GGGI’s services on supporting the development of LT-LEDS

June 2022
Table of Contents

Acronyms and Abbreviations
Introduction

1. LT-LEDs
   - What are LT-LEDs?
   - Why LT-LEDs?

2. Development Process of LT-LEDs and Main Outputs
   - Organize LT-LEDs Process
   - Assess Current Situation and Operationalize Alignment
   - Development of Scenarios
   - Assessing Climate Impacts and Climate Adaptation Actions
   - Prioritize Actions
   - Implementation
   - Monitor and Evaluate

3. Alignment with the Paris Agreement (NDC Cycles)

4. Alignment with Sustainable Development Goals (SDG)

5. GGGI’s Service on LT-LEDs
   - What We Do
   - GGGI’s Principles on LT-LEDs
   - GGGI’s Engagement with Partner Countries

Box 1. The Development of Fiji LT-LEDs
## Acronyms and Abbreviations

<table>
<thead>
<tr>
<th>Acronym</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>BaU</td>
<td>Business-as-Usual</td>
</tr>
<tr>
<td>CBA</td>
<td>Cost Benefit Analysis</td>
</tr>
<tr>
<td>COP15</td>
<td>The Conference of the Parties 15</td>
</tr>
<tr>
<td>EFC CCC</td>
<td>The Environment, Forest, and Climate Change Commission (Ethiopia)</td>
</tr>
<tr>
<td>GEM</td>
<td>Green Economy Model</td>
</tr>
<tr>
<td>GHG</td>
<td>Green House Gas</td>
</tr>
<tr>
<td>GIZ</td>
<td>Gesellschaft für Internationale Zusammenarbeit</td>
</tr>
<tr>
<td>LT-LEDS</td>
<td>Long-term Low Emission Development Strategies</td>
</tr>
<tr>
<td>M&amp;E</td>
<td>Monitoring and Evaluation</td>
</tr>
<tr>
<td>MAC</td>
<td>Marginal Abatement Cost</td>
</tr>
<tr>
<td>MRV</td>
<td>Measurement, Reporting, and Verification</td>
</tr>
<tr>
<td>NDC</td>
<td>Nationally Development Goal</td>
</tr>
<tr>
<td>OECD</td>
<td>Organization for Economic Co-Operation and Development</td>
</tr>
<tr>
<td>RCP</td>
<td>Representative Concentration Pathway</td>
</tr>
<tr>
<td>SDG</td>
<td>Sustainable Development Goal</td>
</tr>
<tr>
<td>SP-CNDD</td>
<td>Secrétariat Permanent du Conseil National pour le Développement Durable</td>
</tr>
<tr>
<td>SSP</td>
<td>Shared Socio-economic Pathway</td>
</tr>
<tr>
<td>TASCA</td>
<td>NCE Tracking and Strengthening Climate Action – New Climate Economy</td>
</tr>
<tr>
<td>TMC</td>
<td>Technical Monitoring Committee</td>
</tr>
<tr>
<td>UNFCCC</td>
<td>United Nations' Framework Convention on Climate Change</td>
</tr>
<tr>
<td>WRI</td>
<td>World Resources Institute</td>
</tr>
</tbody>
</table>
GGGI’s services on supporting the development of LT-LEDs

Introduction

The Global Green Growth Institute (GGGI) is a treaty-based, international organization focused on supporting developing and emerging economies to achieve sustainable and inclusive economic growth. As part of its portfolio of work, GGGI provides technical and advisory support for countries that seek to adopt long-term low emission development strategies (LT-LEDs). GGGI’s comprehensive approach helps take participating countries through the entire LT-LEDs process, from helping to develop and flesh out the initial vision of the strategy to the approval and eventual implementation of the plan, including monitoring and evaluation. GGGI’s support ensures that the countries’ strategies are country-owned, tailor-made, and forward-looking. Further, this LT-LEDs will help countries to follow a low carbon and climate resilient pathway after COVID-19 recovery period as it has taken a major toll on many developing nations’ economy. Our partnerships leverage each country’s individual strengths and engage with local stakeholders to develop a holistic and realistic roadmap for low-carbon and climate-resilient economic development.
1. LT-LEDS

What are LT-LEDS?
Long-term Low Emission Development Strategies (LT-LEDS) were initially proposed in 2008, during the United Nations’ Framework Convention on Climate Change (UNFCCC) climate negotiations in Copenhagen (COP15). LT-LEDS are national and subnational level’s voluntary strategies in shifting their development to a low-carbon economy while achieving sustainable development, based on each country’s socio-economic and development priorities. That said, LT-LEDS are not predetermined set of definitions, but rather locally customizable blueprint.

The fundamental goals of LT-LEDS framework refer to mid-century long-term strategies that articulate actionable programs and policies to put a country on a climate-resilient development and measurable greenhouse gas (GHG) emission reductions aligned with the aims of the UNFCCC. As UNFCCC targets limiting global average temperature to below 2 °C and limiting to below 1.5 ° under the Paris Agreement, LT-LEDS primarily target to build pathways to low-emission along with economic and societal objectives.

Why LT-LEDS?
- LT-LEDS provide an important policy structure for countries to work towards decarbonizing their economies and reaching net-zero targets by 2050. It provides a framework for the potential science- and scenario-based pathways to achieve these goals.
- LT-LEDS contribute to strengthening climate resilience by assessing cost-effective climate mitigation and adaptation measures in an integrated manner.
- LT-LEDS serve a critical role in implementing the common objectives under the UNFCCC guidelines and the Paris Agreement. Internationally, it increases transparency and trust between states. Locally, it supports buy-in and ownership across numerous local stakeholders around a shared vision.
- LT-LEDS contribute to strengthening climate resilience by assessing cost-effective climate mitigation and adaptation measures in an integrated manner.
- LT-LEDS lay out priorities for attracting international and private sector financing for green low carbon and climate resilience projects over the near and long term.
2. Development Process of LT-LEDS and Main Outputs

2.1 Organize LT-LEDS Process

Mainly, LT-LEDS link climate change and economic development planning processes. The processes include establishing institutional arrangements (e.g., a LT-LEDS Steering Committee), conducting a series of national, sub-national, and sector-level stakeholder analysis, and consultation activities. In this process, inter-ministerial cooperation, leadership at all levels of government, and a multi-stakeholder LT-LEDS task force are crucial components for developing LT-LEDS. A solid top-level, cross-sectoral, and comprehensive institutional structure will help to ensure the robustness and longevity of LT-LEDS.

Expected Outcome

- **Establishment of LT-LEDS institutional structure**: An institutional structure includes a supervising independent public committee, organization, cutting across relevant ministries to coordinate the development and implementation of the strategy. An inter-ministerial committee with technical working groups would be an example of institutional structure.
  
  o In Ethiopia, the Environment, Forest, and Climate Change Commission (EFCCC) is the main stakeholder from the government. The project steering committee consists of the EFCCC, which acts as chair, as well as other committee members from the Ministry of Planning and other institutions as decided by the steering committee.
  
  o In Burkina Faso, the project steering committee is chaired by the Secrétariat Permanent du Conseil National pour le Développement Durable (the Permanent Secretariat of the National Council for Sustainable Development; SP-CNDD). In addition, Technical Monitoring Committee (TMC) was formed to develop a low carbon strategy composed of high-level personalities, knowledgeable in climate change issues, from ministries, local authorities, the private sector, and civil society. The organizational structure is slightly different from that of Ethiopia’s, but the process is regulated by a government agency such as Burkina Faso.

2.2 Assess current situation and Operationalize Alignment

Once the institutional set-up is complete, assessing the current situation regarding available strategies, frameworks, tools, and capacities will ensure that LEDS can be built on the existing foundation in the country. In this way, synergies with other development plans and processes can be identified and leveraged, ensuring efficient use of resources, and identifying key gaps that can be targeted. The assessment of the current situation includes the following:
When policy processes have already been established (e.g., NDC, NAP), LT-LEDS also consider operationalizing alignment on top of assessing the status quo. Alignment is a process that involves institutional arrangements as well as review and revision cycles. The alignment process ensures that each country is presented with an appropriate and personalized strategy based on their local situation, as well as systemic needs and requirements.

When it comes to alignment with the existing National and Sub-national LT-LEDS, there are potential barriers to coordinating the National and Sub-national LT-LEDS, such as asymmetrical knowledge and capacity between national and sub-national governments, unclear mandates, and ownership of the sub-national LT-LEDS, and technical gaps. To achieve vertical coordination of climate actions there are three essential entry points: 1) planning with considering implementation capacity; 2) scaling-up and dissemination of local practices; and 3) enforcement of climate standards in all development plans.

2.3 Development of Scenarios

Analyzing Business-as-Usual (BaU) and low carbon development scenarios start with a participatory visioning process with stakeholders to identify directions for the LT-LEDS. In this process, BaU and low emission scenarios are developed. Further, Scenario analysis and modelling are conducted for further consideration by national and other stakeholders. The BaU scenario serves as a baseline for defining targets and evaluating the impact of actions.

Additionally, to take into consideration the possibility of future changes caused by unstable climate conditions, the LEDS scenarios also actively consider climate impacts, which are derived based on previously existing results from having incorporated scenarios from established impact models (i.e., RCP, SSP scenarios) as inputs.

Expected Outcome

- Stocktaking of existing policies, technologies, stakeholders, and data: This refers to mapping existing strategies, policies and legal frameworks, relevant actors, stakeholders, and historical data.
  - In Ethiopia, GGGI works in close coordination with WRI's "Tracking and Strengthening Climate Action – New Climate Economy" (TASCA NCE) project to propose carbon-neutral green economy 2050 strategies. Further, LT-LEDS are guided by Ethiopia’s 10-years perspective development plan while improving the narrative of the NDCs by using the outcomes of the Paris Agreement.
  - In Burkina Faso, LT-LEDS propose sectoral and economy-wide targets, staggered by 5-year intervals and an MRV framework which aligns with existing government monitoring frameworks. LEDS also provide advice and guidance to the Government of Burkina Faso for further enhancement of its next NDCs in 2025 and the revision of the NAP in 2022 based on the findings of the analysis and the approved LT-LEDS.

- BaU and low carbon development scenarios: 'BaU' refers to a scenario which assumes that no mitigation policies or measures will be implemented beyond those that are already in force and/or are legislated or planned to be adopted. BaU can highlight the level of emissions that would occur without further policy effort. In much of the literature, the term is used interchangeably with 'baseline scenario'.

- Alternative low carbon development and climate resilient scenarios: Alternative low carbon development scenarios are constructed to meet different goals for GHG emissions through further policy efforts and climate mitigation actions. Different low-carbon development scenarios are developed, analyzed, and compared with the BaU scenario. These include intended sectoral, cross-sectoral mitigation policies, measures, and actions that may help to reduce emissions. Each scenario is specified with sectoral and economy-wide emission reduction targets.
2.4 Assessing Climate Impacts and Climate Adaptation Actions

Climate impacts are assessed at the sectoral level based on historical climate data and statistics on socioeconomic impacts such as loss of life, infrastructure damage, and additional financial costs. The goal is to understand vulnerability at the biophysical level and to provide an indication of potential future impacts based on climate projections. For the projections themselves, readily available and statistically downscaled regional climate models are used. Once potential impacts and the likelihood of increased vulnerability are identified, climate change adaptation measures are identified and modeled. In this way, the role of these measures in reducing the damage caused by climate impacts can be assessed, indicating improvements in climate resilience. Two types of climate change impacts are tested in LT-LEDS: (I) fundamental changes in climate trends and (II) climate-related extreme events such as floods and droughts.

Expected Outcome

- **Integrated assessment of climate impacts in low-carbon and climate resilient scenarios:** To assess the ability to reduce adverse climate impacts and enhance resilience, modelling of climate impacts and adaptation actions are carried out in both the LEDS of Ethiopia and Burkina Faso, particularly for the agriculture (improvement of crop production etc.), energy (resilience of hydropower plants etc.), and forestry (improvement of water retention etc.) sectors and resilience of infrastructure to withstand natural disasters.

2.5 Prioritize Actions

Prioritized mitigation actions are those with the highest abatement potential to reduce emissions and put countries towards a low carbon development trajectory while meeting multiple objectives at the same time. This may result from an analysis of the synergies and trade-offs between actions and across policy objectives.

Prioritization of LT-LEDS mitigation actions should be founded on transparent and analytically robust decision-making processes. Further, it should apply a broad set of criteria that reflect a country's development priorities.

Expected Outcome

- **High-priority low carbon development actions with sectoral and economy-wide targets:** The actions to follow the alternative low carbon development scenarios are prioritized and selected to reduce emissions and meet a country's development objectives. Each action contributes to the achievement of sectoral and economy-wide targets.

- **Integrated assessment of mitigation and adaptation measures:** In order to assess the co-benefits or adverse effects that each of the mitigation actions brings to the adaptation process, an additional prioritization exercise is implemented. Since the general LEDS process encompasses both emission and mitigation, emphasis is given to mitigation actions through identification of adaptation synergies and trade-offs. An integrated mitigation and adaptation strategy assessment is conducted to gauge each action in terms of their co-benefits and adverse effects. This prioritizes mitigation actions with a higher degree of adaptation co-benefits and the indirect mainstreaming of adaptation actions through mitigation actions.

- **Identification of obstacles and challenges:** In addition to identifying synergies and trade-offs of mitigation and adaptation actions, LT-LEDS seeks to identify the obstacles and challenges that may prevent the maximization of synergies within the process. Once appropriately identified, LT-LEDS pursue possible solutions and action plans that may be further implemented to avoid obstacles and enhance synergies.

2.6 Implementation

Effective policy design for LT-LEDS implementation will apply a mix of sector-specific and economy-wide mechanisms. In the implementation stage, defining the governance structure and institutional set-up is essential, as good governance of the LT-LEDS lead to transparency, effectiveness, and better performance. In addition to establishing the governance structure for implementation, the suitable financial mechanisms and funding sources for the implementation of actions will be identified.
Expected Outcome

- **Implementation and finance plan**
  The implementation and finance plan specify the institutional, financial, and human resources required to implement the prioritized low carbon development actions. It proposes how the actions should be sequenced, including their timeline and costing of implementation, along with the identification of the funding sources and financing instruments that can be utilized for the implementation of actions.

2.7 Monitor and Evaluate

A robust measurement, reporting and verification (MRV) system is both needed to achieve and enhance the transparency, accuracy, and completeness of the GHG reductions that will emerge from the actions implemented. Further, a comprehensive monitoring and evaluation (M&E) system is needed to impart accountability to the key implementing agencies, enhance stakeholder trust, facilitate adaptive management, review progress, and inform future projects and programs needed to achieve the objectives set out in LT-LEDS. This should be based on well-established governance structures linked to effective MRV systems and incorporated into ongoing capacity-building efforts. Based on the monitoring and evaluation of the implementation of the low-carbon actions, the LT-LEDS can be regularly revised and updated, incorporating any new available data or information.

Expected Outcome

- **MRV and M&E frameworks**
  An M&E framework measures whether the implementation of the strategy is a success and how the results from M&E will be used to inform ongoing and future planning and implementation processes. Monitoring determines if actions are progressing according to the plan. Evaluation determines the relevance, coherence, efficiency, effectiveness, impact, and sustainability of the implementation of actions. Another output of this stage is developing an MRV system of selected actions and GHG emissions reductions with the necessary data and information collection mechanisms, templates, and methodologies.
3. Alignment with the Paris Agreement (NDC cycles)

There is a clear need to anchor NDCs in the LT-LEDS as the LT-LEDS provide the necessary direction to inform the enhancement of NDCs. The development of the LT-LEDS reinforce actionable, achievable, and ambitious NDCs. Additionally, the LT-LEDS and NDCs are highly connected through shared analytical components (e.g., sectoral modelling and socio-economic assessment, and MRV systems). That said, LT-LEDS’ development stages can be directly applied to the NDC process, and vice versa. Such synergies are crucial to ensure a coherent framework for climate action to implementation of the Paris Agreement.

The LT-LEDS can be an important step towards developing NDC roadmaps or action plans that embed climate change into national policymaking processes and operationalize activities to reduce emissions, increase resilience, help identify projects and financing needs. In other words, the development of the LT-LEDS ultimately lead the way to a zero-carbon emissions development pathway and guides the NDCs revision cycles toward reaching the carbon neutrality target by 2050.

GGGI provides a comprehensive suite of services to address climate change and implement the Paris Agreement commitments. The long-term perspective laid out in the LT-LEDS are useful for designing the shorter-term actions of NDCs. It can help identify obstacles and barriers to implementing climate change mitigation and adaptation actions.

Steps taken to align LEDS and enhanced NDC in Ethiopia:

- **Use of the same Green Economy Model (GEM)**
  The same GEM is utilized as the basis for wide economy modelling in both LEDS and the enhanced NDC. Furthermore, this also allows the provision of guidance for the 10-year development plan.

- **Engagement of local stakeholders**
  Effort is made to guarantee that all local stakeholders involved in the NDC enhancement process are also involved within the LEDS process.

- **Utilization of NDC-proposed mitigation actions in LEDS scenarios**
  Further steps are taken to ensure that all mitigation actions, assumptions, and scenarios that were proposed in the NDC were also implemented in the LEDS scenarios.
4. Alignment with Sustainable Development Goals (SDG)

The effective implementation of climate action relies on aligning with government and community priorities for sustainable development. The explicit articulation of socio-economic co-benefits and SDG alignments is essential to ensure the required political will and public support for climate action. Furthermore, principles and equality, equity, and call for just transition is embedded in the Paris Agreement in alignment with a moral imperative to ensure that climate goals are achieved while 'leaving no one behind'. The LT-LEDS play an important role in aligning ambitious long-term climate targets with government priorities for poverty alleviation, gender equality, and overall SDG achievement. Implicit is the recognition that climate mitigation and adaptation should ensure better human development outcomes and that priority should be given to low-carbon development pathways with higher potential for socio-economic co-benefits. However, not only are men, women, and specific social groups disproportionately impacted by climate change impacts, but also by the climate actions for mitigation and adaptation themselves. Understanding the risks of adverse impacts and ways to manage such risks through an equitable approach to policymaking is essential.

The LT-LEDS development process should ensure inclusive consultation and decision-making processes and identify a set of priority SDG criteria in alignment with a country's sustainable development framework.

5. GGGI’s Services on LT-LEDS

A. What We Do

GGGI provides technical and advisory support throughout the LT-LEDS process, including support for visioning, stakeholder engagement, policy assessment, scenario analysis and modelling, policies and actions prioritization, climate financing plan, the LT-LEDS document preparation, and approval process. As an international organization committed to support green growth, GGGI conducts technical work collaboratively with in-country, sector-specific technical experts, public and private sector research institutions, and international technical experts. GGGI supports countries in developing a concise and strategic LT-LEDS document. GGGI plays a coaching and advisory role in the effective implementation of the LT-LEDS, ensuring the documents are actualized and active while securing the governmental approval process.
MRV Systems
MRV systems are an important element of the United Nations Framework Convention on Climate Change (UNFCCC) and the Paris Agreement. It helps countries to report their GHG inventories in a transparent manner, to track their national mitigation targets. MRV systems also enable countries to meet their respective reporting requirements as set up under the Paris Agreement.

Sectoral Modelling
Each GHG-emitting sector is modeled individually in LT-LEDS using sector-specific bottom-up models. The advantages of these models are that sector-specific assumptions, relationships, and targeted measures can be modeled and evaluated. Sectoral models that GGGI utilize in the development of LT-LEDS include:

- Energy – LEAP by SEI
- AFOLU – Ex-ACT / NEXT by the FAO
- IPPU – 2006 IPCC Guidelines
- Waste – GHG emissions database by IGES

Extended CBA/MAC Analysis
All proposed measures are systematically evaluated using an extended cost-benefit analysis that includes intangible benefits and costs incurred as an indirect result of reducing GHG emissions. A MAC curve analysis then allows prioritization of mitigation and adaptation measures, with priority given to measures that provide high benefits at low implementation costs.

Macroeconomic Analysis
The macroeconomic analysis is performed using the Green Economy Model (GEM). The advantage of GEM is that it allows the integration of results from the individual sectoral models, ensuring that any sector-specific information is included in the macroeconomic analysis. In this way, cross-sectoral relationships can be established and assessed, which at the same time improves the representation of market interactions and the impact of climate change mitigation and adaptation measures on national accounting systems.

Socio-economic Benefits
While the LT-LEDS focus on climate change mitigation and adaptation measures, the implementation of these measures has broader socio-economic impacts, such as the creation of green jobs, improvement of local infrastructure, safety and health, education, etc., which are also assessed in the LT-LEDS. It is also important to ensure gender equality and social inclusiveness in all mitigation and adaptation efforts.

GG Index & Simulation
The Green Growth Index is a composite index developed by GGGI to measure a country’s performance in achieving sustainability targets including Sustainable Development Goals (SDGs), Paris Climate Agreement, and Aichi Biodiversity Targets for four green growth dimensions – efficient and sustainable resource use, natural capital protection, green economic opportunities, and social inclusion.
B. GGGI’s principles on LT-LEDS

Country Ownership

GGGI works under the leadership and guidance of host country governments as part of a nationally-driven process of developing an LT-LEDS. Given the importance of building local capacity when developing and implementing LT-LEDS, as with NDCs and MRV systems, GGGI aims to engage local experts and institutions wherever possible.

Sound Analysis

GGGI provides end-to-end technical services to support countries throughout the LT-LEDS process, including policy assessment, scenario analysis, and sectoral modelling. International and sector-specific technical experts who are cooperating closely with GGGI are committed to achieving analytically sound work, based on accepted techniques and defensible assumptions, models, and scenario analysis.

Comprehensiveness

GGGI is leveraging a comprehensive network and governance structure to facilitate a multi-directional and multi-sectoral sharing of knowledge. More specifically, GGGI’s approach includes an integration of NDCs and the LT-LEDS into national planning processes, which address emissions reduction and other development objectives. In addition, GGGI provides support in all stages of the LT-LEDS process—from the scoping and institutional set-up to the development of the final document and its approval by the government, as well as providing follow up guidance for its implementation. GGGI engages in the whole process from a holistic and comprehensive perspective.

Actionability

LT-LEDS become actionable when it is readily adopted and implemented. GGGI identifies specific projects for support and potential funding sources, with key beneficiaries identified. A framework for investment is also provided and access to international financing is promoted through GGGI’s comprehensive networks and partnerships, along with the establishment of a monitoring and evaluation system.

Forward looking and long-term perspective

LT-LEDS should incorporate costs and benefits of technology options and avoid undesirable technology infrastructure lock-in for the decades to come. GGGI grasps these country-specific conditions and offers long-term transformational change primarily through GGGI’s in-country operations.
C. GGGI’s Engagement with Partner Countries

GGGI’s strong relationships with partner governments and in-country staff provide local economic, social, and environmental insights and create a long-term platform for stakeholder engagement, capacity building, and successful project implementation. In many of our in-country operations, GGGI works with National Designated Authorities (NDAs) and Direct Access Entities.

To demonstrate our work, Ethiopia’s Climate-Resilient Green Economy (CRGE) was developed and launched in 2011 in Durban, South Africa with the support of GGGI. Additionally, GGGI supported the development of Fiji’s LT-LEDS (Box 1), which was approved by the Government in November 2018 and launched on December 13 at COP24 in Katowice, Poland. Currently, GGGI is supporting the Governments of Ethiopia, Burkina Faso, Vanuatu and Solomon Island to develop their LT-LEDS, while the LT-LEDS for Hungary, Tonga and Cambodia have been approved and submitted.
Box 1 The Development of Fiji LT-LEDs

Under the leadership of Fiji’s Ministry of Economy, which coordinates engagement across government ministries and agencies, GGGI helped develop the LT-LEDs with extensive support from the University of the South Pacific and selected local and international experts, as well as contributions from the Stockholm Environment Institute and Germany’s Gesellschaft für Internationale Zusammenarbeit (GIZ).

Fiji’s LT-LEDs included a comprehensive process for conducting stakeholder visioning and consultation, preparing economy-wide low emission scenarios, and identifying priority policies and mitigation actions while planning for continued 4% annual economic growth to the year 2050. The LT-LEDs consider every sector of the Fijian economy, from fishing and food production to transport and education, to reduce emissions while promoting inclusive green growth.

The LT-LEDs describe four types of long-term emissions scenarios which were elaborated for each sector, including: (1) a BaU Unconditional Scenario, based on existing policy; (2) a BaU Conditional Scenario, which would benefit from external financing; (3) a High Ambition Scenario which envisions new, more ambitious policies, technologies, and financing; and (4) a Very High Ambition Scenario, which considers significantly more ambitious policies, technologies, and financing.

Based on the extensive stakeholder consultation, analysis, and modelling for each sector, the LT-LEDs show that under the Very High Ambition Scenario Fiji can achieve net zero emissions (Figure 1). After that, emissions would increasingly be net negative, with Fiji’s forests and mangroves then actively removing atmospheric carbon. The most significant mitigation of emissions would result from the complete transformation of Fiji’s energy sector to one based on the broad expansion of renewable energy and adoption of clean energy for commercial, industrial, and household use, as well as the conversion of most of Fiji’s land transport systems to electric vehicles.

Figure 1. Total Net Emission for Fiji under the four LT-LEDs scenarios (all values in metric tons CO₂-e).
### Annex. Applicable tools and methods by development process of LT-LEDS

<table>
<thead>
<tr>
<th>Organize LT-LEDS process</th>
<th>MRV System</th>
<th>Sectoral Modelling</th>
<th>CBA/MAC Analysis</th>
<th>Macroeconomic Analysis</th>
<th>Socio-economic Benefits</th>
<th>GG Index &amp; Simulation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Develop work plan</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Establish institutional arrangements</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Establish stakeholder engagement</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Assess current situation</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Collect data &amp; documents</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Assess current strategies &amp; practices including GHG inventory</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Identify development priorities</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Analyze scenarios</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Identify models &amp; tools</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Establish baseline and develop BAU scenario</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Develop low-emission development pathways and assess scenarios</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Prioritize actions</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Select sectoral assessment criteria and reflect development priorities</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Assess sectoral actions</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Analyze the synergies and trade-offs between actions</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Implement</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Define the governance structure and institutional set-up</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Identify financial mechanisms and funding sources</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Develop implementation and financial plan</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Monitor &amp; evaluate</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Structure for M&amp;E framework</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Incorporate ongoing capacity building efforts with future planning</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Revise and update the LT-LEDS</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>