo, Nanchang, Guiyang, and Shenzhen, along with technical assistance for the national Ministry of Housing and Urban-Rural Development. The project activities are at various stages of implementation across the cities (GPSC 2018a and 2018b). As more of the Sustainable Cities Impact Program projects are implemented, more lessons may be learned from its experience in promoting urban and transport planning.

6. Traffic demand management

123. Effective management of traffic demand helps in addressing growth of, and periodic shifts in, traffic. Without proper management, transportation infrastructure is often inadequate to deal with congestion and may result inefficient travel. These 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. These measures may include improving the availability of real-time traffic information, increasing occupancy in private vehicles, promoting non-motorized transport or public transit options, congestion pricing, and rationalizing road space allocation across modes. The measures may also include adoption of efficient technologies, and improvements in and better integration of private, public and non-motorized transit. Thirty-two approved sustainable transit projects (40 percent), and eight

completed projects (25 percent) include activities that aim at traffic demand management. Figures 25 provides information on incidence on the broad categories of traffic demand activities in, and Figure 26 financial/economic incentives used by, approved sustainable transport projects.

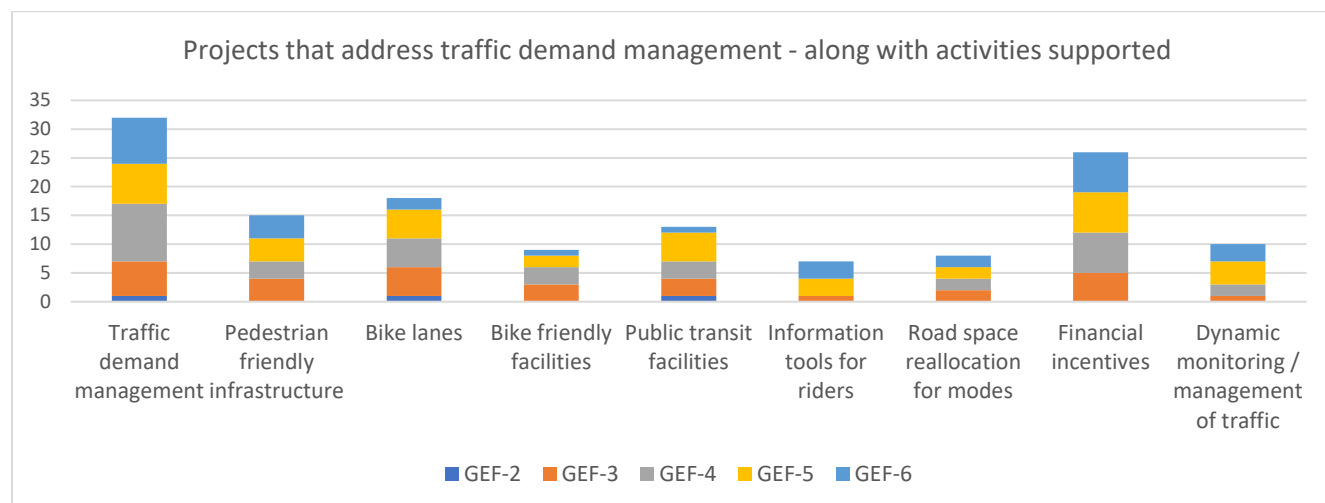


Figure 25: Projects that address traffic demand management - along with activities supported

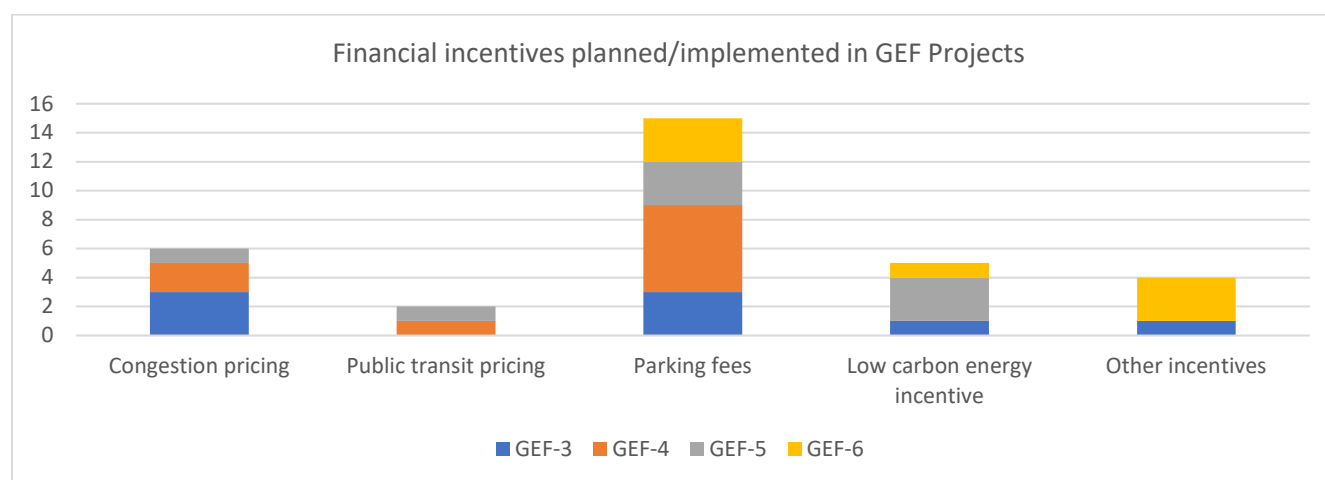


Figure 26: Financial incentives planned/implemented in GEF Projects

124. Several traffic demand measures have been effective in reducing GHG emissions. Under the *GEF-World Bank-China Urban Transport Partnership* (GEF ID 2609), traffic demand management measures in Guangzhou focused on imposing a quota on the number of car licenses issued. This was credited with 2.1 Mt of CO₂ abatement, more than other activities (mostly BRT and NMT) of the project and at a lower cost of \$ 5 per tonne of GHG emissions abatement. *Sustainable Public Transport and Sport* project (GEF ID 2604) funded ‘park-and-ride’ improvements, along with integration of the stations with pedestrian and cycling infrastructure,

in 16 suburban railway stations in Cape Town. This led to a 15 percent increase in rail passengers at upgraded stations, of which 58 percent had previously used cars. Carpooling initiatives were also implemented successfully in Cape Town, where they mitigated an estimated 2,700 tonnes CO₂ over 10 years, and in Bratislava (GEF ID 3433).

125. Without buy-in from the political leadership, traffic demand management related financial incentives or disincentives are unlikely to be implemented. In *BRT and Pedestrian Improvements in Jakarta* (GEF ID 2954), a legal basis for road pricing was established but no regulation was implemented; although an Electronic Road Pricing trial was announced after project end in 2014, it had not been implemented through 2018. Similarly, in *Sustainable Transport and Air Quality for Santiago* (GEF ID 1349), a study on the sustainability impacts of various congestion pricing plans was carried out successfully, but no plan was implemented. The experience shows that preparation that proposed congestion pricing measures may not get adequate traction without enough political support. These measures often require tradeoffs between the interests of those that will be able to travel faster and those that will be priced out.

126. Pricing schemes may also face challenges due to the unpredictability of the political process and implementation delays. In Bratislava (GEF ID 3433), despite sustained efforts for an increase in the parking fees and strong public support for it, the measure to enact such an increase failed narrowly. Likewise, a paid parking program could not be implemented in Dushanbe (GEF ID 3027) because of delay in implementation of project activities. The project did facilitate enactment of enforcement measures to reduce illegal parking in bus/trolleybus corridors to address congestion.

VII. SUSTAINABLE TRANSPORT: GEF CONTRIBUTIONS

127. Completed sustainable transport projects cover several themes that form a basis for reporting of their shared and distinct experiences. These include projects focused at pilot and demonstration of technology, public transit, freight, non-motorized transit, and projects designed around mega events. This chapter covers these experiences in detail along with drawing upon the information on other approved projects.

1. Technology transfer

128. GEF has piloted and demonstrated several low carbon bus and vehicle technologies through 26 projects, of which implementation of nine has been completed. These projects pilot and demonstrate technologies such as fuel cell buses, electric buses, hybrid buses, CNG buses, and electric and hybrid cars (figure 27). The focus of the projects undertaken in GEF-2 and GEF-3 was on generating information on technical performance of fuel cell, hybrid and CNG bus technologies. During GEF-5 some projects that focused on their commercialization were approved. GEF started supporting projects that 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 (8 projects), Malaysia (3 projects)

and Chile (2 projects) account for multiple technology focused projects. The discussion on experience from technology transfer is focused on fuel cell and electric/hybrid buses.

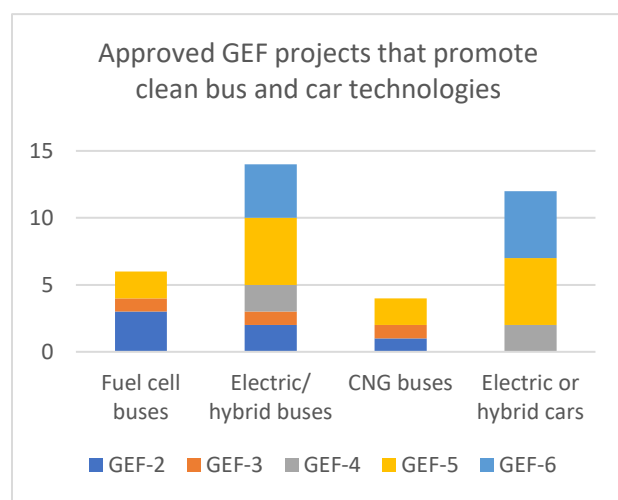


Figure 28: Approved GEF projects that promote clean bus and car technologies

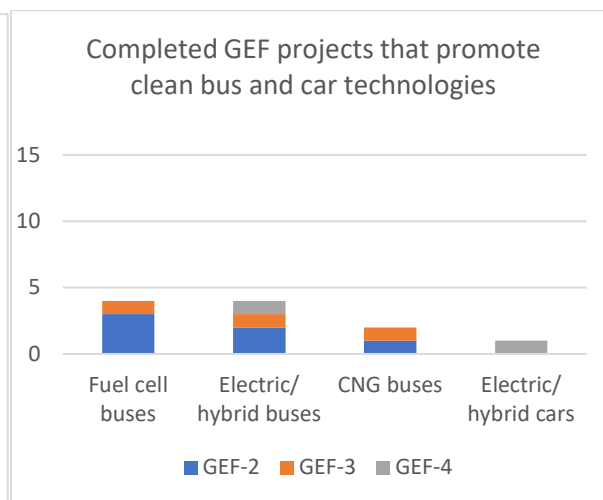


Figure 27: Completed GEF projects that promote clean bus and car technologies

129. Nine projects that pilot and demonstrate technologies have been completed – these have covered several types of technologies (Figure 28). The fuel cell and electric/hybrid technologies provides different experiences. Fuel cell bus technology was piloted much 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 technology by the market. The 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 the fuel cell technologies. As a result, they found greater traction across the cities and in the manufacturing industry. In both these sets of projects, the nature of support provided by the GEF has evolved based on the maturity of the technologies and needs of the recipient countries.

Fuel Cell Buses

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

131. Of the five projects implemented so far, three are in China, one in Brazil and one is a global project. Cumulatively, GEF has provided \$ 32.8 million for these projects along with co-financing commitments of \$ 85.9 million. The project in Brazil (GEF ID 6) and the first two projects in China (GEF ID 941 and 2257) aimed at demonstrating the fuel cell bus technology and refueling infrastructure, along with capacity development and knowledge management activities. The third project in China – which is still under implementation – aims at facilitating commercial production of fuel cell vehicles; use of infrastructure for refueling; and policy change and capacity development. Among these projects, the series of projects in China may be considered as part of a multi-stage program of chronologically linked projects. The global project (GEF ID 819) aimed at assessing the potential for fuel cell buses and distributed electricity generation, and at developing options and strategies for market intervention.

132. The projects in China and Brazil effectively demonstrated potential of the fuel cell bus technology and operation of refueling infrastructure. China used the Beijing Olympics (2008) and Shanghai Expo (2010) to showcase fuel cell bus technology. Although the projects were effective in raising profile of the fuel cell bus technologies, commercialization of the technologies was slow to pick up. After 15 years of the first project, China is now moving towards upscaling of the technology in several cities. The main reason for slow progress was the cost of the technology. During the early 2000s, the technology was still too costly for the cities to adopt from their own resources. Further, with passage of time the costs did not drop as fast as had been initially projected.

133. The direct CO₂ emissions abatement from the technology demonstration is limited although most of the distance related targets of bus operation were met. Direct emission reductions are limited because only a few buses – four in Sao Paulo, three in Beijing, and six in Shanghai – were involved in the demonstrations. Further, in Shanghai the buses were used for passenger transport through a special permit only for a short period during the Shanghai Expo. After the Shanghai Expo ended, due to lack of relevant regulations, a permit for operation with passengers was denied and the demonstrations were carried out using dummies.

134. The main challenge faced during implementation was timely procurement of the fuel cell buses. In Sao Paulo, Brazil, the challenge was to find manufacturers capable of and willing to deliver fuel cell buses and getting permissions for establishing refueling stations. The 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 procurement of buses (Beijing) and getting permits for operation (Shanghai). Demonstration in Shanghai, which was initially included in the first project in China (GEF ID 941), had to be moved to the second project (GEF ID 2257). While this meant that the demonstration was implemented much later than it was initially planned, it allowed the city the benefit of procuring more advanced buses at a lower cost.

135. The main contribution of GEF through fuel cell bus projects has been in capacity development. For example, in China GEF financed several trainings, workshops and exposure visits for professionals and entrepreneurs. This has facilitated several partnerships between the

Chinese groups and foreign suppliers. Skill development among the relevant professionals has contributed to China moving forward with upscaling promotion of fuel cell bus technology in several other 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 Sao Paulo, Brazil, capacities to operate fuel cell buses have been developed but long-term impact would depend on further uptake of the technology. Nonetheless, institutional capacities developed as part of the project have been useful in other projects that have promoted low carbon public transit in the city.

136. Evidence shows that without GEF support it would not have been possible to demonstrate effectiveness of the fuel cell bus technology in Beijing, Shanghai and Sao Paulo. GEF was a major source of funding for these projects which implemented a technology that was promising but costly at that point in time. Although the intent for the pilot and demonstration of fuel cell bus technology was correct, it did not find quick wider acceptance. In hindsight there seem to be two reasons for it: the technology was demonstrated before it was ready for commercialization, and the decline in cost of technology 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 provide a fertile ground for further upscaling and adoption. However, there has been little progress in Brazil.

Hybrid and Electric buses

137. GEF has provided support to promote electric and hybrid bus technologies since 1999, although the type of projects it has supported have evolved. So far, GEF has provided funding for 15 such projects that 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 the hybrid and electric bus technologies to assess its 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 electric supply for charging of the buses; and development of enabling legal and regulatory framework. The GEF-7 programming directions give special attention to promoting electric mobility by using a programmatic approach.

138. Cumulatively, GEF has provided \$ 47.8 million for 15 projects that promote hybrid and electric bus technologies. Most of these projects (80 percent) involve less than \$ 5.0 million in GEF funding: the level of GEF funding per project at \$3.2 million is lower than for other sustainable transport projects (\$6.0 million). GEF partners committed co-financing of \$ 967 million for these projects, of which more than half is accounted for by two ADB implemented projects in China.

139. Hybrid and electric bus technologies have been promoted across nine countries. Of these, China (four projects), Malaysia (three projects), and Chile (two projects) account for multiple GEF funded projects. Of the GEF Agencies, UNDP (five projects), UNIDO (four projects), ADB (three projects), World Bank (two projects), and CAF (one project) have implemented

hybrid and electric bus technologies focused projects. While World Bank and UNDP were among the more active Agencies up to GEF-4, from GEF-5 involvement of UNIDO and ADB has increased.

140. GEF projects have played an important role in advancing spread of hybrid and electric bus technologies across developing countries. So far four of these projects have been completed and they provide vastly different experiences. Three of these -- *Introduction of Vehicle Electric Bus Technology and Hybrid-Electric Bus Technology* (Egypt, GEF ID 31), *Introduction of Climate Friendly Measures in Transport* (Mexico, 1155), and *Sustainable Transport and Air Quality for Santiago* (Chile, GEF ID 1349) – included activities to field test hybrid and electric bus technologies so that their technical effectiveness and potential may be assessed. In Mexico these tests provided information that aided use of hybrid buses in public transit and, along with other activities of the project, paved way for adoption of bus rapid transit system in Mexico City. In Egypt, where two electric/hybrid buses were tested in Giza, although the technical demonstration was implemented successfully, further progress stalled because of lack of additional funding for follow up activities. In Chile, while most other activities of the project were completed, the activities on field testing of electric and hybrid bus were not implemented because it was difficult to procure buses and the commercial potential of the technology in the near-term was assessed to be suspect by the executing agency. *Promoting Clean Electric Buses for the Beijing Olympics* (CEBBO) (UNDP, China, GEF ID 3534) aimed at showcasing use of these technologies, raising awareness about their potential, and collecting data through actual use in ferrying passengers during the Beijing Olympics. Use of a global event such as Olympics raised the profile of technology more than it otherwise would have. Several cities in the China have now adopted electric and hybrid bus technologies for public transit.

141. The implementation of completed projects in Mexico and China was time bound and efficient but those in Egypt and Chile faced challenges. In Egypt there were delays in tendering of contracts and in processing of the imported buses at the customs. Delayed processing of buses led to technical problems that required help with maintenance. A breakdown in communications with American suppliers took place in the aftermath of 11th of September 2001 terrorist attacks in the US. The project in Chile also faced challenges in procurement due to lack of bidders. Another challenge was that the activities related to promotion of electric and hybrid buses did not receive adequate attention from the local counterparts as at that time they prioritized introduction of the Transantiago integrated bus-rapid transit system.

142. Much of the portfolio of GEF projects that promote electric and hybrid vehicles is of projects that are either under implementation (six projects) or under various stages of preparation (five projects). In general, these projects focus less on establishing technical viability of the technologies but more on facilitating wider scale adoption, commercialization, and linking it with clean sources of energy. Compared to fuel cell bus, electric and hybrid bus technologies seem to have broader application and have generated more interest from cities around the world. GEF has tailored its support to promotion of electric and hybrid bus

technologies with the needs of the countries. This has helped it accelerate the process of countries adopting greener technologies in meeting their public transit needs.

2. Public Transit

GEF has provided funding for establishing or improving public transit systems through 42 projects, of which 38 promote bus-rapid transit. In addition to bus rapid transit systems, GEF has also provided financing for few projects that address efficiency issues in metro systems, waterways and ground transportation in aviation (Figure 29). Of the 32 completed projects, 19 address public transit related themes such as bus-rapid transit, light or heavy rail, and maritime transit. Almost all of these (17 projects) address bus rapid transit with some also addressing other public transit themes simultaneously.

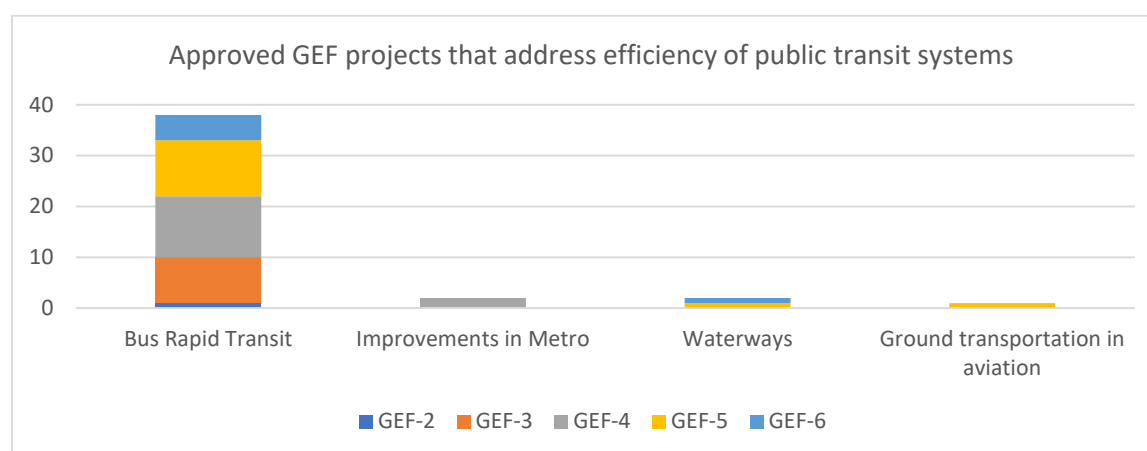


Figure 29: Approved GEF projects that address efficiency of public transit systems

Bus Rapid Transit

143. Bus Rapid Transit (BRT) refers to high quality bus-based transit systems capable of delivering fast and cost-effective service at or near metro-level capacities (ITDP, 2019). Thirty-eight projects address BRT or BRT-style improvements with at least some GEF funding support. Despite its initial push towards technology focused projects, GEF started supporting BRT projects towards the end of GEF-2 as it appraised these projects to be more cost-effective in delivering GHG emissions abatement along with targeting urban poor (STAP 2002). GEF support for BRT projects reached its peak during GEF-4 to GEF-5 period but has dropped thereafter (during GEF-6). This is consistent with GEF's shift in focus over time toward addressing transport within the broader context of sustainable city development rather than specific pilot projects such as BRT corridors.

144. GEF support to BRT systems and BRT-style upgrades has generally focused on technical assistance and planning, such the development of feasibility studies, origin-destination surveys, and environmental impact studies for BRT corridors. GEF funding is also used for capacity building, update of legal, policy and regulatory framework, and knowledge management. Meanwhile, the most capital-intensive aspects of BRT implementation, especially physical construction of busways and stations, have generally been covered by co-financing.

145. Seventeen completed projects addressed improvements to urban bus systems as at least one component of the project. Twelve of these included either the development of a bus rapid transit system or bus rapid transit style upgrades to an existing bus system; four consisted of bus and/or trolleybus system upgrades aimed at effecting modal shift to buses and/or reducing emissions from buses or trolleybuses; one was broadly targeted at capacity development covering several themes including bus-rapid transit. *Ouagadougou Transport Modal Shift* (GEF ID 2876) and *Reducing GHG Emissions from Road Transport in Russia's Medium-sized Cities* (GEF ID 4008) are two examples of projects which consisted of bus system upgrades that are not considered BRT but are considered within the scope of the GEF's support to BRT projects. In another project, the *Sino-Singapore Tianjin Eco-City Project* (World Bank, GEF ID 3824), GEF funds were used for the planning of a public transit system based on buses, but only to the extent of upstream planning and not for the physical development of a bus-based transit system.

146. Two projects were not able to implement planned bus rapid transit relevant activities funded through GEF support. For *Lima Urban Transport* project (World Bank, GEF ID 1081) the bus-scraping activity financed through GEF funds was canceled and, instead, funds were used to identify additional Bus Rapid Transit corridors for Lima and to prepare preliminary designs for an additional corridor. Similarly, for the project *Sustainable Transport and Air Quality for Santiago* (World Bank, GEF ID 1349), GEF funds for a bus scrapping program, which the government ended up taking on with its own funds, were used to support non-motorized transit activities.

147. Projects that address BRT generally need extensions to complete project activities. 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 performance of contractors. Some of these issues were difficult to anticipate during project preparation. For example, *Lagos Urban Transport* project (GEF ID 3827) faced unexpected technical issues with a planned fare-integration system. As a result, the system had to rely on a paper-ticket system during the period electronic system was being fixed. This significantly reduced the time-savings from BRT and its public goodwill.

148. GEF support to BRT projects has influenced replication in non-project cities and in other corridors within project cities. In the case of the *Lima Urban Transport* project (GEF ID 1081) GEF funded feasibility studies for the implementation and optimization of future BRT corridors,

which have since been implemented. In the multi-city South Africa project (GEF ID 2604), GEF support failed to establish a BRT line in Nelson Mandela Bay by the time of project closure, but the lessons gained from GEF's successful involvement in negotiations with local taxi/minibus drivers formed a lesson for other cities. After completion of the project, Nelson Mandela Bay was also able to move forward with its BRT system. The *China Urban Transport Partnership Program* project (GEF ID 2609) experience stoked the interest of many cities that were not involved in the project. Later, authorities from 38 of these approached the National Project Management Office and/or transport institutes affiliated with the project to request technical assistance for BRT planning and implementation.

149. Several GEF supported projects have been instrumental in not only developing a BRT system but also in facilitating post-project expansion and replication. *Introduction of Climate Friendly Measures in Transport* project (World Bank, GEF ID 1155) used the 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 also included complementary sustainable transport measures such as NMT infrastructure and taxi and minibus substitution. The BRT system – *Metrobus* – is looked upon internationally as a highly successful example and the lessons generated by the project have influenced the development of BRT systems in other Mexican cities.

150. GEF-supported activities have also impacted broader adoption of bus rapid transit globally. A component of the *Reducing Greenhouse Gas Emissions with Bus Rapid Transit and Non-Motorized Transport* project (UNEP, GEF ID 1917) was the development of the first *BRT Planning Guide*, published and disseminated by the Institute for Transportation and Development Policy, the leading NGO for BRT worldwide. While GEF funding was only a small part of the total for the Planning Guide, its contribution was crucial to its development. The first edition of the Planning Guide was widely disseminated and catalyzed the development of BRT systems in other developing countries.

151. 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 *Reducing Greenhouse Gas Emissions with Bus Rapid Transit and Non-Motorized Transport* project (UNEP, GEF ID 1917). The 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 demonstrated the benefits of BRT 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.

152. GEF involvement has often helped champions of sustainable transport address socio-political realities more effectively. For example, *Sustainable Public Transport and Sport: A 2010 Opportunity* project (UNDP, GEF ID 2604) 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 obstructed its introduction. GEF funding supported

dialogues and negotiations with these drivers and their powerful associations, making BRT politically feasible although progress varied across cities. 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, Colombia, was influential in bringing Colombian bus drivers on board with the new system by helping them find new employment opportunities in driving BRT buses instead of causing loss of employment.

153. GEF-supported bus-rapid transit projects have achieved impact primarily through complementary planning activities and enhancing institutional capabilities and knowledge. The planning activities have helped in enhancing the benefits of BRT at city-level. Increased institutional capabilities and knowledge have catalyzed the development of BRT in smaller cities that were not directly targeted through the GEF project. These results provide support for GEF's reliance on integrated approach to sustainable transportation and focus on capacity development measures.

Light/Heavy Rail Transit

154. Three projects that have supported activities related to light or heavy rail transit have been completed. GEF funding was involved in planning of the rail transit line in two of the three projects. *China Urban Transport Partnership Program* (CUTPP) project (GEF ID 2609) supported urban transit planning in Nanchang and Zhengzhou cities that helped them in accessing World Bank funding for construction of metro rail lines. The planning also helped in construction of inter-modal transit hubs in Zhengzhou and Dongguan. *Sustainable Transport in the City of Almaty* project (GEF ID 4013) 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 light rail transit line. The project Sustainable Mobility in the City of Bratislava (GEF ID 3433) 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 light rail transit 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

155. The project 'Transforming the Global Maritime Transport Industry towards a *Low Carbon Future through Improved Energy Efficiency* (GloMEEP) (GEF ID 5508) was a global project that covered 10 countries and with GEF funding of \$ 1.9 million. The project aimed at building capacities in developing countries to implement the technical and operational measures for energy efficient shipping. The project was implemented by UNDP and executed by the International Maritime Organization. The project assisted 10 countries in developing and implementing maritime energy efficiency strategies, and benchmarked country performance in maritime energy efficiency. The countries identified their lead agencies and have national task forces to 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 two in each of the covered countries – training 800 participants.

3. Non-Motorized Transit

156. Well-planned cities encourage city dwellers to shift to using non-motorized options – such as walking or biking – instead of motorized options. This may reduce congestion in city roads, reduce energy use, and provide health benefits. Use of non-motorized transit may be encouraged through development of the required infrastructure along with supportive policies and increased awareness.

157. Starting from 2000, GEF has provided support for non-motorized transit through 38 projects that cover more than 30 countries. More than two thirds of these projects have been implemented by either UNDP (16 projects) or World Bank (11 projects). Within a project, the GEF support for non-motorized transit often complements its support of bus rapid transit. GEF financing is generally used for non-motorized transit planning, although in some cases it has been used for civil works as well. Of the GEF funded non-motorized transit projects, 16 have been completed.

158. The completed projects generally implemented non-motorized transit focused activities such 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 non-motorized transit plan (Figure 30). Other activities that were included in a few projects include planning traffic signals and ramps, use of renewable energy for street lighting, and targeted research.

159. Although most terminal evaluations for completed non-motorized transit focused projects provide an account of the relevant results, reporting on the results indicators is often difficult to aggregate. Eight terminal evaluations report on the length of bike lanes constructed or repaired – a total of 575 km was constructed or repaired with varying degree of GEF involvement. Increase in bike usage was reported in Manila (GEF ID 785), Mexico City (GEF ID 1155), Santiago (GEF ID 1349) and Bratislava (GEF ID 3433). In Lima (GEF ID 1081) and Gaborone (GEF ID 2014); however, the increase in usage was modest and far below the target. The projects in Lima (GEF ID 1081) and Rosario (GEF ID 2767) constructed 688 and 1000 bike parking facilities, respectively. GEF has had much better results with helping cities develop non-motorized transit friendly action plans (e.g. GEF ID 1155, 2767, GEF ID 3433) that have helped them mainstream non-motorized transit friendly measures in their urban transport plans.

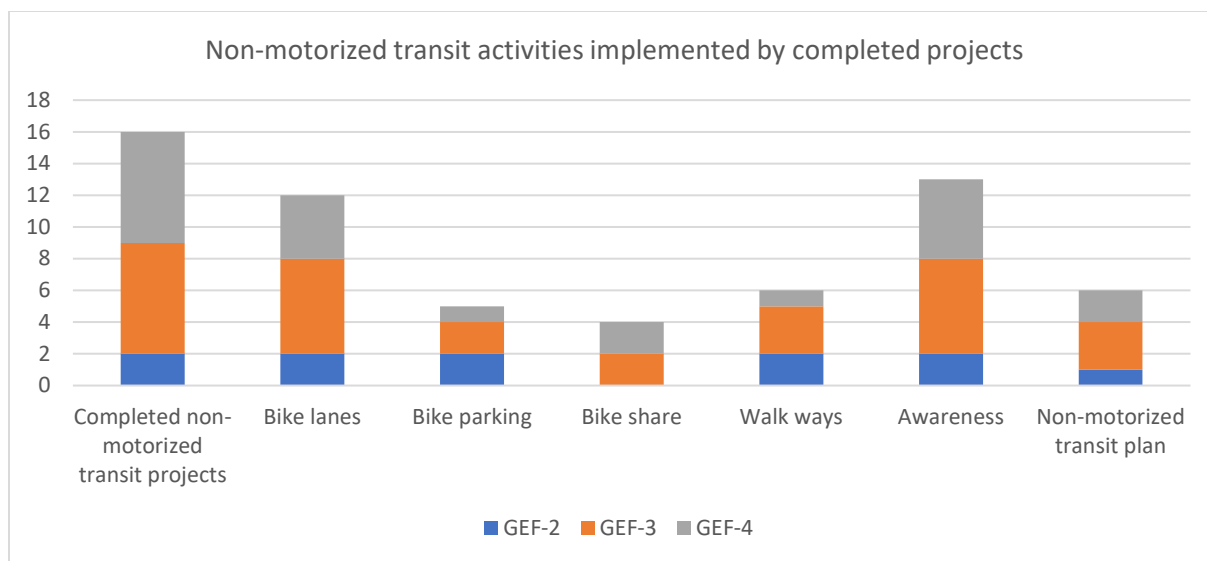


Figure 30: Non-motorized transit activities implemented by completed projects

160. Barring exceptions, in most instances non-motorized transit related activities did not face major challenges during implementation. Although of the 16 projects, 10 (63 percent) were completed after a moderate delay of more than a year including four projects (25 percent) where implementation completion was delayed by more than two years. In majority of these instances the delays were related to other components of the projects. However, in some projects non-motorized transit related components faced challenges during implementation. In Santiago (GEF 1349) the GEF project faced difficulties in procuring docking stations for bike parking. In Gaborone (GEF ID 2014), identification and design of the bike routes took more time than planned. Consequently, construction of these routes was not complete at project closure.

161. Although non-motorized transit leads to low carbon footprint for a given city, it is important to also assess whether GEF support to the activities is incremental and is likely to be effective in reducing CO2 emissions. For example, some non-motorized transit activities may lead to modal-shift, but others may only increase the number of trips for recreational purposes. In most instances GEF has avoided supporting civil works, which is appropriate. GEF role in providing support for non-motorized transit planning and demonstrating bikeshare business models is justifiable because it may lead to modal shift at a faster pace than would otherwise be possible, and if appropriate plans are not made a city would be locked into a transit infrastructure that is not biking and pedestrian friendly.

4. Freight and Logistics

162. So far 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. The 'Catalyzing Environmental Finance for Low-Carbon Urban Development' project in Bosnia and Herzegovina (UNDP, GEF ID 9151) is

salient because it focuses on route optimization for waste recycling and management. Most of these have been implemented by UNDP (5 of 8 projects).

163. Of the eight projects that addressed freight transport, two have been completed. The *Regional Sustainable Transport and Air Quality* project (GEF ID 2767) was implemented by the World Bank in Latin America. It 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 Juarez including a framework to optimize freight vehicle flows and recommendations to improve regulations. In Brazil, an origin-destination (OD) survey was undertaken for freight in Sao Paulo. The city also implemented a night delivery scheme on a pilot basis which reduced the travel time. In both countries the GEF supported activities found a lot of traction and have high potential for follow up and replication.

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

5. Results of projects designed around mega events

165. Four GEF-supported transportation projects were designed to be implemented concurrently with large international sporting events. All four projects were implemented by UNDP. These were undertaken to capitalize on the high visibility of such events to promote sustainable transport, along with other environmental objectives. The projects varied in scope: *Sustainable Transport and Sport: a 2010 Opportunity* (GEF ID 2604) in South Africa targeted a variety of long-term transport improvements in seven cities with an \$11 million GEF grant, while the other three projects received \$1.0 million or less in GEF funding and focused on strategy development and raising awareness. The performance of these four projects varied in terms of their effectiveness.

166. *Sustainable Transport and Sport: a 2010 Opportunity* (GEF ID 2604) aimed to use the 2010 FIFA World Cup as a catalyst for implementing large-scale reform to the public transit systems of seven South African cities, including the introduction of BRT systems and non-motorized transit 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 through negotiations with stakeholders that had divergent interests. Some of the project activities became less relevant due to delayed start-up. By the time implementation of the GEF project started, some of its planned activities had already been implemented by the cities.

167. *Promoting Clean Electric Buses for the Beijing Olympics* (GEF ID 3534) 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.

168. *Greening 2014 Sochi Olympics: A Strategy and Action Plan for the Greening Legacy* (GEF ID 4030) aimed to produce a greening strategy and an action plan for low-carbon transport along with promotion of green building standards, energy efficiency, renewable energy technologies, carbon offset program, and public awareness and advocacy. The project preparation phase prior to project approval took longer than expected. Therefore, 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. Given this, the project should have been cancelled or restructured significantly. Yet it was not until 2012 that the focus of implementation shifted to "greening legacy" activities such as 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.

169. The *Low Carbon Campaign for the 2010 Commonwealth Games* project (GEF ID 4215) in Delhi had a broad focus including 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, and given the one-time nature of the campaign, the terminal evaluation questioned the long-term benefit of the message imparted. Furthermore, as in Sochi, a late project start resulted in reduced effectiveness.

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

VIII. SUSTAINABLE TRANSPORT: VALUE ADDED BY GEF SUPPORT

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

172. Based on the past work of GEF IEO and this review, GEF adds value in sustainable transport projects through: increasing scale; increasing project viability; speeding up implementation; and/or, by mainstreaming sustainable transport approaches.

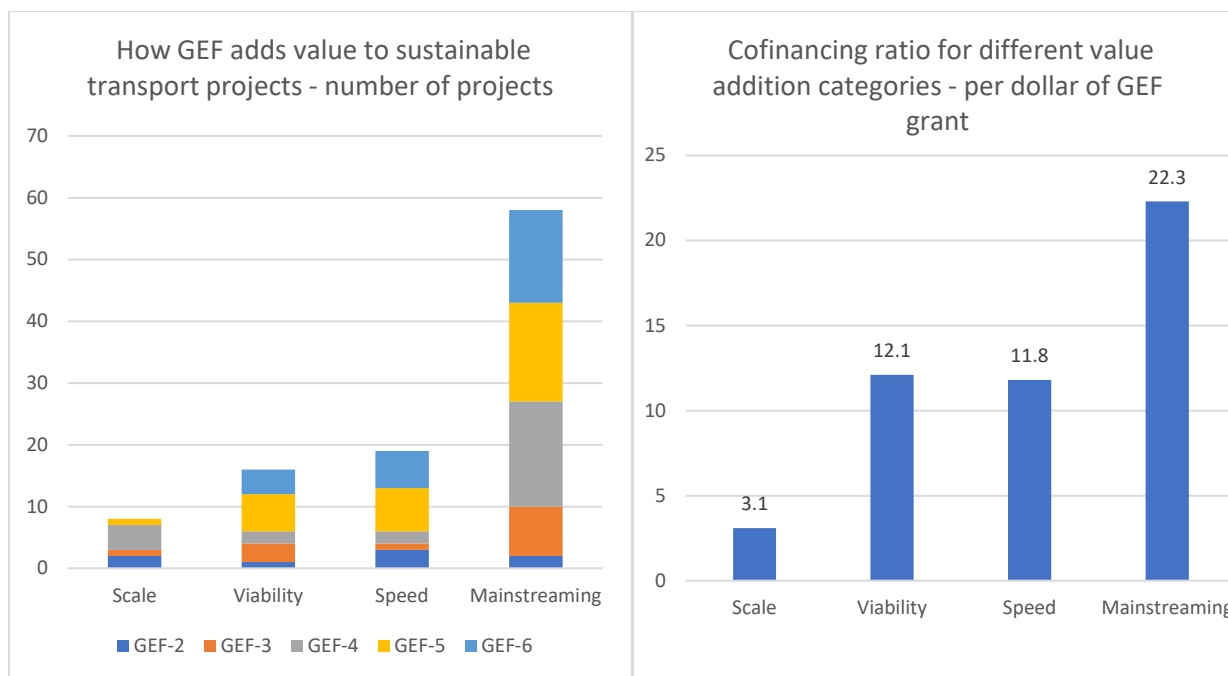


Figure 32: How GEF adds value to sustainable transport projects - number of projects

Figure 31: Cofinancing ratio for different value addition categories - per dollar of GEF grant

173. The evaluation identified eight of the projects where scale was increased (Figure 31). Several of these projects included components related to targeted research, preparation of toolkits for emissions estimation, or preparing strategies and action plans. For example, the UNEP-implemented *Fuel Cell Bus and Distributed Power Generation Market Prospects and Intervention Strategy Options* (Global, GEF ID 819) involved \$ 0.7 million in GEF grant and a co-financing 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 co-financing ratio (co-financing per dollar of GEF grant) was lower for the projects that increased scale than for other categories (Figure 32).

174. The projects where GEF funding enhances the viability of the activities supported by the project focus more on facilitating use of low carbon technologies/approaches instead of conventional technologies/approaches that are cheaper. The viability in this context implies situations where a project (or a key component) would probably not move forward without GEF support – or a grant from another donor. GEF support needs to be enough to encourage recipient countries to move towards the use of low carbon technologies/approaches but should not reach a point where GEF supports the baseline costs as well. In 16 projects, GEF support has enhanced the viability of the promoted technologies/approaches. Projects that fall 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 co-financing of 12 dollars per dollar of GEF grant, which is

higher than other projects in the GEF portfolio but comparable to the portfolio of sustainable transport projects.

175. GEF support also adds value by helping speedier implementation of activities that promote low carbon technologies/approaches than would otherwise be possible. By helping early adoption, 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 up the adoption of low carbon technologies/approaches in 19 projects. These projects, on average, included co-financing of 12 dollars per dollar of GEF grant, which is high compared to other projects in the GEF portfolio but moderate compared to other categories of sustainable transport projects.

176. Most of the sustainable transport projects that involve capital-intensive activities are likely to have taken place regardless of whether GEF grant materialized, although mainstreaming of the low carbon approaches would not have been feasible. Mainstreaming of low carbon approaches often takes the form of helping cities plan the activities better and build capacities to identify opportunities for, and implement, low carbon approaches. This may also prevent cities from getting locked into inefficient and carbon intensive infrastructure and approaches. The review identified 58 projects where GEF support was focused at mainstreaming low carbon approaches. In such cases, as the GEF project is built around a capital-intensive baseline project. The average co-financing is 22 dollars per dollar of GEF grant which is higher than other categories of sustainable transport projects and other projects in the GEF portfolio.

177. GEF adds value to a higher percentage of UN organizations' implemented projects through enhancement in viability and speed, than to project 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 UN organizations do (table 6). This pattern is consistent with the model wherein UN organizations are more likely to build a project around GEF support, whereas development banks use GEF funding to mainstream low carbon approaches in a capital-intensive activity that they were already financing.

Table 6: Distribution of projects - type of value added by GEF by project implementing Agency type

Agency type	UN organizations	Development banks	GEF portfolio
<i>Number of Projects</i>	45	35	80
Scale	11%	9%	10%
Viability	27%	11%	20%
Speed	33%	11%	24%
Mainstreaming	62%	86%	73%

IX. SUSTAINABLE TRANSPORT: FACTORS THAT AFFECT RESULTS

178. There are several factors related to project design and implementation that may affect project performance. Appropriate project design and effective implementation are critical to ensure that 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 project design and monitoring plan may become apparent. Similarly, co-financing commitments may not materialize in a timely manner and a project may face exogenous shocks that are beyond the control of management. In this section we explore the factors that may affect results based on information from terminal evaluations, other independent reports, and field verifications, from 32 completed projects.

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

180. Although 71 percent of sustainable transport projects – compared to 41 percent of the 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 other projects in the GEF portfolio. Thus, challenges faced during implementation seem to be leading so some but not excessive delays in project completion.

181. Implementation experience shows that sustainable transport interventions could enhance the mobility of covered populations and provide them easier access to socio-economic

opportunities. It also shows that social-and environmental safeguards are important to minimize reputational risks for the GEF.

182. The evidence from completed sustainable transport projects does not suggest a major difference in performance of Agencies. A major reason for this is that the number of completed projects is still too small to detect statistically significant differences.

1. Project Implementation

183. How well GEF Agencies implement projects affects the extent to which projects achieve expected results. GEF Agencies are responsible for project identification and preparation, start up, supervision, application of GEF policies and procedures, and project monitoring and evaluation. When gaps in project design and implementation are found, the Agencies are expected to take timely corrective actions. GEF Agencies partner with executing agencies to accomplish planned activities. GEF Agencies also supervise the work of executing agencies and provide support and guidance to them.

184. **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, three were restructured during implementation. *Bus Rapid Transit and Pedestrian Improvements in Jakarta* (GEF ID 2954) 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 Jakarta government, and to ensure adequate supply, and quality, of CNG for bus rapid transit. The outcomes of this project were rated in the satisfactory range.

185. Promoting Environmentally Sustainable Transport in Latin America (Regional, GEF ID 2178) was restructured due to slow progress in Panama City. Consequently, activities related to bus regulation and planning were dropped in Panama City and were implemented in the city of Concepcion, Chile, instead. *Lima Urban Transport Project* (GEF ID 1081) was restructured to replace the bus-scrapping activities with a study to integrate and rationalize public transit system. The change was necessary as the partner transit agency decided to finance bus-scrapping through other sources of funds. In both these projects some of the infrastructure development activities were not implemented satisfactorily, and their outcomes were rated in the unsatisfactory range.

186. One project that is presently under implementation is currently being restructured: *Low-Carbon Urban Mobility for Large Cities* (IDB, Brazil, GEF ID 4949). Although the project objectives will remain the same, some activities are being changed due to slow progress on the pilot subprojects. The slow progress was a result of low administrative capacities of the original executing agency. Its contract has been terminated and a new executing agency has been selected. Another reason for change was, that the research conducted by the project showed that a focus on the Brazilian policy framework for electromobility (e.g. electric vehicles, ridesharing, etc.) would be more useful than the planned activity on bike lanes. The changes are better aligned with the GEF-7 strategy.

187. **A smaller percentage of completed sustainable transport projects are rated in the satisfactory range for quality of implementation than other projects in the GEF portfolio, caused by procurement challenges and government agency co-ordination issues** (Figure 33). Frequently reported challenges in the terminal evaluation include difficulties encountered in procurement (22 percent), coordination among key partners (16 percent), and recruitment of and continuity of key staff (16 percent). These findings are consistent with the 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 the complexity of projects and affects quality of implementation. Quality of execution ratings are not statistically different from the overall GEF portfolio.

188. **Project extensions are similar to the overall GEF Portfolio.** Despite excessive use of extensions reported for a few projects such as the *Hydrogen Fuel Cell Buses for Urban Transport in Brazil* (UNDP, GEF ID 6) and *Reducing Greenhouse Gas Emissions with Bus Rapid Transit and Non-Motorized Transport* (UNEP, GEF ID 1917), where completion was delayed by more than nine and six years, respectively, these are the exceptions rather than the rule. Figure 34 presents the cumulative percentage of projects completed with level of extension required for completion. It shows that although a higher percentage of sustainable transport projects require extension of up to six months, in terms of extension of two years or more the performance is indistinguishable from the non-CCM projects in the GEF portfolio. Thus, for sustainable transport projects implementation challenges have generally not resulted in excessive project extensions.

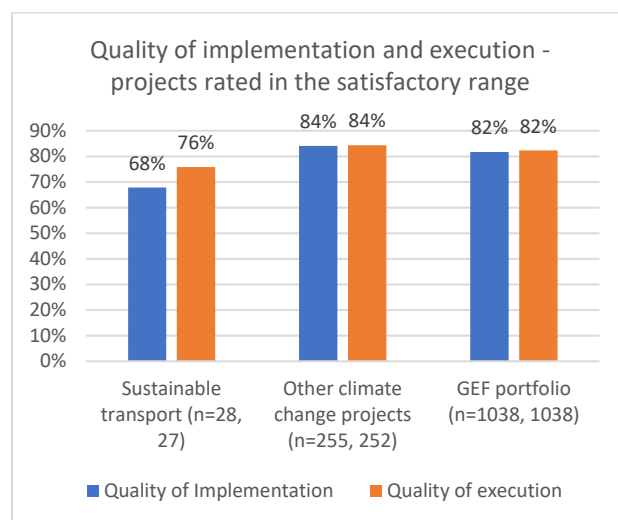


Figure 34: Quality of implementation and execution - projects rated in the satisfactory range

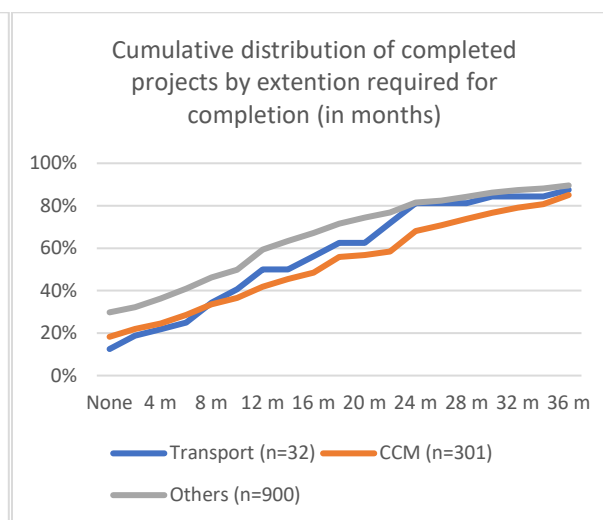


Figure 33: Cumulative distribution of completed projects by extension required for completion (in months)

2. Project monitoring

189. Project monitoring is important to track implementation progress and results, to facilitate adaptive management and learning, and for credible reporting to the 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 GEF Agencies are responsible for updating the plan, as required, and for its implementation.

190. Less than half the projects were rated as satisfactory in M&E design and implementation, lower than the overall GEF and climate change portfolios. (figure 35). 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 high (figure 36).

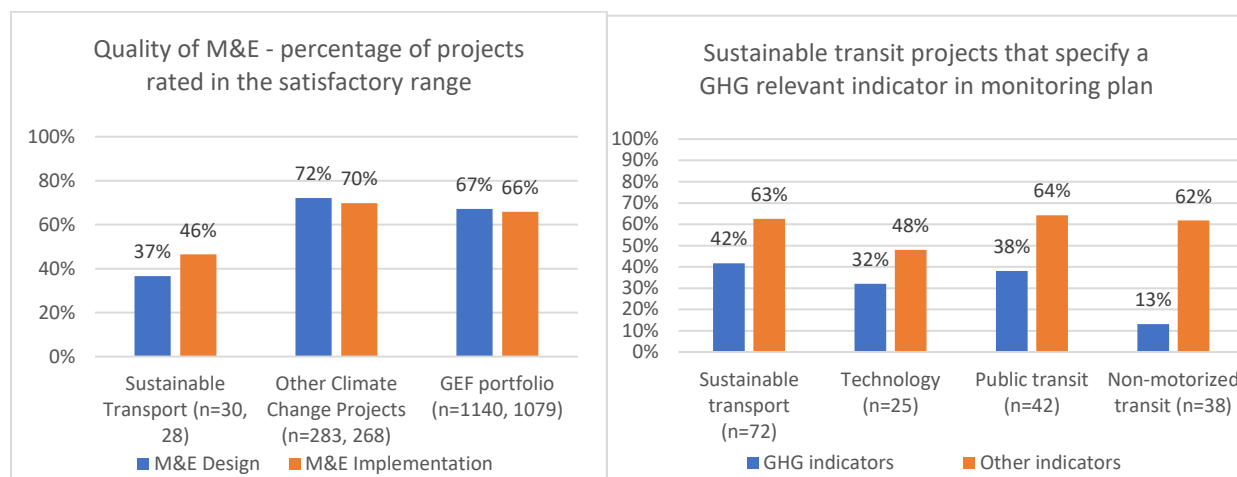


Figure 36: Quality of M&E - percentage of projects rated in the satisfactory range

Figure 35: Sustainable transit projects that specify a GHG relevant indicator in monitoring plan

3. Co-financing

191. **On average, sustainable transport projects get higher co-financing commitments per dollar of GEF grant than other projects in the GEF portfolio.** Figure 37 presents a comparison of various overlapping project categories based on the average co-financing commitments per dollar of GEF grant. The demand for sustainable transport projects is relatively higher in upper middle-income countries (and with larger urban populations), and hence the higher co-financing ratio is consistent with the GEF policy of seeking higher levels of co-financing in these countries.

192. **Recipient country governments are the main source of co-financing.** GEF PMIS provides information on sources of promised co-financing. Information for 73 sustainable transport

projects is available and it shows that the recipient governments account for 57 percent of the total promised co-financing, GEF Agencies – mostly multilateral development banks – for 29 percent, and private sector organizations for 4 percent. Others account for the remainder.

193. Fuel cell bus projects received relatively low levels of co-financing commitments compared to other projects (Figure 38). There are two reasons for this. Firstly, four out of the five fuel cell bus projects were approved in GEF-2 when co-financing 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 too 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 co-financing commitments.

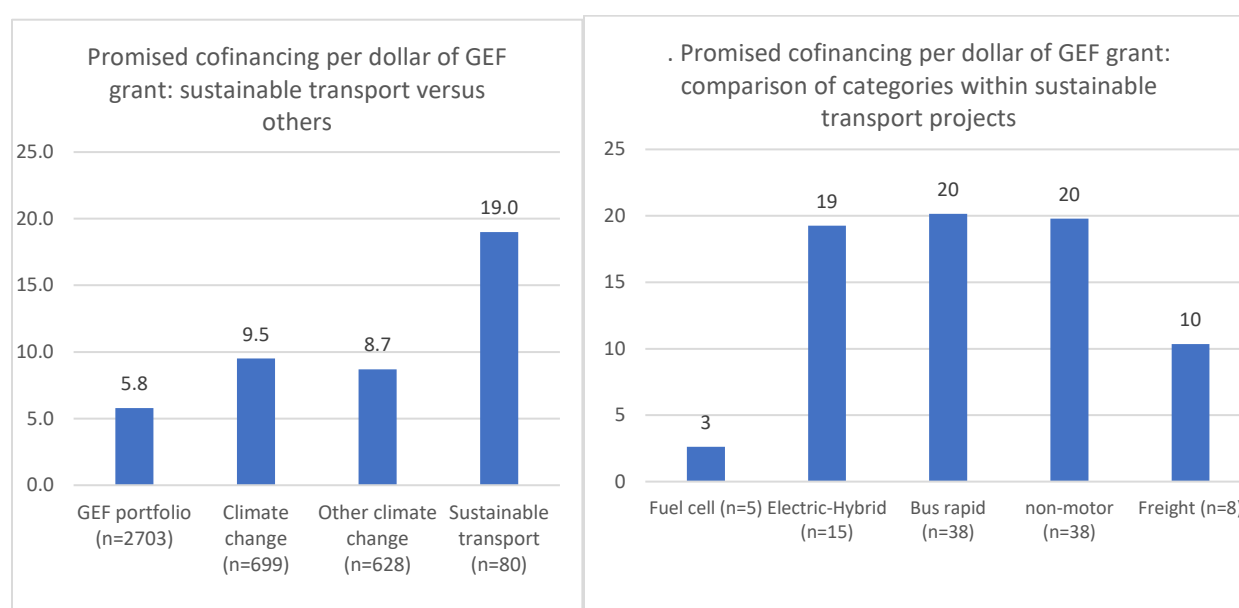


Figure 37: Promised cofinancing per dollar of GEF grant: sustainable transport versus others

Figure 38: Promised cofinancing per dollar of GEF grant: comparison of categories within sustainable transport projects

194. **A higher level of co-financing was realized for the sustainable transport projects compared to other projects in GEF portfolio.** Compared to the GEF portfolio average of 136 percent of materialization (compared to commitment), the average materialization of co-financing for sustainable transport projects is higher at 189 percent (Figure 39). However, a few large projects drive the average. In terms of the extent to which co-financing commitments were fully met or exceeded, there is little difference among sustainable transport projects, climate change projects, and the GEF project portfolio (Figure 40). A low level of materialization may hamper the project as some of the activities may be dropped or curtailed. The sustainable transport projects seem to be at least as good – if not better – than other projects in terms of realized co-financing.

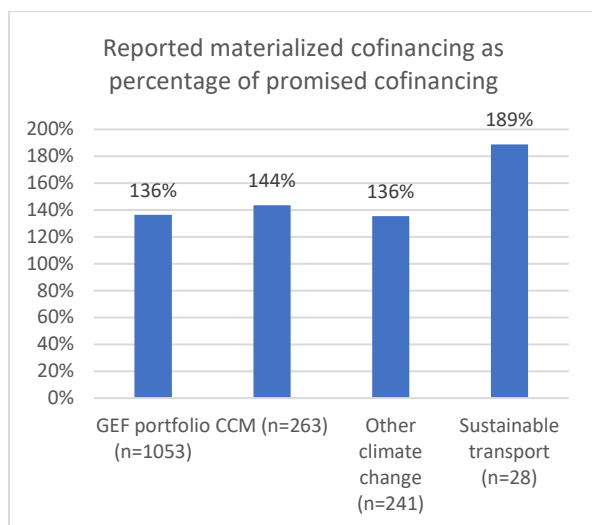


Figure 39: Reported materialized cofinancing as percentage of promised cofinancing

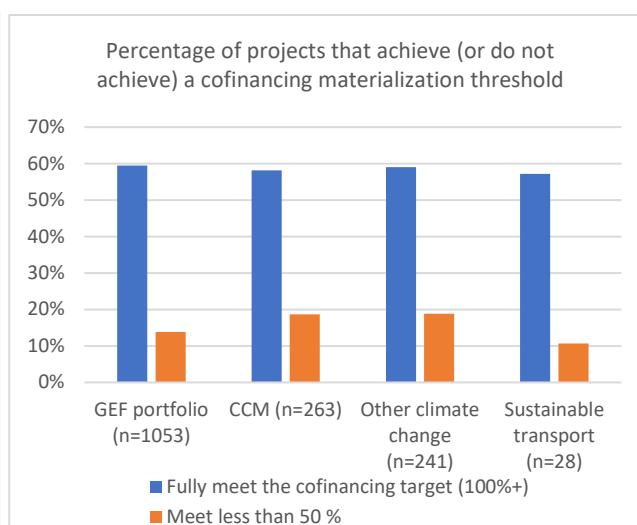


Figure 40: Percentage of projects that achieve (or do not achieve) a cofinancing materialization threshold

4. Inclusion of vulnerable groups

195. Sustainable transport interventions could enhance the mobility of covered populations and provide them easier access to socio-economic opportunities. Depending on the context, interventions that are environmentally sustainable, could either mitigate or aggravate socio-economic inequities or be neutral. For example, bus-rapid transit systems developed in Mexico City (GEF ID 1155), Santiago (GEF ID 1349) and Lagos (GEF ID 3827) enhance the mobility of poor communities that use this mode of transit more than other income groups. However, if such infrastructure is targeted towards the population with relatively higher incomes, then it may exacerbate inequalities. Socio-economic safeguards are, therefore, very important. To minimize risk of harm to the covered population, especially the vulnerable groups, it is important that they have a voice in the design and implementation of GEF activities.

196. Implementation experience from sustainable transport projects shows why social-and environmental safeguards are important to minimize reputational risks for the GEF. For example, the terminal evaluation for *Metro Manila Urban Transport Integration Project* (GEF ID 785) 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 bus-rapid transit stations implemented as part of the *Bus Rapid Transit and Pedestrian Improvements in Jakarta* project (GEF ID 2954) were not designed to provide access to people with physical disabilities, therefore, the improvements did little to improve mobility options for this group. Both these 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 the vulnerable

groups during project preparation, although increasingly a higher percentage of projects are incorporating consultations with women's groups in their design (figure 41). A greater number of projects include specific activities aimed at benefitting the vulnerable communities (figure 42). More recent projects are being designed to enhance benefits to women.

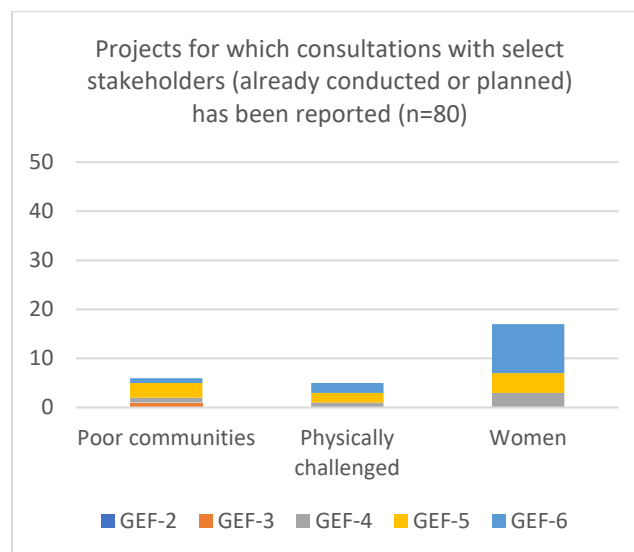


Figure 42: Projects for which consultations with select stakeholders (already conducted or planned) has been reported (n=80)

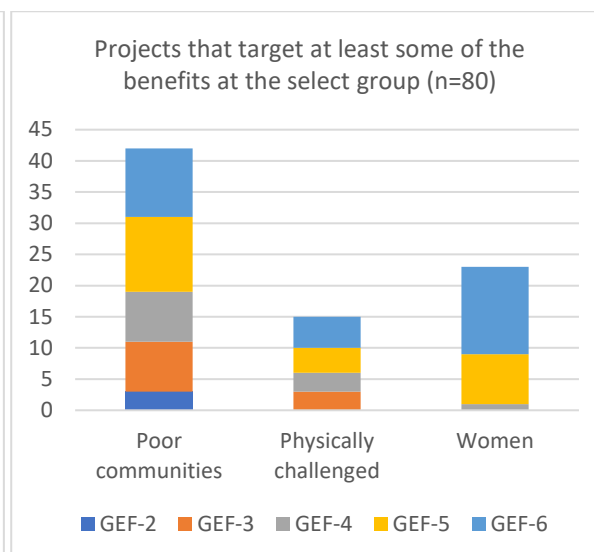


Figure 41: Projects that target at least some of the benefits at the select group (n=80)

197. 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 non-existent.

5. Agency Performance

198. GEF Agencies play an important role in project design and implementation. Most of the completed projects are implemented by UNDP and World Bank. Although there is little difference among the projects implemented by the two, those implemented by the UNDP are more likely to be rated in the satisfactory range for M&E design and M&E implementation (table 7). The number of completed projects implemented by UNEP is too small to make inferences.

Table 7: Comparison of Agency Performance – Project Performance Ratings

	Outcome	Sustainability	M&E Design	M&E Implementation	Quality of Implementation	Quality of execution
UNDP	69% (16)	69% (16)	60% (15)	60% (15)	64% (14)	73% (15)
World Bank	75% (12)	60% (10)	17% (12)	20% (10)	70% (10)	80% (10)
UNEP	75% (4)	100% (4)	0% (3)	67% (3)	75% (4)	75% (4)
Total	72% (32)	70% (30)	37% (30)	46% (28)	68% (28)	76% (29)

Source: terminal evaluation review ratings; Number of observations in parentheses

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Annex A

List of completed projects included in APR 2019 cohort

GEF ID	Project Name	GEF Period	country	Lead Agency	Outcome rating
54	Bwindi Impenetrable National Park and Mgahinga Gorilla National Park Conservation	Pilot Phase	Uganda	WB	MS
57	Biodiversity Conservation	Pilot Phase	Bolivia	WB	MS
61	Biodiversity Protection	Pilot Phase	Ecuador	WB	MU
104	Energy Services Delivery	GEF - 1	Sri Lanka	WB	S
105	Caribbean Planning for Adaptation to Global Climate Change (CARICOM)	GEF - 1	Regional	WB	MU
108	Phaseout of Ozone Depleting Substances	GEF - 1	Belarus	WB	S
127	Kyjev Waste Heat Utilization	GEF - 1	Czech Republic	WB	MS
1901	Bangladesh: Improving Kiln Efficiency for the Brick Industry	GEF - 3	Bangladesh	UNDP	MU
1917	Reducing Greenhouse Gas Emissions with Bus Rapid Transit	GEF - 3	Global	UNEP	S
2261	Building Regional Partnerships to Assist Developing Countries to Reduce the Transfer of Harmful Aquatic Organisms in Ships' Ballast Water (GloBallast Partnerships)	GEF - 4	Global	UNDP	HS
2403	LDC/SIDS Portfolio Project: Capacity Building for Sustainable Land Management	GEF - 3	Mauritius	UNDP	S
2416	Mainstreaming biodiversity in Lao PDR's agricultural and land management policies, plans and programmes	GEF - 4	Lao	UNDP	MS
2505	SFM Sustainable Forest Management in the Transboundary Gran Chaco American Ecosystem	GEF - 4	Regional	UNEP	MU
2568	Marshall Islands: Action for the Development of Marshall Islands Renewable Energies (ADMIRE)	GEF - 4	Fiji	UNDP	U
2602	WB/GEF MED: Alexandria Coastal Zone Management Project (ACZM)	GEF - 4	Egypt	World Bank	S
2693	Strengthening Biodiversity Conservation through the National Protected Areas Program	GEF - 4	Peru	WB	MS
2732	Institutional Strengthening and Coherence for Integrated Natural Resources Management	GEF - 4	Iran	UNDP	MS

GEF ID	Project Name	GEF Period	country	Lead Agency	Outcome rating
2753	Participatory Coastal Zone Restoration and Sustainable Management in the Eastern Province of Post-Tsunami Sri Lanka	GEF - 3	Sri Lanka	IFAD	MS
2824	Support the Implementation of the National Biosafety Framework	GEF - 3	Egypt	UNEP	MS
2924	Development, Empowerment and Conservation in the Greater St Lucia Wetland Park and Surrounding Region	GEF - 4	South Africa	World Bank	MS
2927	Environmentally Sustainable Management of Medical Waste in China	GEF - 4	China	UNIDO	MS
2941	Market Transformation for Energy Efficiency in Buildings	GEF - 4	Brazil	UNDP	MS
2949	Critical Ecosystem Partnership Fund Project - Phase 2	GEF - 3	Global	WB	S
2951	Energy Efficiency Financing	GEF - 4	China	World Bank	S
2995	Demonstrating and Promoting Best Techniques and Practices for Managing Healthcare Waste and PCBs	GEF - 4	Tunisia	World Bank	S
3040	BS: Support the Implementation of the National Biosafety Framework of Liberia	GEF - 4	Liberia	UNEP	MU
3045	BS Implementation of the National Biosafety Framework for Ghana	GEF - 4	Ghana	UNEP	S
3132	Sustainable Land Management of the Upper Watersheds of Southwestern Haiti	GEF - 4	Haiti	IADB	MU
3176	LDC/SIDS Portfolio Project: Capacity Building in and Mainstreaming of Sustainable Land Management in East Timor	GEF - 3	Timor Leste	UNDP	MS
3213	LDC/SIDS Portfolio Project: Capacity Building for Sustainable Land Management in Niue	GEF - 3	Niue	UNDP	MU
3216	Standards and Labels for Promoting Energy Efficiency in Russia	GEF - 4	Russian Federation	UNDP	U
3242	Adaptation to Climate Change in the Nile Delta through Integrated Coastal Zone Management	GEF - 4	Egypt	UNDP	MU
3313	SP-SFIF: Kenya Coastal Development Project	GEF - 3	Kenya	World Bank	MS
3383	Agricultural and Rural Rehabilitation and Development Initiative	GEF - 4	Niger	IFAD	S
3398	SIP: Eastern Nile Transboundary Watershed Management in Support of ENSAP Implementation	GEF - 4	Regional	World Bank	MS
3432	LDC/SIDS Portfolio Project: Sustainable Land Management	GEF - 3	Angola	UNDP	MS
3456	LDC/SIDS Portfolio Project: Capacity Building for Sustainable Land Management in the Dominican Republic	GEF - 3	Dominican Republic	UNDP	MS

GEF ID	Project Name	GEF Period	country	Lead Agency	Outcome rating
3457	Global Market Transformation for Efficient Lighting	GEF - 4	Global	UNEP	S
3460	LDC/SIDS Portfolio Project: Capacity Building for Sustainable Land Management in the Commonwealth Dominica	GEF - 3	Dominica	UNDP	S
3475	LDC/SIDS Portfolio Project: Mainstreaming and Capacity Building for Sustainable Land Management in Belize	GEF - 3	Belize	UNDP	S
3481	LDC/SIDS Portfolio Project: Sustainable Land Management in Guinea-Bissau	GEF - 3	Guinea-Bissau	UNDP	MU
3486	LDC/SIDS Portfolio Project: Capacity Building and Mainstreaming of Sustainable Land Management in Suriname	GEF - 3	Suriname	UNDP	U
3487	LDC/SIDS Portfolio Project: Capacity Building for Sustainable Land Management in Jamaica	GEF - 3	Jamaica	UNDP	MS
3488	LDC/SIDS Portfolio Project: Capacity Building for Sustainable Land Management in Kiribati	GEF - 3	Kiribati	UNDP	MS
3489	LDC/SIDS Portfolio Project: Capacity Building for Sustainable Land Management in the Solomon Islands	GEF - 3	Solomon Islands	UNDP	U
3491	LDC/SIDS Portfolio Project: Capacity Building and Mainstreaming of Sustainable Land Management in St. Vincent and the Grenadines	GEF - 3	St. Vincent and Grenadines	UNDP	MS
3492	LDC/SIDS Portfolio Project: Capacity Building for Sustainable Land Management for Nauru	GEF - 3	Nauru	UNDP	MS
3493	LDC/SIDS Portfolio Project: Capacity Building and Mainstreaming of Sustainable Land Management	GEF - 3	Fiji	UNDP	S
3494	LDC/SIDS Portfolio Project: Capacity Building for Sustainable Land Management in St. Kitts and Nevis	GEF - 3	St. Kitts And Nevis	UNDP	S
3495	LDC/SIDS Portfolio Project: Capacity Building for Sustainable Land Management in Tonga	GEF - 3	Tonga	UNDP	MU
3496	LDC/SIDS Portfolio Project: Capacity Building for Sustainable Land Management in the Republic of Marshall Islands	GEF - 3	Marshall Islands	UNDP	MU
3497	LDC/SIDS Portfolio Project: Capacity Building for Sustainable Land Management in Barbados	GEF - 3	Barbados	UNDP	U
3498	LDC/SIDS Portfolio Project: Capacity Building for Sustainable Land Management in the FSM	GEF - 3	Micronesia	UNDP	MS
3500	LDC/SIDS Portfolio Project: Capacity building and Mainstreaming of Sustainable Land Management in Saint Lucia	GEF - 3	St. Lucia	UNDP	MS
3501	LDC/SIDS Portfolio Project: Capacity Building for Sustainable Land Management for Mitigation of Land Degradation in Palau	GEF - 3	Palau	UNDP	S

GEF ID	Project Name	GEF Period	country	Lead Agency	Outcome rating
3502	LDC/SIDS Portfolio Project: Capacity Building and Mainstreaming for Sustainable Land Management in Vanuatu	GEF - 3	Vanuatu	UNDP	MU
3503	LDC/SIDS Portfolio Project: Capacity Building for Sustainable Land Management in Papua New Guinea	GEF - 3	Papua New Guinea	UNDP	MU
3504	LDC/SIDS Portfolio Project: Capacity Building for Sustainable Land Management in Tuvalu	GEF - 3	Tuvalu	UNDP	MS
3505	LDC/SIDS Portfolio Project: Building Capacity and Mainstreaming Sustainable Land Management in Maldives	GEF - 3	Maldives	UNDP	MU
3508	LDC/SIDS Portfolio Project: Capacity Building for Sustainable Land Management in the Cook Islands	GEF - 3	Cook Islands	UNDP	S
3510	LDC/SIDS Portfolio Project: Capacity Building for Sustainable Land Management in Sierra Leone	GEF - 3	Sierra Leone	UNDP	
3512	LDC/SIDS Portfolio Project: Capacity building and Mainstreaming of Sustainable Land	GEF - 3	Grenada	UNDP	S
3516	LDC/SIDS Portfolio Project: Capacity Development and Mainstreaming for Sustainable Land Management in Guyana	GEF - 3	Guyana	UNDP	MS
3526	Expanding Coverage and Strengthening Management Effectiveness of the Terrestrial Protected Area Network on the Island of Mauritius	GEF - 4	Mauritius	UNDP	MS
3534	Promoting Clean Electric Buses for the Beijing Olympics (CEBBO)	GEF - 4	China	UNDP	S
3542	Capacity building for environmentally sound PCBs management and disposal	GEF - 4	Mongolia	UNIDO	S
3555	Energy Efficiency Improvements in Commercial Buildings	GEF - 4	India	UNDP	MS
3558	SP-SFIF: West Africa Regional Fisheries Program (WARFP)	GEF - 3	Regional	World Bank	MS
3575	Support for the Consolidation of a PA System in Guinea-Bissau's Forest Belt	GEF - 4	Guinea-Bissau	UNDP	S
3593	Market Transformation Programme on Energy Efficiency in Greenhouse Gas-Intensive Industries in Russia	GEF - 4	Russian Federation	EBRD	S
3598	Buildings Sector Energy Efficiency Project (BSEEP)	GEF - 4	Malaysia	UNDP	MU
3618	Sustainable Management of Nyika Transfrontier Conservation Area	GEF - 4	Regional	World Bank	MS
3623	Argentina: Establishment of incentives for the conservation of ecosystem services of global significance.	GEF - 4	Argentina	UNDP	MU
3633	BS Implementation of the National Biosafety Framework	GEF - 4	Peru	UNEP	MU

GEF ID	Project Name	GEF Period	country	Lead Agency	Outcome rating
3636	BS Building Capacity for the Detection and Monitoring of LMOs in Cambodia Biosafety Program	GEF - 4	Cambodia	UNEP	MU
3644	BS Institutional Capacity Building Towards the Implementation of the Biosafety Act 2006 and related Obligations to the Cartagena Protocol on Biosafety	GEF - 4	Namibia	UNEP	S
3651	BS: Development and Institution of A National Monitoring and Control System (Framework) for Living Modified Organisms (LMOs) and Invasive Alien Species (IAS)	GEF - 4	Cameroon	UNEP	MU
3655	BS Support for the Implementation of the National Biosafety Framework of Nigeria	GEF - 4	Nigeria	UNEP	S
3659	Building energy efficiency in the North West of Russia	GEF - 4	Russian Federation	UNDP	MU
3695	Project for Market and Pasture Management Development	GEF - 4	Mongolia	IFAD	S
3699	Promotion of Agrofuel use in Mali	GEF - 4	Mali	UNDP	MS
3716	Integrating Adaptation to Climate Change into Agricultural Production and Food Security	GEF - 4	Sierra Leone	IFAD	MS
3717	SFM Sustainable Management of Biodiversity and Water Resources in the Ibarra-San Lorenzo Corridor	GEF - 4	Ecuador	IFAD	U
3743	Provincial Energy Efficiency Scale-Up Program	GEF - 4	China	World Bank	S
3748	Launching Protected Area Network Management and Building Capacity in Post-Conflict Southern Sudan	GEF - 4	South Sudan	UNDP	MU
3755	Phasing out Incandescent Lamps through Lighting Market Transformation in Vietnam	GEF - 4	Viet Nam	UNEP	S
3761	Sustainable Management of the Mbe River Forested Watershed through the Development of a Payments for Ecosystem Services (PES) Mechanism	GEF - 4	Gabon	UNDP	U
3763	Expansion and strengthening of Mali's PA system	GEF - 4	Mali	UNDP	MS
3771	Chiller Energy Efficiency Project	GEF - 4	Philippines	World Bank	S
3821	Sustainable Community-Based Management and Conservation of Mangrove Ecosystems in Cameroon	GEF - 4	Cameroon	FAO	S
3825	Mountains and Markets: Biodiversity and Business in Northern Pakistan	GEF - 4	Pakistan	UNDP	S
3827	SPWA-CC: Nigeria Urban Transport	GEF - 4	Nigeria	World Bank	MS
3831	Conservation and Sustainable Use of Biodiversity and Land in the Andean Vertical Ecosystems	GEF - 4	Bolivia	IADB	Not rated

GEF ID	Project Name	GEF Period	country	Lead Agency	Outcome rating
3841	Improvement of Early Warning System to Reduce Impacts of Climate Change and Capacity Building to Integrate Climate Change into Development Plans	GEF - 4	Lesotho	UNEP	MS
3858	Sustainable Financing and Management of Eastern Caribbean Marine Ecosystems	GEF - 4	Regional	World Bank	S
3873	Developing and Demonstrating Replicable Protected Area Management Models at Nam Et-Phou Louey National Protected Area	GEF - 4	Lao PDR	WB	MS
3884	Country Partnership Programme for Sustainable Land Management CPP-SLM: Sub-Programme for the Centre-West Region	GEF - 3	Burkina Faso	UNDP	S
3889	Mainstreaming biodiversity conservation through low-impact ecotourism in the National Protected Areas System	GEF - 4	Panama	IADB	S
3908	Industrial Energy Efficiency for Malaysian Manufacturing Sector	GEF - 4	Malaysia	UNIDO	S
3909	Mainstreaming biodiversity conservation into Russia's energy sector policies and operations	GEF - 4	Russian Federation	UNDP	S
3922	SPWA-CC: Promoting Renewable Energy Based Mini Grids for Productive Uses in Rural Areas in The Gambia	GEF - 4	Gambia	UNIDO	S
3930	Energy Efficient Standards and Labels in Colombia	GEF - 4	Colombia	UNDP	HS
3933	Sustainable Management of Protected Areas and Forests of the Northern Highlands of Peru	GEF - 4	Peru	IFAD	S
3941	Mainstreaming Coastal and Marine Biodiversity Conservation into Production Sectors in the Sindhudurg (Malvan) Coast, Maharashtra State, India	GEF - 4	India	UNDP	MS
3942	AFLDC: Capacity Strengthening and Technical Assistance for the Implementation of Stockholm Convention National Implementation Plans (NIPs) in African Least Developed Countries (LDCs) of the SADC Subregion	GEF - 4	Regional	UNEP	MS
3951	Expanding FSC Certification at Landscape-level through Incorporating Additional Eco-system Services.	GEF - 4	Global	UNEP	HS
3968	AFLDC: Capacity Strengthening and Technical Assistance for the Implementation of Stockholm Convention National Implementation Plans (NIPs) in African Least Developed Countries (LDCs) of the COMESA Subregion	GEF - 4	Regional	UNEP	MS
3969	AFLDC: Capacity Strengthening and Technical Assistance for the Implementation of Stockholm Convention National Implementation Plans (NIPs) in African Least Developed Countries (LDCs) of the ECOWAS Subregion	GEF - 4	Regional	UNEP	MS

GEF ID	Project Name	GEF Period	country	Lead Agency	Outcome rating
3972	Vietnam Clean Production and Energy Efficiency Project	GEF - 4	Viet Nam	World Bank	S
3979	Integrating Climate Resilience into Agricultural Production for Food Security in Rural Areas of Mali	GEF - 4	Mali	FAO	S
3984	SPWA-BD: Development of a Trans-frontier Conservation Area Linking Forest Reserves and Protected Areas in Ghana and Cote d'Ivoire	GEF - 4	Regional	FAO	MS
4000	PAS: Low Carbon-Energy Islands - Accelerating the Use of Energy Efficient and Renewable Energy Technologies in Tuvalu, Niue and Nauru	GEF - 4	Regional	UNEP	MS
4001	MED: Sustainable Governance and Knowledge Generation	GEF - 4	Global	World Bank	MS
4008	Reducing GHG Emissions from Road Transport in Russia's Medium-sized Cities	GEF - 4	Russian Federation	UNDP	MS
4014	Management of PCBs stockpiles and equipment containing PCBs	GEF - 4	Rwanda	UNDP	MS
4026	SPWA- Rationalising and strengthening the conservation role of Togo's national System of Protected Areas (PA) System	GEF - 4	Togo	UNDP	MS
4067	BS Support for the Implementation of the National Biosafety Framework	GEF - 4	Turkey	UNEP	MS
4077	BS: Capacity Building for the Implementation of the National Biosafety Framework of Swaziland	GEF - 4	Swaziland	UNEP	S
4080	SPWA- Participatory Biodiversity Conservation and Low Carbon Development in Pilot Ecovillages in Senegal	GEF - 4	Senegal	UNDP	MS
4082	National Biodiversity Project	GEF - 5	Angola	UNDP	MU
4083	CBSP- Integrated management of mangrove and associated wetlands and coastal forests ecosystems of the Republic of Congo	GEF - 4	Congo	FAO	MS
4085	Amazon Region Protected Areas Program Phase 2	GEF - 4	Brazil	World Bank	MS
4149	SFM Mitigating Climate Change through Sustainable Forest Management and Capacity Building in the Southern States of Mexico (States of Campeche, Chiapas and Oaxaca)	GEF - 4	Mexico	IFAD	Not rated
4157	Promotion of Biomass Production and Utilization in Georgia	GEF - 4	Georgia	UNDP	U
4160	Technology Transfer and Market Development for Small Hydropower in Tajikistan	GEF - 4	Tajikistan	UNDP	MS
4165	Promoting Energy Efficiency in Commercial Buildings in Thailand (PEECB)	GEF - 4	Thailand	UNDP	MS
4221	SPWA Protected Area Buffer Zone Management in Burkina Faso	GEF - 4	Burkina Faso	UNDP	MS

GEF ID	Project Name	GEF Period	country	Lead Agency	Outcome rating
4228	Improving Energy Efficiency in Residential Buildings in the Republic of Belarus	GEF - 4	Belarus	UNDP	MS
4234	Climate Change Adaptation Project in the Areas of Watershed Management and Water Retention (PAFA)	GEF - 5	Senegal	IFAD	Not rated
4254	Mitigation Options of Greenhouse Gas (GHG) Emissions in Key Sectors in Brazil	GEF - 4	Brazil	UNEP	MS
4276	Adaptation in the coastal zones of Mozambique (LDCF)	GEF - 5	Mozambique	UNDP	MU
4368	Promoting a Value Chain Approach to Climate Change Adaptation In Agriculture in Ghana	GEF - 5	Ghana	IFAD	MU
4383	Fifth Operational Phase of the GEF Small Grants Programme in India	GEF - 5	India	UNDP	MS
4417	Developing national capacity for environmentally sound management and disposal of PCBs in Colombia	GEF - 5	Colombia	UNDP	HS
4447	Strengthening climate resilience and reducing disaster risk in agriculture to improve food security in Haiti post earthquake	GEF - 5	Haiti	FAO	S
4468	Landscape approach to management of peatlands aiming at multiple ecological benefits	GEF - 5	Belarus	UNDP	S
4479	Sustainable forest management and biodiversity conservation	GEF - 5	Guatemala	UNDP	MS
4489	A Transboundary Waters Assessment Programme: Aquifers, Lake/Reservoir Basins, River Basins, Large Marine Ecosystems, and Open Ocean to Catalyze Sound Environmental Management	GEF - 5	Global	UNEP	S
4494	Integrated Ecosystem Approach to Biodiversity Mainstreaming and Conservation in the Buffer Zones of the Obo and Principe Natural Parks	GEF - 5	Sao Tome and Principe	IFAD	Not rated
4544	Improved Management Effectiveness of the Chobe Linyanti Protected Area Cluster	GEF - 5	Botswana	UNDP	U
4554	Effective Governance for small-scale rural infrastructure and disaster preparedness in a changing climate	GEF - 5	Lao	UNDP	MU
4560	5th Operational Phase of the GEF Small Grants Program in Brazil	GEF - 5	Brazil	UNDP	S
4562	Mongolia's Network of Managed Resource Protected Areas	GEF - 5	Mongolia	UNDP	S
4569	Improve the Health and Environment of Artisanal and Small-Scale Gold Mining (ASGM) Communities by Reducing Mercury Emissions and Promoting Sound Chemical Management	GEF - 5	Regional	UNIDO	Not rated
4570	Adapting Agriculture Production in Togo	GEF - 5	Togo	IFAD	MU

GEF ID	Project Name	GEF Period	country	Lead Agency	Outcome rating
4584	Improving sustainability of PA system in desert ecosystems through promotion of biodiversity-compatible livelihoods in and around PAs	GEF - 5	Kazakhstan	UNDP	S
4585	Enhancing the resilience of tourism-reliant communities to climate change risks.	GEF - 5	Samoa	UNDP	MU
4586	Mainstreaming Biodiversity Conservation into tourism sector development in Jordan's Petra	GEF - 5	Jordan	UNDP	S
4609	Strengthening the Resilience of Post Conflict Recovery and Development to Climate Change Risks in Sri Lanka	GEF - 5	Sri Lanka	UNDP	MS
4619	Third National Communication to the UNFCCC	GEF - 5	Colombia	UNDP	S
4692	Renf. Resilience Moyens D'Existence Communautaire's GKM	GEF - 5	Guinea	UNDP	S
4696	Strengthening the Resilience of Small Scale Rural Infrastructure and Local Government Systems to Climatic Variability and Risk	GEF - 5	Timor-Leste	UNDP	MS
4720	Land rehabilitation and rangelands management in small holders agro-pastoral production systems in south western Angola	GEF - 5	Angola	FAO	S
4729	Strengthening the capacity of the protected area system to address new management challenges (PASS)	GEF - 5	Namibia	UNDP	HS
4741	Gestion Integrada y ambientalmente racional de PCB	GEF - 5	Ecuador	UNDP	MS
4742	Green Urban Lighting	GEF - 5	Armenia	UNDP	S
4749	Small Decentralized RE Power Generation	GEF - 5	Lebanon	UNDP	MS
4765	Strengthening National and Decentralized management for Global Environmental Benefits	GEF - 5	Togo	UNDP	S
4777	Mainstreaming of the Use and Conservation of Agrobiodiversity in Public Policies through Integrated Strategies and in situ Implementation in three Provinces in the Andean Highlands	GEF - 5	Ecuador	FAO	MS
4836	Conservation, sustainable use of biodiversity, and maintenance of ecosystem services of internationally important protected wetlands	GEF - 5	Costa Rica	UNDP	HS
4868	CBPF-MSL: Strengthening the Management Effectiveness of the Protected Area Network in the Daxinganling Landscape	GEF - 5	China	UNDP	MS
4870	CBPF-MSL: Strengthening the Management Effectiveness of the Wetland Protected Area System in Hubei Province	GEF - 5	China	UNDP	MS
4896	CBPF-MSL: Strengthening the Management Effectiveness of the Wetland Protected Area System in Anhui Province	GEF - 5	China	UNDP	MS

GEF ID	Project Name	GEF Period	country	Lead Agency	Outcome rating
4913	Integrating Rio Convention provisions into Ukraine's national environmental policy framework	GEF - 5	Ukraine	UNDP	MS
4933	Third National Communication to The UNFCCC	GEF - 5	Indonesia	UNDP	S
4954	Community Agricultural Resource Management and Competitiveness (CARMAC)	GEF - 5	Armenia	World Bank	S
4967	Scaling-up Risk Transfer Mechanisms for Climate Vulnerable Agriculture-based Communities in Mindanao	GEF - 5	Philippines	UNDP	S
4991	Strengthening climate information and early warning systems in Tanzania for climate resilient development and adaptation to climate change	GEF - 5	Tanzania	UNDP	MS
4992	Strengthening climate information and early warning systems	GEF - 5	Ethiopia	UNDP	MS
4993	Strengthening climate information and early warning systems	GEF - 5	Uganda	UNDP	MS
4994	Early Warning Systems	GEF - 5	Malawi	UNDP	U
5026	MENA: Badia Ecosystem and Livelihoods Project (BELP)	GEF - 5	Jordan	World Bank	S
5028	CCCD: Capacity Building for Mainstreaming MEA Objectives into Inter-Ministerial Structures and Mechanisms	GEF - 5	Costa Rica	UNDP	MS
5040	Investment Promotion on Environmentally Sound Management of Electrical and Electronic Waste in East Africa with Focus on Ethiopia	GEF - 5	Ethiopia	UNIDO	MU
5045	CCCD Integrating global environment commitments in investment and development decision-making	GEF - 5	Fiji	UNDP	MU
5068	Protect human health and the environment from unintentional releases of POPs and mercury from the unsound disposal of healthcare waste in Kyrgyzstan	GEF - 5	Kyrgyzstan	UNDP	S
5146	Cleantech Program for SMEs in Malaysia	GEF - 5	Malaysia	UNIDO	S
5157	ESCO Moldova - Transforming the market for Urban Energy Efficiency in Moldova by introducing Energy Service Companies (ESCO)	GEF - 5	Moldova	UNDP	U
5164	Capacity for implementing Rio Conventions in Samoa	GEF - 5	Samoa	UNDP	MS
5222	Pilot Project on the Development of Mercury Inventory in the Russian Federation (RF)	GEF - 5	Russian Federation	UNEP	S
5310	Enabling transboundary cooperation and integrated water resources management in the Chu and Talas River Basins	GEF - 5	Kyrgyzstan	UNDP	MS
5355	Mainstreaming Biodiversity Conservation into Moldova's Territorial Planning Policies and Land-Use Practices	GEF - 5	Moldova	UNDP	S

GEF ID	Project Name	GEF Period	country	Lead Agency	Outcome rating
5399	Improvement of the Decision-making Process through Introduction of Mechanisms of Economic Assessment of Fulfilling National Obligations under Global Environmental Agreements	GEF - 5	Kazakhstan	UNDP	S
5420	Promoting the application of the Nagoya Protocol through the development of nature-based products, benefit-sharing and biodiversity conservation in Costa Rica	GEF - 5	Costa Rica	UNDP	S
5439	Fighting Against Wildlife Poaching and Illegal Trade in Africa: the Case of African Elephants	GEF - 5	Global	WB	S
5450	Transforming the global aviation sector: Emissions Reductions from International Aviation (short title: ICAO Sustainable Aviation Initiative)	GEF - 5	Global	UNDP	MS
5464	Reducing greenhouse gas and ODS Emissions through technology transfer in industrial refrigeration	GEF - 5	Viet Nam	UNIDO	MS
5466	Reducing greenhouse gases and Ozone Depleting Substance (ODS) emissions through technology transfer in the industrial Refrigeration and Air Conditioning (RAC) sector	GEF - 5	Gambia	UNIDO	MU
5508	Transforming the Global Shipping Industry: Reducing Emissions from international maritime transport through improved Energy Efficiency	GEF - 5	Global	UNDP	S
5596	Sustainable Land Management in Churia Range, Nepal	GEF - 5	Nepal	WWF	S
5789	Mainstreaming Sustainable Land Management to Improve the Makgadikgadi Ecosystem to Sustain the Livelihoods of Livestock Dependent Communities in the Makgadikgadi Area.	GEF - 5	Botswana	UNDP	MS
5838	Sustainable Urban Mobility Program for San Jose	GEF - 5	Costa Rica	IADB	MS
9163	Enabling the use of Global Data Sources to assess and Monitor Land Degradation at Multiple Scales	GEF - 6	Global	Conservation International	S

*HS=Highly Satisfactory; S = Satisfactory; MS=Moderately Satisfactory; MU = Moderately Unsatisfactory; U=Unsatisfactory; HU=Highly Unsatisfactory.

Annex B

Terminal Evaluation Report Review Guidelines

The assessments in the terminal evaluation reviews will be 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 monitoring and evaluation 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 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 will take into account all the independent relevant information when verifying ratings.

B1. Criteria for Outcome Ratings

1. 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 achieved¹⁴, 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:¹⁵
 - (a) **Relevance.** Were project outcomes consistent with the focal area/operational program strategies and country priorities? Explain.
 - (b) **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)?
 - (c) **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?

¹⁴ *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).

¹⁵ *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.

2. 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.

3. 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 following:

- **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.

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

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

5. 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 mid values being rounded up upwards.

B2. Impacts

6. Has the project achieved impacts, or is it likely that outcomes will lead to the expected impacts? Impacts will be 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 reviews template in the subsection on

“Issues that require follow-up.” Although project impacts will be described, they will not be rated.

B3. Criteria for Sustainability Ratings

7. 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, sociopolitical, institutional frameworks and governance, and environmental.

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

- **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)?
- **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 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?
- **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.
- **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 dam in a protected area could inundate a sizable area and thereby neutralize the biodiversity-related gains made by the project.

9. The reviewer will provide a rating 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 risk on this dimension.
- **Not applicable.** This dimension is not applicable to the project.

B4. Criteria for Assessment of Quality of Project M&E Systems

10. 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 plan 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.** Project 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. 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. Question 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.** This includes 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?

11. A number rating 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.

Annex C

List of GEF Sustainable Transport Projects

GEF ID	Name	Agency	Country	Period	GEF grant	Completed
6	Brazil: Hydrogen Fuel Cell Buses for Urban Transport	UNDP	Brazil	GEF - 2	12.27	Yes
31	Introduction of Viable Electric and Hybrid-Electric Bus Technology	UNDP	Egypt	GEF - 2	0.75	Yes
785	Metro Manila Urban Transport Integration Project - Marikina Bikeways Project Component	WB	Philippines	GEF - 2	1.30	Yes
819	Fuel Cell Bus and Distributed Power Generation Market Prospects and Intervention Strategy Options	UNEP	Global	GEF - 2	0.69	Yes
941	Demonstration of Fuel Cell Bus Commercialization in China (Phase II-Part I)	UNDP	China	GEF - 2	5.82	Yes
1081	Lima Urban Transport	WB	Peru	GEF - 3	7.93	Yes
1155	Introduction of Climate Friendly Measures in Transport	WB	Mexico	GEF - 2	5.80	Yes
1349	Sustainable Transport and Air Quality for Santiago	WB	Chile	GEF - 3	6.98	Yes
1917	Reducing Greenhouse Gas Emissions with Bus Rapid Transit and Non-Motorized Transport	UNEP	Global	GEF - 3	0.72	Yes
2014	Incorporating Non-Motorized (NMT) Transport Facilities in the City of Gaborone	UNDP	Botswana	GEF - 3	0.89	Yes
2178	Promoting Sustainable Transport in Latin America (NESTLAC)	UNEP	Regional	GEF - 3	0.96	Yes

GEF ID	Name	Agency	Country	Period	GEF grant	Completed
2257	Demonstration of Fuel Cell Bus Commercialization in China, Phase 2	UNDP	China	GEF - 3	5.77	Yes
2368	Hanoi Urban Transport Development	WB	Vietnam	GEF - 3	9.80	Yes
2604	Sustainable Public Transport and Sport: A 2010 Opportunity	UNDP	South Africa	GEF - 4	10.97	Yes
2609	GEF-World Bank-China Urban Transport Partnership Program (CUTPP)	WB	China	GEF - 4	21.00	Yes
2767	LAC Regional Sustainable Transport and Air Quality Project	WB	Regional	GEF - 3	20.80	Yes
2776	Sustainable Transport	UNDP	Egypt	GEF - 3	6.90	No
2801	Promotion of Environmentally Sustainable Transport in Metropolitan Managua	UNDP	Nicaragua	GEF - 3	3.88	No
2876	SPWA-CC: Ouagadougou Transport Modal Shift	WB	Burkina Faso	GEF - 4	0.91	Yes
2954	Bus Rapid Transit and Pedestrian Improvements in Jakarta	UNEP	Indonesia	GEF - 3	5.81	Yes
3027	Support to Sustainable Transport Management in Dushanbe	UNDP	Tajikistan	GEF - 4	0.97	Yes
3241	Sustainable Urban Transport Program	WB	India	GEF - 4	22.50	Yes
3433	Sustainable Mobility in the City of Bratislava	UNDP	Slovak Republic	GEF - 4	0.93	Yes
3461	Promoting Sustainable Transport Solutions for East Africa	UNEP	Regional	GEF - 4	2.85	No

GEF ID	Name	Agency	Country	Period	GEF grant	Completed
3534	Promoting Clean Electric Buses for the Beijing Olympics (CEBBO)	UNDP	China	GEF - 4	1.00	Yes
3539	Pakistan Sustainable Transport Project	UNDP	Pakistan	GEF - 4	4.80	Yes
3759	Support to Sustainable Transport in the City of Belgrade	UNDP	Serbia	GEF - 4	0.95	Yes
3824	Sino-Singapore Tianjin Eco-City Project (SSTCEP)	WB	China	GEF - 4	6.16	Yes
3827	SPWA-CC: Nigeria Urban Transport	WB	Nigeria	GEF - 4	4.50	Yes
4008	Reducing GHG Emissions from Road Transport in Russia's Medium-sized Cities	UNDP	Russian Federation	GEF - 4	5.40	Yes
4013	Sustainable Transport in the City of Almaty	UNDP	Kazakhstan	GEF - 4	4.89	Yes
4030	Greening 2014 Sochi Olympics: A Strategy and Action Plan for the Greening Legacy	UNDP	Russian Federation	GEF - 4	0.90	Yes
4130	Kathmandu Sustainable Urban Transport (SUT) Project	ADB	Nepal	GEF - 4	2.52	No
4156	Eco-Transport in City Clusters: Model Development & Pilots	WB	China	GEF - 4	4.80	Yes
4210	The Chiang Mai Sustainable Urban Transport Project	WB	Thailand	GEF - 4	0.73	Yes
4215	Low Carbon Campaign for Commonwealth Games 2010 Delhi	UNDP	India	GEF - 4	0.95	Yes
4488	Green Energy Schemes for Low-Carbon City in Shanghai, China	WB	China	GEF - 5	4.35	No

GEF ID	Name	Agency	Country	Period	GEF grant	Completed
4500	GEF Large-City Congestion and Carbon Reduction Project	WB	China	GEF - 5	18.18	No
4921	Efficient and Sustainable City Bus Services	WB	India	GEF - 5	9.20	No
4931	ASTUD: Greater Dhaka Sustainable Urban Transport Corridor Project	ADB	Bangladesh	GEF - 5	4.63	No
4949	Low-Carbon Urban Mobility for Large Cities	IADB	Brazil	GEF - 5	6.00	No
5055	ASTUD: Mongolia Urban Transport Development Investment Program	ADB	Mongolia	GEF - 5	1.39	No
5086	Achieving Low Carbon Growth in Cities through Sustainable Urban Systems Management in Thailand (LCC)	UNDP	Thailand	GEF - 5	3.15	No
5329	Green Technology Application for the Development of Low Carbon Cities (GTALCC)	UNDP	Malaysia	GEF - 5	4.35	No
5358	Mainstreaming Climate Change in the National Logistics Strategy and Roll-Out of Integrated Logistics Platforms	UNDP	Morocco	GEF - 5	2.27	No
5372	Belarus Green Cities: Supporting Green Urban Development in Small and Medium Sized Cities in Belarus	UNDP	Belarus	GEF - 5	3.09	No
5373	Greening the Logistics Industry in Zhejiang Province (GLIZP)	UNDP	China	GEF - 5	2.91	No
5396	National Urban Transport Improvement Project	WB	Russian Federation	GEF - 5	9.13	No
5411	ASTUD: Jiangxi Fuzhou Urban Integrated Infrastructure Improvement Project	ADB	China	GEF - 5	2.55	No

GEF ID	Name	Agency	Country	Period	GEF grant	Completed
5450	Transforming the Global Aviation Sector: Emissions Reductions from International Aviation	UNDP	Global	GEF - 5	1.95	No
5468	Green Cities: Integrated Sustainable Transport in the City of Batumi and the Achara Region	UNDP	Georgia	GEF - 5	0.85	No
5508	Transforming the Global Maritime Transport Industry towards a Low Carbon Future through Improved Energy Efficiency	UNDP	Global	GEF - 5	1.90	Yes
5582	ASTUD: Jiangxi Ji'an Sustainable Urban Transport Project	ADB	China	GEF - 5	2.55	No
5627	ASTUD PRC Clean Bus Leasing	ADB	China	GEF - 5	2.32	No
5728	Accelerating the Development and Commercialization of Fuel Cell Vehicles in China	UNDP	China	GEF - 5	8.23	No
5737	Energy Efficient Low-carbon Transport	UNIDO	South Africa	GEF - 5	1.30	No
5741	Energy Efficient Low-carbon Transport in Malaysia	UNIDO	Malaysia	GEF - 5	2.00	No
5838	Sustainable Urban Mobility Program for San Jose	IADB	Costa Rica	GEF - 5	1.78	No
6974	Improving Mobility in Parakou	AfDB	Benin	GEF - 6	1.83	No
9038	San Salvador Low-emission Urban Development Path	UNDP	El Salvador	GEF - 6	2.42	No
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	No
9047	Green Logistics Program	EBRD	Regional	GEF - 6	15.00	No

GEF ID	Name	Agency	Country	Period	GEF grant	Completed
9123	Cities-IAP: Sustainable Cities Initiative	WB	Senegal	GEF - 6	8.72	No
9127	Cities-IAP: Asuncion Green City of the Americas: Pathways to Sustainability	UNDP	Paraguay	GEF - 6	7.49	No
9130	Cities-IAP: Abidjan Integrated Sustainable Urban Planning and Management	AfDB	Cote d'Ivoire	GEF - 6	5.25	No
9142	Promoting Sustainable Cities in Brazil through integrated urban planning and innovative technologies investment	UNEP	Brazil	GEF - 6	22.64	No
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	No
9146	Vientiane Sustainable Urban Transport Project	ADB	Lao PDR	GEF - 6	1.84	No
9147	Sustainable-city development in Malaysia	UNIDO	Malaysia	GEF - 6	2.75	No
9151	Catalyzing Environmental Finance for Low-Carbon Urban Development	UNDP	Bosnia-Herzegovina	GEF - 6	2.37	No
9223	GEF China Sustainable Cities Integrated Approach Pilot	WB	China	GEF - 6	32.73	No
9226	Integrated Adoption of New Energy Vehicles in China	UNIDO	China	GEF - 6	8.93	No
9279	Sustainable Cities: Integrated Green Urban Development in Ashgabat and Awaza	UNDP	Turkmenistan	GEF - 6	6.06	No
9367	Bhutan Sustainable Low-emission Urban Transport Systems	UNDP	Bhutan	GEF - 6	2.64	No

GEF ID	Name	Agency	Country	Period	GEF grant	Completed
9480	Towards a Sustainable and Efficient Urban Mobility System in Uruguay	UNDP	Uruguay	GEF - 6	1.72	No
9567	Renewable Energy for the City of Marrakech's Bus Rapid Transit System	UNDP	Morocco	GEF - 6	1.32	No
9682	Achieving Efficient and Green Freight Transport Development	WB	China	GEF - 6	8.25	No
9698	National Platform for Sustainable Cities and Climate Change in Peru	IADB	Peru	GEF - 6	6.42	No
9706	Low-carbon transport systems in the City of La Havana	UNDP	Cuba	GEF - 6	1.96	No
9742	Supporting the Chilean Low Emissions Transport Strategy CLETS	CAF	Chile	GEF - 6	2.90	No

Annex D

Survey Questions

Annex D1. Survey Questions for Approved Projects

Objectives and key outcomes of the project?

Global environmental objectives of the project?

Incremental reasoning for GEF funding?

- Focused entirely on GEBs:
 - but no or little co-financing
 - with significant co-financing
- Economic and Financial viability of the project
- Speeding up
- Greening
- No clear reasoning
- Other (please specify).

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 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 (inter-modal transit hubs, stations, 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

Has TEEMP model been used to calculate expected GHG benefits?

- Yes, TEEMP model was used

- No, TEEMP model was not used.
- Unable to assess
- If any other standard model was used, please specify.

What are the estimated CO2 (equivalent) emission abatement benefits

- Life time CO2 (equivalent) emissions reduction benefits (from transportation):
- Life time CO2 (equivalent) emissions reduction benefits (from non-transportation related activities):
- Life time CO2 (equivalent) emissions reduction benefits (from all activities of the project):

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

Does this project promote clean tech buses?

Does GEF grant support at least partially support promotion of clean tech buses

Which types of clean tech buses are promoted by the project?

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

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 (BRT)

Does this project provide support for Bus Rapid Transit (BRT)?

Are the BRT related activities undertaken as part of the project at least partially funded through GEF grant?

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 (clean tech) bus purchase
- Old bus retirement
- BRT stations
- Arterial Streets
- HOV lane
- Busways
- Training/ capacity building of BRT agency staff
- BRT planning
- Other (please specify)

NMT

Does the project support non-motor transportation?

Are non-motor transportation related activities undertaken within the framework of the project at least partially funded through GEF grant?

What non-motor transportation activities were supported?

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

Cleantech cars

Does the project support adoption of energy efficient/clean tech cars?

Is adoption of energy efficient/cleantech cars supported through the project at least partially funded through GEF grant?

Which of the activities were undertaken by the project?

- Purchase of clean tech cars
- Subsidy for clean tech cars
- Refueling stations/ charging stations for clean tech cars
- Awareness campaigns
- Capacity building
- Others (please specify)

Other Modes

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

- LRT, HRT
- Aviation
- Maritime/Ship
- Freight
- Road
- Inter modal transport hubs
- None

Explain what activities would be undertaken as part of the above specified interventions:

Urban Land Use and Transport Planning

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

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

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
- Inter-modal transit hubs
- Capacity changes - assessing the optimal capacity
- Characteristics, traffic signal systems, etc that may change capacity.
- Other (please specify)

Traffic Demand Management

Does the project to promote traffic demand management?

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

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

- Promotion of ride sharing, car-pooling
- Improvement of 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)

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

- Gasoline taxes
- Road/bridge tolls
- Pricing of the 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

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

Are these activities at least partially supported through GEF grant?

Which of the following have been addressed by the project?

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

Capacity Building

Does project support any capacity building/development activities?

Were capacity development activities at least partially supported through GEF grant?

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 of transportation for regular consultations
- Other (please specify)

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

Would the project undertake any knowledge management activities? (include reports, documents, action plans, strategy papers, website, awareness campaigns, publicly accessible databases, establishment of information centers, etc)

Describe the activities that are planned:

Are the knowledge management activities supported by GEF?

Safeguards

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

If yes, describe the process through which poor communities have been consulted or will be consulted:

Does the project assess the likely effect of promoted policies and/or choices on people from poor communities? If yes, did it identify negative effect that some of the activities or choices may have for people from low income groups?

Does at least one expected result of the project benefit poor communities? (access to employment, healthcare, education facilities, etc.).

Do the project documents provide any indication that groups representing physically challenged people were consulted, or will be consulted, in planning and design of project activities? If yes, describe the process through which they have been or will be consulted.

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?

Is at least one or some of the project activities geared towards providing benefits to physically challenged people?

Do project documents provide any indication that women's groups were consulted, and/or will be consulted, in planning and design of project activities? If yes, describe the process through which they have been consulted or will be consulted.

Does project assess the likely effect of the 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?

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

Do the project activities directly cover a city?

How many cities have been covered?

How many cities involve at least \$ 100,000 in GEF grant

Provide information on these cities separately, starting with the name and other details of the first city. City name, province, country

Total GEF grant provided for the project activities in this city through the project.

Total funding provided within the framework of the project for activities in this city including GEF grant and cofinancing.

Within the framework of the project what activities were undertaken in the city?

Which of these activities were funded through the GEF grant?

Annex D2. Survey Questions for Projects Under Implementation

GEF ID:

Which of the following are available: 1. PIRs; 2. mid-term review/evaluation.

Year of GEF CEO Approval / Endorsement:

Year of start of project implementation:

How many months did it take from project's approval/endorsement by the GEF CEO to start of the

project?

- If it took more than 12 months from GEF CEO approval/endorsement to project start, what was/were the reason/s for delay?

After project start, during the first year of project implementation did project activities get delayed?

- If the activities got delayed, what were the reasons for the delay?

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:

Were changes made to the project's M&E design within the first year of project start?

What were the changes made to the project's M&E design within the first year of project start? Please describe:

Was the project restructured any time after one year of project start? Describe the changes.

Based on the information from PIRs and/or midterm review/evaluation, to what extent has the project implementation progress been as per the expectations?

What were the implementation related challenges faced by the project?

Annex D3. Survey Questions for Completed Projects

Project ID:

Which of the following documents are available? Project implementation report, Mid-term review evaluation, Terminal evaluation, Terminal evaluation validation report by the Agency evaluation unit, Terminal evaluation review report by the GEF IEO, Independent post project completion field verification or equivalent.

GEF Grant in US \$:

Promised cofinancing at project start:

Materialized cofinancing at project completion:

Was there any change 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:

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:

Based on the information provided in the project documents and terminal evaluation, what was the

incremental reasoning for GEF funding for the project? (tick all that apply, but some options may be

mutually exclusive).

- Focused entirely on GEBs:
 - but no or little co-financing
 - with significant co-financing
- Economic and Financial viability of the project
- Speeding up
- Greening
- No clear reasoning
- Other (please specify).

When was the project CEO Approved / Endorsed (Year)?

When did the project implementation start (Year)?

How much time (in 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 effect of the delay on project implementation and results:

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

What was the actual duration (in months) of project implementation?

If it took more than 12 months more than the expected duration for implementation completion, then describe the reasons for delay in project completion:

Global environmental benefits and co-benefits

AT PROJECT COMPLETION: Estimated total GHG emission reduction/ avoidance relevant benefits

over project life time:

- Direct, from transportation:
- Indirect, from transportation:
- Direct, from non-transportation activities:
- Indirect, from non-transportation activities:
- Direct, total:
- Indirect, total:

Discuss the extent to which GEF grant may be credited for the estimated CO2 emissions reduction

reported for the project. Consider the extent to which CO2 emission reduction 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 emission reduction benefits would have accrued regardless of GEF support. There may be some activities for which such distinction is not possible - these should also be noted:

National, local and private co-benefits reported at project completion. For the relevant benefits note the indicator, expected and actual level 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

Does this project promote technology transfer for clean tech buses?

Which types of clean tech buses are promoted by the project? Fuel cell buses, Hybrid buses, Electric buses, Fuel efficient CNG buses, Other (please specify)

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)

What were the key achievements for the activities focused on cleantech buses? Specify the relevant

performance indicators and the level of achievement vis-a-vis targets:

Did the project team face challenges in executing activities related to cleantech buses? If so describe

the challenges along with how these were addressed:

What have been the long-term contributions of the project in promoting adoption of clean tech buses in

project's target area / recipient country?

To what extent did the GEF funding make a difference in achievements related to promotion of clean

tech buses?

BRT

Does this project provide support for Bus Rapid Transit (BRT)?

What BRT related activities were undertaken as part of the project? New (clean tech) bus purchase; Old bus retirement; BRT stations; Arterial Streets; HOV lane; Busways; Training/ capacity building of BRT agency staff; BRT planning; Other (please specify):

What were the key achievements for the activities focused on BRT? Specify the relevant performance

indicators and the level of achievement vis-a-vis targets:

Did the project team face challenges in executing activities related to BRT? If so describe the challenges

along with how these were addressed:

What have been the long-term contributions of the project in promoting BRT in project's target area/

recipient country?

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

NMT

Did the project support non-motor transportation?

What non-motor transportation activities were supported? Construction/improvement of bike lanes; Bike share arrangements; Foot paths construction/improvement; Awareness campaign; Other (please specify):

What were the key achievements for the activities focused on non-motor transportation? Specify the

relevant performance indicators and the level of achievement vis-a-vis targets:

Did the project team face challenges in executing activities related to non-motor transportation? If so

describe the challenges along with how these were addressed:

What have been the long-term contributions of the project in promoting non-motor transportation in the project's target area / recipient country?

To what extent did the GEF funding make a difference in achievements related to non-motor transportation?

Cleantech cars

Does the project support adoption of energy efficient/clean tech cars?

Which of these activities were undertaken by the project? Purchase of clean tech cars; Subsidy for clean tech cars; Refueling stations/ charging stations for clean tech cars; Awareness campaigns; Capacity building; Others (specify):

What were the key achievements for the activities focused on clean tech cars? Specify the relevant

performance indicators and the level of achievement vis-a-vis targets:

Did the project team face challenges in executing activities related to clean tech cars? If so describe the challenges along with how these were addressed:

What have been the long-term contributions of the project in promoting clean tech cars in project's target area?

To what extent did the GEF funding make a difference in project achievements related to clean tech

cars?

Other Modes

Which of these interventions were also implemented as part of the project? LRT, HRT; Aviation; Maritime/Ship; Freight; Road; Inter modal transport hubs; None.

What were the key achievements for the activities focused on these transportation themes (LRT/HRT,

Aviation, maritime/ship/waterways, freight/logistics, road/highways, intermodal transport hubs). Specify the covered theme, relevant performance indicators and the level of achievement vis-a-vis targets:

Did the project team face challenges in executing activities related to these transportation themes

(i.e. LRT/HRT, Aviation, maritime/ship/waterways, freight/logistics, road/highways, intermodal transport

hubs), if so describe the challenges along with how these were addressed:

What have been the long-term contributions of the project in the transportation areas/themes covered by it (i.e. LRT/HRT, Aviation, maritime/ship/waterways, freight/logistics, road/highways, intermodal transport hubs)?

To what extent did the GEF funding make a difference in project achievements in the areas/themes

covered by the project (i.e. LRT/HRT, Aviation, maritime/ship/waterways, freight/logistics, road/highways, intermodal transport hubs)?

Planning

Was transportation planning undertaken as part of the project?

Which of the following alternatives were considered within the framework of transportation planning? Land use alternatives; Alternative locations; Capacity changes; Travel demand management policies; Unable to assess as sufficient information has not been provided for the proposed planning exercise.; Other alternatives (please specify):

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; Inter-modal transit hubs; Other (please specify):

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

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

Legal/Policy/Regulatory

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

Which of the following have been addressed by the project? Laws / legal framework; Transportation policy; Transportation related regulations; Other (please specify):

Are these activities being undertaken with support of GEF grant?

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

Capacity Building

Does the project support any capacity building/ development activities?

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):

Were capacity building activities supported through GEF funding?

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

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

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

Are the knowledge management activities supported by GEF?

To what extent have these activities been effective? Discuss:

Unintended Impacts

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

Safeguards

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:

Did the project activities have any positive or negative effect on poor communities? Discuss the type

and extent of effects:

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:

Did the project have any positive or negative effect on people with physical disabilities? Discuss the type

and extent of effect:

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

Did the project have any positive or negative effects on women?

Annex E

List of Interviewees

Interviewee	Affiliation	Place / telephone
19 th of June 2018		
Ms. Jiao Wenwen	Ministry of Transport	Beijing, China
Mr. Shinchin	Big City Planning, Ministry of Transport	Beijing, China
Ms. Song Li Chen	Research, Ministry of Transport	Beijing, China
Mr. Guanghou Zhang	Institute of Comprehensive Transportation	Beijing, China
Ms. Liya Liu	Executive Director of CUTPP project, National Development and Reform Commission	Beijing, China
20 th of June 2018		
He Tao	Changsha Pilot Hengtong Commercial Management Company Limited	Changsha, China
Luo Jianwen	Long Xiang Group	Changsha, China
Hu Ronghui,	Long Xiang Group	Changsha, China
Wang Chuanjian	Long Xiang Group	Changsha, China
Peng Jiantao	Traffic Office, Changsha	Changsha, China
Wu Yun	Traffic Office, Changsha	Changsha, China
Lin Jianhui	Traffic Office, Changsha	Changsha, China
Luo Liping	Traffic Office, Changsha	Changsha, China
Wang Zheng	Traffic Office, Changsha	Changsha, China
Zhang Wenbin	Traffic Office, Changsha	Changsha, China
Xie Yi	Changsha Pilot Hengtong Commercial Management Company Limited	Changsha, China
Zou Yong	Changsha Pilot Hengtong Commercial Management Company Limited	Changsha, China
21 st of June 2018		
Zhigang Zhang	Deputy Division Chief – International Division of Henan Provincial Finance Department	Zhengzhou, China
Jianlin Zhang	Director – Transportation Committee of Zhengzhou City	Zhengzhou, China
Yunchen Zhao	Chief Engineer – Zhengzhou Railway Traffic Limited Company	Zhengzhou, China
Jihong Zhang	Deputy Director, Foreign Debt Office – Zhengzhou Finance Bureau	Zhengzhou, China
Hongwei Li	Director, Planning Division – Zhengzhou Railway Management Office	Zhengzhou, China
Weiguo Pang	Staff – Foreign Debt Office at the Zhengzhou Finance Bureau	Zhengzhou, China
Li Song	Deputy Manager – Zhengzhou Bus Company	Zhengzhou, China
Changqi Wang	Deputy Manager – Zhengzhou Bus Company	Zhengzhou, China
Xinyan Li	Director of Finance Department, Zhengzhou Bus Company	Zhengzhou, China

Interviewee	Affiliation	Place / telephone
Guanzhong Hong	Deputy Director of Corporate Management Office – Zhengzhou Bus Company	Zhengzhou, China
17 th of July 2018		
Xiaomei Tan	Senior Climate Change Specialist, GEF Secretariat	Washington DC, USA
14 th of February 2019		
Fang Xu	Senior Transport Specialist, World Bank	Washington DC, USA
26 th of February 2019		
Ani Dasgupta	Global Director, WRI Ross Center for Sustainable Cities – World Resources Institute	Over telephone
1 st of March 2019		
Marcel Alers	Head of Energy, UNDP	Over telephone
4 th of March 2019		
Georges Bianco Darido	Lead Urban Transport Specialist, World Bank	Washington DC, USA
11 th of March 2019		
Arturo Ardila-Gomez	Global Lead Urban Mobility & Lead Transport Economist, World Bank	Washington DC, USA
22 nd of March 2019		
Rana Ghoneim	Chief of the Energy Systems and Infrastructure Division, UNIDO	Over telephone
27 th of March 2019		
Aloke Barnwal	Senior Climate Change Specialist, GEF Secretariat	Washington DC, USA
29 th of March 2019		
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Isadora Freire	Architect and Urbanist – Recife Agency for Strategy and Innovation (ARIES)	Over telephone