For Disclosure

STRATEGIC ENVIRONMENTAL AND SOCIAL ASSESSMENT

Promoting Green Transformation in the Pacific Region towards Net-zero and Climate-resilient Development

Climate Action Pathways for Island Transport (CAP-IT)

Project ID	01000418
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Public Consultation/Disclosure Notice

Date - December 2024

The United Nations Development Programme (UNDP) launched today a public consultation on the attached Strategic Environmental and Social Assessment - Promoting Green Transformation in the Pacific Region towards Net-zero and Climate-resilient Development - Climate Action Pathways for Island Transport (CAP-IT).

Comments to this consultation can be sent to the following address:

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Deadline for submission of comments - **December 2024**

ACRONYMS

CAP-IT	Climate Action Pathways for Island Transport
UNCBD	United Nations Convention on Biological Diversity
DIM	Direct Implementation Modality
EIA	Environmental Impact Assessment
EMP	Environmental Management Plan
ESIA	Environmental and Social Impact Assessment
ESMF	Environmental and Social Management Framework
ESMP	Environmental and Social Management Plan
GHG	Global Greenhouse Gas
GRM	Grievance Redress Mechanism
IC	International Consultant
ILO	International Labour Organization
IMO	International Maritime Organization
IP	Implementing Partner
IPPF	Indigenous Peoples Planning Framework
LMP	Labour Management Plan
MEAs	Multilateral Environmental Agreements
NBSAP	National Biodiversity Strategy and Action Plan
NDC	Nationally Determined Contributions
NGO	Non-Governmental Organization
PUMA	Planning and Urban Management Agency
RTAS	Road Transport Administration System
SES	Social and Environmental Standards
SESA	Strategic Environmental and Social Assessment
SESP	Social and Environmental Screening Procedure
SIDS	Small Island Developing States
SNTS	Samoa National Transport Strategy
UNDP MCO	United Nations Development Programme Multi Country Office
UNDP	United Nations Development Programme
UNFCCC	United Nations Framework Convention on Climate Change

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EXECUTIVE SUMMARY

The Strategic Environmental and Social Assessment (SESA) for the CAP-IT project provides an evaluation of the environmental and social impacts, risks, and opportunities associated with transitioning Samoa's transport sector to low-carbon technologies, including electric vehicles (EVs) and low-carbon maritime solutions. The assessment aligns with Samoa's commitment to its Nationally Determined Contributions (NDCs), the Paris Agreement, and the Sustainable Development Goals (SDGs), while addressing key national priorities for sustainable development and climate resilience.

The assessment identifies significant environmental benefits from the project, including substantial reductions in greenhouse gas (GHG) emissions, improved air quality, and enhanced biodiversity conservation. The adoption of low-emission technologies will reduce the dependency on fossil fuels, leading to improved energy security and resilience against global energy price fluctuations. However, the project also highlights potential environmental challenges, such as managing electronic waste from EV batteries and infrastructure, habitat disruption during construction, and increased energy demand from non-renewable sources if renewable integration is insufficient. Mitigation measures, including robust waste management systems, ecosystem-based planning, and prioritization of renewable energy, are essential to ensuring the project's sustainability.

On the social front, the CAP-IT project presents opportunities to address equity and inclusivity in Samoa's transport sector. Improved accessibility for marginalized groups, including women, persons with disabilities, and rural communities, is a core objective, alongside significant public health benefits from reduced air pollution. The transition to green technologies is expected to generate economic opportunities through job creation in EV maintenance, renewable energy, and sustainable transport solutions. However, achieving these benefits requires targeted efforts to empower women and youth, continuous stakeholder engagement, and inclusive decision-making processes. The SESA emphasizes the need for culturally appropriate consultations, accessible information disclosures, and grievance mechanisms to ensure meaningful participation from all stakeholders.

Policy and institutional gaps emerge as critical areas for intervention. Existing legal frameworks lack comprehensive emissions standards, electronic waste regulations, and guidelines for renewable energy integration. Strengthening these frameworks and enhancing inter-agency coordination are essential to providing the regulatory foundation for the project. Furthermore, the need for active monitoring and evaluation systems to track the implementation of environmental and social safeguards throughout the project lifecycle is a key recommendation.

The SESA also underscores the importance of climate-resilient transport infrastructure. Samoa's vulnerability to extreme weather events, such as cyclones and heavy rainfall, necessitates designs and materials that can withstand climate impacts while ensuring the long-term functionality of roads, EV charging stations, and maritime facilities. Integration of resilience-building measures will protect investments and safeguard communities from climate-related disruptions.

The analysis of alternatives within the SESA further supports the CAP-IT project by highlighting the risks of the "without" scenario. Without intervention, Samoa would face continued environmental degradation, growing fossil fuel dependency, missed economic opportunities, and limited progress toward sustainability goals. The project's implementation addresses these risks while contributing to Samoa's broader development objectives.

The CAP-IT project presents a transformative opportunity for Samoa to transition to a low-carbon, inclusive, and resilient transport system. The SESA provides a roadmap for balancing environmental and social considerations, addressing policy and implementation gaps, and ensuring that the project delivers equitable and sustainable benefits for all. Through strategic planning, vigorous safeguards, and meaningful stakeholder engagement, the CAP-IT project has the potential to set a benchmark for sustainable development in the Pacific region.

CHAPTER 1: BACKGROUND

1.1 Introduction

The CAP-IT project is a proposed strategic initiative aimed at transforming Samoa's transportation sector into a sustainable, low-carbon system by integrating renewable energy solutions, particularly electric vehicles (EVs) and low-carbon maritime transport. The project addresses both environmental and social challenges by reducing the country's carbon emissions from the transport sector, a significant contributor to Samoa's overall emissions, while enhancing connectivity and improving public transport infrastructure.

1.2 Environmental and Social Context

Samoa's environment is highly vulnerable to climate change impacts, such as rising sea levels, more frequent storms, and changing precipitation patterns, all of which pose risks to infrastructure and local livelihoods. The project's implementation is crucial for reducing the country's reliance on imported fossil fuels, thus enhancing energy security and resilience against global fuel price fluctuations. Socially, Samoa's population, which largely depends on public and shared transport systems, stands to benefit from cleaner and more efficient transportation options, improving public health by reducing air pollution and increasing access to essential services.

1.3 Geographic Area of Influence

The geographic scope of the CAP-IT project extends across both urban and rural areas of Samoa, with significant focus on the capital, Apia, where urban transportation challenges are most pronounced. Rural regions, especially coastal areas that rely heavily on maritime transport, will also benefit from improvements to low-carbon water transport systems. The area of influence includes transportation networks, such as road and maritime routes, as well as adjacent communities and ecosystems that may be impacted by construction activities or infrastructure upgrades.

The project also considers the socioeconomic and cultural context of Samoa, ensuring that all infrastructure improvements align with local needs, particularly for vulnerable communities, and that environmental impacts are minimized.

1.4 Purpose of the Strategic Environmental and Social Assessment (SESA)

The SESA for the CAP-IT project is necessary for a number of reasons, reflecting its objectives and the overarching needs it addresses -

1.4.1 Objectives of the SESA

- Integrated Assessment - The SESA aims to integrate environmental and social considerations into the project planning and decision-making processes from the outset. This ensures that potential impacts are identified and addressed early, facilitating a more sustainable and responsible approach to project implementation.
- Compliance with Standards - Another objective is to ensure compliance with both national and international environmental and social standards, including those set by the UNDP. Adhering to these standards not only helps in avoiding legal and regulatory risks but also enhances the project's legitimacy and acceptability among stakeholders.
- Stakeholder Engagement - The SESA provides a structured framework for engaging with stakeholders, including local communities, government bodies, NGOs, and others affected by the project. This engagement is crucial for gaining insights into local concerns, expectations, and suggestions, thereby fostering a sense of ownership and partnership among all parties involved.
- Risk Management - Identifying and evaluating potential risks early in the project lifecycle enables the project team to develop effective strategies to mitigate these risks, reducing potential delays and costs associated with addressing issues after they have emerged.
- Enhancement of Benefits - Beyond mitigating negative impacts, the SESA aims to identify and enhance the positive impacts of the CAP-IT project, maximizing benefits for local communities and the broader society.

1.4.2 Need for the Assessment

- Sensitivity of the Project Area - Given the project's location in Samoa, where environmental sustainability and social well-being are particularly crucial, the SESA is needed to carefully consider the unique ecological and cultural settings of the area.
- Planning - The CAP-IT project involves significant interventions in transport and infrastructure, which are likely to have extensive environmental and social implications. The SESA is essential to plan these interventions in a manner that is both environmentally sustainable and socially beneficial.
- Long-term Sustainability - Assessing the project's environmental and social impacts early helps in ensuring its long-term sustainability. This not only aligns with global sustainability goals but also secures the project against future environmental degradation and social discontent.
- Legal and Financial Implications - The assessment helps in avoiding potential legal challenges and financial liabilities that might arise from non-compliance with environmental and social standards. It also aids in securing funding, as many donors require a thorough environmental and social assessment before committing resources.

1.4.3 Project Activities

- Activity 1.1 - Review and update Samoa's legislative and policy framework in support of a national transition to low-carbon land and maritime transport.
- Activity 1.3 - Develop a gender responsive Decarbonization Strategy in support of the Sector Plan for Land and Maritime Transport, to include sub-sector specific NDC emission target reductions and abatement measures, including a monitoring framework.
- Activity 2.2 - Enhance land transport monitoring, including the procurement of emissions testing equipment and optimization of the Road Transport Administration System (RTAS) to improve fuel efficiency and optimize emission reduction potential.
- Activity 2.4 - Develop a gender-sensitive Sustainable Land Use and Mobility Plan, to promote green, inclusive, and accessible infrastructure and mobility.
- Activity 3.1 - Optimize the national registration system for vessels, including private fishing and transport boats for improved emissions tracking and control, and fuel efficiency.
- Activity 3.3 - Assess and pilot low-carbon propulsion systems of Samoa's fishing fleet through a gender sensitive grant mechanism for local fisherfolk and training scheme on installation, operations and maintenance

1.5 Scope of the Assessment

1.5.1 Geographical Scope

The proposed project will be located in 14 sites around Samoa. All sites will be located in Apia apart from 1 which will be located in Savaii Island. All charging stations in the proposed project will be located on government owned land (see attached land certificate/titles in annex 1). Details of the proposed project are summarized in table 2 below. Figure 1 below show the geographic locations of the proposed EV charging station in Samoa.

Table 1: GPS location of the proposed EV charging stations in Samoa

EV CHARGING STATION LOCATION	LATITUDE	LONGITUDE	INST. TYPE	AC/DC CHARGER	PHASES	MOUNTING TYPE	LAND CERTIFICATE (LOT/PLAN)
Tuanaimato Bowser Central Charging Station terminal	-13.84123	-171.81165	Ministry	DC + AC	3-phase	Ground	1767/4318 (*see annex 1a*)
Accident Compensation Corporation (ACC) Building	-13.83074	-171.76983	SOA	AC	3-phase	Wall	512/4980 (*see annex 1b*)
National University of Samoa (NUS) Lepapaigalagala Campus, Toomatagi	-13.8508	-171.75059	SOA	AC	3-phase	Pedestal	2742/5818 (*see annex 1c*)
Land transport Authority (LTA) Vaitele	-13.82742	-171.80453	SOA	AC	3-phase	Wall	7/10318 (*see annex 1d*)
Faleolo Airport (West Powerhouse)	-13.83288	-171.99891	SOA	AC	3-phase	Wall	228/5041 (*see annex 1e*)
Faleolo Airport (East Powerhouse)	-13.83299	-171.99591	Public	DC	3-phase	Ground	
Samoa Port Authority (SPA) Matautu	-13.82576	-171.75865	SOA	AC	3-phase	Wall	1069/7704 (*see annex 1f*)
Samoa Shipping Corporation (SSC) Matautu Office	-13.83025	-171.75934	SOA	AC	3-phase	Wall	657/3464 (*see annex 1g*)
Scientific Research Organization of Samoa (SROS) Campus - Papauta	-13.85652	-171.76307	SOA	AC	3-phase	Wall	1/11977 (*see annex 1h*)
Samoa Housing Corporation (SHC)	-13.83176	-171.76826	SOA	AC	3-phase	Pedestal	XXXX/XXX (*see annex 1i*)
Fagalii Airport	-13.84778	-171.74233	Public	DC	3-phase	Ground	1/12242 (*see annex 1j*)
Mulifanua Ferry terminal solar charging station (with batteries)	-13.83005	-172.03538	Public - Solar powered with storage	DC	3-phase	Ground	1326/7569 (*see annex 1k*)
Salelologa Wharf - Savai'i East	-13.74433	-172.21763	Public	AC	3-phase	Wall	863/7570 (*see annex 1l*)

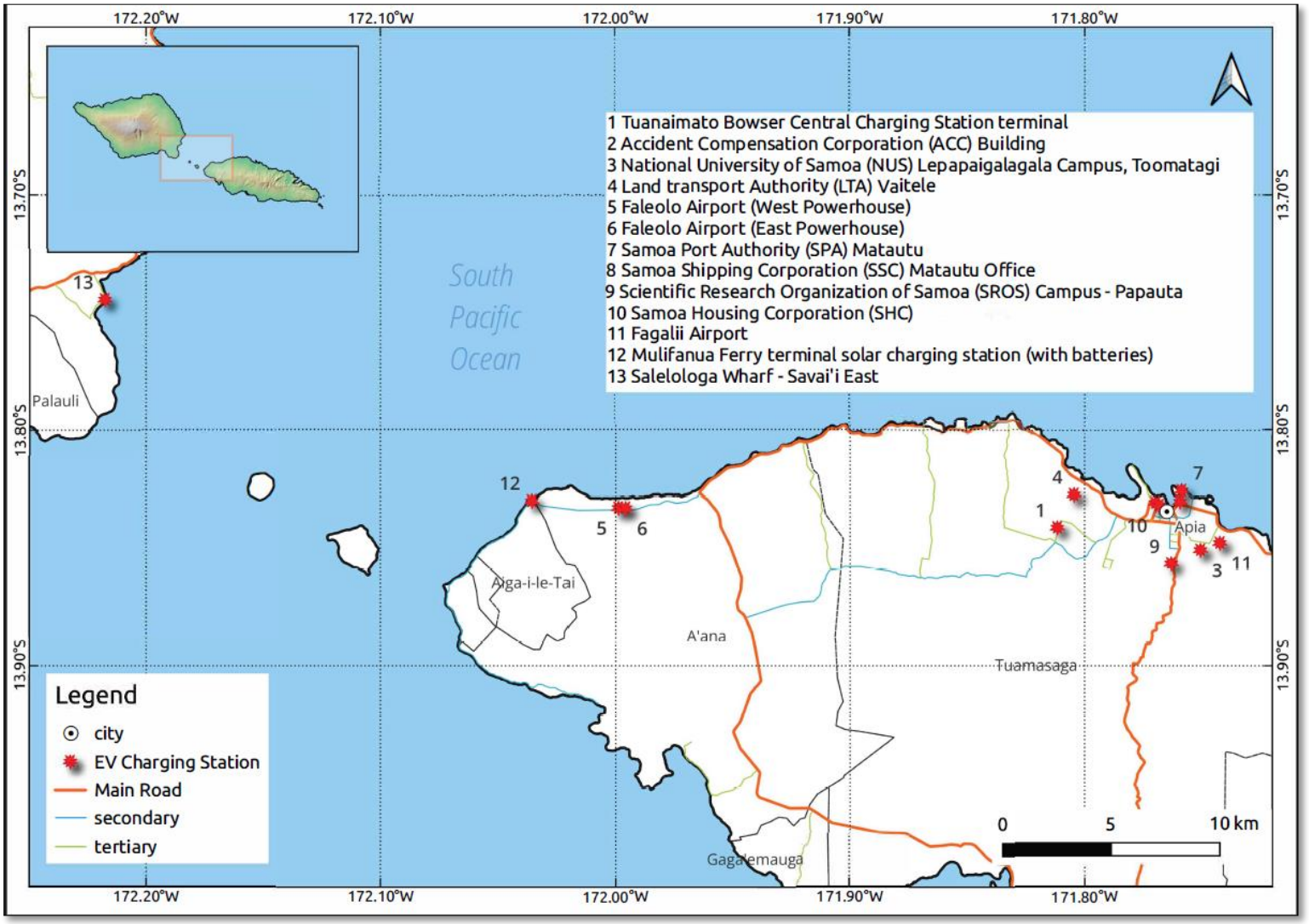


Figure 1: Map of the proposed EV charging station in Samoa under the proposed CAP-IT project

1.5.2 Temporal Scope

- Project Phases - The temporal scope covers the duration over which the SESA will monitor and assess the environmental and social impacts. This includes:
    - Pre-construction - Assessing baseline conditions and planning mitigation measures.
    - Construction - Monitoring immediate impacts during physical construction or implementation phases.
    - Operation - Long-term impacts during the operational phase of the project components.
    - Decommissioning - If applicable, impacts associated with winding down or closing project facilities.
- Long-term Monitoring - Beyond immediate project phases, considering any lasting impacts or legacies that could arise after the project has been completed.

1.5.3Thematic Scope

- Environmental Themes - This includes a range of environmental impacts such as biodiversity, water and air quality, soil integrity, and climate change implications. Each theme is assessed for direct, indirect and cumulative impacts[1] resulting from the project.
- Social Themes - Encompasses social impacts related to the project, including changes in community health, safety for workers and community, social cohesion, access to services, displacement of populations, impacts on cultural heritage, and economic impacts. It also involves assessing the project's effects on various demographics, particularly vulnerable or marginalized groups.
- Cross-cutting Themes - These might include issues like gender, public participation in decision-making, and the integration of traditional knowledge into project planning and implementation.

[1] Direct impacts are immediate and observable effects that occur as a direct result of a specific action, activity, or event. These impacts are often localized and occur during the implementation of a project or activity. Indirect impacts are secondary effects that are not immediately caused by the activity itself but occur as a result of interactions between the primary action and the surrounding environment or systems. Cumulative impacts are the combined effects of multiple activities or actions over time, which may not be significant individually but become critical when aggregated.

CHAPTER 2: LEGAL AND POLICY FRAMEWORK

2.1 Overview

The adequacy of Samoa's national legal and institutional framework for the CAP-IT proposed policy, programme, or plan (PPP) can be assessed by considering several key elements in relation to UNDP's social and environmental standards, international conventions, and best practices.

2.1.1 Policy and Legal Framework

Samoa has established legal frameworks covering areas such as environmental protection, water resources management, urban planning, disaster risk management, and climate change. These frameworks include the Planning and Urban Management Act (2004), the Water Resources Management Act (2008), the Disaster and Emergency Management Act (2007), and the Climate Change Act. More detailed overview is provided in the CAP IT ESMF and SEP documents. These laws provide a foundation for environmental governance and sustainable development in the country.

However, gaps remain in sector-specific policies, particularly in the transport sector, which the CAP-IT project will significantly impact. While overarching laws exist, the absence of targeted policies addressing emissions standards, renewable energy integration into transport, and waste management for green technologies, such as electric vehicle batteries, suggests the need for new or revised regulations.

2.1.2 Institutional Capacity

Samoa's institutions, including the Ministry of Works, Transport & Infrastructure (MWTI), Ministry of Natural Resources and Environment (MNRE), Ministry of Women, Community and Social Development (MWCSD), Land Transport Authority (LTA), Samoa Water Authority (SWA), Scientific Research Organization of Samoa (SROS) and others, are mandated to enforce laws and manage resources. These institutions generally have a mandate to protect the environment and involve stakeholders, but capacity constraints in enforcement and monitoring are a concern.

The weak enforcement of existing regulations and the limited resources available for monitoring environmental impacts present challenges for the effective implementation of the CAP-IT project. For example, air and water quality monitoring, waste management, and biodiversity protection may not be sufficiently enforced due to limited technical and financial resources.

2.1.3 Stakeholder Engagement and Inclusivity

Samoa's laws support stakeholder engagement, particularly through the Planning and Urban Management Act (2004), which requires public consultations for urban planning and development projects. The Environmental Management Act (1993, revised in 2005) mandates that public consultations be integrated into Environmental Impact Assessments (EIAs). These mechanisms aim to ensure that local communities are involved in decision-making processes.

While existing laws provide for stakeholder engagement, the adequacy of this framework can be enhanced to ensure that consultations are continuous and inclusive, particularly for marginalized groups such as women, rural communities, and persons with disabilities. Current policies lack gender-specific strategies or targeted inclusion mechanisms to ensure vulnerable populations benefit from transport projects and green technologies.

2.1.4 Compliance with International Standards

Samoa has ratified key international conventions such as the Paris Agreement on climate change, which aligns with the goals of the CAP-IT project. However, the alignment of Samoa's national policies with international standards, such as the UNDP SES (Social and Environmental Standards), shows some discrepancies. For example, biodiversity conservation, climate resilience, and social equity are areas where national laws need to be strengthened to meet international obligations.

2.1.5 Monitoring and Evaluation Mechanisms

National laws in Samoa provide some level of environmental monitoring, but there are notable gaps in ensuring ongoing compliance with environmental and social safeguards. The monitoring frameworks associated with existing policies do not fully align with international best practices. The lack of real-time monitoring systems and limited data collection capabilities are key challenges that need to be addressed to meet the continuous monitoring requirements of the CAP-IT project.

2.2 Applicable Policy Framework, National Laws, and Regulations for CAP-IT Project in Samoa

Samoa has a robust legal and institutional framework that addresses key environmental and social issues relevant to the proposed CAP-IT project implementation. Below is an analysis of Samoa's policy frameworks, national laws, and regulations, including their alignment with international obligations and the UNDP's Social and Environmental Standards (SES):

2.2.1 National Policy Framework

- Planning and Urban Management Act (2004) - This legislation governs urban planning and requires consideration of environmental and social impacts during the design and implementation of infrastructure

projects. It also promotes public participation, making it a relevant framework for the CAP-IT project, especially in planning urban transport and land use.

- Climate Change Policy 2020 - Samoa's climate change policy addresses the impacts of climate change on various sectors, including transport. It aligns with the CAP-IT project's goals of building climate-resilient infrastructure. The policy emphasizes the need to integrate climate adaptation into transport systems, which is essential for the success of the project in Samoa's coastal and rural areas.
- Samoa Energy Sector Plan 2023/24 to 2027/28 - The plan outlines a detailed strategy to strengthen the country's energy resilience and sustainability. Centered on the vision of delivering "Affordable, Reliable, Safe, and Cleaner Energy Supply for All," the plan emphasizes a transition towards sustainable energy sources. Its key objectives include boosting investments in renewable energy, improving the efficiency of non-renewable energy use, and ensuring strong governance across the energy sector.

2.2.2 National Laws and Regulations

- Planning and Urban Management Act 2004 - This act provides for the establishment of planning schemes that require public participation in the development and approval stages to ensure community interests and concerns are considered.
- Land and Titles Act 2020 - This law involves traditional and community leaders in decisions regarding land use, which is critical in Samoa where land is predominantly communally owned.
- Environment Management Act 1993 (revised in 2005) - This act mandates the requirement for Environmental Impact Assessments (EIAs) for development projects, which must include public consultation to inform and gather feedback from potentially affected communities.
- Energy Act 2020 - Under this act, any new energy projects, especially those involving significant infrastructure, require consultations with affected stakeholders to mitigate impacts and optimize benefits.
- Water Resources Management Act 2008 - This act emphasizes the importance of involving communities and stakeholders in water management planning processes to ensure sustainable use and protection of water resources.
- Disaster and Emergency Management Act 2007 - This legislation requires community involvement in disaster preparedness and response planning, ensuring that all relevant stakeholders are engaged in creating strategies that address local needs and vulnerabilities.
- Climate Change Act - the legislation mandates stakeholder involvement in the formulation and implementation of climate change mitigation and adaptation strategies. This includes ensuring that community voices are heard in the context of environmental sustainability projects.

- Public Finance Management Act - This act requires transparency and public accountability in the management of public resources, which indirectly supports stakeholder engagement by mandating openness in governmental projects and financial undertakings.
- Community Development Sector Plan 2021 to 2026 - This plan focuses on empowering local communities through engagement and participation in developmental projects that affect their socio-economic conditions.
- Waste Management Act 2010 - Requires stakeholder involvement in the development and implementation of waste management strategies, ensuring that these strategies are effectively communicated to and supported by the public.
- Ministry of Women Affairs Act 1990 - This act emphasizes the inclusion of women in decision-making processes and projects that affect their communities. It ensures that gender perspectives are considered in development initiatives and that women have a platform for engagement in national development strategies.
- Codes of Environmental Practice 2007 - These codes provide specific guidelines for environmental management in Samoa. They ensure that any project, especially under CAP-IT, adheres to best practices in minimizing environmental impacts. Stakeholder engagement is crucial in the planning and monitoring phases to ensure compliance and address community concerns regarding environmental protection.
- Labor and Employment Relations Act 2013 - This law mandates fair labor practices and includes provisions for stakeholder engagement in ensuring that workers' rights are respected in all projects. It requires that workers and unions are consulted in the development of employment terms, ensuring equitable treatment and compliance with labor standards.
- Occupational Safety and Health Act 2002 - This act requires that all workplace safety protocols are developed in consultation with workers and stakeholders. It ensures that employers engage employees in identifying potential hazards and developing strategies to promote safety in the workplace.
- Occupational Safety and Health Regulation 2017 - These regulations further detail the responsibilities of employers to involve employees in maintaining a safe working environment. They mandate ongoing consultation with workers on safety issues, ensuring that all parties are involved in promoting health and safety standards across projects, including those under CAP-IT.

2.2.3 Institutional Framework

Samoa has several key institutions that are responsible for implementing and enforcing environmental and social policies relevant to the CAP-IT project:

- Ministry of Natural Resources and Environment (MNRE) - MNRE plays a key role in the enforcement of environmental laws, including overseeing EIAs, natural resource management, and biodiversity conservation.
- Ministry of Women, Community and Social Development (MWCSD) - Responsible for ensuring social inclusion in development projects, particularly in involving marginalized groups such as women, rural communities, and persons with disabilities.
- The Energy Policy Coordination and Management Division (EPCMD) of MWTI - The EPCMD is responsible for coordinating and managing energy policies across Samoa's transport and infrastructure sectors. This division plays a key role in formulating and implementing policies that support the country's energy transition, particularly in aligning transport infrastructure with national energy goals and ensuring energy-efficient solutions in the sector. EPCMD also collaborates with other government entities and stakeholders to ensure that energy-related projects are in line with the country's overall energy strategy
- The Renewable Energy Division (RED) of MNRE - The RED focuses on the development and promotion of renewable energy resources in Samoa. It is responsible for advancing the country's shift towards sustainable energy by overseeing the implementation of renewable energy projects, such as solar, wind, and hydroelectric initiatives. The division also conducts research and policy development aimed at increasing the use of renewable energy, reducing reliance on fossil fuels, and contributing to Samoa's climate change mitigation efforts.
- Electric Power Corporation (EPC) - The Electric Power Corporation is responsible for generating, transmitting, distributing, and managing electricity supply across Samoa. It plays a key role in ensuring a reliable and affordable energy supply, while also spearheading the transition to renewable energy sources. EPC is involved in managing the national electricity grid and integrating renewable energy solutions, such as solar and wind power, into the system. The corporation also oversees projects aimed at increasing energy efficiency and reducing dependency on fossil fuels
- Land Transport Authority (LTA) - The Land Transport Authority is tasked with overseeing and managing Samoa's land transport infrastructure. This includes the development, maintenance, and regulation of roads, traffic management, and vehicle registration. The LTA also plays a key role in promoting sustainable transport solutions, such as encouraging the use of low-emission vehicles and improving public transportation. Additionally, it enforces transport-related laws and ensures road safety through policies and initiatives aimed at modernizing and decarbonizing the transport sector

2.2.4 International Obligations under Treaties and Agreements

Samoa is a signatory to several international conventions and treaties relevant to the CAP-IT project:

- Paris Agreement (2015) - Samoa's commitment to reducing its greenhouse gas emissions aligns with the CAP-IT project's focus on developing low-carbon transport solutions.

- Convention on Biological Diversity (CBD) - This international agreement requires Samoa to protect biodiversity, which is important for mitigating the ecological impacts of the CAP-IT project.
- United Nations Framework Convention on Climate Change (UNFCCC) - Samoa's obligations under the UNFCCC involve implementing measures to adapt to climate change, which is critical for ensuring the resilience of transport infrastructure developed under the CAP-IT project.
- ILO Conventions on Labor Standards - Samoa's adherence to international labor standards ensures that the rights of workers, including those engaged in green jobs created through the CAP-IT project, are protected.

2.3 Gaps and Compliance with UNDP SES and International Best Practices

While Samoa's national legal and institutional frameworks provide a strong foundation for environmental and social governance, several gaps remain in relation to the CAP-IT project, especially when compared to UNDP's Social and Environmental Standards (SES):

- Sector-Specific Policies - While there are general environmental and social policies, sector-specific policies for transport emissions standards and EV battery waste management are lacking. CAP-IT would benefit from the development of targeted regulations for managing green technologies.
- Monitoring and Enforcement - The enforcement of environmental laws and monitoring of social impacts is often under-resourced. Strengthening institutional capacity for monitoring the environmental impacts of transport infrastructure and emissions is necessary.
- Stakeholder Engagement - Samoa's legal framework mandates public consultation, but there are gaps in ensuring continuous engagement, particularly with marginalized communities. There is a need for improved mechanisms for ongoing stakeholder consultation throughout the lifecycle of the CAP-IT project.

CHAPTER 3: PROJECT DESCRIPTION

3.1 Introduction

Confronted by the escalating effects of climate change and the socioeconomic hurdles arising from the COVID-19 pandemic, Small Island Developing States (SIDS) in the Pacific are proactively initiating their transition to greener, more resilient economies. Utilizing their Nationally Determined Contributions (NDCs), which detail priorities and targets for clean energy and climate resilience, these nations are leveraging UNDP's Climate Promise. This initiative represents the largest global support platform for developing countries aimed at crafting and executing national climate commitments. The Climate Promise framework underpins actions and investments across four nations—Papua New Guinea, Samoa, Timor-Leste, and Vanuatu—tailored to specific national needs to foster a sustainable, gender-inclusive, and climate-resilient future.

3.2 Samoa's Climate Initiatives

Despite its minimal contribution to global greenhouse gas (GHG) emissions, Samoa recognizes climate change mitigation as a vital governmental focus, driven by increasing frequency and severity of extreme weather events. The transport sector, reliant entirely on fossil fuels, is the largest emitter, contributing 27.4% of national GHG emissions. Since 2013, a 69.5% rise in vehicle ownership has escalated fuel import demands, underscoring the urgency of transitioning to a greener transport system as a key component of Samoa's enhanced NDCs. This sector, responsible for 59% of the energy sector's emissions, necessitates a swift shift toward zero-emission vehicles both on land and at sea to meet Paris Agreement objectives.

This project proposes a transformative shift towards a low-carbon transport system, enhancing Samoa's infrastructure, governance, and technical capacities to accelerate decarbonization. The approach is tri-fold:

1. Creating an enabling environment through strengthened and gender-sensitive institutional governance, financial, legal and technical capacities for accelerating the decarbonization of both land and maritime transport systems.
2. Accelerating inclusive decarbonization of the land transport sector with a focus on adoption and imports of electric vehicles and accessible electrification service networks targeting public transport and public service delivery vehicles; and
3. Introducing and piloting low-carbon outboard motors for Samoa's fishing fleet through a gender sensitive grant mechanism for local fisherfolk and training scheme on installation, operation, and maintenance.

This strategy ensures inclusive participation across all transport modalities, emphasizing support for marginalized groups, including women, the elderly, youth, children, and persons with disabilities. It aims to

integrate diverse perspectives throughout the project's planning and execution phases, reflecting a commitment to inclusivity.

3.3 Implementation and Collaboration

Supported by funding from the Government of Japan and implemented by UNDP under its Direct Implementation Modality (DIM), this 24-month project, spanning from June 2023 to February 2025, will engage a broad spectrum of stakeholders. This includes government bodies, non-government organizations, and civil society, particularly focusing on groups often overlooked in policymaking. By fostering strong partnerships and leveraging existing institutional frameworks, such as the National Energy Coordination Committee, the project aims to build local capacities, ensuring Samoa's successful transition to a zero-carbon future.

3.4 Project Description

Samoa continues to be a leader in climate action, committed to accelerating and enhancing the implementation of its Nationally Determined Contributions (NDC) to global climate change mitigation efforts. The focus is on green transformation and zero-emission pathways. In July 2021, Samoa launched its Enhanced NDC with the ambitious goal of reducing greenhouse gas (GHG) emissions by 26% by 2030 compared to 2007 levels. This initiative is part of the UNDP's Climate Promise, which aims to expedite actions toward emissions reduction and increase the resilience of Small Island Developing States (SIDS) to climate change.

The project is aligned with Pillar 1 - Clean Energy and Just Transition towards Net-Zero Pathways. It aims to accelerate the achievement of Samoa's Enhanced NDC by supporting the decarbonization of the land and maritime transport sectors, moving towards zero-emission islands. The overall objective is to promote urgent and inclusive transformation of these sectors by accelerating the adoption of electric vehicles and low-carbon outboard motors. This will support the attainment of Samoa's enhanced NDCs for the energy and transport sectors by 2030.

The project follows a three-fold approach with specific objectives:

a. Creating an Enabling Environment - Strengthening and gender-sensitive institutional governance, financial, legal, and technical capacities to accelerate the decarbonization of both land and maritime transport systems.
b. Accelerating Decarbonization of Land Transport - Focusing on the adoption and importation of electric vehicles and establishing accessible electrification service networks, particularly targeting public transport and public service delivery vehicles.
c. Introducing Low-Carbon Outboard Motors - Piloting low-carbon outboard motors for Samoa's fishing

fleet through a gender-sensitive grant mechanism for local fisherfolk, accompanied by training on installation, operation, and maintenance.

This strategy adopts a gender-sensitive approach, based on the principles of leaving no one behind, to achieve green and zero-emission transformational change in the transport sector. Guided by the Samoa NDC Implementation Roadmap and Investment Plan (2021), the strategy identifies key enablers for accelerated nation-wide decarbonization of both land and maritime transport sectors. It ensures equal participation, access, and safety for all, with a special focus on marginalized groups such as women, the elderly, youth, children, and persons with disabilities (PWDs). The women and other marginalized groups, often overlooked in planning and implementation, will have a platform to ensure their perspectives are considered throughout the project design and implementation.

The strategy is based on the core theory of change that;

- IF zero-emission economic development in the transport sector is enhanced through strengthened, integrated, and gender-sensitive institutional governance, financial, and technical capacity;
- IF there is accelerated decarbonization of the land transport sector focusing on inclusive, accessible, and greener public transport systems;
- IF there is accelerated decarbonization of the maritime sector to optimize energy efficiency, especially for fishing vessels,

THEN, an enabling environment will be created for inclusive and accessible transformational change towards a green and low-carbon transport sector,

THUS, accelerating the achievement of Samoa's enhanced NDC mitigation targets to reduce GHG emissions in the energy sector by 30% and overall GHG emissions by 26% by 2030 compared to 2007 levels, while meeting its sustainable development goals through inclusive and climate-responsive transport systems.

Pillar 1 Global Outputs

1.1. Driving investment in clean energy.

1.2. Support to Ministries of Energy, Finance, Environment and Planning to address key energy-related decisions.

1.3. Alignment of energy targets in NDCs with net-zero pathways.

Table 2: Proposed project activity breakdown for Samoa

OUTPUT	INDICATORS	ACTIVITY	BUDGET SUMMARY
Country Output 1: Strengthened, integrated and gender-sensitive institutional governance, financial and technical capacity of transport sector for zero-emission economic development across both land and maritime transport systems.	**Output 1 Indicators** **Indicator 1.1:** Number of gender-responsive planning and policy instruments developed to support Samoa's transition to low-carbon transport, disaggregated by NDC sub-sector. **Indicator 1.2:** Number of inclusive finance mechanisms identified feasible to support investments in Samoa's decarbonization of land and maritime transport, disaggregated by type and target revenue potential. **Indicator 1.3:** Number of upskilling programs enhanced and/or developed.	**Activity 1.1:** Review and update Samoa's legislative and policy framework in support of a national transition to low-carbon land and maritime transport.	775,000.00
		Activity 1.2: Conduct a transport optimization and energy efficiency review.	
		Activity 1.3: Develop a gender-responsive Decarbonization Strategy in support of the Sector Plan for Land and Maritime Transport to include sub-sector-specific NDC emission target reductions and abatement measures, including a monitoring framework.	
		Activity 1.4: Conduct a scoping and feasibility study on investment shifts away from carbon-intensive transport and identify gender-responsive innovative finance mechanisms to support and sustain Samoa's low-carbon transition.	
		Activity 1.5: Design and roll out an inclusive public awareness campaign promoting the environmental benefits and co-benefits of a transition to low-emissions vehicles and infrastructure.	
		Activity 1.6: Develop an upskilling programme on electric vehicle automotive electronics, mechanics and engineering.	
Country Output 2: Accelerated inclusive decarbonization of the land transport sector with a focus on inclusive, accessible, and greener transport systems for public service delivery.	**Output 2 Indicators** **Indicator 2.1:** Number of electric vehicles procured, disaggregated by type/service.	**Activity 2.1:** Conduct a baseline assessment of traffic volumes, vehicle registration and imports, vehicle ownership disaggregated by gender and age, EV and hybrid vehicles, and market demand.	10,141,473.00
	Indicator 2.2: annual total emissions (tCO2e) avoided from the land transport sub-sector. **Indicator 2.3:** Number of solar-charging stations installed, disaggregated by location.	**Activity 2.2:** Enhance land transport monitoring, including the procurement of emissions testing equipment and optimization of the Road Transport Administration System (RTAS) to improve fuel efficiency and optimize emission reduction potential.	
		Activity 2.3: Design and roll out awareness campaign for inclusive and safe mobility especially for women, PWDs, elderly, youth and children, based on a public survey on perceptions of barriers to low-carbon mobility.	
	Indicator 2.4: Number of plans developed that promote inclusive and accessible low- carbon mobility.	**Activity 2.4:** Develop a gender-sensitive Sustainable Land Use and Mobility Plan, to promote green, inclusive, and accessible infrastructure and mobility.	
		Activity 2.5: Design and install charging station network for public service delivery electric vehicles (EVs).	
		Activity 2.6: Explore technical, policy, infrastructural and technological solutions for safe disposal and recycling of EV batteries.	

OUTPUT	INDICATORS	ACTIVITY	BUDGET SUMMARY
		Activity 2.7: Support accessible electrification of vehicles targeting public service delivery vehicles based on country needs assessment.	
Country Output 3: Explored and accelerated decarbonization of the maritime sector to optimize energy efficiency with a specific focus on fishing vessels.	**Output 3 Indicators** **Indicator 3.1:** Number of feasible low-carbon maritime transport options identified. **Indicator 3.2:** % of fisherfolk with electrified and/or energy efficient vessels, disaggregated by gender.	**Activity 3.1:** Optimize the national registration system for vessels, including private fishing and transport boats for improved emissions tracking and control, and fuel efficiency.	2,155,000.00
		Activity 3.2: Conduct a feasibility study, gender and cost-benefit analysis of low-carbon maritime transport options, prioritizing fishing vessels.	
		Activity 3.3: Assess and pilot low-carbon propulsion systems of Samoa's fishing fleet through a gender sensitive grant mechanism for local fisherfolk and training scheme on installation, operations and maintenance.	
		Activity 3.4: Monitoring, Communication, and Coordination (Regional Technical/Management Support)	
Total			**13,071,473**

3.5 Key Environmental and Social Priorities and Issues

The key social and environmental priorities and issues associated with the CAP-IT include addressing both the positive impacts and potential challenges arising from the project's implementation. These priorities are essential to ensure that the CAP-IT project contributes to sustainable development in Samoa while minimizing adverse impacts on the environment and society. The CAP-IT project balances its environmental and social priorities to achieve its goals of reducing carbon emissions and promoting sustainable transport. Key issues include ensuring equitable access to transport, creating economic opportunities, protecting ecosystems, and minimizing waste and pollution. The project's success will depend on addressing these priorities through proper planning, stakeholder engagement, and the integration of sustainable practices throughout the project lifecycle.

3.5.1 Key Environmental Priorities and Issues

a. Reduction of Greenhouse Gas (GHG) Emissions - One of the main goals of the CAP-IT project is to reduce carbon emissions from the transport sector by promoting electric vehicles (EVs) and low-carbon maritime solutions. The transition to EVs requires the establishment of renewable energy sources to avoid shifting emissions to the electricity generation sector.
b. Promotion of Renewable Energy - Integrating renewable energy into the transport infrastructure (e.g., solar-powered EV charging stations) to reduce reliance on fossil fuels. Potential challenges include the high initial costs of renewable energy infrastructure and ensuring consistent energy supply, especially in rural areas.
c. Conservation of Ecosystems and Biodiversity - Protecting sensitive ecosystems, particularly coastal and marine areas, from potential construction and transport-related activities. Infrastructure development (e.g., charging stations, road improvements) may disturb natural habitats, leading to habitat degradation or loss of biodiversity.
d. Waste Management - Implementing sustainable waste management practices for EV batteries, vehicle components, and construction materials. Improper disposal of hazardous materials, such as lithium-ion batteries, could lead to soil and water contamination.
e. Climate Resilience - Ensuring that the transport infrastructure is designed to withstand climate change impacts, such as extreme weather events (e.g., cyclones, flooding). Coastal infrastructure, including low-carbon maritime facilities, may be vulnerable to sea-level rise and coastal erosion.
f. Water and Air Quality - Improving air quality by reducing vehicle emissions and safeguarding water resources from potential pollution due to transport activities. Construction and operational activities could lead to short-term air and water pollution if not properly managed.
g. Sustainable Land Use - Ensuring that land allocated for transportation infrastructure, such as roads, charging stations, and low-carbon maritime facilities, is utilized efficiently without causing unnecessary environmental degradation. The expansion of transport infrastructure could lead to land degradation,

deforestation, or encroachment into sensitive ecosystems, affecting wildlife habitats and ecosystem services. Special care must be taken to avoid disrupting natural land patterns and cultural sites.

h. Resilient Supply Chain for Green Technologies - Developing a sustainable and resilient supply chain for EVs, batteries, and other green technologies, ensuring that these materials are sourced responsibly and meet environmental standards. The production, transportation, and disposal of EV batteries and other green technologies can have significant environmental impacts if the supply chain is not properly managed, leading to resource depletion and pollution.

i. Energy Demand and Grid Reliability - Ensuring that the transition to EVs and other electric transport technologies does not overburden Samoa's energy grid, and that renewable energy sources are integrated to power the system. If the energy demand from the new transport infrastructure is not adequately met by renewable energy sources, there could be an increased reliance on fossil fuels for electricity generation, undermining the project's environmental goals. It is crucial to enhance grid reliability and promote energy efficiency.

j. Environmental Justice - Ensuring that the environmental benefits of the project, such as improved air and water quality, are distributed fairly across all communities, especially those most vulnerable to pollution and climate change. Without careful planning, certain populations, particularly those in rural or low-income areas, may not experience the same environmental benefits as urban communities, leading to environmental inequities. Addressing potential disparities is critical to ensuring environmental justice.

3.5.2 Key Social Priorities and Issues

a. Inclusive Access to Transport - Improving access to affordable, clean, and reliable transport for all segments of society, including rural communities and vulnerable groups such as women, the elderly, and persons with disabilities. Without proper planning, there could be unequal access to the benefits of new transportation infrastructure, especially for rural or low-income populations.

b. Job Creation and Economic Opportunities - Promoting local economic development by creating jobs in green industries (e.g., EV maintenance, renewable energy) and supporting local businesses. The transition to green transport may lead to job displacement in sectors dependent on traditional fossil-fuel-powered vehicles.

c. Gender Equality and Social Inclusion - Ensuring that the project promotes gender equality by offering training, employment, and decision-making opportunities to women and marginalized groups. Without targeted interventions, women and other vulnerable groups may not fully benefit from new economic opportunities arising from the CAP-IT project.

d. Public Health and Safety - Improving public health by reducing air pollution and ensuring safer, more efficient transport systems. Poorly managed construction and transportation activities may pose temporary health risks due to increased dust, noise, and traffic accidents.

e. Stakeholder Engagement and Community Participation - Involving local communities in decision-making processes to ensure that the project addresses their needs and concerns, particularly regarding transport access and environmental impacts. Inadequate stakeholder engagement could lead to a lack of public support, resistance, or social conflicts, especially in areas affected by infrastructure development.
f. Cultural and Land Use Conflicts - Respecting traditional land ownership and use practices while developing new transport infrastructure, particularly in rural and coastal areas where land use is closely tied to local culture and livelihoods. The potential displacement of communities or changes to traditional land use could lead to social tensions or cultural disruptions if not handled sensitively.
g. Capacity Building and Skill Development - Providing training and skill development opportunities for local workers, particularly in green technologies, renewable energy, and sustainable transport solutions. Building local capacity ensures that the project generates long-term benefits for the workforce. Without adequate training programs, there may be a skills gap that prevents local communities from fully participating in the new job opportunities created by the project. Additionally, foreign contractors or experts might dominate key sectors, limiting local economic empowerment.
h. Economic Displacement and Transition - Supporting individuals and businesses in transitioning from fossil fuel-based transportation industries to green transport technologies and services. The shift to electric vehicles and low-carbon transport systems could economically displace workers and businesses reliant on traditional transport technologies, particularly mechanics and fuel providers. Proper transition planning and support are needed to minimize negative impacts on livelihoods.
i. Affordability and Accessibility of Green Transport - Ensuring that the shift to electric vehicles and sustainable transport systems remains affordable and accessible to all socioeconomic groups, including low-income households. The high upfront costs of electric vehicles, charging infrastructure, and low-carbon boats could limit access to these technologies for lower-income groups, exacerbating social inequalities. Subsidies, financing options, and public transportation alternatives must be considered to ensure affordability.
j. Cultural Preservation - Preserving Samoa's cultural heritage, traditional land use practices, and community values while introducing modern infrastructure and technologies. The project must respect local customs and practices, especially in rural areas where transport infrastructure could disrupt traditional ways of life. The construction of transport infrastructure in culturally sensitive areas or the disruption of traditional practices could lead to resistance from communities, particularly if cultural sites are threatened or access to communal lands is restricted.
k. Health and Safety Considerations in Construction and Operation - Ensuring that construction and operational activities adhere to high safety standards to protect both workers and communities. Public health and safety must be prioritized in all project phases. Construction activities can pose risks such as increased traffic, accidents, and hazardous working conditions. Inadequate safety measures during

construction or transport operations could lead to workplace injuries or accidents, affecting both workers and surrounding communities.

l. Sustainable Tourism Development - Leveraging the improved transportation infrastructure to promote sustainable tourism that benefits local communities and protects Samoa's natural and cultural heritage. Uncontrolled tourism development, driven by improved access to previously isolated areas, could put pressure on natural resources and cultural sites. A balance between tourism growth and environmental conservation must be maintained to avoid unsustainable exploitation of resources.

m. Gender Inclusion and Empowerment - Ensuring that women are empowered through employment, participation in decision-making processes, and access to training opportunities in green technology and transportation. In some cases, women may face barriers to participation in male-dominated sectors like transport and construction. Without targeted gender inclusion strategies, the project may inadvertently exclude women from economic and social benefits, perpetuating gender inequalities.

n. Community Resilience and Climate Adaptation - Enhancing the resilience of communities to climate change through the integration of climate adaptation strategies in transport infrastructure, and improving access to emergency services and evacuation routes during extreme weather events. Without proper planning, transport infrastructure may not be designed to withstand extreme weather conditions or support community resilience efforts, leaving communities vulnerable to the impacts of climate change.

CHAPTER 4: BASELINE CONDITIONS

4.1 Environmental baseline

The environmental baseline for the CAP-IT project in Samoa provides an overview of the current environmental conditions that will influence the design, implementation, and sustainability of the project. This baseline assessment focuses on key environmental factors such as climate (precipitation, temperature, wind, and evapotranspiration), soil conditions, biodiversity, and water resources, all of which are critical for understanding the potential environmental impacts of the project.

By establishing a clear picture of the existing environmental conditions, the baseline ensures that the CAP-IT project aligns with sustainable development principles and meets the necessary environmental management requirements. It serves as the foundation for identifying potential environmental risks and opportunities, ensuring that Samoa's transition to a low-carbon transport system is environmentally responsible and resilient to the impacts of climate change. This baseline also informs mitigation measures and environmental management plans to protect ecosystems and natural resources throughout the project lifecycle.

4.2 Precipitation

The climate in Samoa is characterized by significant precipitation throughout the year, with seasonal variations that influence the amount of rainfall. From 1981 to 2023 (See graph 1 and 2 below), the average annual precipitation ranged from 1,953 mm to 5,628 mm, reflecting a highly variable rainfall pattern. The wettest months are typically from November to January, with January experiencing the highest rainfall, averaging around 596.16 mm. The dry season occurs from June to September, with the lowest average precipitation observed in June at 171.02 mm.

Samoa experiences two main seasons, a wet season (November to April) and a dry season (May to October). During the wet season, tropical cyclones and storms can contribute to higher rainfall, while the dry season still sees some precipitation, although at significantly reduced levels. The monthly distribution of rainfall demonstrates these variations, with higher averages in the first quarter of the year and a steady decline toward mid-year.

4.3 Precipitation linkage with the CAP IT project

Precipitation plays a crucial role in the Climate Action Pathways for Island Transport (CAP-IT) project in Samoa. The country's high rainfall, with annual precipitation ranging from approximately 1,953 mm to 5,628 mm, directly influences transportation infrastructure, particularly road and maritime systems. The wet season, spanning from November to April, brings intense rainfall, contributing to potential flooding, road degradation,

and challenges for electric vehicle infrastructure maintenance. Additionally, Samoa's wet season also heightens risks for maritime transport, affecting the safety and efficiency of boat operations.

The CAP-IT project must consider these precipitation patterns when designing and implementing transport solutions. For example, installing electric vehicle (EV) charging stations and other infrastructure must account for water damage risks, requiring weatherproof designs. Similarly, road durability and drainage systems will need enhancements to cope with heavy rainfall. The project also integrates climate resilience strategies to ensure that the transport systems, both land and maritime, can withstand the impacts of Samoa's substantial rainfall during the wet season, promoting long-term sustainability and functionality.

4.4 Runoff condition

The climate runoff condition in Samoa (See graph 1 and 2 below) is closely linked to the island's significant precipitation patterns, soil moisture levels, and overall water balance. Due to the high annual rainfall—ranging between 1,953 mm and 5,628 mm—Samoa experiences considerable surface runoff, particularly during the wet season from November to April. The heavy rains during these months often exceed the infiltration capacity of the soil, leading to increased runoff, especially in areas with steep terrain or limited vegetation cover.

Runoff is a critical factor in the country's water cycle, as it contributes to the flow of rivers and streams but also poses risks such as soil erosion, flooding, and damage to infrastructure. For the CAP-IT project, runoff conditions are particularly relevant for infrastructure planning, as high runoff can affect roads, electric vehicle (EV) charging stations, and other transport facilities. Proper drainage systems must be integrated into the project design to manage excess water and prevent damage to the transportation network.

Moreover, runoff plays a role in the transport of sediments and pollutants, which can affect water quality in coastal areas and rivers. This is significant for the CAP-IT project's sustainability goals, as unmanaged runoff could negatively impact both the environment and communities. Effective runoff management strategies, such as incorporating green infrastructure and erosion control measures, are therefore necessary to ensure the project's resilience in the face of Samoa's high precipitation and runoff rates.

4.5 Temperature

Samoa's temperature conditions, as observed between 1981 and 2023 (See graph 3 and 4 below), reflect a typical tropical climate with relatively consistent temperatures throughout the year. The average annual maximum temperature during this period ranged from 28.2°C to 29.93°C, while the minimum temperature varied from 22.87°C to 24.64°C. This stable temperature range showcases the mild fluctuations in Samoa's tropical environment, where extreme variations are rare.

The hottest months are typically from January to March, with maximum temperatures averaging around 30.11°C in February. The cooler months occur between June and August, with July registering the lowest average maximum temperature of around 27.64°C. Similarly, minimum temperatures follow a comparable pattern, with slightly cooler readings during the mid-year months.

Seasonally, Samoa experiences a warm climate year-round, with minor variations between the hotter and cooler months. These temperature conditions, combined with high humidity, create a consistent warm environment suitable for tropical vegetation and biodiversity but also pose challenges, such as heat stress during the warmer months.

4.6 Temperature linkage with the CAP IT project

The linkage between temperature and the CAP-IT project in Samoa is significant due to the impacts that tropical temperatures have on transportation infrastructure and energy demands. Samoa experiences relatively stable, warm temperatures year-round, with maximum averages ranging from 27.64°C to 30.11°C, and minimum temperatures between 22.87°C and 24.64°C. These conditions influence the performance and sustainability of the technologies being introduced by the CAP-IT project, particularly electric vehicles (EVs).

Higher temperatures, especially during the warmer months (January to March), can affect the efficiency of EV batteries and increase energy consumption for cooling systems, which must be factored into infrastructure designs and technology choices. Additionally, the installation of EV charging stations and other related infrastructure needs to account for heat resistance and cooling mechanisms to ensure functionality in high-temperature conditions. Properly accounting for these temperature impacts is essential for ensuring the durability and effectiveness of the CAP-IT project in decarbonizing Samoa's transport sector and building climate resilience.

4.7 Evapotranspiration

Evapotranspiration in Samoa, recorded between 1981 and 2023 (See graph 5 and 6 below), reflects the balance between water availability and atmospheric demand in a tropical climate. The Actual Evapotranspiration (AET) and Potential Evapotranspiration (PET) provide key insights into the moisture dynamics of the region.

The AET averages between 86.35 mm and 122.23 mm annually, demonstrating how much water is actually transferred from the land and plant surfaces back into the atmosphere. The PET, representing the maximum possible evapotranspiration if water availability were not a limiting factor, ranges from 84.51 mm to 124.32 mm

annually. This close correlation between AET and PET suggests that Samoa's tropical environment often maintains sufficient moisture levels to meet atmospheric demand, especially during the wet season.

Seasonally, higher evapotranspiration rates are observed during the warmer and wetter months, typically from November to March, when higher temperatures and rainfall promote increased water loss through both soil evaporation and plant transpiration. Conversely, the drier months (June to September) see lower evapotranspiration rates due to reduced precipitation and slightly cooler temperatures.

4.8 Evapotranspiration linkage with the CAP IT project

The linkage of evapotranspiration to the CAP-IT project in Samoa is primarily tied to the island's water balance and the capacity of its ecosystems to sustain transportation infrastructure in a changing climate. Evapotranspiration, the process of water transfer from the land and vegetation to the atmosphere, affects soil moisture levels and the overall availability of water. Samoa's Actual Evapotranspiration (AET) and Potential Evapotranspiration (PET) data, ranging from 86.35 mm to 124.32 mm annually, reflect the island's water cycle and its response to temperature and precipitation changes.

For the CAP-IT project, understanding evapotranspiration is essential for managing water-related impacts on infrastructure, particularly road networks and electric vehicle (EV) charging stations. During periods of high evapotranspiration, water retention in soils and vegetation is reduced, which may lead to drier conditions that can affect road surfaces and the durability of infrastructure. Additionally, higher evapotranspiration rates during hotter months might increase the demand for water in cooling and maintenance systems for EV technologies, affecting energy efficiency and sustainability efforts.

Therefore, integrating climate data on evapotranspiration into the CAP-IT project will support more resilient planning of transport infrastructure, ensuring that water availability and environmental factors are adequately considered in project designs.

4.9 Soil Moisture

Soil moisture in Samoa, as recorded from 1981 to 2023 (See graph 7 and 8 below), reflects the island's capacity to retain water in the soil, which is vital for supporting vegetation and agricultural activities. The annual soil moisture levels fluctuate with seasonal rainfall patterns, typically ranging from 343.40 mm to 600 mm. This indicates that during wetter periods, soil moisture reaches its maximum capacity of 600 mm, ensuring sufficient water availability for crops and ecosystems.

The highest soil moisture levels are recorded during the wet season, which spans from November to April, driven by heavy rainfall and minimal evaporation during these months. For instance, in January and December, soil moisture reaches high levels, averaging around 600 mm. Conversely, during the dry season, which occurs between May and October, soil moisture decreases due to reduced precipitation and higher evapotranspiration. The lowest levels are observed in months like July and August, where soil moisture drops closer to 343.40 mm.

The data reflects Samoa's ability to maintain relatively high soil moisture, especially during its wet season. However, the variation between seasons highlights the potential for soil moisture deficits during prolonged dry periods, which could affect agriculture and water supply. Managing soil moisture, particularly through sustainable land practices, is therefore essential in Samoa to ensure water availability throughout the year and mitigate the impacts of dry spells on agriculture and ecosystems.

4.10 Soil Moisture linkage with the CAP IT project

The linkage between soil moisture and the CAP-IT project in Samoa is critical, particularly in the context of infrastructure stability and land management. Soil moisture levels in Samoa fluctuate significantly depending on seasonal rainfall patterns, with annual readings ranging from 343.40 mm to 600 mm. During the wet season (November to April), soil moisture levels are generally high, reaching up to 600 mm, ensuring a well-hydrated landscape. Conversely, during the dry season, soil moisture drops, with levels as low as 343.40 mm being recorded in some months.

For the CAP-IT project, which focuses on developing transport infrastructure like roads and EV charging stations, the variation in soil moisture is an important consideration. High soil moisture during the wet season can lead to issues such as flooding and waterlogging, potentially damaging transport infrastructure. Conversely, low soil moisture during the dry season may affect soil compaction and stability, particularly for roads and pathways. Addressing these seasonal changes in soil moisture through resilient design and adaptive land management strategies is essential to ensure the longevity and efficiency of the transportation infrastructure being introduced under the CAP-IT project.

4.11 Wind speed

Wind speed in Samoa, based on data collected from 1981 to 2023 (See graph 9 and 10 below), varies seasonally but generally reflects moderate tropical conditions. The average annual wind speed ranges from 2.38 m/s to 4.19 m/s, with higher wind speeds typically observed during certain months and weather patterns, such as the transition periods between the wet and dry seasons.

The highest wind speeds are usually recorded from May to August, coinciding with the cooler, drier months of the year. During this time, wind speeds can reach up to 4.19 m/s, particularly in June and July. These increased wind speeds are influenced by the broader regional weather systems affecting the Pacific Islands, including trade winds that strengthen during this season. The lower wind speeds, generally between 2.38 m/s and 2.65 m/s, are seen in the wetter months, from November to April, where wind activity tends to be less intense, except during storm events or tropical cyclones.

Monthly variations show a peak in wind speeds in July and August, averaging around 3.67 m/s to 3.74 m/s, while the calmest periods occur in January and February, when wind speeds drop to around 2.57 m/s to 2.84 m/s. The overall wind patterns reflect a typical tropical island climate, where wind activity is largely driven by seasonal changes and occasional storm events.

These wind speed conditions are significant for various sectors, including agriculture, energy, and disaster preparedness. The moderate wind speeds support wind energy potential but also necessitate preparedness for stronger winds during seasonal shifts and cyclonic events.

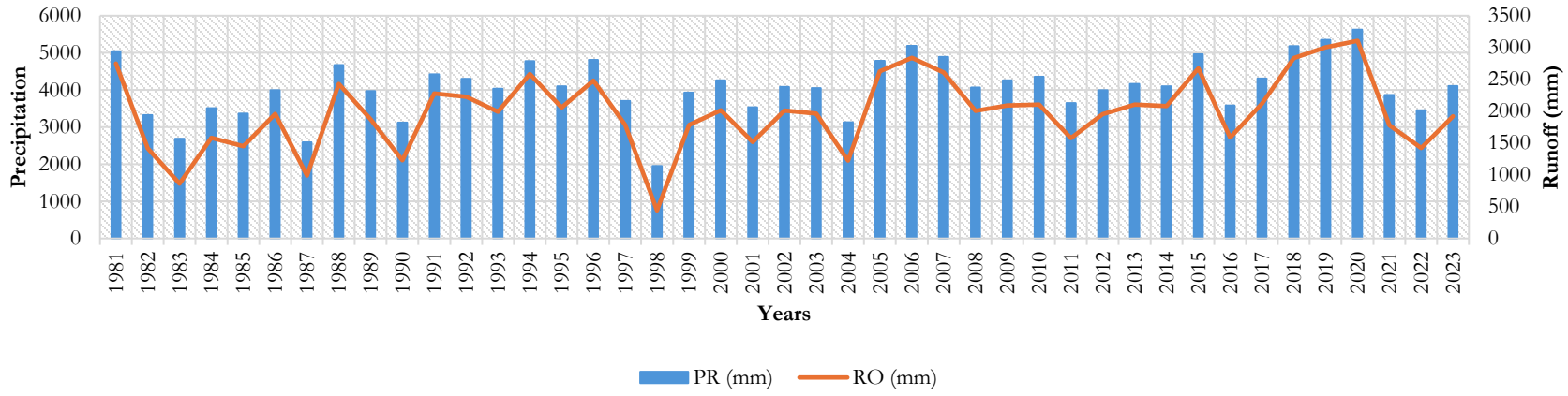
4.12 Wind speed linkage with the CAP IT project

The linkage between wind speed and the CAP-IT project in Samoa is particularly relevant when considering the impact of wind on both land and maritime transportation infrastructure. The average annual wind speeds in Samoa range from 2.38 m/s to 4.19 m/s, with higher winds typically observed between May and August, particularly during the cooler months. These wind conditions are important factors to consider in the design and resilience of transport infrastructure, such as roads, electric vehicle (EV) charging stations, and maritime equipment, under the CAP-IT initiative.

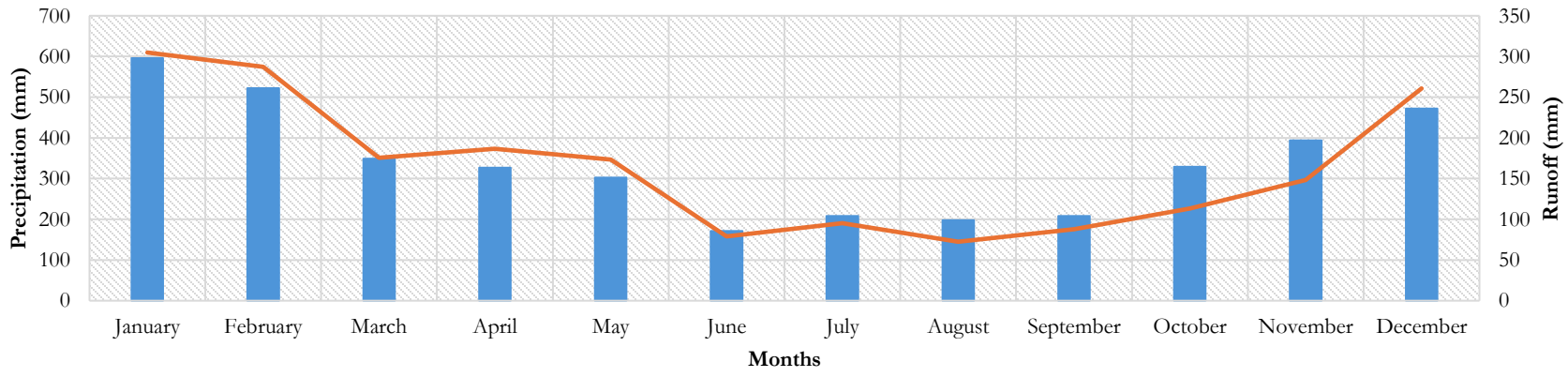
Higher wind speeds, especially during peak seasons, could impact the stability and operation of EV charging stations, requiring them to be designed to withstand stronger winds. In maritime transport, wind speeds can affect boat navigation and safety, especially during the more intense wind periods of the year. The project must incorporate these wind patterns into the planning and construction phases to ensure that infrastructure can endure the challenges posed by varying wind speeds across the year.

Additionally, stronger winds might influence energy consumption in transport systems, such as the additional energy required for vehicles navigating in high-wind conditions. Therefore, the CAP-IT project's infrastructure must be designed with climate resilience in mind, ensuring that wind-related risks are mitigated and that the transportation systems remain functional throughout the year.

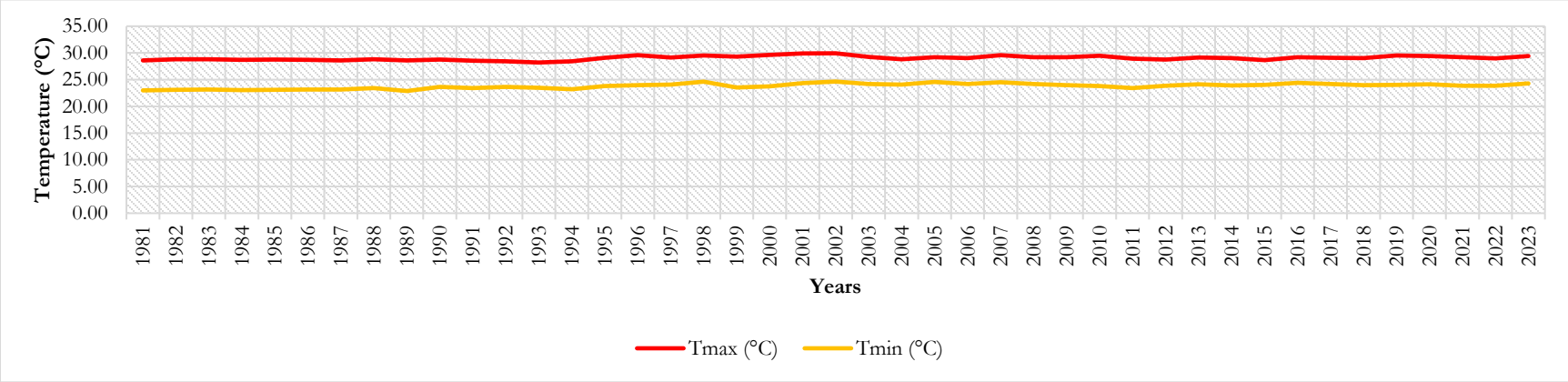
Graph 1: Annual total precipitation and runoff for Samoa for the period 1981 to 2023



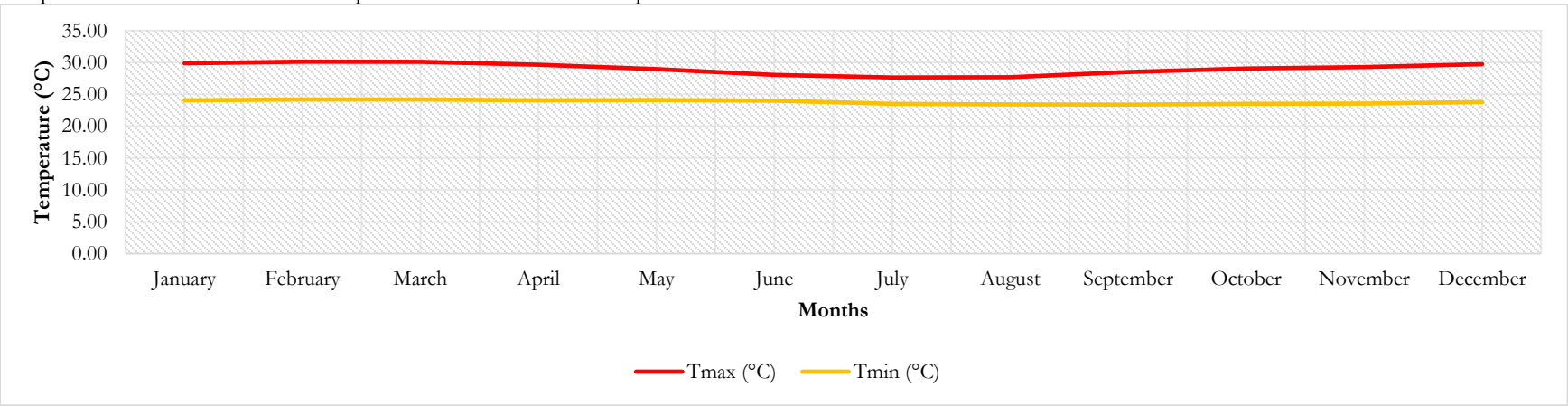
Graph 2: Seasonal variation in precipitation and runoff for Samoa for the period 1981 to 2023



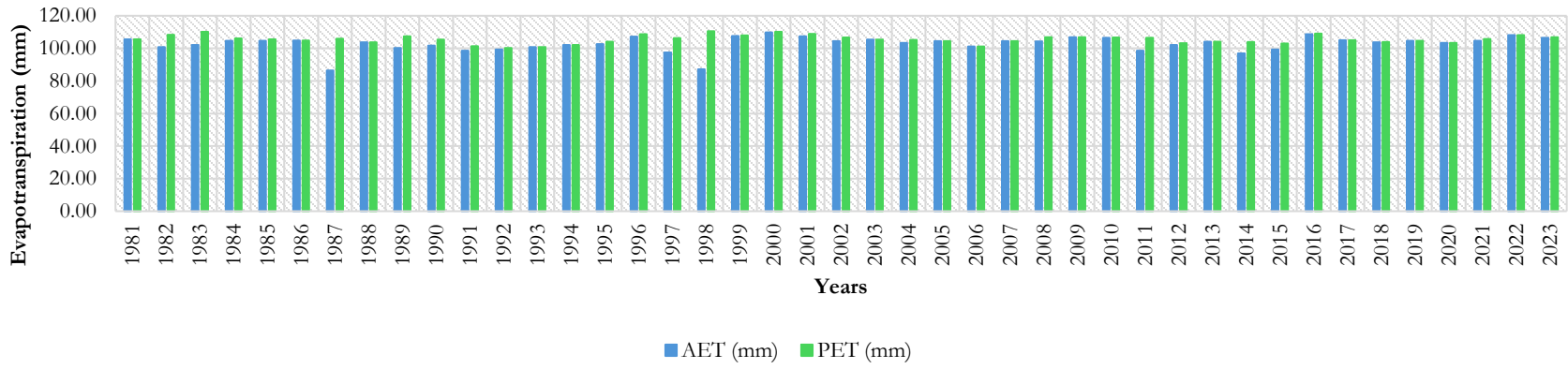
Graph 3: Annual average temperature variation for Samoa for the period 1981 to 2023



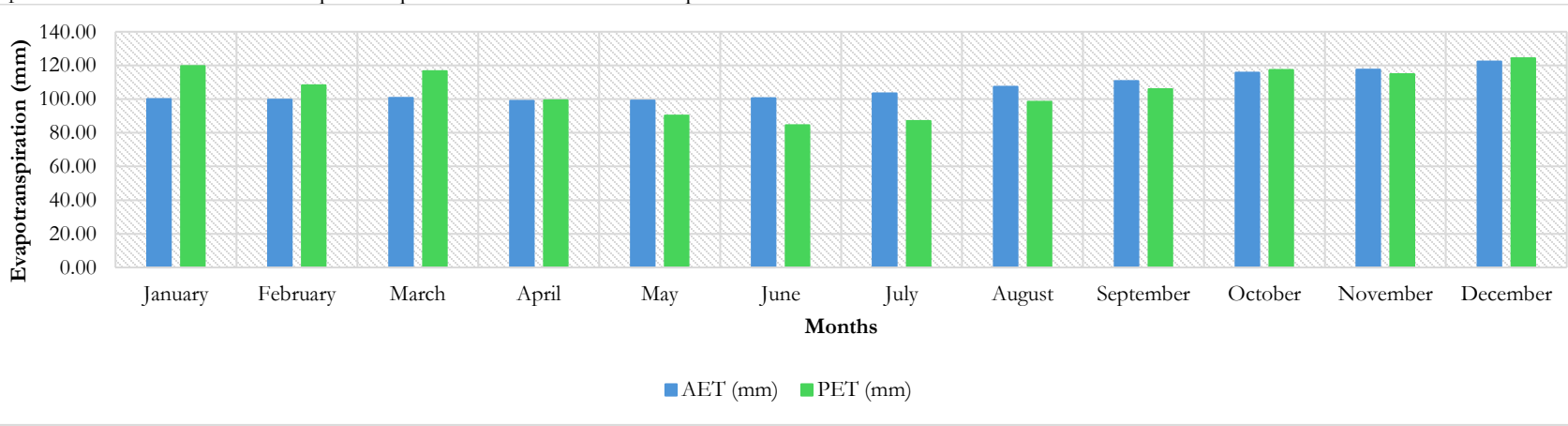
Graph 4: Seasonal variation in temperature for Samoa for the period 1981 to 2023



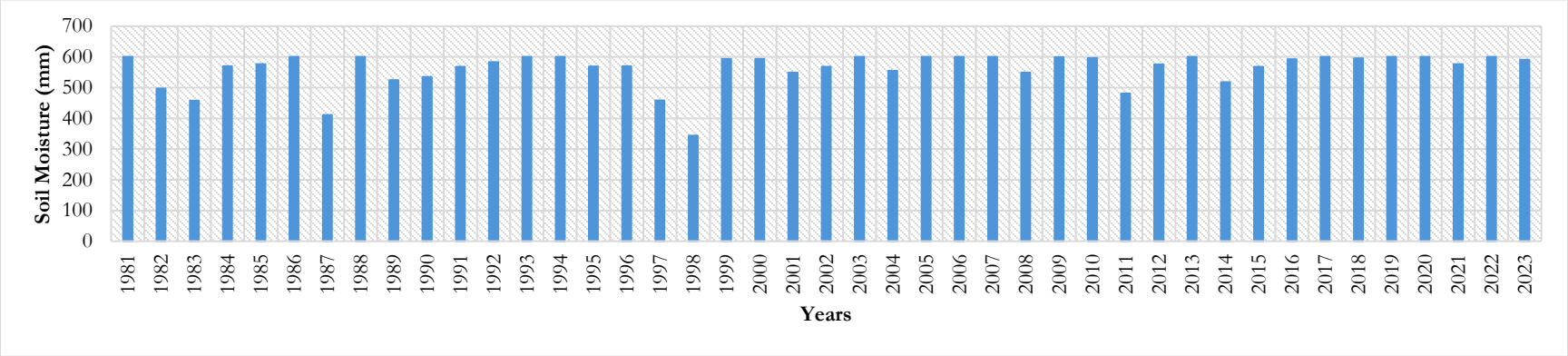
Graph 5: Annual average evapotranspiration variation for Samoa for the period 1981 to 2023



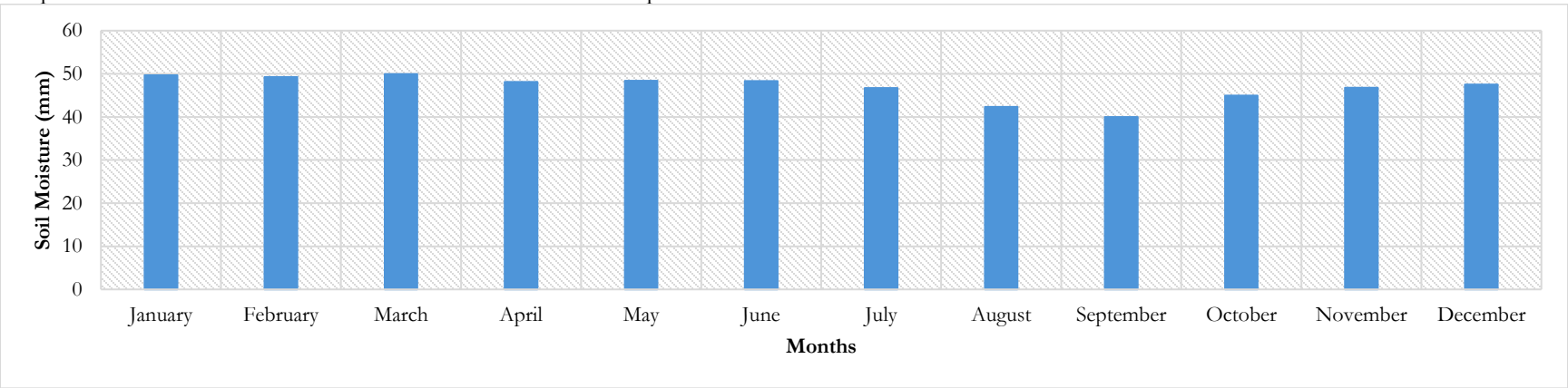
Graph 6: Seasonal variation in evapotranspiration for Samoa for the period 1981 to 2023



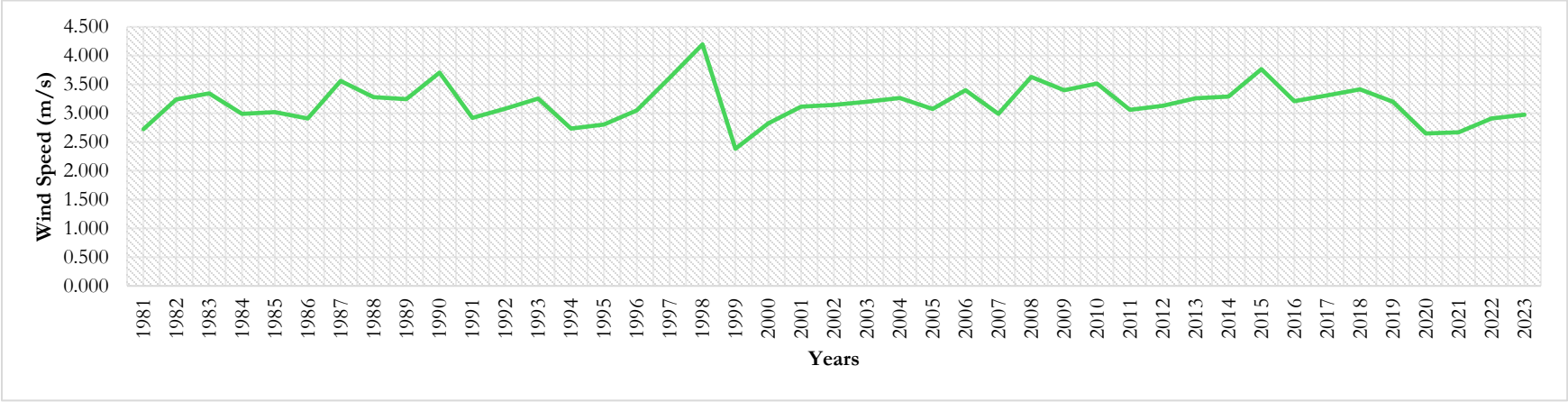
Graph 7: Annual total soil moisture for Samoa for the period 1981 to 2023



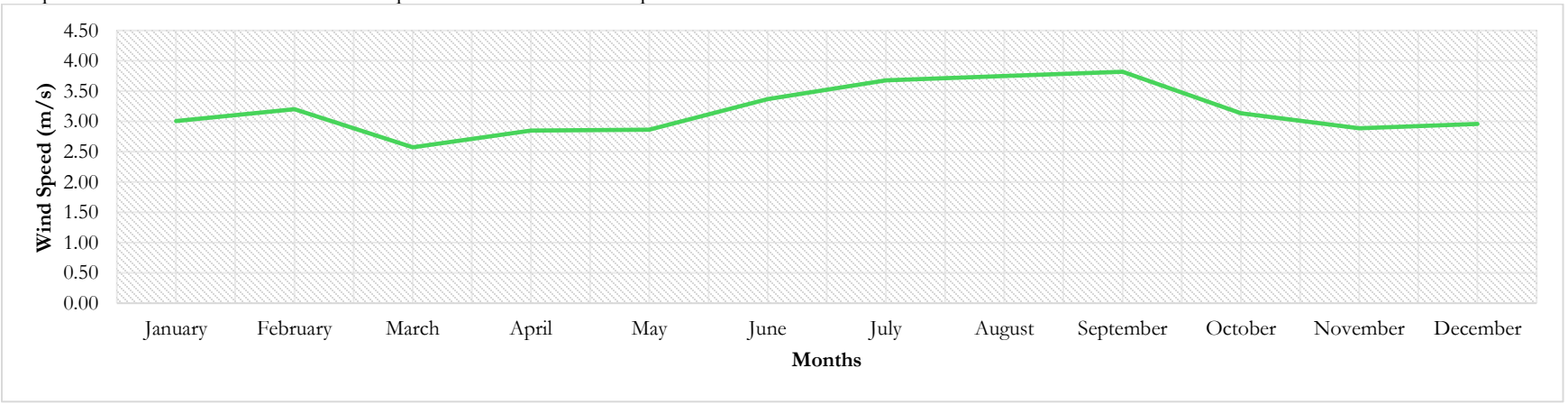
Graph 8: Seasonal variation in soil moisture for Samoa for the period 1981 to 2023



Graph 9: Annual average wind speed variation for Samoa for the period 1981 to 2023



Graph 10: Seasonal variation in wind speed for Samoa for the period 1981 to 2023



4.13 Social Baseline

The demographic profile of Samoa, as revealed by the 2021 Population and Housing Census, provides an in-depth look into the composition and characteristics of the population. As of November 2021, Samoa's population stood at 205,557, comprising 51% males and 49% females, showing a slight male majority. The population is concentrated primarily in Upolu, which accounts for 78% of the total population, while Savai'i holds the remaining 22%.

Samoa has a predominantly young population, with a median age of 22 years, reflecting the youthful nature of the society. This youthful demographic places significant demand on sectors such as education, healthcare, and employment. The largest age group is children aged 0-14 years, making up 39% of the population. The working-age population (15-64 years) accounts for 56%, while those aged 65 and above represent 5.5%, indicating a relatively small elderly population. The dependency ratio, which measures the proportion of dependents (children and the elderly) to the working-age population, stands at 79%, emphasizing the high number of dependents per working adult.

The population is divided between urban and rural areas, with 17% residing in Apia Urban Area (AUA) and the rest distributed across the rural areas of Upolu and Savai'i. The Apia Urban Area remains the most densely populated region, though North West Upolu is experiencing rapid population growth.

The overall sex ratio of Samoa is 104 males for every 100 females, which is relatively balanced, though more males are present in the younger age categories. Life expectancy, however, favors females, who tend to live longer than males.

Samoa has 31,137 private households, with an average household size of 6.6 persons. The majority of households are male-headed (76%), while female-headed households account for 24%.

Religious affiliation remains strong in Samoa, with the Congregational Christian Church of Samoa (CCCS/EFKS) being the most dominant at 27%, followed by Catholics (19%), Latter-Day Saints (18%), and Methodists (12%)[2]. Sundays are observed as a national day of rest, during which many Samoans attend church services, and village activities are minimal to honor this tradition[3].

[2] https://en.wikipedia.org/wiki/Religion_in_Samoa?utm_source=chatgpt.com
[3] https://www.samoa.travel/discover/our-culture/?utm_source=chatgpt.com

Samoa has a total fertility rate of around 3.7 children per woman, which is relatively high compared to global averages, contributing to the young population structure. The crude birth rate is 25.1 per 1,000 people, reflecting a steady rate of population growth. High fertility rates mean continued population expansion, which will place increasing pressure on health, education, and other social services in the coming years.

The crude death rate is around 7.5 per 1,000 people, which is low and consistent with a relatively young population. Life expectancy at birth is 73 years on average, with females living longer than males (approximately 75 years for females and 71 years for males). These figures indicate that Samoa enjoys relatively good health standards, although lifestyle diseases such as diabetes and cardiovascular issues are increasing.

Samoa has a long history of outward migration, especially to countries like New Zealand, Australia, and the United States. The net migration rate is negative, meaning more people are leaving Samoa than returning or immigrating. This has led to a brain drain effect, particularly affecting the working-age population and skilled professionals. Remittances from Samoan communities abroad, however, remain a vital source of income for many households, contributing significantly to the national economy.

The literacy rate in Samoa is high, at over 98%, reflecting successful efforts in providing basic education across the country. However, challenges remain in providing quality education and higher education opportunities, especially in rural areas. The youthful population creates a high demand for schools and vocational training programs to meet the growing needs of the workforce.

Given Samoa's demographic characteristics, particularly its large youth population and high dependency ratio, there are significant implications for employment and economic development. With over 50% of the population under 25, there is a critical need for job creation, skill development, and economic diversification to absorb this growing labor force. The high level of outward migration also suggests that employment opportunities within the country are limited, and the economy relies heavily on remittances.

Samoa's healthcare system faces the challenges typical of a growing, youthful population combined with rising rates of non-communicable diseases (NCDs) such as diabetes, heart disease, and obesity. These NCDs have become the leading causes of death in Samoa, driven by changes in lifestyle, diet, and physical activity. Despite these challenges, access to healthcare services has improved, especially in urban areas, though rural regions still face limitations in healthcare accessibility and resources.

The country has a relatively low infant mortality rate, reflecting improvements in maternal and child health services. However, the health system must continue adapting to the evolving needs of a population with both traditional healthcare needs and the rising burden of NCDs.

The census data also highlights the housing and living conditions in Samoa. While the average household size is 6.6 persons per household, there is a growing demand for improved housing infrastructure, particularly in urban and semi-urban areas like the Apia Urban Area (AUA). Many households in rural areas rely on traditional housing structures, though access to modern amenities such as electricity, clean water, and sanitation has been steadily improving.

Urbanization is creating pressure on housing and public services, with more people moving to Apia and surrounding regions in search of better economic opportunities. This migration has led to rapid urban growth, which, in turn, increases the need for well-planned infrastructure development, housing, and utilities.

With more than half of Samoa's population being under 25, employment remains a key issue. The majority of the population is engaged in subsistence farming, with agriculture, fisheries, and tourism being the main drivers of the economy. However, formal employment opportunities are limited, and many young people seek work abroad, particularly in New Zealand, Australia, and the United States.

Youth unemployment is a significant concern, as the country's economic capacity to generate enough jobs for its growing population is limited. There is a strong emphasis on vocational training and skills development to better align the workforce with emerging sectors, including renewable energy, technology, and service industries.

The demographic profile also sheds light on gender dynamics within Samoa. While men head the majority of households (76%), women play a significant role in both household management and the informal economy. Samoa's commitment to gender equality is reflected in national policies, but disparities remain, particularly in terms of women's representation in leadership positions and economic participation.

Cultural traditions, such as the fa'a Samoa, influence gender roles within society, but there is increasing recognition of the need to empower women, especially in sectors such as education, healthcare, and entrepreneurship. Gender-specific programs have been launched to support women's participation in the workforce and to promote their leadership in decision-making processes.

Samoa's demographic characteristics, marked by a young and growing population, high fertility rates, and strong cultural traditions, present both opportunities and challenges for the country. The high dependency ratio places pressure on the working-age population to support a large number of dependents, while migration continues to affect the labor market. Additionally, urbanization and increasing demands on infrastructure, healthcare, and employment opportunities are central issues that need to be addressed.

Samoan culture, known as *Fa'a Samoa* or "The Samoan Way," is a communal lifestyle deeply rooted in traditions that have been preserved for over 3,000 years. Central to this culture is the extended family, or *'aiga*, which forms the foundation of social structure. Within the *'aiga*, the *matai* (chiefs) hold leadership roles, overseeing family affairs and representing the family in village councils. Traditional Samoan homes, called *fale*, are open-sided structures without walls, reflecting the communal nature of Samoan society and often accommodating multiple family members[4] .

Traditional arts and crafts are integral to Samoan identity. The creation of *siapo* (tapa cloth) from mulberry bark and the intricate designs of *tatau* (tattoos) are not only artistic expressions but also convey social status and cultural narratives. The *malofie* is a traditional male tattoo that covers the body from waist to knees, symbolizing courage and service to the community.

Music and dance are vital components of Samoan culture, serving as mediums for storytelling and preserving history. The *siva*, a graceful dance performed by women, and the *fa'ataupati* (slap dance), performed by men, are traditional dances that showcase Samoan heritage. These performances are often featured during *fiafia* nights, communal gatherings that include feasting and entertainment.

The communal lifestyle extends to economic activities, with many families engaging in subsistence farming and fishing. Traditional cooking methods, such as the *umu* (earth oven), are still widely used, especially during communal feasts where dishes like taro, breadfruit, and various seafood are prepared[5].

[4] https://www.samoa.travel/discover/our-culture/?utm_source=chatgpt.com
[5] https://www.worldatlas.com/articles/the-culture-of-samoa.html?utm_source=chatgpt.com

4.14 Social structure of Samoa linkage with the CAP IT project

The demographic profile of Samoa is intrinsically linked to the implementation and success of the CAP-IT project, particularly in areas related to transportation and environmental sustainability. Samoa's young and growing population, with a median age of 22 years and a high dependency ratio of 79%, emphasizes the need for robust infrastructure and employment opportunities. The CAP-IT project, which focuses on decarbonizing land and maritime transportation, aligns with these needs by providing modern, sustainable transport solutions, creating jobs, and reducing environmental impact.

Urbanization is a key demographic trend, with a growing population in the Apia Urban Area and North West Upolu. This urban migration increases demand for efficient transportation systems, making the introduction of electric vehicles (EVs) and supporting infrastructure under the CAP-IT project particularly relevant. With 17% of the population living in urban areas, the project's focus on improving urban transport infrastructure will directly benefit these residents by reducing congestion and emissions, contributing to a healthier living environment.

Samoa's high fertility rate and the large number of children aged 0-14 (about 39% of the population) mean that long-term planning is essential to accommodate future transportation needs. The CAP-IT project can help address these challenges by creating sustainable transportation networks that are scalable and capable of supporting a growing population. Additionally, the project will need to consider the involvement of the youth in its workforce development strategies, as they represent a significant portion of Samoa's labor pool.

The CAP-IT project's success will rely on engaging local communities, particularly in rural areas, where traditional land ownership structures and communal living practices, rooted in the fa'a Samoa cultural system, influence decision-making processes. Ensuring that the project respects these cultural and social norms is essential for gaining community support and ensuring that the project's benefits are widely distributed.

The demographic characteristics of Samoa—including a young population, urbanization, and traditional social structures—necessitate a transport project like CAP-IT, which not only addresses the current demand for sustainable infrastructure but also considers future population growth and socio-cultural factors.

CHAPTER 5: STAKEHOLDER ENGAGEMENT

5.1 Identification of Stakeholders

The Identification of Stakeholders is a critical component of the CAP-IT project's SESA. It aims to identify and categorize the various groups, organizations, and individuals who are directly or indirectly affected by the project or have an interest in its outcomes. Stakeholders include local communities, government agencies, non-governmental organizations (NGOs), private sector entities, and development partners. By identifying these stakeholders early in the project, the CAP-IT initiative ensures that all relevant voices are considered throughout the planning and implementation phases. This process helps foster collaboration, promotes transparency, and ensures that the project aligns with the needs and expectations of diverse groups, particularly those who are vulnerable or marginalized. Through stakeholder engagement, the project can better address social and environmental impacts, mitigate risks, and build a foundation for sustainable and inclusive transport development in Samoa. Table 3 below shows the list of identified stakeholder.

Table 3: Overview of Stakeholders identified, Interests, and Expected Outcomes[6]

ORGANIZATION	INTEREST IN THE PROJECT	EXPECTED OUTCOMES/INFLUENCE ON THE PROJECT/EXPECTED ROLE
Government and SOEs		
Ministry of Commerce, Industry and Labour (MCIL)	Concerns about labor standards and employment impacts during the project implementation.	Oversee adherence to labor standards and employment regulations within the project.
Ministry of Works, Transport & Infrastructure (MWTI)	Integration of sector policies with project activities, focusing on transport and infrastructure development.	Influence on policy alignment and infrastructure planning; ensure project compliance with local regulations.
Electric Power Corporation (EPC)	Technical aspects of integrating Electric Vehicles (EVs) and related infrastructure into Samoa's power grid.	Provide technical expertise and support in energy-related project components.
Land Transport Authority (LTA)	Ensuring compliance with transportation safety and environmental standards.	Monitor and enforce transportation and safety standards throughout the project's implementation.
Ministry of Communication, Information & Technology (MCIT)	Impact on communication infrastructure and technological integration.	Oversee and support the integration of communication technologies within the project.
Samoa Water Authority (SWA)	Management of water resources in relation to project activities, especially those that may affect water quality and availability.	Manage water resources effectively and ensure that project activities adhere to sustainable water use practices.
Scientific Research Organization of Samoa (SROS)	Research on environmental impacts and sustainability measures; concerns about carbon footprint calculations for EVs and related infrastructure.	Conduct environmental research and provide data to guide sustainability efforts within the project.
Samoa Bureau of Statistics (SBS)	Provision of data for environmental and social impact assessments.	Supply data to support decision-making and impact assessments.

[6] The stakeholders list is continuously updated and may change during project implementation

ORGANIZATION	INTEREST IN THE PROJECT	EXPECTED OUTCOMES/INFLUENCE ON THE PROJECT/EXPECTED ROLE
Ministry of Agriculture & Fisheries (MAF)	Interests in how the project affects agricultural sectors and fisheries, particularly concerning environmental impacts.	Advise on mitigating negative impacts on agriculture and fisheries; ensure sectoral concerns are addressed.
Ministry of Prime Minister & Cabinet (MPMC)	Broader governmental policy alignment and support for the project, especially in areas affecting national development goals.	Coordinate cross-ministry support and initiatives to ensure project alignment with national policies.
Ministry of Women, Community & Social Development (MWCSD)	Community impacts, particularly regarding social development and inclusion.	Facilitate community engagement and ensure that social development goals are integrated into the project.
Samoa Tourism Authority (STA)	Concerns about the impact of project activities on Samoa's tourism, especially in relation to environmental sustainability and infrastructure development.	Provide insights into the tourism sector's needs; ensure project activities bolster rather than hinder tourism growth.
Samoa Fire and Emergency Services Authority (SFESA)	Interest in the project's compliance with fire safety and emergency response standards, particularly in new infrastructure developments.	Assess and advise on fire safety and emergency preparedness measures for the project.
Ministry of Natural Resources and Environment (MNRE)	Oversight of the project's adherence to environmental standards and policies, including impact assessments and sustainability practices.	Ensure environmental compliance and sustainability; influence environmental policy integration.
Ministry of Education, Sports, and Culture (MESC)	Integration of educational and cultural considerations in project planning, especially in fostering awareness and training related to project themes.	Influence educational content and cultural considerations; promote awareness and training initiatives.
Ministry of Health	Interest in public health aspects of the project, especially concerning the environmental and infrastructural changes that may affect community health.	Oversee health impact assessments and ensure public health considerations are prioritized.
Office of the Regulator	Regulatory compliance, especially in utilities and services affected by the project, such as telecommunications and power.	Monitor regulatory compliance; ensure that utility services related to the project meet standards.
Ministry of Finance	Financial oversight of the project, ensuring budgetary compliance and effective use of resources.	Oversee financial management and accountability; ensure fiscal compliance with national standards.
Private sector and NGOs in Samoa		
Maali Company Pty Ltd	Concerned about waste disposal and integration of EVs	Manage waste disposal effectively, ensuring environmental compliance
Asco Motors Samoa	Interest in tax cuts and safety standards for EV adoption	Influence policy on EV incentives and safety standards
SkyEye Pacific Limited	Advocacy for public incentives for EV adoption and considerations on government revenue implications	Influence public policy and economic assessments related to EV adoption
AutoSaver Samoa Co. Ltd	Focused on training, EV readiness, and waste disposal of EVs	Lead training programs and manage EV-related waste
Loibl Car Parts	Concerns about parts supply for EVs and potential business impacts	Supply chain management for EV parts and related business adaptation
Nissan Samoa	Economic viability and maintenance support for EVs	Provide technical support and ensure maintenance capabilities for EV infrastructure

ORGANIZATION	INTEREST IN THE PROJECT	EXPECTED OUTCOMES/INFLUENCE ON THE PROJECT/EXPECTED ROLE
Vagana Electrical Engineering Solutions Ltd	Smooth transition to EVs, and regulatory frameworks for sustainable charging	Implement and manage EV charging infrastructure; advise on regulatory compliance
T&N Toleafoa Petrol Station	Impact of EV adoption on petrol stations and new energy market opportunities	Adapt business model to accommodate EVs and explore new market opportunities
Frank & Sons Boatcraft & Construction	Safety risks and standards related to EV technologies	Ensure safety standards are met and provide construction support for infrastructure
Henry Silva Shipyard	Integration of EV technologies in maritime applications	Develop and implement EV solutions in maritime vehicles, contribute to sector innovation
Don Bosco College & Vocational Technical Center	Curriculum development for training in EV technology	Facilitate technical education and training, produce skilled workforce for the project
Samoa Environmental Society (SES)	Environmental sustainability and monitoring of the project's ecological impact	Monitor environmental impacts, provide sustainability insights and advocacy
Women in Business Development Inc	Enhancing economic opportunities for women through project-related activities	Promote gender equity and empower women through project engagement opportunities
Samoa Chamber of Commerce	Business impacts and opportunities related to the project's economic activities	Represent business interests, facilitate networking and partnerships within the project
Samoa Conservation Society	Conservation of biodiversity and natural resources affected by the project	Ensure biodiversity protection measures are integrated and adhered to in project activities
Nuanua O Le Alofa (NOLA)	Accessibility and inclusivity in project design and implementation	Advocate for disability rights and ensure project accessibility for all community members
Samoa Umbrella for Non-Governmental Organizations (SUNGO)	Community impacts and the NGO sector's role in project monitoring	Coordinate NGO involvement, oversee community engagement and feedback mechanisms
O le Siosiomaga Society Inc. (OLSSI)	Advocacy for environmental protection and sustainable practices in project operations	Provide expert environmental advice, engage in advocacy and educational activities
Academia and research institutions		
Australia Pacific Training Coalition (APTC)	Curriculum development and integration with national competency standards; resource and training needs.	Lead in developing and implementing new curriculums; provide training resources.
Don Bosco College & Vocational Technical Center	Safety standards and overseas training for EV technologies.	Facilitate practical training and workshops; enhance safety protocols.
Ministry of Education & Culture (MEC)	Development of the TVET pathway for secondary education.	Influence curriculum development at secondary and TVET levels, especially in science and technology.
National University of Samoa (NUS)	Alignment of project initiatives with academic calendars and resource availability.	Support in aligning project timelines with academic schedules; provide faculty and resources.
Samoa Qualifications Authority (SQA)	Development of workplace assessment models and qualifications for EV technologies.	Oversee the development and implementation of national qualifications and certifications.
Scientific Research organization of Samoa (SROS)	Research on environmental impacts and sustainability measures; interest in innovative technologies.	Provide critical research data, contribute to technology development and environmental assessments.

ORGANIZATION	INTEREST IN THE PROJECT	EXPECTED OUTCOMES/INFLUENCE ON THE PROJECT/EXPECTED ROLE
University of the South Pacific (USP) Samoa Campus	Integration of sustainable development practices in education and community engagement.	Offer expertise in sustainable practices, engage students and staff in project activities.
Samoa Polytechnic	Technical training and skill development in areas directly impacted by the project.	Develop specific technical skills among students, align training programs with project needs.
Oceania University of Medicine	Health impacts related to the project, especially in community health and safety.	Conduct health impact studies, provide health and safety training.
Institute of Research, Extension, and Training in Agriculture (IRETA)	Agricultural impacts and sustainable agricultural practices influenced by the project.	Advise on agricultural methods, ensure project aligns with sustainable agricultural practices.

5.2 Engagement Strategies

Stakeholders were involved at the beginning of the project and will continuously be engaged following the stakeholders engagement plan for the CAP-IT project. This process ensures that all relevant stakeholders, including local communities, government entities, NGOs, and private sector actors, contribute to identifying, mitigating, and managing the environmental and social impacts of the project. The following outlines how stakeholders are engaged during the SESA process (see annex 2):

5.2.1 Initial Consultations

- Community Consultations - Early-stage consultations was held through workshops and community forums to raise awareness about the CAP-IT project and gather input on potential environmental and social concerns (finds detailed minutes of the meeting in annex 3). These consultations involved village leaders, women's groups, youth groups, and local businesses to ensure diverse representation (see the CAP-IT SEP).
- Government Engagement - Relevant ministries, such as the Ministry of Works, Transport, and Infrastructure (MWTI), the Ministry of Natural Resources and Environment (MNRE), and the Land Transport Authority (LTA), were engaged in initial discussions to align the project with national regulations and strategic plans. These consultations ensured all government ministries and State-Owned Enterprises (SOEs) support the project.
- NGO and Civil Society Participation - NGOs and civil society organizations, were involved in early-stage consultations to ensure that environmental sustainability and gender inclusion are central to the project design.

5.2.2 Data Collection and Information Sharing

- Stakeholder Surveys - Surveys were conducted to gather baseline data on the socio-economic conditions and environmental concerns of various communities. This data was critical for assessing potential impacts on livelihoods, land use, and biodiversity.
- Information Dissemination - Project-related documents, such as environmental impact assessments and risk analyses, will be made accessible to all stakeholders through public meetings, online platforms, and physical copies distributed in community centres. This ensures transparency and allows stakeholders to make informed contributions to the entre process.

5.2.3 Workshops and Focus Groups

- Workshops - Workshops were organized and different themes such as land use, climate resilience, transportation infrastructure, and social inclusivity were addressed. These workshops brought together technical experts, government officials, and community representatives to discuss and provide recommendations on specific environmental and social issues (Refer to the SEP).
- Focus Groups for Vulnerable Communities - Special focus group discussions were held for vulnerable groups, including women, youth, persons with disabilities, and indigenous populations. These sessions were aimed to ensure that their specific concerns are addressed, particularly regarding access to transportation, job creation, and environmental sustainability (Refer to the SEP).

5.2.4 Ongoing Stakeholder Feedback

- Public Comment Periods - After the initial assessments are completed, a public comment period will be provided where stakeholders can review draft versions of the Environmental and Social Management Framework (ESMF) and other related documents. Public meetings will be held to collect additional feedback and address any concerns raised.
- Grievance Redress Mechanism - A grievance mechanism will be established to allow stakeholders to raise any issues or complaints. This will ensure that stakeholders have a clear channel for voicing concerns throughout the project lifecycle.

5.2.5 Decision-Making Involvement

- Participatory Decision-Making - Stakeholders will have an active role in decision-making processes, particularly in identifying mitigation measures and agreeing on management plans for potential environmental and social impacts. Local communities will be consulted on land use decisions, ensuring that their traditional rights and livelihoods are respected.

- Government and Private Sector Collaboration - Government agencies, development partners, and private sector stakeholders will collaborate to ensure the project aligns with national development goals while minimizing environmental and social risks.

5.2.6 Monitoring and Evaluation

- Stakeholder Monitoring - Once the project is underway, stakeholders will continue to be involved in monitoring the project's environmental and social impacts. NGOs, community leaders, and local government representatives will participate in monitoring activities to ensure the project adheres to the agreed-upon management plans.
- Feedback Loops - Ongoing feedback mechanisms will be established, allowing stakeholders to continuously provide input throughout the project's implementation. This will help identify any unforeseen issues and adjust strategies accordingly. Feedback mechanisms discussed and identified during stakeholder engagement include.
    a. Stakeholder Monitoring - Involving NGOs, community leaders, and local government representatives to actively monitor the project's adherence to agreed management plans.
    b. Public Disclosure Periods - Offering stakeholders the opportunity to review and comment on environmental and social documents – ESMF, SESA, ESIA etc.
    c. Grievance Redress Mechanisms (GRM) - Establishing systems that allow stakeholders to voice concerns or complaints transparently and efficiently throughout the project's lifecycle

Annex 4 provides the identified feedback channels for the proposed CAP-IT project.

5.3 Assessment of Samoa's Legislative and Policy Framework

An assessment was conducted on the Samoa legislative and policy framework earlier in the project and a report on the same generated. The report highlights the key efforts and challenges in decarbonizing Samoa's transport sector, which is currently the largest contributor to the country's greenhouse gas (GHG) emissions.

5.3.1 Key Objectives

- Transition to Low-Carbon Transport - The main goal is to decarbonize Samoa's land and maritime transport sectors to achieve the national goal of a 26% reduction in GHG emissions by 2030, compared to 2007 levels.
- Policy and Legislative Review - The review focused on identifying existing gaps in Samoa's policies and legislation that could hinder the adoption of low-carbon technologies, such as electric vehicles (EVs) and electrification of ferries or buses.

5.3.3 Key Findings

The key findings of the policy review from the Samoa's Legislative and Policy Framework are centered around several critical gaps in Samoa's legislative, policy, and regulatory frameworks that need to be addressed to support the country's transition to a low-carbon transport sector.

a. Current Legislative and Policy Landscape - Samoa already has a number of plans, strategies, and policies aimed at reducing carbon emissions across various sectors, including the transport sector. However, most of these efforts focus heavily on land transport, particularly on electrifying vehicles. There is limited emphasis on the maritime sector, where decarbonization is needed, especially for ferries and small watercraft (alia).

   The land transport policies primarily propose initiatives such as the electrification of vehicles, improving public transportation (e.g., buses), and promoting low-carbon transport modes such as walking and cycling. Despite this focus, the review identifies a lack of implementation and coordination across these initiatives. For example, while the policies propose transitioning the public transport system to electric buses, there are no bus timetables or tracking systems in place to encourage public transport use, which reduces the efficiency and attractiveness of these initiatives.

   The maritime sector receives significantly less attention. There is an absence of substantial measures focused on the electrification of ferries and alia (small traditional Samoan double-hulled boats), even though they form a key part of Samoa's overall transport emissions.

b. Identified Gaps in Legislation - The review highlighted that Samoa's current legal and regulatory framework is insufficient to support the large-scale adoption of electric vehicles (EVs) and the decarbonization of maritime transport. For example, there are no provisions or regulations that directly enable:

   - Widespread adoption of electric vehicles in public and private sectors.
   - Electrification of ferries or maritime vessels.
   - Incentives for using low-carbon modes of transport such as cycling, walking, or using public transport.

   One major gap in policy is the lack of legal mechanisms to enable the transition of the government fleet to EVs. Samoa's Public Finance Management (Government Vehicles) Regulations 2015 do not include provisions that promote the purchase of low-carbon vehicles or provide any incentives for adopting EVs. The transition to EVs within government services is seen as critical for setting a national example.

   The absence of formal bus timetables, coupled with a lack of incentives for public transport, demonstrates a need to update the public service vehicles policy. Without these basic services and incentives, public reliance on private vehicles will continue, contributing to increased carbon emissions.

c. Inadequate Infrastructure for Electric Vehicles - There is an urgent need to invest in infrastructure that supports the charging of electric vehicles (EVs). Without an adequate network of charging stations, the transition to electric vehicles, both for personal and public use, will be significantly hindered.

   The review highlights the importance of establishing clear standards and guidelines for EV charging infrastructure, both for public and private use, to facilitate the country's move toward cleaner mobility options.

   Currently, Samoa does not have any standards for inspecting electric vehicles or for testing vehicle emissions. Introducing these standards is seen as essential for measuring and controlling vehicle emissions accurately, a key requirement for Samoa to monitor its progress toward achieving its Nationally Determined Contributions (NDCs).

   The absence of emissions testing during vehicle registration and the lack of equipment to measure emissions is a significant gap in Samoa's efforts to reduce transportation-related GHG emissions.

d. Stakeholder Engagement and Community Involvement - Stakeholder consultations revealed that the private sector, community groups, and non-governmental organizations (NGOs) were involved in discussing potential decarbonization initiatives. However, the overall engagement of the community in adopting low-carbon transport solutions remains limited.

   There is a recognized need for greater community involvement, through awareness programs and engagement campaigns, to ensure that the transition to low-carbon transportation is inclusive and sustainable.

   The report also suggests that village councils and community leaders should be involved in decision-making processes to increase support for initiatives like walking, cycling, and public transport usage.

e. Public and Private Sector Incentives - There is currently a lack of financial incentives for both individuals and companies to adopt low-emission technologies such as EVs or low-carbon modes of transport. The review recommends introducing:

   - Tax reductions or lower import duties for low-emission vehicles.
   - Subsidized vehicle registration fees for electric vehicles.
   - Incentives for businesses to invest in EV fleets and green transport infrastructure.

   There is no structured incentive system to encourage the electrification of ferries or small watercraft in the maritime sector. The absence of these incentives limits the potential for decarbonizing maritime transport.

f. Technological and Policy Gaps for Maritime Decarbonization -The maritime sector is crucial for Samoa, given its geographical nature, but the lack of focus on electrification and incentives for reducing emissions from ferries and alia is a significant gap. The review points out that partnerships with international organizations could provide Samoa with the technical expertise and funding necessary to promote low-emission maritime transport.

g. Enforcement of Regulations and Monitoring Emissions -A key finding is the lack of monitoring and enforcement mechanisms for existing transport-related emissions regulations. While some policies exist to promote low-carbon transportation, enforcement is weak. The report recommends introducing systems to record and measure emissions from vehicles and vessels to ensure accurate reporting of emissions reduction progress. This would involve enhancing the enforcement capabilities of the Land Transport Authority (LTA) and other relevant agencies.

5.3.3 Recommendations

The recommendations from the policy review for Samoa's transition to a low-carbon transport system are aimed at addressing key gaps in legislation, infrastructure, and community involvement. These recommendations are intended to help Samoa achieve its Second Nationally Determined Contribution (NDC) targets by reducing greenhouse gas emissions, particularly from the land and maritime transport sectors. Table 4 below is a detailed breakdown of the key recommendations.

5.3.4 Proposed Initiatives

The proposed initiatives from the policy review are aimed at transforming Samoa's land and maritime transport sectors, focusing on decarbonization and the adoption of low-carbon technologies. These initiatives emerged from stakeholder consultations with government agencies, private sector players, NGOs, and community members. Table 5 below provides a detailed breakdown of the key proposed initiatives for both land transport and maritime transport.

Table 4: Recommendations from the policy review for Samoa's transition to a low-carbon transport system

ACTIVITY	RATIONALE	RECOMMENDATION
1. Development of Emissions Measurement and Reporting Systems	• Currently, there is no formal system for recording or measuring emissions from vehicles, ferries, or alia (traditional Samoan watercraft). Without accurate data, it is difficult for Samoa to track its progress in reducing emissions or meeting its NDC targets	• Introduce new regulations that require emissions testing and data recording for all vehicles (including electric vehicles) and maritime vessels. This would enable: o Accurate reporting of progress toward decarbonization. o Informed decision-making in policy reforms and infrastructure investment. o Emissions testing to be incorporated into vehicle registration and licensing processes, supported by the purchase of necessary equipment.
2. Strengthening Enforcement Mechanisms and Introducing Incentives for Low-Carbon Technologies	• Existing policies and regulations aimed at reducing emissions in the transport sector are not adequately enforced, and there are few financial or regulatory incentives to encourage the adoption of low-emission vehicles (e.g., electric vehicles) or other low-carbon modes of transport	• Strengthen the enforcement of vehicle emissions regulations, possibly by the Land Transport Authority (LTA) or the Police, who would conduct emissions testing during road inspections. • Create financial incentives for the adoption of electric vehicles (EVs) and low-emission ferries by: o Reducing import duties or taxes on low-emission vehicles. o Offering discounted vehicle registration fees for EVs. o Providing subsidies or incentives for businesses and individuals to purchase EVs or invest in EV charging infrastructure. • Introduce tax breaks or other incentives for private companies to electrify their fleets, especially for commercial vehicles and public transport services.
3. Infrastructure Investment for Electric Vehicles and Charging Stations	• The transition to electric vehicles requires a supporting infrastructure, particularly a reliable network of charging stations across the country. Without this infrastructure, the uptake of EVs will remain limited	• Invest in the development of EV charging stations throughout Samoa, prioritizing urban centers, public transport hubs, and government buildings. • Establish clear guidelines and standards for EV charging infrastructure, both for public and private use, ensuring the infrastructure is safe, accessible, and sustainable. • Support private sector involvement by offering grants or low-interest loans to companies that build or operate EV charging stations. • Ensure that the Electric Power Corporation (EPC) is involved in ensuring the grid can support the increased demand for electricity resulting from the adoption of EVs.
4. Decarbonization of Maritime Transport	• The maritime sector, especially ferries and alia, is an important part of Samoa's transport network, but it has received less attention in decarbonization efforts compared to land transport.	• Develop tailored policies that focus on the electrification of ferries and alia, considering Samoa's unique maritime context and economic realities. • Establish partnerships with international organizations and technology providers to gain access to the latest innovations in low-emission maritime technology. • Create financial incentives (e.g., lower import taxes or government subsidies) for maritime operators to adopt electric outboard motors and other low-carbon technologies.
5. Enhanced Collaboration with International Organizations for	• Samoa's transition to a low-carbon transport system requires substantial financial resources and	• Strengthen collaboration with international organizations (e.g., UNDP, GGGI, and regional development banks) to access funding and technical support for implementing low-carbon transport projects.

ACTIVITY	RATIONALE	RECOMMENDATION
Funding and Technical Assistance	technical expertise, which may not be available domestically.	• Explore opportunities to participate in regional or global funding mechanisms, such as the Green Climate Fund, which can provide financial resources for infrastructure projects related to EVs, public transport improvements, or maritime decarbonization. • Engage with regional initiatives and technical working groups that focus on decarbonization efforts, leveraging the experience of other small island developing states (SIDS) that have implemented similar projects.
6. Reforming Public Transportation and Encouraging Low-Carbon Transport Modes	• Public transportation in Samoa is underdeveloped and unreliable, leading to heavy reliance on private vehicles, which contributes to increased emissions.	• Improve public transportation services by setting regular bus timetables and creating a public transport app to track the live location of buses, improving reliability and encouraging greater public transport use. • Prioritize the electrification of buses, especially in urban areas where public transport usage is higher and where electric buses can have the greatest impact on reducing emissions. • Develop policies to incentivize walking, cycling, and the use of micromobility (e.g., e-bikes, scooters), including by: o Creating dedicated lanes for bicycles and pedestrians. o Building or upgrading footpaths and cycling lanes to encourage safer and more sustainable transport options. o Launching awareness campaigns to promote the health and environmental benefits of non-motorized transport.
7. Public Awareness and Community Engagement	• The transition to low-carbon transport requires public buy-in, and there is currently limited awareness or engagement from communities in Samoa regarding the benefits of low-carbon transport.	• Conduct nationwide awareness campaigns to educate the public on the importance of reducing emissions from transport and to promote the benefits of EVs, public transportation, and cycling. • Engage with village councils and community leaders to ensure that decarbonization efforts are inclusive and tailored to the needs of different communities. • Promote capacity building and training programs for the public and private sectors to ensure there is a skilled workforce capable of supporting the transition to electric vehicles and other low-carbon technologies.
8. Waste Management and Disposal of Electric Vehicle Batteries	• The widespread adoption of electric vehicles will create a new challenge for waste management, particularly the disposal of lithium-ion batteries, which can be harmful to the environment if not handled correctly.	• Develop a waste management policy specifically for the disposal and recycling of EV batteries and other electric vehicle components. This will require collaboration with the Ministry of Natural Resources and Environment (MNRE) and other relevant agencies. • Introduce standards for recycling or reusing EV batteries, ensuring they are disposed of safely and sustainably. • Explore partnerships with international organizations that can provide expertise on battery recycling technologies and management systems.
9. Upskilling and Capacity Building	• A successful transition to low-carbon transport requires skilled workers who can maintain and operate electric vehicles, charging	• Upskill local mechanics and technicians to handle the maintenance and repair of electric vehicles, charging stations, and other green technologies.

ACTIVITY	RATIONALE	RECOMMENDATION
	stations, and electric maritime vessels.	• Provide training programs for government and private sector employees, especially those in customs, transport, and environmental agencies, to ensure they understand the requirements for inspecting and regulating EVs and low-carbon transport systems. • Partner with the Samoa Qualifications Authority (SQA) to ensure that training courses related to EVs, public transport, and maritime decarbonization are accredited and accessible to the workforce.
10. Regulatory Reform for the Office of the Regulator	• The Office of the Regulator plays a critical role in overseeing electricity supply and tariffs, which impacts the cost of operating EVs and charging stations.	• Review the Office of the Regulator's policies to ensure they support the integration of renewable energy into the grid and facilitate the smooth operation of charging stations. • Reassess policies related to independent power producers (IPP), especially companies that produce their own electricity through solar power, to ensure that they are not subjected to punitive tariffs when selling excess electricity back to the grid.

Table 5: proposed initiatives from the policy review

INITIATIVE		PROPOSAL	IMPACT
1. Land Transport Initiatives			
Infrastructure Improvements	Dedicated Bus and Cycling Lanes	Introduce bus lanes and cycling lanes as part of Samoa's road infrastructure. Currently, there are no designated lanes for buses or cyclists, and road shoulders are used for pedestrians and cyclists, making them unsafe	Encouraging the use of public transport (buses) and non-motorized modes of transport (bikes) will reduce reliance on private vehicles, thereby lowering emissions. Dedicated lanes will also improve road safety for cyclists and pedestrians
	Clear Standards for EV Charging Infrastructure	Establish guidelines for the installation and operation of electric vehicle (EV) charging stations, both for public and private use. Clear standards are needed to ensure the safe and effective rollout of this new infrastructure.	A well-defined charging network will accelerate the adoption of EVs by addressing range anxiety and providing reliable options for charging, which is crucial for the success of EVs in Samoa
	Upgrading Traffic Signal Systems	Modernize and centralize the current traffic signal system to improve traffic flow, reduce congestion, and improve fuel efficiency. This upgrade will allow for more efficient management of vehicular traffic.	Reduced congestion will lower fuel consumption and emissions from idling vehicles, contributing to overall emissions reductions in urban areas.
Public Transport Enhancements	Timetables and App for Tracking Public Transport	Implement formal bus timetables and develop an app that allows users to track the live location of buses. Currently, the unpredictability of bus services discourages public transport use.	A reliable and user-friendly public transport system will encourage more people to use buses rather than private vehicles, reducing overall traffic congestion and emissions.
	Bus and Fare Incentives	Introduce fare incentives for using public buses, such as discounted fares for frequent users or during off-peak hours.	Incentivizing bus use will increase ridership and reduce the number of private vehicles on the road, cutting emissions from private transport.

INITIATIVE		PROPOSAL	IMPACT
	Prioritize Electrification of Buses	Electrify the bus fleet, starting with high-traffic routes in urban areas where buses have the greatest potential to reduce emissions. Public buses should be prioritized due to their frequent operation in densely populated areas.	Electrifying public buses will result in significant reductions in emissions from public transport, which operates frequently and in areas with high vehicular traffic.
Government Vehicle Policy and Public Service Reforms	Transition to Electric Government Fleet	Introduce a government vehicle policy that promotes the purchase of electric vehicles (EVs) for the government fleet, replacing internal combustion engine (ICE) vehicles when they are due for replacement.	This policy would set a national example, encouraging both public and private sectors to adopt EVs. It would also directly contribute to emissions reductions in the government's transport operations.
	Work from Home and Decentralization of Government Services	Encourage government departments to offer flexible working conditions, such as working from home. Additionally, decentralize government services to reduce travel times for public servants and citizens.	These measures will reduce the need for travel, cutting down on traffic congestion and emissions from government employees commuting to work or citizens traveling for services.
Incentives for Low-Emission Vehicles (EVs)	Lower Duties and Taxes for Low-Emission Vehicles	Reduce import duties and taxes on low-emission vehicles, including electric and hybrid vehicles, to make them more affordable for individuals and businesses.	Lowering the financial barriers for purchasing EVs will accelerate their adoption, helping reduce emissions from the growing vehicle fleet in Samoa.
	Discounted Vehicle Registration Fees	Introduce a discounted registration fee for low-emission vehicles or impose higher registration fees for high-emission vehicles to incentivize the use of cleaner vehicles	Financial incentives tied to registration can encourage people to purchase and maintain low-emission vehicles.
Vehicle Inspections and Emissions Testing	Standards for Vehicle Inspections	Develop specific standards for electric vehicle (EV) inspections, which are currently lacking. These standards should cover both safety and environmental performance	Enforcing inspection standards will ensure that imported and locally maintained EVs meet required safety and emissions standards, promoting a safe transition to low-carbon transport.
	Emissions Testing for Vehicles	Include emissions testing as part of the vehicle registration process at the Land Transport Authority (LTA). Additionally, establish a partnership with Japan Export Vehicle Inspection Center (JEVIC) for pre-inspection of imported vehicles.	Emissions testing will ensure that vehicles meet emissions regulations, improving air quality and helping Samoa meet its climate goals.
Awareness and Capacity Building	National Awareness Campaigns	Conduct national awareness campaigns to promote the importance of reducing greenhouse gas emissions from land and maritime transport. These campaigns should target vehicle users, businesses, and the general public.	Increasing awareness will encourage behavior changes and greater acceptance of low-emission technologies, such as EVs and public transport options.
	Upskilling of Local Mechanics	Train local mechanics to service and repair electric vehicles. Currently, there is limited expertise in the	Upskilling local mechanics will ensure that there is adequate technical support for the growing number of electric vehicles, encouraging more people to switch to EVs.

INITIATIVE		PROPOSAL	IMPACT
		country for maintaining EVs, which can discourage their adoption.	
	Waste Management for EV Batteries	Develop waste management policies for the disposal and recycling of electric vehicle batteries. There is currently no policy in place for handling this specific type of hazardous waste	Proper waste management will ensure that the growth of EVs does not create new environmental problems related to battery disposal.
2. Maritime Transport Initiatives			
Electrification of Ferries and Alia		Provide incentives to promote the electrification of ferries and alia (small traditional watercraft). Electrification in the maritime sector has been underdeveloped compared to land transport.	Electrifying ferries and alia will reduce emissions in Samoa's maritime sector, which plays a crucial role in transportation, especially between islands.
International Partnerships for Maritime Decarbonization		Establish partnerships with international organizations or companies to gain access to the latest technology and expertise for the decarbonization of maritime transport.	Partnering with international stakeholders will provide Samoa with the technical support and funding needed to introduce low-carbon maritime technologies (e.g., electric outboard motors, energy-efficient ferries).
Enforcing Emission Limits for Ferries and Alia		Develop and enforce regulations that limit the emissions from ferries and alia. This could include emissions testing similar to land vehicles.	Setting and enforcing emissions limits for maritime vessels will help reduce their carbon footprint, contributing to overall decarbonization goals.
3. Cross-Cutting Initiatives			
Collaboration and Funding for Sustainable Transport Projects		Enhance collaboration with international organizations to secure funding and technical assistance for transport decarbonization projects. This could include partnerships with bodies like the UNDP, Green Climate Fund (GCF), or Global Green Growth Institute (GGGI)	Access to international funding and expertise is essential for Samoa to implement its ambitious decarbonization plans, particularly in the areas of infrastructure development and policy reforms.

5.3.5 Prioritization of Proposed Policy Reforms

The prioritization of the proposed policy reforms for Samoa's land and maritime transport sectors is based on the urgency, relevance to achieving the country's Nationally Determined Contribution (NDC) targets, and the feasibility of implementation. The reforms are classified into three categories: High Priority, Medium Priority, and Low Priority. The prioritization takes into account the immediate impact these reforms will have on reducing greenhouse gas emissions, improving infrastructure, and enabling the adoption of low-carbon technologies.

5.3.5.1 High Priority Reforms

These reforms are critical to achieving Samoa's NDC target and should be implemented within six months of the approval of the report. They include:

a. Emissions Testing and Enforcement Mechanisms
   - The introduction of emissions testing standards for vehicles and enforcement by the Land Transport Authority (LTA) and Police is essential to ensure that vehicles on the road comply with emissions regulations.
   - Developing partnerships with organizations like Japan Export Vehicle Inspection Centre (JEVIC) for pre-inspections of imported vehicles is also prioritized to ensure vehicles entering Samoa meet emissions standards.
   - Implementing emissions testing into vehicle registration processes is crucial for monitoring and controlling emissions from the transport sector.

b. Infrastructure for Electric Vehicles (EVs)
   - Establishing EV charging stations and setting clear guidelines for EV charging infrastructure is essential to support the transition to electric vehicles. Without this infrastructure, the adoption of EVs will be limited.
   - Electrifying the government fleet is also prioritized as a way for the government to lead by example, showing that low-emission vehicles are a viable alternative.

c. Maritime Sector Decarbonization
   - Electrifying ferries and alia is seen as critical for reducing emissions in the maritime sector. Partnering with international organizations to promote the adoption of electric maritime technologies is essential, as Samoa currently lacks the technical expertise in this area.

d. Public Transport Improvements
   - Implementing formal bus timetables and developing a public transport app for tracking buses in real-time is prioritized to increase the reliability and attractiveness of public transportation, reducing the need for private vehicle use.

5.3.5.2 Medium Priority Reforms

These reforms are important for achieving NDC targets but can be implemented within 6 months to 1 year. These include:

a. Public Transport Incentives
   - Offering fare incentives for public transport use and prioritizing the electrification of public buses is important but can be phased in as infrastructure for EVs and charging stations is developed.

b. Pedestrian and Cycling Infrastructure
   - Introducing dedicated bus and cycling lanes is important but may take longer to implement due to the need for urban planning and infrastructure investments.
   - Improving footpaths and streetlights to make walking and cycling safer will also be implemented within this timeframe, as it requires coordination with urban planning bodies.

c. Waste Management Policies
   - Developing a waste management policy for EV batteries and other components will be important as EV adoption grows. This can be implemented within the medium term as the EV market matures.

5.3.5.3 Low Priority Reforms

These reforms contribute to Samoa's NDC targets but are not immediately necessary and can be implemented in over a year. These include:

- Work-from-Home Policies - Encouraging the Public Service Commission to review working conditions and promote work-from-home arrangements or decentralization of government services is less urgent but important in reducing daily travel and emissions in the long run.
- Promoting Online Services - Promoting online services for banking, remittances, shopping, and medical consultations will reduce the need for physical travel but is not as pressing as reforms directly targeting emissions reduction.

5.3.6 Risk Analysis

Implementing the proposed policy reforms comes with several risks, and the report outlines both the potential challenges and mitigating factors to address them. The main risks identified include lack of resources, stakeholder engagement issues, and technological disruptions.

Table 6: Proposed policy reforms risks and mitigating factors

MAIN RISK	DESCRIPTION	MITIGATING FACTORS
1. Lack of Resources	Samoa may face challenges in securing the necessary financial, technical, and human resources to implement these reforms. A lack of funding could impede the development of infrastructure (e.g., EV charging stations) and the scaling-up of decarbonization projects.	• Strengthen collaborations with international organizations like the UNDP, GCF, and GGGI to access funding and technical support. • Promote capacity building and training initiatives to upskill local professionals and increase the technical expertise required for EV maintenance, policy formulation, and emissions testing. • Leverage public-private partnerships share the cost and expertise needed for large infrastructure projects, such as the electrification of public transport or building EV charging networks.
2. Stakeholder Engagement and Uptake	Lack of cohesion among stakeholders, including government, private sector, and community members, could result in delays or ineffective implementation. If key players do not collaborate or adopt the necessary changes, the success of the initiatives could be compromised.	• Foster regular stakeholder dialogues through workshops, meetings, and forums to ensure that there is alignment and commitment across sectors. • Introduce incentives for private sector companies and individuals to adopt low-carbon technologies, such as EVs and electrified ferries. • Conduct community awareness and education campaigns to build public support for decarbonization initiatives, explaining the benefits of adopting low-carbon technologies and using public transport. • Respect traditional leadership (matai) and ensure their inclusion in decision-making processes. • Use culturally relevant communication methods, including storytelling and local media, to share project information. • Establish inclusive participation mechanisms, such as dedicated focus groups for vulnerable groups. • Implement a culturally appropriate grievance redress mechanism (GRM) to handle stakeholder concerns effectively.
3. Technological Disruptions	The introduction of new technologies (such as EVs, electric ferries, and charging infrastructure) could lead to disruptions, including incompatibility with existing infrastructure, increased costs, and resistance from users who are unfamiliar with the technology.	• Conduct an impact assessments to evaluate the potential disruptions and plan mitigation strategies in advance. • Ensure adequate training is provided for government officials, private sector employees, and mechanics to manage the technological shift, particularly in maintaining and operating EVs and electric maritime vessels. • Partner with international experts and technology providers to ensure that the technologies introduced are compatible with Samoa's context and infrastructure. • Encourage strategic partnerships with vendors and industry experts to co-create solutions and share best practices, reducing the risks of market disruptions. • Incorporate traditional practices and timelines to minimize resistance to change. • Provide information in local languages and align training sessions with cultural norms and community schedules.
4. Resistance to New Policies and Behavior Change	New policies, such as emissions testing or the transition to electric vehicles, could face resistance from the public and private sector, particularly if there is a lack of awareness or if	• Engage in public consultation and communication campaigns to educate stakeholders about the benefits of the reforms, including long-term cost savings from EVs and the health benefits of reduced emissions.

MAIN RISK	DESCRIPTION	MITIGATING FACTORS
	the financial costs are perceived as too high.	• Introduce gradual changes with sufficient lead times to allow individuals and businesses to adjust, reducing resistance to new regulations or technologies. • Provide financial incentives (such as tax breaks, subsidies, or lower vehicle registration fees) to ease the transition to low-carbon technologies. • Use culturally sensitive consultation processes that involve traditional leadership and community elders. • Highlight the alignment of new policies with Samoan values of sustainability and community well-being. • Leverage cultural preservation as a key benefit of the transition, ensuring the protection of land and traditional practices.

5.4 Gaps on environmental and social priorities

Table 7 below show the identified gaps between Samoa's regulations and policies in addressing key environmental priorities and issues, with reference to UNDP principles and standards, international conventions, and best practices:

Table 7: Gaps on environmental and social priorities

KEY PRIORITY/ISSUE	SAMOA REGULATIONS/POLICIES	GAPS	UNDP PRINCIPLES AND STANDARDS	INTERNATIONAL CONVENTIONS AND BEST PRACTICES
Environmental				
Reduction of GHG Emissions	National Climate Change Policy (2019) aims to reduce emissions. National Energy Policy (2007) promotes renewable energy.	• Limited enforcement mechanisms for emissions reductions. • Gaps in transport sector-specific emissions targets.	• UNDP Mitigation hierarchy: Avoid and mitigate negative impacts on the environment.	• Paris Agreement (2015): Requires nations to set emissions reduction targets and implement decarbonization strategies.
Promotion of Renewable Energy	National Energy Policy (2007) supports renewable energy expansion.	• Lack of incentives or subsidies for renewable energy adoption in transport. • Gaps in renewable energy integration into the transport sector.	• UNDP Principle 4: Sustainability and Resilience • UNDP Standard 2: Climate Change and Disaster Risk	• UNFCCC: Promotes renewable energy and sets clear targets for renewable adoption in all sectors, including transport.
Conservation of Ecosystems and Biodiversity	Environmental Management and Conservation Act (1994) provides legal frameworks for protecting ecosystems and biodiversity.	• Insufficient monitoring and enforcement • Gaps in marine and coastal protection during transport infrastructure development.	• UNDP Standard 1: Biodiversity Conservation and Sustainable Natural Resources Management • UNDP Principle 4: Sustainability and Resilience	• Convention on Biological Diversity (CBD): Sets global biodiversity protection targets, encourages the inclusion of biodiversity in development planning.
Waste Management	Waste Management Act (2010) provides regulations for waste management, but mainly focuses on solid waste.	• No clear framework for managing EV batteries and hazardous waste from green technology. • Limited infrastructure for electronic and battery waste disposal.	• UNDP Standard 8: Pollution Prevention and Resources Efficiency. • UNDP Principle 4: Sustainability and Resilience	• Basel Convention: Governs the management and disposal of hazardous waste, including electronic waste and batteries.
Climate Resilience	Disaster and Emergency Management Act (2007) and Climate Change Policy (2019) provide frameworks for	• Lack of integration of climate resilience measures in transport infrastructure. • Limited implementation of climate adaptation strategies for transport.	• UNDP Standard 2: Climate Change and Disaster Risk.	• Sendai Framework for Disaster Risk Reduction (2015): Promotes integration of resilience-building

KEY PRIORITY/ISSUE	SAMOA REGULATIONS/POLICIES	GAPS	UNDP PRINCIPLES AND STANDARDS	INTERNATIONAL CONVENTIONS AND BEST PRACTICES
	disaster management and climate adaptation.		• UNDP Principle 4: Sustainability and Resilience	measures into infrastructure development.
Water and Air Quality	Water Resources Management Act (2008) and National Environment and Development Sector Plan (2017-2021) regulate water and air quality.	• Inconsistent enforcement of air quality standards. • No detailed air quality monitoring system in transport-related areas. • Gaps in water resource protection during transport construction.	• UNDP Standard 8: Pollution Prevention and Resources Efficiency.	• Stockholm Convention on POPs: Addresses pollutants affecting air quality. • WHO Guidelines on Air Quality: Provides standards for air quality that countries should adopt.
Sustainable Land Use	Planning and Urban Management Act (2004) provides a framework for sustainable land use.	• Lack of specific land use policies for the transport sector. • Limited zoning regulations for protecting sensitive ecosystems during transport infrastructure development.	• UNDP Standard 5: Displacement and Resettlement	• UN Convention to Combat Desertification (UNCCD): Promotes sustainable land use planning, especially in areas vulnerable to degradation.
Energy Demand and Grid Reliability	National Energy Policy (2007) focuses on energy efficiency and diversification.	• Insufficient infrastructure for integrating renewable energy into the transport sector. • Lack of clear energy efficiency standards for transport infrastructure.	• UNDP Energy Strategy • UNDP Principle 4: Sustainability and Resilience	• International Renewable Energy Agency (IRENA) best practices: Sets guidelines for energy efficiency in public infrastructure and transport.
Environmental Justice	National Environment and Development Sector Plan (2017-2021) mentions environmental justice.	• Limited focus on equitable distribution of environmental benefits across communities. • Gaps in addressing disparities in environmental impacts, especially for vulnerable groups.	• UNDP Principle 1: "Leave No One Behind"	• UN Declaration on the Rights of Indigenous Peoples (UNDRIP): Emphasizes the rights of indigenous peoples to participate in environmental governance and decision-making.
Waste Management for Electric Vehicles (EVs)	Waste Management Act (2010) provides a framework for general waste, but EV battery disposal is not specifically covered.	• Lack of regulations for the disposal and recycling of lithium-ion batteries and other hazardous EV materials. • No guidelines for the management of end-of-life EV infrastructure.	• UNDP Standard 8: Pollution Prevention and Resources Efficiency. • UNDP Principle 4: Sustainability and Resilience	• Basel Convention (1989): Addresses the transboundary movements and disposal of hazardous waste, including electronic waste. Circular Economy Best Practices: Promote recycling and reuse of EV components.

KEY PRIORITY/ISSUE	SAMOA REGULATIONS/POLICIES	GAPS	UNDP PRINCIPLES AND STANDARDS	INTERNATIONAL CONVENTIONS AND BEST PRACTICES
Community Engagement and Public Participation	Planning and Urban Management Act (2004) requires public consultation for major infrastructure projects.	• Inadequate mechanisms for continuous community participation during the project lifecycle. • Limited capacity for communities to engage in environmental decision-making.	• UNDP Principle 5: Accountability • UNDP Stakeholder Engagement and Public Consultation.	• Aarhus Convention (1998): Provides for public access to environmental information, public participation in decision-making, and access to justice.
Gender Inclusion in Environmental Governance	Samoa's gender inclusion efforts are mainly focused on development programs through policies like the Community Development Sector Plan.	• Gender considerations are not fully integrated into environmental planning and transport policies. • Limited data on gender impacts of environmental policies and transport infrastructure projects.	• UNDP Principle 3: Gender equality and women's empowerment	• UN Women's Gender and Climate Change Framework: Encourages the integration of gender into climate and environmental policies to ensure equity in development outcomes.
Environmental Impact Assessment (EIA)	Environmental Impact Assessment (EIA) Regulations (2007) requires EIAs for major projects.	• Limited scope of EIAs for transport projects, particularly regarding the social and cultural impacts of infrastructure development. • Inadequate follow-up mechanisms to ensure that mitigation measures are implemented.	• UNDP - Environmental and Social Impact Assessment (ESIA).	• Espoo Convention (1991): Recommends EIA frameworks, including social and cross-border impacts.
Biodiversity and Marine Ecosystems Protection	Fisheries Act (1988) and Marine Protected Areas (MPAs) frameworks exist but are outdated and not well enforced.	• Insufficient coverage of transport-related impacts on marine ecosystems. • Lack of integration of maritime transport environmental considerations into policy frameworks.	• UNDP Standard 1: Biodiversity Conservation and Sustainable Natural Resource Management.	• Convention on Biological Diversity (CBD): Promotes marine and coastal biodiversity conservation. • International Maritime Organization (IMO) Best Practices: Set environmental standards for maritime transport to reduce ocean pollution.
Sustainable Tourism and Transport	National Tourism Development Plan (2017-2022) focuses on sustainable tourism but does not directly address transport's environmental impact.	• No specific strategies for reducing the environmental impact of transport on tourism sectors. • Limited incentives for adopting sustainable transport solutions in tourism activities.	• UNDP Principle 4: Sustainability and resilience	• Global Sustainable Tourism Council (GSTC) Standards: Promotes sustainable tourism practices, including environmentally-friendly transport.
Resilience of Transport Infrastructure	Disaster Risk Management Act (2007) focuses on resilience but lacks specific	• Transport infrastructure is not fully integrated into national climate resilience plans.	• UNDP Standard 2: Climate Change and Disaster Risk	• Sendai Framework for Disaster Risk Reduction (2015): Advocates for the

KEY PRIORITY/ISSUE	SAMOA REGULATIONS/POLICIES	GAPS	UNDP PRINCIPLES AND STANDARDS	INTERNATIONAL CONVENTIONS AND BEST PRACTICES
	provisions for transport infrastructure.	• Limited adoption of climate-resilient materials and designs for roads and maritime transport infrastructure.		integration of resilience-building measures in infrastructure development.
Energy Efficiency in Transport Infrastructure	Energy Efficiency Policy (2017) encourages energy-saving measures but lacks specifics for transport infrastructure.	• No specific energy efficiency standards for the transport sector. • Limited incentives for adopting energy-efficient technologies in transport systems.	• UNDP Sustainable Energy strategy.	• International Energy Agency (IEA) Best Practices: Advocates for energy efficiency in public transport and infrastructure projects.
Social				
Inclusive Access to Transport	Transport Sector Plan (2014-2019) promotes access to transport but focuses mainly on infrastructure.	• Lack of specific provisions for improving access to transport for rural and vulnerable populations (e.g., women, elderly, disabled). • Inadequate public transport options in remote areas.	• UNDP Principle 5: Accountability • UNDP Principle 1: "Leave No One behind". • UNDP Principle 3: Gender Equality and Women's Empowerment	• Convention on the Rights of Persons with Disabilities (CRPD): Ensures access to transportation for persons with disabilities. • UN Habitat: Promotes sustainable urban transport solutions for all.
Job Creation and Economic Opportunities	Samoa Development Strategy (2016-2020) promotes economic growth and employment, but there is limited focus on green jobs.	• Insufficient emphasis on green job creation, especially in renewable energy and transport sectors. • No clear pathways for transitioning workers from traditional transport sectors to green technologies.	• UNDP Sustainable Livelihoods and Green Economy: Ensures employment creation through sustainable development initiatives.	• ILO Just Transition Guidelines: Provides a framework for transitioning workers from traditional to green industries. Green Economy Coalition: Promotes green jobs and sustainable economic practices.
Gender Equality and Social Inclusion	Ministry of Women, Community & Social Development Act (1990) and National Gender Policy promote gender equality but lack specific provisions for the transport sector.	• No sector-specific gender strategies for the transport industry. • Limited gender-disaggregated data on the impacts of transport projects on women and marginalized groups.	• UNDP Principle 3: Gender Equality and Women's Empowerment	• CEDAW (Convention on the Elimination of All Forms of Discrimination Against Women): Requires gender-sensitive approaches in policies and development projects.
Stakeholder Engagement and Community Participation	Planning and Urban Management Act (2004) requires public participation in major infrastructure projects.	• Limited continuous engagement mechanisms throughout the project lifecycle.	• UNDP Stakeholder Engagement and Public Consultation: Ensures meaningful consultation with all stakeholders,	• Aarhus Convention (1998): Ensures public access to information, participation in decision-making, and access to justice.

KEY PRIORITY/ISSUE	SAMOA REGULATIONS/POLICIES	GAPS	UNDP PRINCIPLES AND STANDARDS	INTERNATIONAL CONVENTIONS AND BEST PRACTICES
		• Insufficient capacity for marginalized communities to engage meaningfully in decision-making processes.	particularly marginalized groups.	
Occupational Health and Safety	Occupational Safety and Health Act (2002), Occupation Safety and Health Regulations 2017 and Health Sector Plan (2019-2024) cover health and safety in workplaces but lack sector-specific guidelines for the transport sector. Ministry of Commerce, Industry, and Labour (MCIL) is Responsible for overseeing and enforcing OHS standards in workplaces.	• No specific health and safety regulations for the construction and operation of new green transport infrastructure. • Limited focus on public health impacts of air pollution from transportation.	• UNDP Standard 3: Community Health, Safety, and Security • UNDP Standard 8: Pollution Prevention and Resources Efficiency	• WHO Air Quality Guidelines: Set international standards for managing air quality and reducing health risks from pollution. • ILO Occupational Health and Safety Guidelines: Provides standards for worker safety in infrastructure projects.
Economic Displacement and Transition	Labour and Employment Relations Act (2013) governs employment rights but lacks specific provisions for displaced workers from traditional industries.	• Lack of formal programs to retrain or assist workers displaced by the transition from fossil fuel to renewable energy in transport. • Limited support for small businesses in transitioning to low-carbon transport solutions.	• UNDP standard 5: Displacement and Resettlement • UNDP Principle 1: "Leave No One Behind"	• ILO Just Transition Guidelines: Recommend frameworks for supporting workers in transitioning to green jobs.
Affordability and Accessibility of Green Transport	National Energy Policy (2007) promotes renewable energy but does not address affordability of electric vehicles or low-carbon transport.	• No financial support mechanisms for low-income populations to access electric vehicles or affordable public transport. • Insufficient focus on reducing the cost of green transport options in rural areas.	• UNDP Principle 1: "Leave No One Behind"	• UN Sustainable Transport Policy Framework: Advocates for accessible and affordable green transport for all, including low-income populations.
Cultural Preservation	Planning and Urban Management Act (2004) includes provisions for preserving cultural heritage in development projects.	• No clear guidelines on how transport infrastructure projects should integrate cultural sensitivity, especially in rural areas. • Limited protection of traditional land use in areas affected by transport development.	• UNDP Standard 4: Cultural Heritage. • UNDP standard 6: Indigenous Peoples	• UNESCO Convention for the Safeguarding of Intangible Cultural Heritage (2003): Calls for protection of cultural heritage in infrastructure projects.

KEY PRIORITY/ISSUE	SAMOA REGULATIONS/POLICIES	GAPS	UNDP PRINCIPLES AND STANDARDS	INTERNATIONAL CONVENTIONS AND BEST PRACTICES
				• UNDRIP (United Nations Declaration on the Rights of Indigenous Peoples): Protects indigenous land use and cultural practices.
Community Resilience and Climate Adaptation	Disaster and Emergency Management Act (2007) and Climate Change Policy (2019) address resilience, but transport is not specifically covered.	• Transport infrastructure is not integrated into broader climate resilience and adaptation plans. • Limited adaptation strategies for rural transport infrastructure in areas prone to climate risks.	• UNDP Standard 2: Climate change Disaster Risks	• Sendai Framework for Disaster Risk Reduction (2015): Recommends integrating climate resilience into public infrastructure projects, including transport.

5.5 Environmental Gaps

5.5.1 Lack of Sector-Specific Policies for Green Transport

Samoa's current regulatory frameworks do not adequately cater to the specific environmental needs of the transport sector, particularly in areas such as emissions standards, the transition to low-carbon technologies, and renewable energy integration. For example, while Samoa's energy and environmental policies encourage the use of renewable energy, they lack detailed guidance on how these should be applied specifically to transport. As a result, there is no clear roadmap for reducing greenhouse gas emissions from vehicles or for incentivizing the use of renewable energy-powered public transport. The absence of these sector-specific policies leaves the transport sector without a structured approach to decarbonization.

5.5.2 Weak Enforcement and Monitoring of Environmental Standards

Although Samoa has enacted several environmental regulations, such as those related to air and water quality, waste management, and biodiversity conservation, the enforcement of these standards remains weak. The lack of adequate resources, technical capacity, and coordination among regulatory bodies has resulted in insufficient monitoring of compliance, particularly in the transport sector. For instance, emissions from vehicles continue to contribute significantly to urban air pollution, while the environmental impacts of infrastructure projects, such as road expansions, are not effectively mitigated due to limited follow-up on environmental impact assessments (EIAs). Without robust enforcement and monitoring systems, the implementation of environmental safeguards is inconsistent, reducing the effectiveness of existing policies.

5.5.3 Limited Focus on Emerging Green Technologies

Samoa's current policies fail to sufficiently address the environmental and social implications of adopting new green technologies, such as electric vehicles (EVs) and renewable energy infrastructure for transport. Specifically, there are no strategies for managing the electronic waste generated by EV batteries or the integration of renewable energy sources into transport systems. The absence of policies governing the lifecycle management of EV batteries—covering safe disposal, recycling, and reuse—poses significant environmental risks. Additionally, without proper integration of renewable energy into transport infrastructure, Samoa risks increasing its dependence on fossil fuel-generated electricity, which undermines the overall environmental benefits of EVs and other low-carbon technologies.

5.5.4 Insufficient Climate Resilience Planning for Transport Infrastructure

Samoa's transport infrastructure is particularly vulnerable to climate change impacts, including extreme weather events, sea-level rise, and flooding. However, current policies do not include strategies to enhance the climate resilience of transport systems. Coastal roads, ports, and bridges are particularly at risk, yet there is a lack of forward-thinking planning to integrate climate-adaptive designs and materials into these infrastructures.

Without these climate resilience measures, the transport sector may suffer from increased disruptions, higher maintenance costs, and potential losses in connectivity during extreme weather events. Addressing this gap is essential to safeguarding both the infrastructure and the communities that rely on it.

5.5.5 Gaps in Addressing Environmental Justice and Social Equity

Existing policies do not adequately ensure that the benefits of the CAP-IT project are equitably distributed, especially among rural and marginalized communities. While urban areas may benefit from improved transport systems, rural populations, low-income households, and vulnerable groups such as persons with disabilities often face challenges in accessing new, green transport services. There are limited mechanisms in place to ensure that these communities have equitable access to clean transport options, subsidies, or incentives that could help them transition to electric vehicles or affordable public transport. This lack of focus on environmental justice risks exacerbating existing inequalities in access to services and opportunities.

5.5.6 Gaps in Sustainable Land Use and Ecosystem Protection

The CAP-IT project involves the expansion and development of transport infrastructure, which can result in the disruption of natural ecosystems and land use patterns. Samoa's current land-use policies, such as the Planning and Urban Management Act (2004), provide general guidelines for sustainable development, but there are gaps in ensuring that transport infrastructure projects are integrated with ecosystem preservation and sustainable land use planning. The lack of specific guidelines for protecting sensitive ecosystems, such as forests, wetlands, and coastal zones, could lead to habitat degradation, deforestation, and the disruption of ecosystem services.

5.5.7 Insufficient Integration of Renewable Energy into the Transport Sector

While Samoa has made progress in promoting renewable energy through policies like the National Energy Policy (2007), there are still gaps in effectively integrating renewable energy into the transport sector. Current transport infrastructure, including vehicles, buses, and maritime transport, remains heavily reliant on fossil fuels. Although there is interest in expanding the use of electric vehicles (EVs), there is limited planning for how the energy demands of EVs will be met sustainably, particularly through solar or other renewable energy sources. Without clear policies that promote renewable energy-powered transport systems, Samoa risks undermining the climate mitigation benefits of the CAP-IT project.

5.5.8 Gaps in Pollution Prevention, Particularly for Marine Ecosystems

Transport infrastructure development, particularly in coastal and maritime areas, poses significant risks to marine ecosystems through pollution, including oil spills, plastic waste, and chemical runoffs from construction activities. Samoa's marine environment is particularly vulnerable to these impacts, and current policies, such as

the Fisheries Act (1988), lack specific measures to prevent pollution from transport projects. Without stricter regulations and monitoring mechanisms in place, there is a risk that the CAP-IT project could lead to increased pollution, which would threaten marine biodiversity, fisheries, and the health of local communities that rely on marine resources.

5.5.9 Lack of Circular Economy Practices for Transport Infrastructure

The transport sector generates significant amounts of waste, particularly during infrastructure development, maintenance, and when dealing with end-of-life vehicles (including EVs). Currently, there are limited policies in Samoa that promote circular economy practices in the transport sector, such as the reuse, recycling, and repurposing of materials from transport projects. Without these practices, the CAP-IT project risks contributing to increased waste and resource depletion, particularly from EV battery disposal, construction debris, and worn-out transport materials.

5.5.10 Inadequate Management of Air Quality in Urban Areas

Urban areas in Samoa, particularly the capital Apia, are facing increasing problems with air pollution due to vehicle emissions and industrial activities. While existing regulations such as the Environmental Management and Conservation Act (1994) address general air quality standards, there is a lack of transport-specific air quality regulations that address emissions from vehicles and transport infrastructure. This gap in regulation could lead to deteriorating air quality in urban centers as the transport network expands, posing health risks to local populations and reducing the quality of life in densely populated areas.

5.5.11 Gaps in Sustainable Water Management During Infrastructure Development

Transport infrastructure development can have significant impacts on water resources, particularly through the disruption of natural drainage systems, water pollution from construction run-off, and the overuse of freshwater resources for construction activities. Samoa's Water Resources Management Act (2008) provides some regulation for water use, but there are gaps in ensuring that transport projects do not negatively affect water quality or availability. This is particularly important in coastal areas, where water pollution can affect marine ecosystems, and in rural areas, where communities depend on local water sources.

5.6 Social Gaps

5.6.1 Lack of Sector-Specific Social Inclusion Strategies

Samoa's policies lack tailored strategies to ensure inclusive access to transport, particularly for women, persons with disabilities, rural communities, and low-income groups. Although national development policies mention social inclusion, there are no specific transport sector strategies that ensure these vulnerable groups can benefit from new green transport initiatives. For example, transport infrastructure projects rarely consider the specific

needs of persons with disabilities or rural communities, leading to gaps in accessibility. Without targeted measures, the most marginalized populations may be left behind in the transition to sustainable and efficient transport systems.

5.6.2 Limited Integration of Gender Equality in Transport Policies

Gender equality is not fully integrated into Samoa's transport sector policies. Although Samoa has made strides in promoting gender equality through its National Gender Policy, this focus has not been extended to the transport sector. Women are often underrepresented in decision-making processes related to infrastructure development, and there are few opportunities for women to enter green job sectors, such as those related to electric vehicle maintenance, renewable energy, or public transport management. Furthermore, transport policies do not consider the specific challenges faced by women in terms of mobility, safety, and access to transportation services. This limited integration of gender equality in transport policies prevents women from fully benefiting from the project's economic and social opportunities.

5.6.3 Weak Support for Workers Displaced by the Shift to Green Technologies

Samoa's policies do not provide sufficient support for workers who may be displaced by the shift from traditional fossil fuel-based transport to green technologies, such as electric vehicles and renewable energy-powered infrastructure. The Labour and Employment Relations Act offers general worker protections, but there are no specific provisions for retraining or assisting workers transitioning from traditional transport jobs, such as vehicle mechanics or fuel station operators, into green industries. This lack of support may lead to economic displacement and exacerbate inequality, particularly if low-skilled workers are not provided with the resources needed to transition to new green jobs.

5.6.4 Insufficient Focus on Affordability and Access to Green Transport

Financial barriers to accessing green transport technologies, such as electric vehicles, remain significant, particularly for low-income households. There are no dedicated financial support mechanisms, such as subsidies or micro-financing options, to ensure that low-carbon transport solutions are affordable and accessible to all segments of society. Rural populations, who often face higher costs for transportation due to geographic isolation, are especially disadvantaged. Without targeted interventions to make green transport affordable, these populations may be excluded from the benefits of the CAP-IT project, perpetuating existing inequities in access to modern and sustainable transport systems.

5.6.5 Cultural and Land Use Protection in Transport Projects

Existing policies do not sufficiently protect cultural heritage or traditional land use practices in the context of transport infrastructure development, particularly in rural areas where land is often communally owned.

Infrastructure projects, such as road expansions or new transport hubs, risk encroaching on culturally significant sites or disrupting traditional land use without adequate consultation or mitigation measures. The absence of robust guidelines for incorporating cultural preservation into transport projects creates the potential for social tension, particularly if communities feel their cultural heritage is being compromised in the pursuit of development.

5.6.6 Limited Mechanisms for Continuous Stakeholder Engagement

While public consultations are required for major infrastructure projects, there are no formal mechanisms in place to ensure continuous stakeholder engagement throughout the lifecycle of the CAP-IT project. Engagement with local communities, especially marginalized groups, often ends once the project is approved, leaving little room for ongoing dialogue or the ability to address emerging social and environmental concerns. This gap in continuous engagement risks alienating communities from the decision-making process and could lead to resistance or dissatisfaction with project outcomes.

5.6.7 Lack of Health and Safety Standards for Green Transport Infrastructure

There are currently no specific public health and safety standards tailored to the construction and operation of green transport infrastructure, such as electric vehicle charging stations or low-carbon maritime systems. The absence of such standards poses risks to both public health and occupational safety. For instance, the operation of charging stations without proper safety protocols could lead to electrical hazards, while construction activities in densely populated areas might expose residents to air pollution, traffic accidents, or noise pollution. Addressing this gap is crucial to safeguarding both workers and the communities affected by transport infrastructure projects.

5.6.8 Limited Integration of Climate Adaptation and Disaster Risk Reduction in Transport Planning

While Samoa's Disaster and Emergency Management Act and Climate Change Policy provide a framework for general disaster preparedness and adaptation, they lack specific integration into the transport sector. The CAP-IT project, which involves significant infrastructure development, requires robust climate adaptation strategies to ensure that transport systems are resilient to extreme weather events such as floods, storms, and rising sea levels, all of which Samoa is highly vulnerable to. Currently, many of Samoa’s roads and transport hubs, particularly in coastal areas, are vulnerable to climate-related hazards, but there is no cohesive strategy to incorporate disaster risk reduction (DRR) into the design and construction of transport infrastructure.

5.6.9 Inadequate Data and Research on Environmental and Social Impacts

There is a lack of data on the environmental and social impacts of Samoa's transport sector, particularly in terms of air and water quality, emissions, and social equity. Data collection and analysis are essential for

informed decision-making, especially when developing policies for the CAP-IT project. Without accurate and up-to-date data, it is difficult to assess the effectiveness of mitigation measures, identify areas for improvement, or predict long-term environmental and social outcomes.

5.6.10 Limited Incentives for Private Sector Participation in Green Transport

The role of the private sector in promoting green transport technologies and renewable energy integration is critical, yet there are limited financial and policy incentives to encourage private sector investment in Samoa. Without such incentives, businesses may be hesitant to invest in electric vehicle infrastructure, renewable energy projects, or sustainable transport solutions. Furthermore, small and medium enterprises (SMEs) face significant financial barriers to entering the green economy, particularly in terms of capital investments in EVs or renewable energy-powered transport.

5.6.11 Limited Awareness and Public Engagement on Environmental and Social Benefits of Green Transport

Public awareness about the environmental and social benefits of green transport, including reduced emissions, improved air quality, and increased mobility, is relatively low. Without widespread understanding and support, communities may be hesitant to adopt electric vehicles or participate in new transport initiatives, particularly in rural areas where access to information is limited. Furthermore, resistance to change may emerge if the benefits of green transport systems are not well communicated or if the public perceives the costs to outweigh the benefits.

5.6.12 Gaps in Long-Term Maintenance and Sustainability of Green Transport Infrastructure

While the CAP-IT project will deliver new transport infrastructure, there is a concern about the long-term maintenance and sustainability of these systems, particularly in terms of financial and technical capacity. Without proper maintenance, electric vehicle charging stations, roads, and maritime transport systems may deteriorate over time, reducing their effectiveness and increasing operational costs. Ensuring that the infrastructure remains functional and accessible over the long term requires a clear plan for ongoing maintenance and capacity-building for local authorities.

5.7 UNDP SES disclosure requirements

As part of the stakeholder engagement process, UNDP's SES require that project stakeholders have access to relevant information. Specifically, the SES (SES, Policy Delivery Process, para. 21) stipulates that, among other disclosures specified by UNDP's policies and procedures, UNDP will ensure that the following information be made available -

a. Information on a project's purpose, nature and scale, duration, and potential risks and impacts

b. Stakeholder engagement plans and summary reports of stakeholder consultations
c. Social and environmental screening reports with project documentation
d. Draft social and environmental assessments, including any draft management plans
e. Final social and environmental assessments and associated management plans
f. Any required social and environmental monitoring reports.

As outlined in the SES and UNDP's Social and Environmental Screening Procedure (SESP), the type and timing of assessments and management plans vary depending of the level of the social and environmental risks and impacts associated with a project as well as timing of the social and environmental assessment. For the CAP-IT project in Samoa categorized as Moderate risk, the disclosure scenario involving the SESA is summarized in table 8 below.

Table 8: Proposed CAP-IT disclosure requirement for the SESA

DOCUMENT	DISCLOSURE REQUIREMENT	PURPOSE OF DISCLOSURE	METHOD OF DISCLOSURE	TIMING/PROJECT PHASE
SESA (Social and Environmental Screening Assessment)	Initial disclosure to gather feedback, followed by updates as project progresses.	To engage stakeholders from the outset in identifying potential impacts and refining project design based on their input.	Workshops, community forums, project website.	During preliminary screening phase and ongoing as needed.

This disclosure strategy ensures that all relevant stakeholder groups are well-informed and actively engaged throughout every phase of the project, from initial assessments to the continuous management of social and environmental concerns. By doing so, the strategy not only meets UNDP's requirements but also fosters a transparent, inclusive, and responsive project environment.

Stakeholders are made aware of the availability of UNDP's Accountability Mechanism, which includes the Stakeholder Response Mechanism (SRM) and the Social and Environmental Compliance Unit (SECU). These mechanisms provide further avenues for grievance redress and are introduced during initial and ongoing engagements. Stakeholders are encouraged to use these mechanisms if they have concerns regarding the project's compliance with social and environmental standards or the effectiveness of mitigation measures. The dissemination methods for these disclosures are tailored to ensure accessibility for all affected and broader stakeholder groups. Information is provided in clear, appropriate formats and languages that accommodate different literacy levels and accessibility needs.

CHAPTER 6: IMPACT ASSESSMENT

6.1 Introduction

The CAP-IT project has the potential to create a wide range of environmental benefits for Samoa, from reducing emissions and improving air quality to conserving water resources and fostering biodiversity. By promoting sustainable transport solutions, the project not only addresses current environmental challenges but also lays the foundation for a greener, more resilient future. These benefits align with Samoa's broader goals of achieving climate resilience and protecting its unique ecosystems while fostering sustainable development. CAP-IT project also has the potential for several negative environmental impacts that need to be mitigated through careful planning and management. These potential negative impacts primarily arise from the construction, implementation, and operational phases of the project, as well as the introduction of new technologies.

6.1.1 Potential positive environmental benefits

a. Reduction in Greenhouse Gas Emissions - By promoting the adoption of electric vehicles (EVs) and low-carbon maritime technologies, the CAP-IT project will directly reduce carbon dioxide (CO2) and other harmful emissions from the transportation sector, which is currently one of the largest contributors to greenhouse gas emissions in Samoa. The shift to cleaner, renewable energy sources for transport systems will lower the overall carbon footprint of Samoa, supporting its Nationally Determined Contributions (NDCs) under the Paris Agreement.
b. Improved Air Quality - The reduction in the use of fossil-fuel-powered vehicles and maritime vessels will lead to improved air quality, particularly in urban areas like Apia. This will decrease the levels of pollutants such as nitrogen oxides (NOx) and particulate matter (PM), leading to healthier living conditions for residents. Cleaner air also benefits natural ecosystems, reducing the stress on local flora and fauna caused by pollution.
c. Promotion of Renewable Energy - The integration of electric vehicle charging infrastructure and the use of renewable energy sources, such as solar power, for these stations will promote the broader adoption of renewable energy in Samoa. This supports the country's goal of achieving a higher share of renewable energy in its energy mix. Encouraging renewable energy use reduces reliance on imported fossil fuels, enhancing energy security and reducing the environmental impact associated with fuel transportation and usage.
d. Reduced Noise Pollution - Electric vehicles and low-carbon maritime technologies operate much more quietly than traditional internal combustion engine vehicles and diesel-powered boats, leading to lower noise pollution, particularly in urban areas and sensitive ecosystems such as coastal regions. Reduced noise

levels can benefit both human populations and wildlife, particularly marine species that are affected by high levels of underwater noise from traditional boat engines.

e. Climate Resilience - The project encourages the development of climate-resilient infrastructure, such as durable roadways and transport systems designed to withstand the impacts of extreme weather events, including heavy rainfall and rising sea levels. This enhances Samoa's ability to adapt to climate change and protect its natural and built environments. By promoting more sustainable transport solutions, the CAP-IT project contributes to long-term climate resilience, helping Samoa better cope with climate-related vulnerabilities.

f. Conservation of Marine and Coastal Ecosystems - The introduction of low-carbon outboard motors for fishing vessels reduces the pollution of marine environments. Cleaner boat engines lower the risk of oil spills, fuel leakage, and other contaminants entering the ocean, benefiting marine biodiversity and coral reef ecosystems. Protecting marine ecosystems aligns with Samoa's commitment to preserving its rich coastal resources, which are critical for both biodiversity and the livelihoods of local communities.

g. Sustainable Land Use and Reduced Land Degradation - By encouraging the use of sustainable and low-impact transportation systems, the CAP-IT project will help reduce land degradation that is often caused by the development of extensive road networks and the associated construction activities. More efficient transport systems mean less disruption to natural landscapes and ecosystems. The project can promote better urban planning by reducing the demand for vehicle-intensive infrastructure and supporting more compact, eco-friendly city designs.

h. Reduction in Traffic Congestion - The adoption of electric public transportation and the shift toward more sustainable transport options can help reduce traffic congestion, particularly in urban areas like Apia. This reduces the environmental footprint of traffic jams, including air and noise pollution.

i. Promotion of Sustainable Practices - The CAP-IT project promotes sustainable transport practices and raises public awareness about the environmental benefits of low-carbon transport systems. This educational component can encourage more eco-friendly behavior across various sectors, creating a ripple effect of sustainability beyond the transport sector.

j. Water Resource Conservation - The CAP-IT project's emphasis on electrification and the reduction of fossil-fuel consumption helps minimize the risks of fuel spills and contamination of water bodies. Reduced dependence on fuel transportation and storage lowers the chance of spills that could pollute rivers, streams, and coastal waters. The use of electric vehicles and boats limits the harmful effects of exhaust emissions on water quality, particularly in marine environments, where pollutants from conventional fuel engines can accumulate.

k. Ecosystem Restoration and Preservation - The project indirectly contributes to ecosystem preservation by promoting transport systems that require less invasive infrastructure, thus reducing the demand for new road networks or maritime facilities that can disturb natural habitats. By minimizing the environmental

impact of transportation development, the CAP-IT project helps protect critical habitats, such as mangroves, wetlands, and forested areas, which play vital roles in biodiversity conservation and climate regulation.

l. Support for Sustainable Tourism - By improving the sustainability of Samoa's transport systems, the CAP-IT project can support the country's tourism industry, which is a major economic driver. Electric vehicles and clean maritime transport will enhance Samoa's image as an eco-friendly destination, attracting tourists interested in sustainable travel. Reducing emissions from tourism-related transportation helps preserve the natural beauty of Samoa's landscapes and coastal areas, which are key attractions for visitors.

m. Contribution to Global Climate Goals - The CAP-IT project aligns with international climate action commitments, such as the Paris Agreement, by supporting Samoa's efforts to reduce its carbon emissions. By contributing to the global reduction of greenhouse gases, the project helps mitigate the broader impacts of climate change, such as rising sea levels and extreme weather, which particularly affect island nations like Samoa.

n. Promotion of Environmental Innovation and Green Jobs - The CAP-IT project encourages the adoption of new technologies, such as electric vehicles, charging infrastructure, and low-carbon maritime solutions, fostering innovation in the environmental and transport sectors. This can create opportunities for the development of local expertise in green technology and sustainable transport solutions. The introduction of these technologies also generates green jobs in areas such as electric vehicle maintenance, renewable energy installation, and environmental management, contributing to sustainable economic development.

o. Waste Reduction - By reducing reliance on conventional vehicles that require frequent oil changes and produce higher emissions, the CAP-IT project decreases the amount of hazardous waste (e.g., motor oils, coolant fluids) that must be disposed of, thus reducing the environmental risks associated with waste management. The integration of electric vehicles, which have fewer mechanical components prone to breakdown, also means less material waste over the vehicle's lifetime, further contributing to the project's positive environmental impact.

6.1.2 Potential negative environmental impacts

a. Construction-Related Environmental Impacts

- Soil Erosion and Land Degradation (Direct Impact)- During the construction of infrastructure such as electric vehicle (EV) charging stations, new roads, or maritime facilities, land clearing, excavation, and heavy machinery use can cause soil erosion and land degradation. This is particularly a concern in areas with steep terrain or near water bodies, where disturbed soils may be washed into rivers and coastal areas, contributing to sedimentation and habitat disruption.
- Habitat Destruction (Direct Impact)- The construction of new transportation infrastructure can lead to the loss of natural habitats, particularly if roads or charging stations are built in ecologically sensitive

areas. This can disrupt local flora and fauna, leading to a reduction in biodiversity and the degradation of ecosystems.

- Air and Noise Pollution (Direct Impact)- Construction activities often generate temporary increases in air pollution from dust, vehicle emissions, and construction equipment, as well as noise pollution, which can disturb nearby communities and wildlife.

b. Impact on Marine Ecosystems

- Disruption of Coastal and Marine Habitats (Direct Impact)- The introduction of low-carbon maritime technologies may involve modifications to existing ports or the construction of new docking facilities, which could disrupt coastal ecosystems, including coral reefs, mangroves, and seagrass beds. Construction activities in marine environments can disturb sensitive habitats and contribute to the decline of marine biodiversity.
- Marine Pollution (Indirect Impact)- Although the use of low-carbon outboard motors is meant to reduce pollution, improper management during the transition, such as inadequate waste disposal or the handling of old equipment, could lead to fuel spills and the release of hazardous waste into the marine environment. These pollutants could harm marine life and coastal ecosystems.

c. Waste Generation

- Electronic Waste (Cumulative Impact)- The introduction of electric vehicles (EVs) and related infrastructure will generate electronic waste (e-waste), including discarded batteries, electrical components, and solar panels. Improper disposal of these materials can lead to the release of toxic chemicals such as lead, cadmium, and lithium into the environment, contaminating soil and water sources.
- Vehicle and Equipment Disposal (Cumulative Impact)- As traditional vehicles and maritime engines are replaced by electric or low-carbon alternatives, there may be a significant increase in the disposal of old vehicles and engines. Without proper recycling and waste management systems, this could lead to solid waste accumulation and environmental contamination.

d. Water Resource Strain

- Water Consumption for Infrastructure (Indirect Impact) The construction and maintenance of EV charging stations, roads, and other transport infrastructure could put additional strain on water resources, particularly in areas where water availability is already limited. Construction activities may require large amounts of water for dust suppression and concrete production, which could deplete local water supplies.
- Water Pollution (Direct Impact)- The use of heavy machinery and construction materials near water bodies poses the risk of water pollution, as runoff containing oil, fuel, and chemicals could enter rivers and streams, affecting water quality and aquatic ecosystems.

e. Energy Demand and Carbon Emissions

- Increased Energy Consumption (Indirect Impact)- While the shift to electric vehicles reduces emissions from transportation, the demand for electricity will increase, potentially leading to greater reliance on fossil fuel-based power generation if renewable energy sources are not sufficiently integrated. This could result in increased carbon emissions from power plants, undermining the environmental benefits of the CAP-IT project.
- Carbon Emissions from Construction (Indirect Impact)- The construction phase of the project will likely involve the use of heavy machinery, transport of materials, and other energy-intensive activities that contribute to carbon emissions. While these emissions are temporary, they must be managed to minimize the overall environmental impact.

f. Pressure on Land Use and Natural Resources

- Land Conversion (Cumulative Impact)-Developing new transportation infrastructure, such as roads and EV charging stations, may require converting agricultural land, forests, or other natural landscapes into built environments. This could lead to the loss of productive land for agriculture, increased deforestation, and the degradation of natural resources.
- Resource Extraction (Cumulative Impact)-The materials needed for construction, such as sand, gravel, and minerals for building roads and EV infrastructure, can lead to increased resource extraction. If not managed sustainably, this could contribute to habitat loss, soil degradation, and long-term environmental damage.

g. Disruption of Local Communities

- Increased Traffic and Congestion (Indirect Impact) During the construction phase, the movement of construction materials, heavy machinery, and workers could temporarily increase traffic congestion and disrupt the daily lives of local communities, particularly in densely populated areas such as Apia.
- Displacement of Communities (Cumulative Impact)- Depending on the scale of infrastructure development, there is a potential risk of displacement of local communities or land use conflicts, particularly if land traditionally owned by communities is used for project infrastructure without adequate consultation or compensation.

h. Risk of Technological Failure and Obsolescence

- Environmental Risks from EV Batteries (Cumulative Impact)- The large-scale deployment of electric vehicles introduces risks associated with the failure, disposal, or recycling of EV batteries, which contain hazardous chemicals that can be harmful to the environment if not properly managed.
- Obsolescence of Technology (Cumulative Impact)- If the technologies used for the project, such as EVs or low-carbon maritime solutions, become obsolete or are not well-suited to Samoa's climate and

environmental conditions, their replacement or upgrading could lead to increased environmental and financial costs.

i. Climate Change Vulnerability

- Vulnerability to Extreme Weather Events (Indirect Impact)-Samoa is highly vulnerable to extreme weather events, such as cyclones and heavy rainfall, which could damage newly constructed transport infrastructure. Without climate-resilient design and materials, roads, charging stations, and maritime infrastructure may become compromised during natural disasters, leading to costly repairs and environmental degradation.

j. Biodiversity Impacts

- Fragmentation of Ecosystems (Cumulative Impact)- New transport infrastructure can create barriers that fragment ecosystems, affecting wildlife movement and habitat connectivity. Roads or charging stations built near or within sensitive ecological zones may isolate species and reduce their ability to adapt to environmental changes.
- Introduction of Invasive Species (Indirect Impact)- Construction and increased movement of vehicles, materials, and personnel between areas could unintentionally introduce invasive species into new environments, potentially threatening local biodiversity and ecosystems.

k. Increased Demand for Raw Materials (Cumulative Impact)

- The construction and installation of new transportation infrastructure, such as roads, charging stations, and maritime docks, will require a significant amount of raw materials like concrete, metals, and plastics. The extraction, processing, and transportation of these materials can lead to habitat disruption, increased carbon emissions, and pollution during the construction phase. If not sourced sustainably, these activities can contribute to long-term environmental degradation.

l. Changes in Land Use Patterns (Indirect Impact)

- The introduction of new transport infrastructure may change existing land use patterns, particularly in rural and semi-urban areas. Land that was once used for agriculture, forest cover, or communal purposes might be repurposed for infrastructure development, potentially leading to loss of agricultural productivity, displacement of local flora and fauna, and disruption of natural landscapes.
- These changes could also lead to urban sprawl, especially around newly developed roads and transport hubs, which may place further stress on ecosystems and contribute to deforestation or degradation of natural habitats.

m. Pressure on Existing Waste Management Systems (Cumulative Impact)

- The waste management infrastructure in Samoa might not be adequately equipped to handle the disposal of new types of waste generated by the CAP-IT project, such as electronic waste (from EV batteries and components) and construction waste (from roads and infrastructure). If these waste

materials are not properly managed, they could contaminate landfills, water sources, and natural ecosystems.

- There is also the potential for hazardous waste, such as lithium-ion batteries from electric vehicles, to leak harmful chemicals into the environment if not disposed of or recycled correctly.

n. Environmental Footprint of Energy Production (Cumulative Impact)

- While the project promotes the use of electric vehicles (EVs), the source of electricity to charge these vehicles plays a crucial role in determining the net environmental impact. If Samoa continues to rely on fossil fuel-based power generation, the increased demand for electricity from EVs may offset some of the environmental benefits of reducing fossil fuel use in the transport sector.
- Transitioning to renewable energy sources, such as solar, wind, or hydropower, is crucial to ensuring that the environmental benefits of EVs and low-carbon transport options are maximized. Otherwise, the environmental gains from reduced tailpipe emissions may be diminished by higher emissions from electricity generation.

o. Short-term Environmental Disruptions

- Dust and Pollution (Direct Impact)- During construction, there will likely be short-term increases in dust, air pollution, and noise levels, which could negatively affect both local communities and wildlife. Although these impacts may be temporary, they can lead to respiratory issues for nearby residents, disrupt animal behavior, and degrade air quality.
- Disruption of Water Flow (Direct Impact)- Road construction and new infrastructure installations may alter the natural flow of water in some areas, leading to changes in drainage patterns, flooding risks, and the disruption of local water bodies.

p. Occupational Health and Safety

- Exposure to Hazardous Materials (Direct) - Workers may handle hazardous materials such as fuel, lubricants, and chemicals during construction and maintenance, posing risks of spills, burns, and toxic exposure.
- Use of Heavy Machinery and Equipment (Direct) - Operation of heavy equipment during construction increases the risk of accidents, such as falls, crushing, and equipment failure.
- Noise-Induced Hearing Loss (Direct) - Prolonged exposure to high noise levels from construction machinery can lead to hearing damage for workers without proper hearing protection.
- Respiratory Issues from Dust and Emissions (Direct) - Construction activities may generate significant amounts of dust and vehicle emissions, causing respiratory problems for workers.
- Inadequate Safety Training (Indirect) - Lack of training on safety protocols may increase the likelihood of accidents and injuries during construction and operational stages.

- Electrical Hazards (Direct) - Maintenance and installation of EV charging stations and other high-voltage equipment expose workers to electrical risks, including shocks and electrocution.
- Ergonomic Risks (Indirect) - Improper working postures and repetitive tasks during infrastructure construction and operation may lead to musculoskeletal disorders among workers.
- Fatigue and Stress (Indirect) - Long working hours during the construction phase may lead to fatigue, increasing the risk of human error and accidents.
- Cumulative Exposure to Pollutants (Cumulative) - Long-term exposure to pollutants such as vehicle emissions and hazardous waste handling can cause chronic health problems for workers.

6.2 Social impacts of CAP IT

The CAP-IT project in Samoa has the potential to generate significant beneficial social impacts, particularly by improving transportation systems, fostering economic opportunities, enhancing community well-being, and supporting inclusive development. While the CAP-IT project in Samoa offers many beneficial social impacts, there are also potential negative social impacts that may arise during its implementation. These impacts need to be carefully considered and mitigated to ensure that the project's benefits are maximized without causing undue harm to communities or vulnerable populations.

6.2.1 Potential beneficial social impacts of CAP IT

a. Improved Access to Transportation - The project aims to introduce electric vehicles (EVs) and improved maritime transportation, which will increase the availability of safe, reliable, and affordable transport options. This will particularly benefit rural communities and isolated areas where access to modern transportation has traditionally been limited. Enhanced transportation infrastructure can improve access to essential services such as healthcare, education, and markets, which is critical for improving the quality of life for vulnerable populations.
b. Job Creation and Economic Opportunities - The shift toward sustainable transport and the development of new infrastructure, such as EV charging stations and low-carbon maritime systems, will create new employment opportunities in sectors such as construction, transportation, maintenance, and renewable energy. These jobs will benefit both urban and rural populations. The development of green jobs in fields like electric vehicle maintenance, renewable energy systems, and environmental management will also contribute to long-term economic growth, creating sustainable career paths for the youth and workers transitioning from traditional industries.
c. Reduction in Transportation Costs - The adoption of electric vehicles, which are cheaper to operate and maintain than conventional gasoline or diesel vehicles, can lead to lower transportation costs for both private and public transportation users. This can be particularly beneficial for low-income households, who

may spend a significant portion of their income on transportation. Similarly, the introduction of low-carbon maritime technologies can reduce fuel costs for small-scale fishers and transport operators, improving their livelihoods and reducing the financial burden of fuel expenses.

d. Enhanced Public Health and Safety - By reducing emissions from fossil fuel-powered vehicles and boats, the CAP-IT project will help to improve air quality, leading to better respiratory and overall health outcomes for the population. Cleaner air will particularly benefit children, the elderly, and those with pre-existing health conditions. Electric vehicles and low-carbon maritime transport produce less noise than traditional internal combustion engines, which will reduce noise pollution, improving the overall well-being of people living in densely populated urban areas like Apia. Safer and more efficient transport systems can also reduce the risk of accidents, particularly in areas where road conditions are poor or transport options are unreliable.
e. Support for Gender Equality - The CAP-IT project incorporates gender-sensitive approaches, ensuring that women are actively involved in the planning, implementation, and benefits of the project. This includes promoting women's participation in decision-making roles, training, and employment opportunities within the green transportation sector. By providing women, especially in rural areas, with better access to transportation, the project enhances their ability to access education, healthcare, and economic opportunities, fostering greater gender equality.
f. Improved Connectivity and Social Inclusion - The development of sustainable transportation infrastructure will significantly improve connectivity between Samoa's islands and rural communities, allowing people to more easily access social services, markets, and other communities. This can strengthen social cohesion and reduce the isolation of vulnerable or marginalized populations. Better transport options will make it easier for students to travel to schools, for workers to access jobs, and for communities to engage in cultural, religious, and social activities, enhancing overall social well-being and inclusion.
g. Empowerment of Youth and Skill Development The CAP-IT project provides opportunities for youth empowerment through vocational training and skill-building programs related to green technology, transportation management, and renewable energy. These programs will help young people develop skills that are in demand in a rapidly evolving job market, improving their employability and economic prospects. By engaging youth in sustainable development, the project helps foster a new generation of environmental stewards and skilled workers who can contribute to Samoa's transition to a low-carbon economy.
h. Support for Small and Medium Enterprises (SMEs) - Local SMEs, particularly those in the transportation, tourism, and fishing industries, will benefit from improved and more sustainable transport options. Electric vehicles, low-carbon boats, and better infrastructure can lower operational costs, increase efficiency, and provide businesses with opportunities to offer new services. By promoting eco-friendly tourism, the project can attract tourists seeking sustainable travel options, boosting the local tourism sector and creating additional business opportunities for SMEs.

i. Resilience to Climate Change - The CAP-IT project promotes climate resilience by introducing climate-adaptive transport infrastructure that can withstand extreme weather events, such as heavy rainfall, flooding, and cyclones. This is particularly important in Samoa, which is highly vulnerable to the impacts of climate change. Communities that rely on the transport sector, such as fisherfolk and farmers, will benefit from reduced disruptions in transportation services during climate-related events, allowing them to maintain their livelihoods and access essential goods and services.

j. Reduction in Traffic Congestion - By improving public transportation options and encouraging the use of electric vehicles, the CAP-IT project can help to reduce traffic congestion in urban centers like Apia. This will lead to faster and more efficient commutes, saving time for workers, students, and other commuters. The reduction in congestion also contributes to a more organized and safe urban environment, reducing the stress and hazards associated with heavy traffic.

k. Capacity Building and Institutional Strengthening - The CAP-IT project will involve capacity building for government institutions, local authorities, and stakeholders involved in transport and environmental management. This will enhance their ability to manage sustainable transportation projects, improve regulatory frameworks, and promote environmentally sound practices. Strengthened institutions will be better equipped to address future challenges related to transportation, climate change, and sustainable development, ensuring long-term social and environmental benefits.

l. Increased Social Awareness and Environmental Stewardship - The project includes public awareness campaigns focused on the benefits of sustainable transport and environmental conservation. This will help increase social awareness about climate change, pollution, and the importance of transitioning to low-carbon technologies. By fostering a culture of environmental stewardship, the CAP-IT project can encourage individuals and communities to adopt more sustainable practices in their daily lives, contributing to a more eco-conscious society.

m. Improved Quality of Life - Overall, the CAP-IT project will improve the quality of life for Samoa's population by providing cleaner, safer, and more efficient transport options, reducing the burden of transportation costs, improving access to essential services, and fostering economic growth through job creation and skills development. These improvements, coupled with increased community resilience to climate change and enhanced social inclusion, will contribute to long-term social and economic well-being for all Samoans.

n. Strengthening of Community Networks - Improved transportation infrastructure and access will facilitate greater mobility, leading to stronger community networks. People will be able to travel more easily between villages, islands, and regions, fostering better communication, social interaction, and cultural exchange. This enhanced mobility can support the preservation of Samoa’s rich cultural heritage by making it easier to attend traditional events, religious ceremonies, and communal activities. By improving access to markets,

education, and healthcare, the project will help strengthen the social fabric of communities, enabling them to better support each other and thrive together.

o. Reduction in Gender-based Mobility Challenges - In Samoa, women, particularly those in rural areas, often face barriers in accessing reliable transportation, which limits their ability to participate fully in the economy and society. The CAP-IT project can significantly reduce gender-based mobility challenges by offering more affordable and accessible transportation options. This will empower women to travel more freely for work, education, healthcare, and community engagement. Providing better transport options also supports women's access to entrepreneurial opportunities and enables them to engage more actively in local and regional markets, contributing to greater economic independence and reducing gender inequalities.

p. Tourism Sector Boost - The promotion of environmentally friendly transportation options will appeal to eco-conscious tourists, a growing demographic in global tourism markets. Electric vehicles and low-carbon maritime transport will reduce the environmental footprint of tourism activities in Samoa, making the country a more attractive destination for visitors who prioritize sustainability. This can lead to increased tourism revenue, particularly in eco-tourism, benefiting local businesses, communities, and the national economy. It also provides opportunities for sustainable tourism development, which can create jobs and support the conservation of natural resources.

q. Strengthened Community Ownership and Participation - The CAP-IT project emphasizes community involvement in planning, implementation, and monitoring phases. This approach fosters a sense of ownership among local communities, encouraging them to take an active role in maintaining and protecting the new infrastructure. By involving communities in decision-making processes, the project ensures that the transportation solutions align with their needs, preferences, and cultural practices, ultimately leading to better long-term outcomes and higher levels of satisfaction among beneficiaries.

r. Increased Agricultural and Fisheries Productivity - Improved transportation networks will enhance the ability of farmers and fishers to transport their goods to markets more efficiently. By reducing transportation time and costs, the project can help increase the profitability of agriculture and fisheries, which are critical sectors in Samoa's economy. Reliable transportation will facilitate better access to resources, such as equipment and materials, which can improve productivity. This, in turn, can lead to higher income levels for rural households and support food security.

s. Support for National Development Goals - The CAP-IT project aligns with Samoa's broader national development goals, including its commitments to climate change mitigation, sustainable development, and economic diversification. The social impacts of the project will contribute to Samoa's progress in achieving its Samoa Development Strategy, which focuses on improving the standard of living for all Samoans through sustainable, inclusive, and resilient economic growth. By reducing emissions, improving infrastructure, and creating jobs, the project will help Samoa move towards its low-carbon future while ensuring that social benefits are widely shared across all communities.

t. Resilience in Post-COVID-19 Recovery - As Samoa, like many other countries, continues to recover from the economic and social disruptions caused by the COVID-19 pandemic, the CAP-IT project can play a key role in post-pandemic recovery. By creating jobs, improving transportation, and fostering economic opportunities, the project supports the country's recovery efforts, helping communities rebuild and strengthen their resilience to future shocks. The project also encourages the adoption of clean technologies and sustainable practices, which are crucial in shaping a resilient and green recovery, ensuring that Samoa's economic rebound is aligned with long-term sustainability goals.

u. Increased Awareness of Climate Change and Sustainability - Through the project's educational and outreach programs, Samoan communities will become more aware of the importance of climate change mitigation and sustainability. This will empower individuals and communities to adopt eco-friendly practices in their daily lives, contributing to broader environmental and social awareness across the country. The CAP-IT project serves as a model for sustainable transport development, demonstrating to communities the benefits of reducing reliance on fossil fuels and shifting to low-carbon alternatives. This knowledge-sharing can have a lasting positive impact, fostering a culture of environmental responsibility and climate resilience.

6.3 Potential negative social impacts of CAP IT

a. Displacement and Land Use Conflicts - The construction of new transport infrastructure, such as roads, electric vehicle (EV) charging stations, and low-carbon maritime facilities, may require the use of land traditionally owned by local communities. This could lead to displacement of residents or conflicts over land use, particularly in areas where land tenure is based on communal ownership or traditional governance systems. If land acquisition is not handled transparently or fairly, it could cause social tensions and negatively affect the livelihoods of displaced families, leading to potential loss of homes, agricultural land, or access to communal resources.

b. Economic Displacement - The introduction of new low-carbon technologies, such as electric vehicles and modernized maritime equipment, could lead to economic displacement of individuals working in traditional transportation sectors. For instance, those employed in servicing and repairing fossil-fuel-powered vehicles or operating conventional boats may lose their jobs if they lack the skills needed for maintaining new technologies. Without adequate retraining or support, this could result in unemployment or underemployment, particularly for individuals who are not able to transition to jobs in the green transport sector.

c. Social Inequality and Access - While the CAP-IT project aims to improve access to transportation, there is a risk that the benefits may not be evenly distributed across all communities. Wealthier or urban populations may have better access to new electric vehicle infrastructure or public transportation, while rural or marginalized communities may be left behind, exacerbating existing inequalities. If electric vehicle

infrastructure or new transport systems are concentrated in urban areas, there may be limited access for remote or isolated communities, particularly those in rural Samoa or smaller islands.

d. Increased Cost of Living - The shift to more advanced technologies, such as electric vehicles and renewable energy-based transport systems, could lead to increased upfront costs for individuals and businesses. The high initial cost of purchasing electric vehicles, low-carbon boats, or related infrastructure could place a financial burden on lower-income households, businesses, and communities. Although electric vehicles and other low-carbon technologies may reduce long-term operating costs, the initial costs of adoption could increase the financial strain on those who are less economically secure, leading to a widening of the gap between wealthier and poorer segments of society.
e. Disruption During Construction - The construction of new transport infrastructure, including roads, charging stations, and maritime facilities, may cause temporary disruptions to local communities. These disruptions can include noise, dust, traffic congestion, and limited access to certain areas during construction periods. In urban centers like Apia, construction activities may increase traffic congestion and inconvenience residents, leading to delays, frustration, and potential health and safety risks. In rural areas, construction might disrupt agricultural activities or access to communal lands.
f. Cultural and Social Impacts - The introduction of modern infrastructure and technologies, particularly in rural or culturally sensitive areas, could cause cultural disruptions. For example, the construction of new transport infrastructure could encroach on sacred sites or areas of cultural significance, potentially leading to tensions with local communities. There may also be changes in traditional social practices as communities adjust to new modes of transportation and mobility. These changes could affect the cohesion of rural communities, particularly if younger generations adopt new technologies more readily than older ones, leading to potential generational divides.
g. Exclusion of Vulnerable Groups - While the CAP-IT project includes efforts to promote gender inclusivity and empower vulnerable groups, there is a risk that certain populations, such as women, the elderly, persons with disabilities, and rural populations, may not fully benefit from the project if they are not adequately included in decision-making or given access to the new technologies. Without targeted efforts to ensure the participation of vulnerable groups, the project could unintentionally reinforce social exclusion or marginalization, particularly if the benefits of improved transportation systems are concentrated in wealthier or more accessible areas.
h. Changes in Traditional Livelihoods - The shift to modern, low-carbon transportation systems may affect traditional livelihoods, particularly in the fishing and farming sectors. For example, small-scale fishers who rely on conventional outboard motors may find it difficult to transition to new low-carbon technologies due to costs or lack of familiarity with the equipment. Farmers who depend on traditional forms of transport to bring their goods to market may face challenges if new infrastructure is not designed to meet their specific needs, potentially impacting their productivity and income.

i. Social Tensions Due to Uneven Benefits - If the benefits of the CAP-IT project are perceived to be concentrated in certain regions or among certain groups, it could lead to social tensions or dissatisfaction among other segments of the population. For example, if urban residents or large businesses are seen as receiving the bulk of the benefits from improved transportation, rural or smaller-scale enterprises may feel excluded. This could potentially lead to community conflicts or resistance to the project, especially if communities feel that their concerns are not being addressed or that they are being asked to bear disproportionate costs.

j. Potential Gender Disparities - While the project aims to promote gender equality, there is a risk that women may face barriers to accessing new opportunities in the green transportation sector. Women, particularly in rural areas, may have less access to the education, training, and resources needed to fully participate in the green economy, which could limit their ability to benefit from new job opportunities. Without targeted measures to support women's participation in the green transport sector, there may be gender disparities in employment and access to transportation services, perpetuating existing inequalities.

k. Dependency on External Support The introduction of new technologies, such as electric vehicles and low-carbon maritime transport, may increase dependency on external expertise and support for maintenance, repair, and operation. If local communities and businesses are not adequately trained to manage these technologies, they may rely heavily on external technical assistance, which could increase costs and reduce local autonomy. This dependency could also limit the sustainability of the project in the long term if local capacity is not built to support the ongoing operation of new transportation systems.

l. Environmental Justice Issues - The project's environmental benefits, such as reduced emissions and improved air quality, may not be evenly distributed across all communities. For example, if electric vehicle infrastructure is primarily concentrated in urban areas, rural or low-income populations may not experience the same environmental benefits, such as improved air quality or noise reduction. This could create environmental justice issues, where certain communities bear a disproportionate share of the environmental burdens while others benefit more from the project's positive impacts.

m. Disruption of Local Markets - The CAP-IT project's focus on modernizing transportation systems may unintentionally disrupt local markets that rely on traditional transport systems. For instance, local operators who run informal or small-scale transport businesses, such as private minibus or taxi drivers, may face difficulties competing with electric vehicles or other advanced transport technologies. If these operators cannot afford the transition to new technologies, they may be pushed out of the market, leading to a loss of income for small business owners and potentially creating economic instability within local communities.

n. Technology Access and Digital Divide - As the CAP-IT project introduces more technologically advanced systems, there is a risk that some segments of the population may be left behind due to a lack of access to or understanding of new technologies. Communities without sufficient digital literacy or access to modern tools, particularly in rural areas, may find it challenging to engage with new systems like electric vehicle

charging infrastructure, smart transport systems, or digital payment methods. This digital divide could exacerbate existing inequalities between urban and rural populations or between younger and older generations, potentially reducing the inclusivity of the project.

o. Increased Dependency on Imported Technology - The project's reliance on imported electric vehicles, charging infrastructure, and low-carbon maritime technologies could create a dependency on foreign suppliers and technologies. This may affect local economic autonomy, as Samoa would need to rely on external suppliers for maintenance, parts, and expertise. Furthermore, if the imported technologies are not well-suited to Samoa's specific environmental and social conditions, it may lead to operational inefficiencies or higher costs for repairs and upgrades, particularly in the long term.

p. Cultural Resistance to Technological Changes - The introduction of new, unfamiliar technologies may face cultural resistance, particularly in more traditional communities that are accustomed to certain modes of transport or ways of life. Resistance could stem from concerns about changing social norms, fear of technology, or skepticism about the long-term benefits of the project. Without adequate community engagement and education, there could be a lack of acceptance of new transportation methods, making it more challenging to implement and sustain the project effectively.

q. Potential Strain on Existing Infrastructure - The increased adoption of electric vehicles and other low-carbon transport technologies may put strain on existing energy infrastructure, especially if renewable energy sources are not sufficiently developed. If the electricity grid is unable to support the additional demand from charging stations or electric vehicles, it could lead to power shortages or increased reliance on fossil fuels, which could indirectly affect social and economic activities. This strain could also increase the cost of electricity for households, particularly if infrastructure upgrades are required to accommodate the new technologies, potentially creating financial pressures for low-income families.

r. Risk of Exclusion of Marginalized Groups - Marginalized groups, such as persons with disabilities or elderly populations, may be disproportionately affected by the introduction of new transport systems if they are not designed with accessibility in mind. If the infrastructure does not include accessible features, such as ramps or accommodations for those with limited mobility, these groups may find it more difficult to benefit from the improved transportation options. Additionally, the digital aspects of the project, such as online systems for managing transportation or payment, could create barriers for those who are not digitally literate or do not have access to the necessary technology, leading to exclusion from essential services.

s. Community Fragmentation - The construction of new roads and transport infrastructure may unintentionally lead to the fragmentation of communities, particularly in rural areas. If new roads divide traditional lands or disrupt communal spaces, it could lead to social tensions and weaken the bonds that hold communities together. Community fragmentation may also occur if wealthier areas receive better transportation services and infrastructure than poorer regions, leading to social divisions and disparities in service provision.

t. Potential Rise in Social Conflicts - If the allocation of resources and benefits from the CAP-IT project is perceived to favor certain groups or regions over others, it may result in social conflicts. For example, if urban areas are prioritized over rural regions, or if certain ethnic or socioeconomic groups feel excluded from the project's benefits, it could lead to grievances and tension within or between communities. Social conflicts could also arise if land acquisition processes are not transparent or equitable, particularly if traditional landowners feel that they are being unfairly compensated or excluded from decision-making processes.

u. Long-Term Economic Risks for Small Businesses - Small businesses that rely on traditional fuel-powered transportation may struggle to compete with larger companies that can afford to transition to electric vehicles or low-carbon transport systems. This could lead to a consolidation of market power in the hands of a few larger companies, potentially squeezing out smaller operators and reducing market competition. The cost of maintaining new transport technologies, particularly for small businesses with limited resources, could also pose a long-term economic risk, potentially leading to job losses and reduced economic diversity in the transportation sector.

6.4 Analysis of Alternatives: Inclusion of the 'Without' Situation

6.4.1 'Without' Situation: No Implementation of the CAP-IT Project

In the absence of the Climate Action Pathways for Island Transport (CAP-IT) project, the following **Environmental and Social (E&S)** impacts are anticipated:

CATEGORY	POTENTIAL IMPACTS WITHOUT CAP-IT
Environmental Impacts	• Continued reliance on fossil fuels, leading to increased greenhouse gas (GHG) emissions and contribution to climate change. • Persistent air and water pollution due to outdated and inefficient vehicles, affecting biodiversity and public health. • Uncontrolled solid waste accumulation, including hazardous materials from existing vehicles and maritime transport systems. • Limited adoption of renewable energy, increasing dependency on imported fossil fuels and associated environmental degradation.
Social Impacts	• Exacerbation of health issues due to air and noise pollution in urban and peri-urban areas. • Reduced access to efficient and affordable transport systems, disproportionately affecting rural and vulnerable communities. • Missed opportunities for job creation in green industries such as electric vehicle (EV) maintenance and renewable energy. • Limited gender and social inclusion in transport development, perpetuating inequalities.
Economic Impacts	• Increased national expenditure on fossil fuel imports, contributing to economic vulnerability. • Lack of investment in modern transport infrastructure, reducing competitiveness and economic growth.
Climate Resilience	• Transport infrastructure remains vulnerable to extreme weather events due to inadequate planning and climate-resilient designs.

CATEGORY	POTENTIAL IMPACTS WITHOUT CAP-IT
	• Missed opportunities to integrate renewable energy sources and low-carbon technologies into national transport systems.

6.4.2 'With' Situation: Implementation of CAP-IT Project

The CAP-IT project integrates sustainable transport systems and renewable energy, reducing environmental degradation and social inequalities while enhancing climate resilience. The potential benefits include:

CATEGORY	POSITIVE IMPACTS WITH CAP-IT
Environmental Benefits	• Significant reduction in GHG emissions through the adoption of EVs and low-carbon maritime solution, hence contributing to Samoa's Nationally Determined Contributions (NDCs) • Improved waste management systems for handling EV batteries and hazardous materials. • Enhanced air and water quality due to reduced reliance on fossil fuels and improving public health. • Sustainable transport systems minimize habitat disruption and marine pollution compared to traditional fuel-powered transport.
Social Benefits	• Improved public health outcomes from reduced pollution. • Enhanced access to efficient and affordable transport systems for rural and marginalized populations. 4 • Creation of green jobs and opportunities for capacity building in EV maintenance and renewable energy. • Promotion of gender and social inclusion in project implementation and benefits.
Economic Benefits	• Diversification of the economy through investment in renewable energy and low-carbon transport technologies. • Reduced national expenditure on fossil fuel imports and enhancing energy security.
Climate Resilience	• Integration of climate-resilient designs into transport infrastructure, reducing vulnerability to extreme weather events. • Strengthened adaptive capacity through renewable energy integration and sustainable development practices.

6.4.3 Basis for Selecting CAP-IT Policy Program and Plan Design

The "without" scenario underscores the risks of continued environmental degradation, missed economic opportunities, and stalled progress toward sustainability goals, making the adoption of the CAP-IT policy program and plan design essential. In contrast, the "with" CAP-IT scenario offers transformative environmental and social benefits, addressing key challenges in Samoa's transport sector.

This approach brings multiple advantages:

- Alignment with National and Global Commitments: CAP-IT aligns with Samoa's NDCs, the Paris Agreement, and the Sustainable Development Goals (SDGs), reinforcing its commitment to sustainable development.

- Environmental Sustainability: By reducing emissions, improving air and water quality, and managing waste effectively, the project enhances ecological health.
- Social Equity and Economic Growth: CAP-IT fosters inclusive development by creating jobs, improving accessibility, and advancing public health outcomes.
- Resilience: Climate-resilient transport infrastructure mitigates vulnerability to extreme weather events, ensuring long-term reliability and sustainability.

CHAPTER 7: MITIGATION AND ENHANCEMENT MEASURES

7.1 Mitigation Strategies

To avoid, minimize, or mitigate the potential negative environmental impacts of the CAP-IT project in Samoa, several strategic measures should be implemented throughout the project lifecycle. These measures will ensure that the project remains environmentally sustainable and minimizes harm to Samoa's ecosystems, natural resources, and communities. The proposed measures for various environmental risks include:

a. Minimizing Land Degradation and Soil Erosion

- Careful Site Selection - Conduct detailed environmental impact assessments (EIAs) to choose locations for infrastructure such as roads, electric vehicle (EV) charging stations, and maritime facilities that have minimal impact on sensitive ecosystems and avoid areas prone to erosion.
- Erosion Control - Implement soil erosion control measures, such as silt fences, retaining walls, and vegetation buffers, especially in areas with steep slopes or near water bodies. Reforestation or vegetation restoration should be done after construction to stabilize soil and prevent further erosion.
- Sustainable Construction Practices - Use low-impact construction techniques, such as avoiding extensive land clearing, limiting heavy machinery to designated areas, and using eco-friendly materials where possible.

b. Protecting Water Resources

- Stormwater Management - Install effective drainage systems to manage stormwater runoff, ensuring that pollutants from roads or charging stations do not enter nearby rivers or coastal waters. Use natural drainage solutions like rain gardens and bioswales to filter and slow down stormwater.
- Wastewater Treatment - Ensure that all construction and operational activities follow strict wastewater management protocols, including the use of sediment traps and oil separators to prevent pollution from entering waterways.
- Buffer Zones - Establish buffer zones around water bodies to protect them from construction activities and infrastructure development. This helps to minimize the risk of water pollution and protects aquatic habitats.

c. Managing Waste and Pollution

- Sustainable Waste Management Plans - Develop a waste management plan that includes the proper disposal of construction waste, electronic waste (from EV batteries and components), and hazardous materials. This plan should focus on reducing, reusing, and recycling materials where possible.
- EV Battery Recycling - Set up or partner with recycling facilities for electric vehicle batteries and other electronic components to prevent hazardous waste from being improperly disposed of. Extended

Producer Responsibility (EPR) schemes can be introduced to ensure that manufacturers take responsibility for the end-of-life management of their products.

- Hazardous Material Protocols - Ensure strict protocols for the handling, storage, and disposal of hazardous materials, such as fuels, lubricants, and chemicals used in construction and transportation operations. These protocols should follow international best practices for environmental protection.

d. Promoting Renewable Energy and Reducing Emissions

- Renewable Energy Integration - Prioritize the use of renewable energy sources, such as solar, wind, or hydropower, to power electric vehicle charging stations and other project infrastructure. This will minimize the carbon footprint of the CAP-IT project and reduce reliance on fossil fuels.
- Energy Efficiency Measures - Implement energy-efficient technologies in the design and operation of EV charging stations, lighting, and other facilities to reduce overall energy consumption.
- Emission Monitoring - Establish emission monitoring systems for all infrastructure components to regularly track and report on air quality and emissions from transport systems. This ensures that mitigation measures are effective and allows for prompt action if any threshold limits are exceeded.

e. Protecting Biodiversity and Habitats

- Biodiversity Assessments - Conduct biodiversity impact assessments before starting any construction or transport activities in sensitive ecosystems, such as coastal areas, wetlands, or forests. Use the findings to adjust project plans and minimize habitat disruption.
- Wildlife Corridors - Design roads and other infrastructure to include wildlife corridors that allow animals to safely cross and maintain habitat connectivity. This reduces the risk of habitat fragmentation and helps preserve biodiversity.
- Marine Conservation Measures - When developing low-carbon maritime transport systems, ensure that marine conservation measures are in place to protect coral reefs, mangroves, and other coastal ecosystems. This includes restricting construction in critical habitats and implementing no-discharge zones to prevent pollution.

f. Sustainable Use of Natural Resources

- Sustainable Materials Sourcing - Source construction materials (e.g., sand, gravel, wood) from environmentally responsible suppliers. Avoid extraction from sensitive areas like riverbeds, coastal zones, or forests to prevent habitat degradation and ecosystem imbalances.
- Water Conservation - Implement water-saving technologies in construction and operational phases, such as rainwater harvesting systems and low-water-use appliances, to reduce pressure on local water resources, especially in areas prone to water shortages.

g. Resilient Infrastructure Design

- Climate-Resilient Infrastructure - Ensure that all infrastructure, including roads, charging stations, and maritime facilities, is designed to withstand extreme weather events, such as cyclones, flooding, and sea-level rise. Use climate-resilient materials and incorporate features like elevated roadways and flood barriers in areas at high risk of flooding.
- Maintenance and Monitoring Plans - Develop regular maintenance and monitoring plans to ensure that infrastructure remains in good condition, preventing long-term environmental damage from deteriorating facilities.

h. Reducing Noise and Air Pollution

- Quiet Construction Techniques - Employ noise-reducing construction technologies and limit construction hours in populated areas to minimize the impact of noise pollution on local communities and wildlife.
- Emissions Standards for Construction Machinery - Ensure that all construction vehicles and machinery comply with emission standards, using low-emission or electric machinery where feasible to reduce air pollution during the construction phase.
- Green Public Spaces - Integrate green spaces into project designs, such as urban parks, green belts, and planting trees along roads, to help absorb noise and improve air quality in urban areas.

i. Community Engagement and Education

- Stakeholder Engagement - Conduct continuous stakeholder engagement throughout the project, involving local communities, government agencies, and NGOs in decision-making processes. This ensures that environmental concerns are addressed, and communities have ownership over the project's success.
- Environmental Education Programs - Implement environmental education and awareness programs to inform communities (see annex 5) about the benefits of sustainable transportation and the importance of protecting the environment. This encourages responsible use of infrastructure and fosters community support for the project.
- Meaningful and Culturally Appropriate Consultations
    - Respect for Traditional Leadership - Involve community leaders (*matai*) and elders in planning and decision-making to build trust and legitimacy. Seek their guidance on culturally appropriate ways to communicate project goals and impacts.
    - Use of Local Languages and Dialects - Conduct consultations and share information in the Samoan language and local dialects. Provide translations of key documents and presentations for stakeholders with varying literacy levels.
    - Timing of Consultations - Align engagement activities with local cultural and seasonal calendars to avoid conflicts with traditional obligations, ceremonies, or harvesting seasons.

- Tailored Communication Methods
  - Oral Communication and Storytelling - Use culturally relevant oral presentations, storytelling, and visual aids to explain project details to communities accustomed to oral traditions.
  - Accessible Information Formats - Disseminate materials (e.g., brochures, posters, videos) in user-friendly formats that are visually engaging and easily understood by all, including those with limited literacy.
  - Community Media - Utilize community radio, local newspapers, and digital platforms to reach broader audiences and ensure consistent messaging.
- Engagement Platforms and Tools
  - Focus Group Discussions (FGDs) - Organize small group discussions for specific stakeholders such as women, youth, and marginalized groups to ensure their voices are heard.
  - Participatory Methods - Use participatory tools like mapping exercises, interactive workshops, or role-playing scenarios to facilitate two-way communication and active involvement.
  - Public Forums and Meetings - Conduct public meetings in accessible and neutral locations, such as community halls, ensuring inclusivity and transparency.
- Mechanisms for Feedback and Accountability
  - Grievance Redress Mechanism (GRM) - Establish a culturally appropriate and easily accessible GRM that allows communities to raise concerns anonymously if needed. Include local mediators to build trust in the grievance process.
  - Feedback Loops - Create systems to ensure community feedback is incorporated into project decisions, with updates regularly communicated back to stakeholders.
  - Monitoring and Reporting - Provide regular updates on project progress and outcomes using culturally relevant reporting formats, such as community presentations or progress boards.
- Empowering Local Capacity
  - Capacity Building - Train local leaders and representatives to act as intermediaries, ensuring community concerns and feedback are accurately represented.
  - Educational Workshops - Conduct workshops to raise awareness of project objectives, environmental and social benefits, and potential impacts, empowering communities to make informed decisions.
  - Youth and Gender Engagement - Implement programs targeting youth and women to ensure their perspectives are integrated into the project.

j. Mitigation of Environmental Justice Issues

- Equitable Distribution of Benefits - Ensure that the project's benefits, such as improved transportation infrastructure and reduced emissions, are equitably distributed across urban and rural areas. This helps

prevent environmental justice issues where certain communities bear a disproportionate share of environmental burdens while others benefit more.

- Transparent Compensation and Resettlement Plans - In cases where land acquisition or displacement is necessary, develop transparent compensation plans and provide fair resettlement options for affected communities. Ensure that these plans include environmental safeguards to minimize disruption to livelihoods and ecosystems.

k. Monitoring and Adaptive Management

- Environmental Monitoring Systems - Establish robust environmental monitoring systems to regularly assess the impacts of the project on air, water, soil, and biodiversity. Continuous monitoring allows for the early detection of environmental issues and the ability to adapt strategies accordingly.
- Adaptive Management - Incorporate adaptive management strategies that allow the project to respond dynamically to environmental changes or unforeseen impacts. This ensures that environmental risks are minimized and that mitigation measures remain effective over time.

l. Carbon Offset Programs

- Carbon Sequestration Initiatives - To mitigate the carbon footprint of construction and transportation-related emissions, implement carbon offset programs such as reforestation or afforestation initiatives. These programs can contribute to carbon sequestration, helping to balance any greenhouse gas emissions generated by the project.
- Local Tree-Planting Campaigns - Engage communities in tree-planting campaigns to restore forests or green urban spaces, further absorbing carbon emissions while providing ecological benefits such as improved air quality, enhanced biodiversity, and reduced soil erosion.

m. Mitigating Marine and Coastal Pollution

- Sustainable Maritime Technologies - Ensure that the transition to low-carbon maritime technologies includes eco-friendly designs that minimize water pollution. This could involve installing engines with reduced oil leakage, using biofuels, and implementing pollution control measures for all maritime vessels.
- Marine Habitat Monitoring - Establish a marine habitat monitoring system to assess the health of coastal ecosystems, particularly near ports and other maritime infrastructure. By identifying potential degradation early, remedial actions can be taken to prevent long-term damage to marine biodiversity.
- Fisheries Protection Zones - Designate protected fisheries areas or no-discharge zones to safeguard coastal and marine resources. These areas can help minimize the impact of increased maritime traffic and prevent pollution from reaching sensitive marine ecosystems.

n. Avoiding Invasive Species Introduction

- Biosecurity Measures - Implement strict biosecurity measures to prevent the introduction of invasive species during construction and transport activities. This is especially important when importing construction materials, vehicles, or maritime equipment from other regions. Screening and quarantining measures should be put in place to ensure that no harmful species are unintentionally introduced into Samoa's ecosystems.
- Restoration of Native Habitats - Encourage the restoration and conservation of native ecosystems by replanting indigenous species in areas affected by construction. This will help preserve Samoa's natural biodiversity and protect local species from being displaced by invasive plants or animals.

o. Controlling Construction-Related Impacts

- Phased Construction - Where possible, implement phased construction to limit the extent of environmental disruption at any given time. This approach allows for smaller, controlled construction zones that can be monitored more effectively for environmental impacts, minimizing the scale of disruption to surrounding ecosystems and communities.
- Dust and Air Quality Management - To prevent air pollution during construction, use dust control measures such as water sprinkling, windbreaks, and covering of materials during transportation. Construction vehicles should meet strict emission standards to reduce air pollution and greenhouse gas emissions.
- Minimizing Footprint - Use a minimalist design approach in infrastructure construction to minimize the land footprint, reduce the impact on natural habitats, and maintain landscape integrity.

p. Mitigating Climate Change Risks

- Early Warning Systems - Install early warning systems and real-time weather monitoring tools to help identify and mitigate risks from extreme weather events such as floods, cyclones, or sea-level rise. This helps ensure that transport infrastructure can withstand and quickly recover from such events.
- Climate-Resilient Design - Ensure that all new infrastructure is built to be climate-resilient, using materials and designs that can withstand increased temperature extremes, stronger winds, and heavier rainfall due to climate change. Incorporate elevated structures, flexible road surfaces, and other adaptive design elements that reduce vulnerability to climate impacts.

q. Sustainable Fisheries Practices

- Community-Based Fisheries Management - Introduce community-based fisheries management programs to help local fisherfolk transition to low-carbon maritime technologies while ensuring that sustainable fishing practices are followed. By involving communities in resource management, the project can minimize environmental impacts and improve the long-term sustainability of coastal fisheries.

- Low-Impact Fishing Gear - Promote the use of low-impact fishing gear and modernized outboard motors that reduce fuel consumption and minimize environmental harm. This will help reduce overfishing and protect marine ecosystems from degradation caused by unsustainable practices.

r. Inclusive Environmental Governance

- Multi-Stakeholder Environmental Oversight - Establish a multi-stakeholder environmental oversight body composed of government representatives, local communities, NGOs, and environmental experts to oversee the implementation of environmental safeguards. This body would provide ongoing feedback on the project's impacts and help ensure compliance with environmental regulations.
- Participatory Monitoring - Engage local communities in participatory environmental monitoring, providing them with the tools and training needed to observe and report environmental changes. By empowering local stakeholders, the project fosters a sense of environmental stewardship and accountability.

s. Eco-Friendly Urban Planning

- Integrated Green Infrastructure - Incorporate green infrastructure solutions such as green roofs, permeable pavements, and vegetated buffers into urban transport planning. These features not only enhance environmental sustainability but also improve urban resilience to climate change by managing stormwater and reducing heat island effects.
- Sustainable Transport Corridors - Designate sustainable transport corridors that prioritize pedestrian, cycling, and public transport infrastructure while limiting the expansion of roadways for private vehicles. This reduces vehicle emissions and encourages the development of low-carbon transport options.

t. Sustainable Development of Tourism

- Eco-Friendly Tourism Transport - Promote the use of electric vehicles and low-carbon boats for tourism-related transportation, ensuring that Samoa's tourism sector contributes to environmental sustainability. Sustainable transport options for tourists can reduce the environmental footprint of the sector and enhance Samoa's reputation as an eco-friendly destination.
- Environmental Certifications - Encourage tourism operators to seek environmental certifications for sustainability, such as energy-efficient vehicles and carbon-neutral transportation services. These certifications can help reduce the industry's overall environmental impact.

u. Environmental Education and Capacity Building

- Training Programs - Develop training programs for local workers and stakeholders in environmental management, renewable energy technologies, and sustainable transport practices. These programs will build the capacity of the local workforce to implement and maintain low-carbon transport solutions while protecting the environment.

- Awareness Campaigns - Run environmental awareness campaigns to educate the public about the environmental benefits of the CAP-IT project and how they can contribute to its success. Topics could include sustainable transport, renewable energy use, waste reduction, and climate change adaptation.

v. Regular Environmental Audits

- Third-Party Environmental Audits - Commission regular independent environmental audits to assess the effectiveness of the project's mitigation measures and environmental performance. These audits provide an impartial evaluation of whether environmental standards are being met and where improvements may be necessary.
- Compliance with International Standards - Ensure that all aspects of the CAP-IT project comply with international environmental standards, such as those set by the UN's Sustainable Development Goals (SDGs), the Paris Agreement, and international environmental frameworks. Regular audits and assessments will help maintain compliance and transparency.

w. Mitigation Strategies Occupational Health and Safety (OHS)

Construction Stage - To address OHS risks during the construction of transport and EV infrastructure, the following mitigation strategies should be implemented:

MITIGATION STRATEGY	DETAILS
Development of a detailed OHS Plan	Prepare a detailed OHS management plan tailored to the construction phase, covering hazard identification, risk assessments, and management measures.
Mandatory Safety Training	Provide workers with training on safety protocols, use of personal protective equipment (PPE), and emergency response procedures.
Provision of Personal Protective Equipment (PPE)	Supply appropriate PPE, such as helmets, gloves, high-visibility vests, earplugs, and respiratory protection, and ensure proper usage.
Safe Equipment Handling	Conduct regular maintenance of machinery and tools to prevent equipment-related accidents. Ensure operators are licensed and trained.
Site Safety Monitoring and Supervision	Deploy OHS officers to monitor compliance with safety measures and ensure adherence to established safety protocols.
Emergency Preparedness and First Aid	Establish on-site first aid stations and train workers in first aid. Develop clear evacuation plans and conduct regular emergency drills.
Dust and Noise Control Measures	Use dust suppression techniques (e.g., water sprays) and noise barriers to minimize environmental and health impacts. Provide hearing protection for workers exposed to high noise.
Hazardous Materials Management	Implement proper storage, handling, and disposal protocols for hazardous substances like fuel, oil, and chemicals used during construction.
Safety Signage and Barriers	Install visible warning signs, safety instructions, and physical barriers to restrict access to hazardous areas.

Operational Stage - To ensure worker safety during the operation and maintenance of EV charging stations, roads, and maritime transport systems, the following strategies should be implemented:

MITIGATION STRATEGY	DETAILS
Routine OHS Training	Provide ongoing training to operational staff on workplace safety, use of equipment, and handling of emergencies.
Regular Health and Safety Audits	Conduct periodic inspections of facilities and practices to identify and address safety hazards proactively.
Ergonomic Work Practices	Design operational tasks to minimize repetitive strain and ergonomic risks, especially for workers maintaining charging stations or maritime infrastructure.
Electrical Safety Protocols	Train workers on electrical safety measures, particularly for high-voltage EV charging systems, and implement lockout-tagout (LOTO) procedures during maintenance.
Safe Handling and Disposal of EV Batteries	Provide training on managing, recycling, and disposing of EV batteries to prevent exposure to hazardous chemicals.
Emergency Response Systems	Equip facilities with fire extinguishers, spill kits, and clear emergency response plans. Train workers in responding to fire, chemical spills, or electrical hazards.
Occupational Health Monitoring	Conduct regular health checkups for workers exposed to hazardous materials or conditions to detect and address occupational health risks early.
PPE Availability and Enforcement	Ensure that workers have access to and consistently use PPE tailored to operational hazards, such as gloves for chemical handling or goggles for welding.
Stakeholder Coordination and Reporting	Establish a reporting system for near-misses and incidents to improve OHS practices. Collaborate with regulatory agencies for continuous improvement in safety standards.

7.2 Enhancement Opportunities

To maximize the benefits of the CAP-IT project in Samoa and further enhance its positive environmental and social impacts, several opportunities can be integrated into the project's design, implementation, and operational phases. These opportunities focus on creating sustainable development, promoting inclusive growth, fostering climate resilience, and encouraging community empowerment. The following are proposed strategies to enhance the positive impacts of the project

a. Integration of Renewable Energy for Transportation

- Solar-Powered Charging Stations - Implement solar-powered electric vehicle (EV) charging stations across urban and rural areas to reduce reliance on grid electricity and further promote the use of renewable energy. By incorporating solar energy, the project can reduce its carbon footprint and encourage the broader adoption of clean energy technologies.
- Hybrid Public Transport Solutions - Introduce hybrid buses or solar-powered boats for public transportation, particularly in rural and coastal areas. This will reduce emissions, lower fuel costs, and support sustainable transport solutions for local communities.

b. Expansion of Green Jobs and Workforce Development

- Green Jobs Training Programs - Develop green job training programs focused on renewable energy, electric vehicle maintenance, low-carbon maritime technologies, and environmental management. These programs will prepare the local workforce for emerging opportunities in the green economy and create pathways to long-term employment.

- Women and Youth Empowerment - Create targeted training and employment initiatives for women and youth in the transport and renewable energy sectors. This can help reduce gender inequalities and provide meaningful economic opportunities for young people, contributing to inclusive development.

c. Promotion of Sustainable Tourism

- Eco-Tourism Development - Leverage the project to promote eco-tourism by encouraging sustainable transport options for tourists, such as electric vehicles and low-carbon boats. This can enhance Samoa's reputation as an environmentally conscious destination, attract eco-conscious travelers, and generate revenue for local businesses.
- Tourism Partnerships - Collaborate with the Samoa Tourism Authority (STA) and local tour operators to develop green tourism packages that highlight the use of sustainable transport and showcase Samoa's natural beauty in an environmentally responsible way.

d. Community-Led Sustainable Initiatives

- Community Solar Projects - Encourage the development of community-owned solar power projects to provide renewable energy for EV charging stations and public facilities. These initiatives can foster local ownership, improve energy security, and provide communities with a new source of income.
- Micro-Grants for Local Sustainability Projects - Offer micro-grants to local communities for small-scale sustainability projects, such as building EV-friendly public transport stops, installing solar panels, or restoring local ecosystems. These grants can empower communities to take part in the transition to low-carbon infrastructure and promote environmental stewardship.

e. Improved Public Health and Air Quality

- Promotion of Active Transport - Alongside the introduction of electric vehicles, promote active transportation methods such as walking and cycling, particularly in urban areas. By building pedestrian-friendly and cycling infrastructure, the project can reduce vehicle emissions, improve air quality, and promote healthier lifestyles.
- Public Health Campaigns - Partner with health agencies to run public health campaigns that highlight the benefits of cleaner air and reduced emissions on community health. Emphasizing the link between sustainable transport and public health can increase public support for the project.

f. Education and Environmental Awareness

- Schools and Educational Programs - Develop environmental education programs in schools to teach students about sustainable transport, renewable energy, and climate change mitigation. This helps raise awareness from a young age and builds a generation of environmentally conscious citizens.
- Public Environmental Campaigns - Launch public campaigns to raise awareness about the environmental benefits of electric vehicles, renewable energy, and low-carbon transport solutions. This can encourage behavioral changes and increase public buy-in for sustainable practices.

g. Enhancing Climate Resilience

- Climate-Resilient Infrastructure - Invest in climate-resilient infrastructure by incorporating designs that withstand extreme weather events such as flooding and cyclones. This not only protects the transportation systems but also ensures that communities remain connected during and after natural disasters, reducing the social and economic impacts of climate events.
- Nature-Based Solutions - Promote the use of nature-based solutions, such as restoring mangroves and wetlands, to enhance natural climate defenses. These ecosystems provide natural flood protection and contribute to biodiversity, while also sequestering carbon.

h. Strengthening Supply Chains for Electric Vehicles

- Local Assembly or Repair Facilities - Consider establishing local assembly or repair facilities for electric vehicles and low-carbon boats to strengthen supply chains and create new economic opportunities. This would reduce dependency on imports and enhance the sustainability of the project by supporting local manufacturing and service industries.
- Partnerships with Regional Suppliers - Develop partnerships with regional suppliers to secure the consistent supply of renewable energy technologies, EV components, and sustainable transport materials. These partnerships can help reduce the environmental costs associated with long-distance transport of materials and support regional economic integration.

i. Sustainable Urban Development

- Smart Urban Transport Systems - Implement smart urban transport systems that optimize routes for public buses, electric vehicles, and low-carbon boats. Using data-driven solutions, the project can reduce traffic congestion, improve efficiency, and lower emissions in densely populated areas like Apia.
- Green City Planning - Work with urban planners to incorporate green city planning principles into the design of new transportation corridors, ensuring that infrastructure development is aligned with environmental goals, such as reducing urban sprawl and maintaining green spaces.

j. Maximizing Economic Benefits for Local Communities

- Incorporating Local Businesses in Supply Chains - Prioritize local businesses in the supply chain for the project's implementation, including construction materials, services, and labor. This can help boost the local economy and ensure that the economic benefits of the project are widely shared across the population.
- Supporting Small-Scale Entrepreneurs - Encourage small-scale entrepreneurs to offer services related to electric vehicle charging, repair, and maintenance, as well as low-carbon tourism. Providing technical assistance and financing for entrepreneurs can help build local capacity and create sustainable businesses.

k. Partnerships with International Development Agencies

- Collaborations with Global Organizations - Partner with international development organizations, such as the United Nations Development Programme (UNDP), to access technical expertise, financial support, and best practices in implementing sustainable transport projects. These partnerships can help strengthen the project's capacity to deliver positive impacts.
- Leverage Climate Finance - Take advantage of climate finance opportunities, such as the Green Climate Fund (GCF), to fund additional sustainability initiatives within the project, including expanding renewable energy use, promoting low-carbon technologies, and enhancing climate resilience.

l. Inclusive Planning for Vulnerable Populations

- Ensuring Accessibility for All - Design transportation infrastructure to be accessible to persons with disabilities, the elderly, and other vulnerable populations. By ensuring that new infrastructure is inclusive and accessible, the project can promote social equity and ensure that all citizens benefit from improved transport systems.
- Inclusive Public Participation - Foster inclusive public participation in decision-making processes, ensuring that all voices are heard, particularly those of women, youth, and marginalized communities. This enhances social cohesion and strengthens community support for the project.

m. Data Collection and Environmental Monitoring

- Enhanced Environmental Monitoring Systems - Establish robust systems for monitoring air quality, carbon emissions, and other environmental indicators. Data collected can be used to assess the ongoing impact of the project and identify further opportunities for improvement.
- Real-Time Data for Public Use - Make real-time environmental data available to the public, allowing communities to track the project's progress and its positive impacts. This transparency fosters public trust and encourages active engagement in environmental protection efforts.

n. Carbon Neutrality Initiatives

- Offsetting Project Emissions - Strive to make the CAP-IT project carbon neutral by implementing carbon offset initiatives, such as reforestation projects, mangrove restoration, or investment in renewable energy credits. This will ensure that the project contributes to global efforts to mitigate climate change.
- Low-Carbon Public Transport Systems - Further promote low-carbon public transport systems, such as electric buses or shared EV services, to reduce the reliance on private vehicle use and cut down on greenhouse gas emissions in both urban and rural settings.

o. Promoting Public-Private Partnerships

- Encouraging Private Sector Investment - Leverage the CAP-IT project to attract private sector investment in sustainable transport and renewable energy solutions. Public-private partnerships can

accelerate the deployment of electric vehicle (EV) infrastructure, renewable energy systems, and low-carbon transport technologies, while sharing financial and technical risks.

- Incentivizing Local Startups - Provide incentives for local startups and small-to-medium enterprises (SMEs) to develop innovative solutions in transport, such as apps for ride-sharing services using electric vehicles, maintenance services for EVs, or solar-powered public transport systems. This not only fosters innovation but also creates new economic opportunities.

p. Utilizing Green Financing Mechanisms

- Green Bonds and Loans - Explore the use of green bonds and sustainable loans to fund aspects of the project that focus on environmental improvements, such as the development of renewable energy infrastructure or the installation of energy-efficient technologies. These financial instruments can attract environmentally-conscious investors and provide additional funding for sustainability initiatives.
- Carbon Credits - Explore opportunities to participate in the carbon credit market, where the CAP-IT project can sell carbon credits generated through emissions reductions to other organizations seeking to offset their carbon footprint. Revenue from carbon credits could be reinvested into further sustainability projects.

q. Promoting Circular Economy Practices

- Recycling and Reuse of Materials - Integrate circular economy principles into the project by promoting the recycling and reuse of construction materials, electronic waste, and EV components. For example, setting up local recycling programs for EV batteries and vehicle parts can reduce waste, lower material costs, and minimize environmental impacts.
- Sustainable Procurement - Ensure that all materials used in the project are sourced from sustainable suppliers that adhere to eco-friendly practices. This helps to support responsible supply chains and reduces the environmental footprint of the project.

r. Fostering Technological Innovation

- Research and Development (R&D) in Green Technologies - Establish partnerships with local universities, research institutions, and international organizations to advance research and development (R&D) in green transportation technologies. This could include innovations in electric vehicle efficiency, battery storage, renewable energy integration, and low-carbon maritime transport.
- Technology Hubs for EVs and Low-Carbon Solutions - Create technology hubs or innovation centers focused on electric vehicles and sustainable transport solutions. These hubs could provide training, research opportunities, and a space for entrepreneurs to test new technologies, helping Samoa become a regional leader in low-carbon transportation.

s. Developing a Low-Carbon Maritime Industry

- Promotion of Low-Carbon Boats - Expand the CAP-IT project to include low-carbon maritime technologies, such as electric or solar-powered boats, which can significantly reduce emissions from the fishing and tourism industries. Offering financial assistance or incentives to local boat operators can speed up the adoption of these technologies.
- Marine Ecotourism Initiatives - Promote marine ecotourism by developing sustainable water transport systems that use low-carbon boats for tours and travel between islands. These initiatives can attract eco-conscious tourists, generate revenue for local communities, and reduce the environmental impact of maritime transport.

t. Enhancing Coastal and Marine Resilience

- Blue Economy Strategies - Integrate blue economy principles into the CAP-IT project by promoting sustainable use of coastal and marine resources. This includes developing transport systems that minimize environmental impacts on coastal ecosystems and supporting sustainable fisheries management as part of low-carbon maritime transport.
- Coastal Protection Projects - Enhance coastal resilience through mangrove restoration and other nature-based solutions that protect against erosion and sea-level rise. These efforts help safeguard transport infrastructure near the coast while improving ecosystem health and carbon sequestration.

u. Utilizing Data for Continuous Improvement

- Smart Transportation Systems - Implement smart transportation systems that use real-time data to optimize routes, reduce congestion, and lower emissions. For example, smart traffic management systems could prioritize electric vehicles or optimize bus routes to reduce fuel consumption and improve efficiency.
- Data-Driven Decision Making - Use data analytics to continuously monitor and assess the performance of the CAP-IT project in reducing emissions, improving transport efficiency, and meeting sustainability goals. This data can inform policy adjustments and operational improvements, ensuring that the project remains aligned with its long-term objectives.

v. Integrating Cultural Heritage Preservation

- Eco-Friendly Transport for Cultural Sites - Promote the use of electric vehicles and low-carbon boats for accessing Samoa's cultural and historical sites, ensuring that these important locations remain protected from pollution and over-tourism. Sustainable transport options can enhance the visitor experience while reducing the environmental impact on cultural heritage sites.
- Community Involvement in Cultural Protection - Engage local communities in the protection and promotion of their cultural heritage by involving them in decisions about transport infrastructure near cultural sites. This ensures that infrastructure development respects local traditions and values, while also creating opportunities for cultural tourism.

w. Scaling Impact Through Regional Collaboration

- Regional Partnerships in the Pacific - Collaborate with other Pacific Island nations to scale the positive impacts of the CAP-IT project by sharing best practices, technologies, and resources related to sustainable transport. This regional collaboration can enhance the resilience of island nations to climate change and create a unified approach to reducing carbon emissions in transport.
- Exporting Sustainable Transport Solutions - Position Samoa as a leader in the export of sustainable transport solutions to other island nations. By developing expertise in electric vehicle technologies and renewable energy integration, Samoa can support neighboring countries in transitioning to low-carbon transport systems.

x. Carbon Sequestration through Reforestation

- Community-Led Reforestation Initiatives - Partner with local communities to establish reforestation projects in areas affected by the CAP-IT project or as part of a carbon offset strategy. These projects not only sequester carbon but also provide environmental benefits such as improved biodiversity, enhanced water retention, and soil stabilization.
- Mangrove and Forest Restoration - Prioritize mangrove restoration along coastal areas to protect against sea-level rise and erosion while sequestering significant amounts of carbon. Expanding forest cover in inland areas can also provide ecosystem services and enhance climate resilience.

CHAPTER 8: MONITORING AND EVALUATION

8.1 Monitoring Plan

Monitoring the impacts of the CAP-IT project over time is essential to ensure that the project's objectives are being met and that negative impacts are minimized while positive impacts are enhanced. A robust Monitoring and Evaluation (M&E) framework should be implemented to track environmental, social, and economic outcomes. It is proposed that the impacts of the project be monitored as follows:

a. Establish a Monitoring and Evaluation Framework

- Clear Indicators - Develop a set of clear and measurable Key Performance Indicators (KPIs) to monitor the project's progress. These indicators should cover environmental, social, and economic dimensions and align with the project's sustainability goals. Example KPIs might include:
  - Reduction in greenhouse gas (GHG) emissions from the transport sector.
  - Air quality improvements (e.g., reduced particulate matter, nitrogen dioxide levels).
  - Number of electric vehicles (EVs) and charging stations installed.
  - Public transportation usage rates.
  - Economic benefits, such as green jobs created and local businesses supported.
  - Social inclusion measures (e.g., access to transport for vulnerable groups).
- Baseline Data - Establish baseline data before project implementation to allow for comparison over time. Baseline data might include current emission levels, air quality metrics, transport access levels, and community income statistics.

b. Regular Data Collection

- Environmental Monitoring
  - Install air quality sensors in urban and high-traffic areas to measure the impact of reduced vehicle emissions. Regular sampling can monitor pollutants such as CO2, nitrogen oxides, and particulate matter.
  - Set up water quality monitoring stations near construction sites and maritime transport areas to track any changes in water pollution levels due to construction runoff or increased transport activities.
  - Measure GHG emissions reductions using data from EV charging stations, fuel consumption from low-carbon maritime technologies, and emissions from fossil fuel-based vehicles.
  - Monitor biodiversity and habitat health, particularly in areas where new infrastructure is constructed. Conduct periodic biodiversity surveys to assess the health of ecosystems near project sites.
- Social and Economic Monitoring

- Track the number of green jobs created and the level of community participation in the project, including women, youth, and vulnerable populations.
- Collect data on public transport usage, including ridership statistics for electric buses, shared EV services, and low-carbon boats.
- Monitor the impact on local businesses, particularly in terms of economic growth for SMEs involved in green technologies, transport services, and tourism.
- Conduct surveys to assess public satisfaction with new transport systems, paying particular attention to accessibility for marginalized groups.

- Technological Monitoring
  - Collect data from EV charging stations and other infrastructure using automated systems to monitor usage rates, energy consumption, and maintenance needs.
  - Use smart transport systems to monitor traffic patterns, optimize routes for public transport, and identify areas where further transport infrastructure may be needed.

c. Periodic Audits and Reviews
- Independent Environmental Audits - Schedule independent environmental audits every 2-3 years to evaluate the project's adherence to environmental standards and sustainability goals. These audits should assess compliance with national and international environmental regulations and identify areas for improvement.
- Social Impact Assessments - Conduct regular social impact assessments (SIAs) to determine how the project is affecting local communities, particularly in terms of access to transport, economic opportunities, and quality of life. SIAs can be used to adjust the project to better meet social inclusion goals.
- Economic Evaluations - Periodically assess the economic impact of the project on the local economy, particularly focusing on job creation, business development, and changes in income levels for different population groups.

d. Engage Stakeholders in Monitoring
- Community-Based Monitoring - Involve local communities in the monitoring process by establishing community-based monitoring groups. These groups can provide on-the-ground insights into how the project is affecting their daily lives, particularly in rural or vulnerable areas.
- Feedback Mechanisms - Set up feedback mechanisms, such as public consultations, focus groups, and online platforms, where stakeholders can report concerns, share observations, and suggest improvements. Regular public meetings can help gather ongoing feedback from community members, businesses, and local governments.

- Grievance Redress Mechanism - Implement a Grievance Redress Mechanism (GRM) that allows stakeholders to report any negative impacts or issues they encounter. This system should ensure transparency, timely response, and resolution of grievances related to environmental or social concerns.

e. Adaptive Management
   - Flexibility in Project Design - Use adaptive management techniques to make adjustments based on the findings of regular monitoring. For example, if emissions reductions are slower than expected, additional measures can be implemented to accelerate EV adoption, such as increasing subsidies or installing more charging stations.
   - Scenario-Based Planning - Develop scenario-based plans that allow the project to adapt to external factors such as economic changes, natural disasters, or shifts in public demand. This ensures that the project remains resilient and effective in the face of challenges.

f. Reporting and Transparency
   - Annual Reporting - Publish annual reports that summarize the findings of monitoring activities, detailing progress toward environmental, social, and economic goals. These reports should include data on KPIs, results from environmental audits, and updates on community engagement efforts.
   - Public Access to Data - Provide public access to monitoring data through online platforms, community bulletins, and public meetings. Transparency ensures that stakeholders are informed about the project's performance and helps build trust between project implementers and the community.
   - Alignment with International Standards - Ensure that reports and audits align with international reporting standards, such as those set by the UN Sustainable Development Goals (SDGs), the Paris Agreement, and national climate change commitments. This helps demonstrate the project's global contribution to sustainability.

g. Partnerships for Monitoring
   - Collaboration with Academic Institutions - Partner with local universities and research institutions to conduct long-term monitoring studies. These partnerships can provide access to scientific expertise, advanced data collection tools, and unbiased assessments of the project's environmental and social impacts.
   - Partnerships with NGOs and International Organizations - Collaborate with non-governmental organizations (NGOs) and international organizations to conduct independent evaluations and monitoring. NGOs focused on environmental conservation and social inclusion can provide valuable insights and ensure that monitoring remains impartial and detailed.

h. Capacity Building for Monitoring

- Training for Local Officials and Communities - Provide capacity-building programs to train local officials, community leaders, and stakeholders in monitoring techniques. This includes training on data collection, environmental management, and the use of technology for monitoring.
- Technology and Equipment Support - Invest in modern monitoring equipment and technology, such as sensors for air and water quality, drones for biodiversity assessments, and data analytics platforms for processing large datasets. Supporting local authorities and communities with the right tools ensures that monitoring activities are efficient and accurate.

i. Mid-Term and End-of-Project Evaluations

- Mid-Term Evaluation - Conduct a mid-term evaluation halfway through the project to assess whether it is on track to meet its objectives. This evaluation should identify any emerging challenges or unforeseen impacts and provide recommendations for corrective actions.
- End-of-Project Evaluation - At the conclusion of the CAP-IT project, perform an end-of-project evaluation to determine the overall success of the initiative in achieving its goals. This final evaluation should summarize the project's long-term impacts, lessons learned, and best practices that can inform future projects.

8.2 Evaluation Mechanisms

Evaluating the effectiveness of mitigation measures and the overall Strategic Environmental and Social Assessment (SESA) for the CAP-IT project requires a systematic, continuous process that includes data collection, stakeholder engagement, and adaptive management. These mechanisms help ensure that environmental and social risks are effectively mitigated and that the project meets its sustainability and social inclusion goals. The key mechanisms used for evaluating the effectiveness of mitigation measures and the overall SESA will include:

a. Key Performance Indicators (KPIs) for Mitigation Measures

- Defining KPIs - Establish specific, measurable, achievable, relevant, and time-bound (SMART) Key Performance Indicators (KPIs) for each mitigation measure identified in the SESA. These KPIs help track the progress and effectiveness of mitigation actions over time.
- Environmental KPIs - Could include metrics like reductions in carbon emissions, improvements in air and water quality, biodiversity conservation outcomes, and waste management efficiency.
- Social KPIs - May include indicators such as improved access to transport for marginalized groups, number of green jobs created, and enhanced community resilience to climate change.
- Baseline Data Collection - Collect baseline data before mitigation measures are implemented to provide a point of comparison. This baseline data is essential for evaluating progress and identifying any deviations from expected outcomes.

b. Regular Monitoring and Data Collection

- Environmental Monitoring - Continuously monitor the environmental impacts of the project, including air and water quality, emissions levels, biodiversity health, and land use changes. Regular data collection allows for real-time assessment of whether the mitigation measures are successfully reducing negative environmental impacts.
- Social Impact Monitoring - Conduct surveys, focus groups, and community consultations to gather data on the social impacts of the project, including accessibility to transportation, economic opportunities created, and satisfaction levels among beneficiaries.
- Technological Monitoring - Use technology, such as sensors for emissions tracking and GIS systems for monitoring land-use changes, to gather accurate, real-time data. These tools help in identifying whether the mitigation measures are working as planned.

c. Audits and Reviews of Mitigation Measures

- Independent Environmental Audits - Schedule regular independent environmental audits, which are conducted by third-party experts to objectively assess the effectiveness of mitigation measures. Auditors will examine whether the environmental impacts of the project, such as emissions, pollution levels, and habitat disruption, are being adequately controlled.
- Social Impact Assessments (SIAs) - Perform periodic Social Impact Assessments to evaluate how the project is affecting local communities, especially vulnerable groups. This can help identify whether social mitigation measures, such as community engagement or inclusivity programs, are achieving their intended outcomes.
- Compliance Reviews - Carry out compliance reviews to ensure that the project adheres to both national and international environmental and social standards, such as those outlined in the SESA, local regulations, and global frameworks like the UN Sustainable Development Goals (SDGs).

d. Stakeholder Feedback Mechanisms

- Community Consultations - Hold regular community consultations to gather feedback on the effectiveness of mitigation measures. Local communities are often the first to notice the real-world impacts of the project, making their input crucial for evaluating whether social and environmental concerns are being addressed. To ensure culturally appropriate consultations:
    - Engage traditional leadership (*matai*) and community elders to foster trust and respect during discussions.
    - Conduct consultations in local languages and provide oral storytelling or visual formats for better accessibility.
    - Align consultation schedules with cultural events and local calendars to avoid disruptions to community traditions.

- Stakeholder Workshops - Organize multi-stakeholder workshops that bring together government agencies, local communities, NGOs, and the private sector to discuss the effectiveness of mitigation measures and suggest improvements. These workshops ensure that all relevant voices are heard and that diverse perspectives inform the evaluation process. In addition:
  - Include dedicated sessions for marginalized groups, such as women, youth, and persons with disabilities, to address their specific concerns.
  - Utilize culturally relevant communication tools and materials to ensure all participants can meaningfully engage in the discussions.
- Grievance Redress Mechanism (GRM) - Maintain an accessible and transparent GRM (See CAP-IT SEP) to allow stakeholders to report any issues or concerns regarding the effectiveness of mitigation measures. The GRM should:
  - Include simple and free processes for filing grievances, ensuring availability in all project-affected areas.
  - Allow for anonymous submissions to protect confidentiality and encourage reporting of sensitive issues.
  - Appoint local mediators or ombudsmen who understand community dynamics to facilitate grievance resolution.
  - Communicate clear procedures for responding to grievances, including timelines for resolution and adjustments to mitigation actions.
  - Regularly update stakeholders on the status of grievances and the steps taken to address them.

- (Refer to CAP-IT SEP report).

e. Adaptive Management Framework

- Flexibility in Project Design - Incorporate an adaptive management framework that allows project managers to adjust mitigation measures based on the findings of monitoring activities, stakeholder feedback, and audit results. This ensures that the project can respond to unforeseen environmental or social challenges in a timely manner.
- Scenario-Based Planning - Develop scenario-based plans to anticipate potential future risks, such as changes in climate conditions, shifts in public demand, or unexpected social impacts. These plans enable the project to modify mitigation measures as needed to address emerging challenges.
- Mid-Course Corrections - If monitoring data or audit findings reveal that mitigation measures are not achieving the desired outcomes, the project team should implement mid-course corrections. These might include revising strategies for emissions reduction, improving waste management systems, or strengthening community engagement efforts.

f. Capacity Building and Training

- Training for Local Officials and Stakeholders - Provide capacity-building programs for local government officials, community leaders, and project staff to improve their ability to monitor and evaluate the effectiveness of mitigation measures. These programs should focus on data collection techniques, environmental management practices, and social inclusion strategies.
- Continuous Learning - Foster a culture of continuous learning by encouraging stakeholders to share best practices, lessons learned, and innovative approaches for improving the project's environmental and social performance. This helps build long-term capacity for evaluating and refining mitigation measures.

g. Mid-Term and End-of-Project Evaluations

- Mid-Term Evaluation - Conduct a mid-term evaluation to assess the overall progress of the project and the effectiveness of mitigation measures. This evaluation should identify any gaps in performance and recommend adjustments to ensure that the project remains on track to meet its environmental and social goals.
- End-of-Project Evaluation - At the conclusion of the CAP-IT project, perform end-of-project evaluation to assess the overall success of the SESA and the effectiveness of mitigation measures. The evaluation should measure the long-term impacts of the project, including environmental sustainability, social inclusion, and economic benefits.

h. Reporting and Transparency

- Public Reports - Publish regular progress reports that detail the effectiveness of mitigation measures and the overall SESA implementation. These reports should be made publicly available to ensure transparency and accountability. They should include data on KPIs, audit findings, and stakeholder feedback.
- Public Engagement with Results - Organize public meetings and information sessions where the results of evaluations are shared with stakeholders, particularly affected communities. This transparency builds trust and ensures that the project remains accountable to those it impacts.

i. Use of Technology for Real-Time Monitoring

- Remote Sensing and GIS - Use remote sensing technologies and Geographic Information Systems (GIS) to monitor land-use changes, deforestation, and habitat health over time. These technologies can provide real-time data that helps evaluate whether mitigation measures aimed at protecting ecosystems are effective.
- Digital Dashboards - Implement digital monitoring dashboards that provide real-time data on key environmental and social indicators. These dashboards can be used by project managers, government agencies, and the public to track the progress of mitigation measures and identify areas where improvements are needed.

j. Partnerships for Independent Evaluation

- Collaboration with NGOs and Academic Institutions - Partner with non-governmental organizations (NGOs), universities, and research institutions to carry out independent evaluations of the project's mitigation measures. These external evaluations provide an unbiased assessment of the project's effectiveness and help ensure that it meets environmental and social standards.
- Third-Party Certifiers - Engage with third-party certifiers to validate the environmental and social performance of the project. Certification from recognized organizations can provide assurance that mitigation measures are being implemented effectively and meet international best practices.

k. Compliance with International Standards

- Alignment with International Frameworks - Ensure that the evaluation mechanisms for mitigation measures are aligned with international standards such as the UN Sustainable Development Goals (SDGs), the Paris Agreement, and the World Bank Environmental and Social Framework (ESF). This ensures that the project's impact evaluation is globally recognized and contributes to broader sustainability goals.

CHAPTER 10: CONCLUSION AND RECOMMENDATIONS

10.1 Summary of Findings

The findings of the Strategic Environmental and Social Assessment (SESA) for the CAP-IT project stresses the significant environmental and social opportunities while highlighting potential risks and challenges

10.1.1 Environmental Findings

The environmental findings of the CAP-IT project emphasize significant opportunities to mitigate climate change impacts while addressing critical environmental challenges. Transitioning to electric vehicles (EVs) and low-carbon maritime solutions is projected to substantially reduce greenhouse gas (GHG) emissions, aligning with Samoa's commitment to its Nationally Determined Contributions (NDCs). This shift not only contributes to global efforts under the Paris Agreement but also enhances local air quality by reducing vehicle exhaust pollutants, which will have long-term benefits for public health and ecosystems.

A key challenge identified is managing electronic waste generated by EV batteries, charging infrastructure, and other associated components. Without proper disposal mechanisms, these materials could contaminate soil and water resources, leading to environmental degradation. This highlights the urgent need for developing robust e-waste management systems that incorporate recycling and safe disposal practices to minimize the project's ecological footprint.

Another critical finding is the importance of protecting sensitive ecosystems, especially in coastal and marine areas. Construction and operation of low-carbon transport infrastructure, such as EV charging stations and maritime facilities, may disrupt habitats, including coral reefs, mangroves, and seagrass beds. The project underscores the need for ecosystem-based planning to mitigate such risks and conserve biodiversity. Integrating measures like sustainable land use practices and habitat restoration into project planning will be vital to preserving Samoa's rich biodiversity.

Climate resilience also emerges as a cornerstone of the project's environmental strategy. With Samoa's high vulnerability to extreme weather events such as cyclones and heavy rainfall, the project emphasizes designing infrastructure that can withstand climate impacts. This includes employing resilient construction materials and incorporating natural disaster mitigation strategies into transport infrastructure designs.

The increased energy demand from EV adoption presents both a challenge and an opportunity. While the shift to electric transport reduces direct emissions, ensuring that this demand is met through renewable energy sources is crucial to maintaining the project's sustainability goals. Without sufficient integration of solar, wind,

or hydropower, the benefits of reduced transport emissions may be offset by higher emissions from fossil-fuel-based electricity generation. Thus, the CAP-IT project underscores the importance of aligning energy policies with renewable energy targets to maximize environmental benefits.

10.1.2 Social Findings

The social findings of the CAP-IT project highlight opportunities to enhance equity, inclusivity, and economic well-being, while also identifying challenges that require attention to maximize the project's benefits. One of the project's significant social contributions is its potential to improve transport accessibility for marginalized groups, including women, persons with disabilities, and rural communities. By ensuring that transport systems are designed to be inclusive and affordable, the project can address long-standing inequities in access to mobility, thereby improving the quality of life for underserved populations.

The transition to green technologies is expected to generate substantial economic opportunities, particularly through the creation of jobs in sectors such as electric vehicle (EV) maintenance, renewable energy, and low-carbon transport solutions. These roles will contribute to diversifying Samoa's economy while fostering skills development in emerging industries. However, targeted efforts will be required to ensure that these opportunities are equitably distributed, including specific initiatives to involve women and youth in green jobs. The project also offers significant public health benefits, particularly through improved air quality due to reduced emissions from traditional fossil fuel-powered vehicles and maritime transport. This reduction in pollutants can decrease respiratory and cardiovascular illnesses, particularly in urban areas where air quality has a greater impact on health outcomes. Such improvements will not only enhance public health but also reduce healthcare costs and increase overall community productivity.

However, achieving these social benefits hinges on effective stakeholder engagement. The findings emphasize the importance of continuous and inclusive engagement mechanisms to address community concerns, foster trust, and ensure local buy-in. This includes culturally appropriate consultations, transparent information disclosures, and accessible grievance mechanisms to allow all stakeholders to participate meaningfully in the project's implementation and monitoring phases.

Gender inclusion is another critical aspect identified in the findings. While Samoa has made strides in promoting gender equity, further efforts are needed to integrate gender-responsive planning into the transport sector. Empowering women in decision-making and participation in green transport initiatives can enhance the project's social impact while contributing to broader development goals. Collectively, these social findings underscore the CAP-IT project's potential to transform Samoa's transport sector in ways that promote equity, health, and economic resilience.

10.1.3 Project-Specific Findings

The project-specific findings of the CAP-IT initiative underscore its transformative potential in transitioning Samoa's transport sector toward sustainability while addressing critical gaps in policy, infrastructure, and stakeholder engagement. A key highlight is the alignment of the project with Samoa's Nationally Determined Contributions (NDCs), the Paris Agreement, and the Sustainable Development Goals (SDGs). This alignment ensures that the project not only addresses national priorities but also contributes to global efforts in combating climate change and advancing sustainable development.

However, the findings reveal gaps in existing policies and institutional frameworks, particularly in sector-specific regulations such as emissions standards, waste management protocols, and renewable energy integration. Addressing these gaps requires updates to Samoa's legal and regulatory structures to ensure they adequately support the adoption and scaling of electric vehicles (EVs), low-carbon maritime systems, and associated infrastructure. Strengthening these frameworks is essential to creating an enabling environment for the project's successful implementation.

Monitoring and evaluation also emerge as critical areas for improvement. The findings emphasize the need for robust systems to track the implementation of environmental and social safeguards throughout the project lifecycle. This includes developing clear indicators and regular reporting mechanisms to assess the effectiveness of mitigation measures, identify emerging risks, and ensure adaptive management.

Respecting and integrating Samoa's cultural heritage is another crucial aspect of the project-specific findings. The transport infrastructure development must consider traditional land use practices and cultural sensitivities, particularly in rural and indigenous communities. Ensuring that these elements are preserved and respected will not only minimize potential conflicts but also enhance community acceptance and support for the project.
The findings also highlight the importance of stakeholder engagement as a cornerstone of the project's success. This involves creating inclusive, culturally appropriate consultation processes and ensuring that all voices, particularly those of marginalized groups, are heard. Transparent grievance mechanisms are necessary to build trust and address any concerns arising during the project's implementation.

The project underscores the need for climate-resilient transport infrastructure to address Samoa's vulnerability to extreme weather events. By incorporating resilient designs and materials, the project can safeguard investments and ensure long-term functionality, even in the face of increasing climate risks. These findings collectively provide a roadmap for addressing challenges and leveraging opportunities, ensuring the CAP-IT project's contribution to a sustainable, equitable, and resilient future for Samoa.

10.2 Recommendations

To ensure that the CAP-IT project aligns with UNDP principles and international best practices while addressing the identified gaps in Samoa's regulations and policies, a series of strategic actions must be taken. These actions aim to strengthen governance, promote equity, enhance environmental protection, and ensure social inclusion. Table 9 below provides detailed breakdown of the key recommendations:

Table 9: Recommendation to ensure CAP-IT project align with UNDP principle and standards and international best practice

RECOMMENDATION	ACTION	APPROACH	OUTCOME
1. Strengthen Regulatory Enforcement and Monitoring Mechanisms	Strengthen the capacity of regulatory bodies to enforce environmental and social regulations in the transport sector. This requires the development of robust monitoring systems that ensure all projects comply with environmental standards and implement mitigation measures effectively.	• Equip regulatory agencies with the resources, training, and tools needed to monitor compliance, such as remote sensing technologies, environmental monitoring stations, and real-time data collection platforms. • Conduct regular audits and inspections to ensure that environmental and social safeguards are followed. • Create clear and enforceable penalties for non-compliance to deter violations, ensuring that developers adhere to environmental standards.	Improved enforcement will lead to better environmental outcomes, reducing emissions, pollution, and the degradation of natural habitats. It will also ensure that social safeguards, such as community participation and equitable access, are adhered to throughout the project lifecycle.
2. Introduce Sector-Specific Policies for Green Transport and Renewable Energy Integration	Develop and implement policies specifically focused on promoting green transport and renewable energy within the transportation sector. This will require new frameworks that set clear guidelines for emissions standards, renewable energy integration, and waste management.	• Establish emissions reduction targets specific to the transport sector, mandating the use of electric vehicles (EVs) and renewable energy-powered transport systems. • Provide regulatory support for the development of EV charging infrastructure, including solar-powered charging stations and public-private partnerships to scale renewable energy in transport. • Incorporate green technology standards for vehicle production and operations, ensuring that new transport infrastructure is sustainable and energy-efficient.	These sector-specific policies will facilitate the transition to a low-carbon transport system, significantly reducing the sector's environmental footprint while promoting renewable energy use.
3. Develop Waste Management Policies for EV Batteries and Hazardous Materials	Implement a waste management framework that addresses the handling, recycling, and disposal of hazardous materials, particularly EV batteries and other electronic components associated with green transport.	• Establish recycling facilities for EV batteries and other electronic components, ensuring proper disposal to avoid soil and water contamination. • Promote circular economy practices, encouraging the reuse and recycling of materials where possible. Provide incentives for businesses and communities to participate in recycling programs.	Effective waste management will reduce the environmental risks associated with the disposal of hazardous materials, promoting sustainability in the transport sector and protecting ecosystems.

RECOMMENDATION	ACTION	APPROACH	OUTCOME
		• Create clear guidelines for hazardous waste management, including training programs for workers in the recycling and waste management sector.	
4. Ensure Greater Focus on Environmental Justice and Equitable Access to Project Benefits	Ensure that the benefits of the CAP-IT project, including improved transport and environmental quality, are distributed equitably across all communities, with a particular focus on vulnerable and marginalized groups.	• Implement targeted policies to ensure that low-income households, rural populations, and vulnerable groups (e.g., women, persons with disabilities) have access to clean and affordable transport options. • Introduce community-led initiatives that give marginalized groups a voice in decision-making processes, ensuring that their specific needs are addressed during project implementation. • Provide subsidies or financial assistance to low-income groups to ensure they can benefit from electric vehicle adoption and improved transport services.	By promoting environmental justice, the CAP-IT project will help reduce inequality, ensuring that all groups benefit from the transition to sustainable transport systems.
5. Enhance Resilience Planning for Coastal and Vulnerable Areas to Mitigate Climate Change Impacts	Integrate climate resilience measures into all transport infrastructure projects, particularly in coastal and vulnerable areas that are highly susceptible to climate change impacts, such as sea-level rise and extreme weather events.	• Design transport infrastructure using climate-resilient materials and innovative construction techniques that can withstand flooding, cyclones, and other climate-related risks. • Develop early warning systems and emergency response protocols for transport infrastructure to ensure continuity of services during extreme weather events. • Collaborate with international organizations, such as the UNDP and the World Bank, to adopt best practices in climate resilience and disaster risk reduction for transport infrastructure.	These measures will protect vital infrastructure from climate impacts, ensuring long-term sustainability and safety for communities in vulnerable areas.
6. Promote Circular Economy and Sustainable Waste Management for Green Technologies	Establish policies and programs that promote a circular economy approach, particularly in relation to the handling and disposal of materials from green technologies such as electric vehicles (EVs) and low-carbon transport infrastructure.	• Launch recycling and repurposing programs for EV batteries and components to extend their lifecycle and reduce environmental impact. • Introduce producer responsibility programs that require manufacturers of EVs and other green technologies to take responsibility for the end-of-life management of their products. • Foster partnerships between the government, private sector, and communities to promote waste minimization, reuse, and recycling.	By adopting circular economy principles, the CAP-IT project will minimize waste, reduce resource depletion, and lower environmental risks associated with green technologies.
7. Ensure Gender Inclusion in Environmental and Transport Governance	Incorporate gender-sensitive policies into environmental and transport decision-making processes, ensuring that women are actively involved in project	• Conduct gender impact assessments for all major transport infrastructure projects to understand how they affect women and vulnerable populations differently. • Implement training and capacity-building programs aimed at increasing women's participation in green job sectors, such as renewable energy and EV maintenance.	Promoting gender equality will help ensure that women benefit from the economic opportunities created by the CAP-IT project, while also contributing to more inclusive

RECOMMENDATION	ACTION	APPROACH	OUTCOME
	planning, implementation, and benefit-sharing.	• Establish quotas or affirmative action policies to ensure women's representation in transport governance and environmental decision-making bodies.	and sustainable development outcomes.
8. Strengthen Climate Resilience in Transport Infrastructure Development	Integrate climate-resilient designs and materials into all transport infrastructure projects to reduce vulnerability to extreme weather events and long-term climate change impacts.	• Utilize sustainable building materials that are more resistant to climate stressors, such as flooding and high temperatures. • Adopt adaptive design principles that allow for flexibility and modification of infrastructure in response to future climate conditions. • Work with international bodies to implement global best practices in climate-resilient infrastructure, ensuring that new transport projects are robust and adaptable to changing environmental conditions.	Strengthening climate resilience in infrastructure will ensure the long-term viability of transport systems, protecting communities and economies from the risks of climate change.
9. Foster Sustainable Tourism and Transport Synergies	Promote sustainable transport solutions in the tourism sector by developing low-carbon transport modes and encouraging eco-friendly tourism practices.	• Provide financial incentives such as subsidies for electric buses, boats, and low-emission vehicles used in the tourism industry. • Develop eco-tourism programs that leverage green transport options to attract environmentally-conscious tourists. • Encourage partnerships between local tourism operators and green transport service providers to ensure that sustainability becomes a core component of Samoa's tourism offerings.	Integrating sustainable transport into the tourism sector will help reduce the carbon footprint of Samoa's tourism industry while promoting eco-friendly practices that attract a growing segment of responsible travelers.
10. Incentivize Renewable Energy and Energy Efficiency in Transport	Provide financial incentives and policy support to encourage the integration of renewable energy into transport infrastructure and promote energy-efficient transport solutions.	• Offer subsidies for electric vehicle charging stations and renewable energy-powered transport infrastructure (e.g., solar-powered EV charging). • Provide tax breaks or financial incentives for the purchase of energy-efficient vehicles, including electric and hybrid options. • Develop public-private partnerships to accelerate the deployment of renewable energy in the transport sector, ensuring that all new infrastructure is powered by clean energy.	These incentives will accelerate the adoption of renewable energy in transport, reducing reliance on fossil fuels and cutting emissions while promoting energy efficiency across the sector.
11. Strengthen Cultural Heritage Protection in Transport Development Projects	Incorporate cultural sensitivity and traditional land use practices into all transport infrastructure projects to protect Samoa's cultural heritage and ensure that development aligns with local customs and values.	• Conduct Cultural Heritage Impact Assessments (CHIA) as part of the broader Environmental and Social Impact Assessments (ESIAs) to evaluate how transport projects might affect culturally significant sites, practices, and land use. • Engage traditional leaders and local communities in the planning stages of transport infrastructure projects to ensure that cultural values and land use traditions are respected.	Strengthening cultural heritage protection will safeguard Samoa's unique cultural identity while ensuring that transport development respects and preserves traditional land use and practices.

RECOMMENDATION	ACTION	APPROACH	OUTCOME
		• Create buffer zones around culturally significant sites and establish protocols for mitigating any potential disruption to cultural practices due to construction or transportation activities.	
12. Enhance Public Health Safeguards for Green Transport Infrastructure	Implement strong public health safeguards to protect workers and communities from potential health risks associated with the construction and operation of new transport infrastructure, particularly in relation to air quality, traffic safety, and occupational health.	• Establish health and safety standards specific to green transport infrastructure, including guidelines for minimizing air and noise pollution during construction and operation. • Develop occupational safety programs for workers involved in the construction of green transport systems, including training on the safe handling of electric vehicle components and renewable energy technologies. • Conduct regular air quality monitoring in urban areas where transport emissions may pose health risks and implement measures to reduce exposure, such as low-emission zones or green belts around high-traffic areas.	These measures will ensure that the CAP-IT project not only reduces emissions and improves environmental outcomes but also protects public health and ensures a safe working environment for construction and transport sector workers.
13. Support Economic Diversification Through Green Transport Initiatives	Leverage the CAP-IT project to promote economic diversification, supporting small and medium enterprises (SMEs) and fostering innovation in the green transport and renewable energy sectors.	• Provide financial support and technical assistance to local entrepreneurs and SMEs to develop services and businesses related to the green transport sector, such as electric vehicle charging infrastructure, renewable energy solutions, or sustainable logistics. • Foster the creation of green tech incubators to nurture innovation in electric vehicles, low-carbon maritime transport, and renewable energy integration in transport infrastructure. • Encourage public-private partnerships to scale up investments in green technologies and ensure that local businesses have access to the resources and expertise needed to succeed in the growing green economy.	By promoting economic diversification, the CAP-IT project will contribute to sustainable economic growth, create new job opportunities in emerging industries, and enhance Samoa's resilience to economic shocks by reducing reliance on traditional transport and fossil fuel-based sectors.
14. Develop Education and Capacity-Building Programs for Green Transport	Implement education and capacity-building programs to equip Samoa's workforce with the skills needed to participate in the green transport and renewable energy sectors, ensuring that the local population benefits from the economic opportunities created by the project.	• Develop vocational training programs in partnership with local educational institutions to teach skills related to electric vehicle maintenance, renewable energy integration, and sustainable transport planning. • Offer scholarships and apprenticeships in green technology and environmental management, targeting youth, women, and vulnerable groups to ensure broad participation in the green economy. • Collaborate with international development organizations to bring global expertise to Samoa, providing training programs for	These capacity-building efforts will ensure that Samoa's workforce is prepared to participate in the green economy, helping to create a skilled labor force that can support the ongoing development of sustainable transport and energy solutions.

RECOMMENDATION	ACTION	APPROACH	OUTCOME
		local government officials, regulators, and project managers involved in the CAP-IT project.	
15. Enhance Data Collection and Environmental Monitoring Systems	Establish robust systems for data collection and environmental monitoring to track the long-term impacts of the CAP-IT project on air quality, emissions, biodiversity, and social outcomes, ensuring that the project remains aligned with sustainability goals.	• Implement real-time environmental monitoring systems that use sensors and satellite technology to track key indicators such as air quality, carbon emissions, and ecosystem health. • Develop a centralized data management platform where project managers, government officials, and stakeholders can access environmental and social impact data to assess the ongoing effectiveness of mitigation measures. • Ensure that monitoring data is publicly accessible to promote transparency and enable communities to hold the project accountable for its environmental and social commitments.	Effective data collection and monitoring systems will provide the information needed to make timely adjustments to project activities, ensuring that the CAP-IT project remains on track to achieve its environmental and social objectives while building public trust.
16. Promote Inclusive Financing Models for Sustainable Transport	Develop inclusive financing models that provide low-cost loans, subsidies, and other financial instruments to ensure that green transport solutions are accessible to all segments of the population, particularly low-income households and rural communities.	• Introduce subsidized loan programs for low-income households to purchase electric vehicles or access clean public transport options. • Offer micro-financing options to small businesses and entrepreneurs seeking to develop green transport services or related infrastructure. • Collaborate with development banks and international financial institutions to secure concessional funding for large-scale investments in renewable energy-powered transport infrastructure.	Inclusive financing models will help overcome financial barriers to adopting green transport technologies, ensuring that all communities, regardless of income level, can benefit from the transition to a low-carbon transport system.
17. Incorporate Sustainability Criteria in Public Procurement	Revise public procurement policies to include sustainability criteria for all transport-related infrastructure projects, ensuring that materials, vehicles, and technologies used in the CAP-IT project meet high environmental and social standards.	• Require that all contractors and suppliers meet minimum sustainability standards in their products and services, such as sourcing renewable energy, using eco-friendly materials, and reducing carbon footprints. • Implement green procurement guidelines that prioritize suppliers offering low-carbon, energy-efficient transport solutions and encourage the use of recycled materials in construction projects. • Provide training for government procurement officials on how to evaluate and select sustainable transport solutions that align with environmental goals and social inclusion priorities.	Incorporating sustainability criteria in procurement processes will ensure that the materials and technologies used in the CAP-IT project contribute to environmental protection, reduce waste, and promote resource efficiency.
18. Establish a Grievance Redress	Create a Grievance Redress Mechanism (GRM) that allows communities, workers, and stakeholders to raise concerns about the environmental and	• Set up accessible reporting channels for stakeholders to file complaints, including online platforms, community liaison offices, and hotlines. • Develop clear guidelines for resolving grievances, ensuring that all complaints are investigated, and appropriate action is taken to	An effective GRM will provide a formal process for addressing community concerns, fostering transparency and accountability while ensuring

RECOMMENDATION	ACTION	APPROACH	OUTCOME
Mechanism (GRM)	social impacts of the CAP-IT project and ensures that grievances are addressed in a transparent and timely manner.	address issues related to environmental damage, social exclusion, or economic displacement. • Involve third-party mediators or ombudspersons to ensure impartiality in resolving disputes and maintaining trust among stakeholders.	that the CAP-IT project adheres to its social and environmental commitments.
19. Align Transport Policies with Sustainable Development Goals (SDGs)	Ensure that all transport policies and development strategies related to the CAP-IT project are aligned with the United Nations Sustainable Development Goals (SDGs), particularly those related to climate action, sustainable cities, clean energy, and social equity.	• Integrate SDG targets into the planning, implementation, and monitoring stages of the CAP-IT project to ensure that it contributes to global goals on climate action (SDG 13), clean energy (SDG 7), sustainable cities (SDG 11), and reduced inequalities (SDG 10). • Collaborate with international partners, including the UNDP and other UN agencies, to leverage expertise and resources for achieving SDG-aligned outcomes. • Conduct regular SDG progress assessments to measure how the CAP-IT project is contributing to Samoa's overall sustainable development objectives.	Aligning transport policies with the SDGs will ensure that the CAP-IT project not only meets national development goals but also contributes to global sustainability efforts, positioning Samoa as a leader in climate-resilient and inclusive transport development.

Table 10: Summary recommendation of SESA proposed timeframe

TIMEFRAME	ACTIONS	MONITORABLE OUTCOMES
Short Term Actions (1-2 years)	• Develop a regulatory framework for EV infrastructure, including siting, safety, and waste management standards. • Conduct inclusive stakeholder consultations, ensuring feedback from vulnerable groups (e.g., women, youth, rural communities). • Launch environmental education programs on sustainable transportation benefits. • Establish pilot projects for EV charging stations and renewable energy-powered infrastructure. • Provide OHS training to workers and equip construction sites with necessary safety protocols.	• EV regulatory framework and standards approved. • Community consultation reports showing the engagement of diverse stakeholders. • Awareness programs executed, with increased community understanding of sustainable transport. • Pilot infrastructure established and operational. • Baseline OHS compliance established across project sites.
Medium Term Actions (3-5 years)	• Scale up EV infrastructure, including additional charging stations and electrification of public transport. • Strengthen institutional capacity to enforce OHS and environmental standards.	• Increased number of EV stations operational and servicing users. • Documented compliance with OHS and environmental standards in project sites.

TIMEFRAME	ACTIONS	MONITORABLE OUTCOMES
	• Implement waste recycling programs for EV batteries and components. • Expand partnerships with private sector entities for investment in sustainable transport technologies. • Monitor and evaluate pilot projects to identify lessons and scale best practices nationally.	• Operational waste recycling programs reducing hazardous waste. • Private sector contributions documented and expanded. • Successful scaling of pilot project practices nationwide.
Long Term Actions (>5 years)	• Transition the national transport system to predominantly EV and low-carbon solutions. • Institutionalize climate-resilient standards across all transport infrastructure projects. • Establish a circular economy for EV components, ensuring sustainable production and end-of-life management. • Achieve widespread adoption of renewable energy to power transport systems.	• National-level reduction in GHG emissions by 50% or more in the transport sector. • Transport systems resilient to climate events and natural disasters. • Full integration of EV and low-carbon solutions into Samoa's transport network. • Functional circular economy, with 90% of EV waste recycled or reused.
Final Outcome	• Achieve a sustainable, low-carbon, and resilient transportation network across Samoa, aligned with UNDP principles and international best practices. • Improved environmental quality (e.g., air and water) and enhanced biodiversity protection. • Equitable access to modern transport systems for all communities, reducing social disparities and fostering economic growth.	• Samoa recognized as a regional leader in sustainable transportation. • Significant contribution to global climate change mitigation goals. • Long-term economic benefits through reduced fossil fuel imports, increased green job opportunities, and enhanced national resilience.

ANNEXES

Annex 1: Land certificates

a. **Tuanaimato Bowser Central Charging Station terminal**
b. **Accident Compensation Corporation Building (for ACC)**
c. **National University of Samoa (NUS)Lepapaigalagala Campus, Toomatagi**
d. **Land transport Authority (LTA) Vaitele**
e. **Faleolo Airport (East and West Powerhouse)**
f. **Samoa Port Authority (SPA) Matautu**
g. **Samoa Shipping Corporation (SSC) Matautu Office**
h. **Scientific Research Organization of Samoa (SROS) Campus - Papauta**
i. **Samoa Housing Corporation (SHC)**
j. **Fagalii Airport**
k. **Mulifanua Ferry terminal solar charging station (with batteries)**
l. **Salelologa Wharf - Savai'i East**

Annex 2: Overview of Stakeholders identified, Interests, and Expected Outcomes7.

ORGANIZATION	INTEREST IN THE PROJECT	EXPECTED OUTCOMES/INFLUENCE ON THE PROJECT/EXPECTED ROLE
Government and SOEs		
Ministry of Commerce, Industry and Labour (MCIL)	Concerns about labor standards and employment impacts during the project implementation.	Oversee adherence to labor standards and employment regulations within the project.
Ministry of Works, Transport & Infrastructure (MWTI)	Integration of sector policies with project activities, focusing on transport and infrastructure development.	Influence on policy alignment and infrastructure planning; ensure project compliance with local regulations.
Electric Power Corporation (EPC)	Technical aspects of integrating Electric Vehicles (EVs) and related infrastructure into Samoa's power grid.	Provide technical expertise and support in energy-related project components.
Land Transport Authority (LTA)	Ensuring compliance with transportation safety and environmental standards.	Monitor and enforce transportation and safety standards throughout the project's implementation.
Ministry of Communication, Information & Technology (MCIT)	Impact on communication infrastructure and technological integration.	Oversee and support the integration of communication technologies within the project.
Samoa Water Authority (SWA)	Management of water resources in relation to project activities, especially those that may affect water quality and availability.	Manage water resources effectively and ensure that project activities adhere to sustainable water use practices.
Scientific Research Organization of Samoa (SROS)	Research on environmental impacts and sustainability measures; concerns about carbon footprint calculations for EVs and related infrastructure.	Conduct environmental research and provide data to guide sustainability efforts within the project.
Samoa Bureau of Statistics (SBS)	Provision of data for environmental and social impact assessments.	Supply data to support decision-making and impact assessments.

[7] Note that this list may change during project implementation and will be reviewed regularly.

ORGANIZATION	INTEREST IN THE PROJECT	EXPECTED OUTCOMES/INFLUENCE ON THE PROJECT/EXPECTED ROLE
Ministry of Agriculture & Fisheries (MAF)	Interests in how the project affects agricultural sectors and fisheries, particularly concerning environmental impacts.	Advise on mitigating negative impacts on agriculture and fisheries; ensure sectoral concerns are addressed.
Ministry of Prime Minister & Cabinet (MPMC)	Broader governmental policy alignment and support for the project, especially in areas affecting national development goals.	Coordinate cross-ministry support and initiatives to ensure project alignment with national policies.
Ministry of Women, Community & Social Development (MWCSD)	Community impacts, particularly regarding social development and inclusion.	Facilitate community engagement and ensure that social development goals are integrated into the project.
Samoa Tourism Authority (STA)	Concerns about the impact of project activities on Samoa's tourism, especially in relation to environmental sustainability and infrastructure development.	Provide insights into the tourism sector's needs; ensure project activities bolster rather than hinder tourism growth.
Samoa Fire and Emergency Services Authority (SFESA)	Interest in the project's compliance with fire safety and emergency response standards, particularly in new infrastructure developments.	Assess and advise on fire safety and emergency preparedness measures for the project.
Ministry of Natural Resources and Environment (MNRE)	Oversight of the project's adherence to environmental standards and policies, including impact assessments and sustainability practices.	Ensure environmental compliance and sustainability; influence environmental policy integration.
Ministry of Education, Sports, and Culture (MESC)	Integration of educational and cultural considerations in project planning, especially in fostering awareness and training related to project themes.	Influence educational content and cultural considerations; promote awareness and training initiatives.
Ministry of Health	Interest in public health aspects of the project, especially concerning the environmental and	Oversee health impact assessments and ensure public health considerations are prioritized.

ORGANIZATION	INTEREST IN THE PROJECT	EXPECTED OUTCOMES/INFLUENCE ON THE PROJECT/EXPECTED ROLE
	infrastructural changes that may affect community health.	
Office of the Regulator	Regulatory compliance, especially in utilities and services affected by the project, such as telecommunications and power.	Monitor regulatory compliance; ensure that utility services related to the project meet standards.
Ministry of Finance	Financial oversight of the project, ensuring budgetary compliance and effective use of resources.	Oversee financial management and accountability; ensure fiscal compliance with national standards.
Private sector and NGOs in Samoa		
Maali Company Pty Ltd	Concerned about waste disposal and integration of EVs	Manage waste disposal effectively, ensuring environmental compliance
Asco Motors Samoa	Interest in tax cuts and safety standards for EV adoption	Influence policy on EV incentives and safety standards
SkyEye Pacific Limited	Advocacy for public incentives for EV adoption and considerations on government revenue implications	Influence public policy and economic assessments related to EV adoption
AutoSaver Samoa Co. Ltd	Focused on training, EV readiness, and waste disposal of EVs	Lead training programs and manage EV-related waste
Loibl Car Parts	Concerns about parts supply for EVs and potential business impacts	Supply chain management for EV parts and related business adaptation
Nissan Samoa	Economic viability and maintenance support for EVs	Provide technical support and ensure maintenance capabilities for EV infrastructure
Vagana Electrical Engineering Solutions Ltd	Smooth transition to EVs, and regulatory frameworks for sustainable charging	Implement and manage EV charging infrastructure; advise on regulatory compliance
T&N Toleafoa Petrol Station	Impact of EV adoption on petrol stations and new energy market opportunities	Adapt business model to accommodate EVs and explore new market opportunities
Frank & Sons Boatcraft & Construction	Safety risks and standards related to EV technologies	Ensure safety standards are met and provide construction support for infrastructure

ORGANIZATION	INTEREST IN THE PROJECT	EXPECTED OUTCOMES/INFLUENCE ON THE PROJECT/EXPECTED ROLE
Henry Silva Shipyard	Integration of EV technologies in maritime applications	Develop and implement EV solutions in maritime vehicles, contribute to sector innovation
Don Bosco College & Vocational Technical Center	Curriculum development for training in EV technology	Facilitate technical education and training, produce skilled workforce for the project
Samoa Environmental Society (SES)	Environmental sustainability and monitoring of the project's ecological impact	Monitor environmental impacts, provide sustainability insights and advocacy
Women in Business Development Inc	Enhancing economic opportunities for women through project-related activities	Promote gender equity and empower women through project engagement opportunities
Samoa Chamber of Commerce	Business impacts and opportunities related to the project's economic activities	Represent business interests, facilitate networking and partnerships within the project
Samoa Conservation Society	Conservation of biodiversity and natural resources affected by the project	Ensure biodiversity protection measures are integrated and adhered to in project activities
Nuanua O Le Alofa (NOLA)	Accessibility and inclusivity in project design and implementation	Advocate for disability rights and ensure project accessibility for all community members
Samoa Umbrella for Non-Governmental Organizations (SUNGO)	Community impacts and the NGO sector's role in project monitoring	Coordinate NGO involvement, oversee community engagement and feedback mechanisms
O le Siosiomaga Society Inc. (OLSSI)	Advocacy for environmental protection and sustainable practices in project operations	Provide expert environmental advice, engage in advocacy and educational activities
Academia and research institutions		
Australia Pacific Training Coalition (APTC)	Curriculum development and integration with national competency standards; resource and training needs.	Lead in developing and implementing new curriculums; provide training resources.

ORGANIZATION	INTEREST IN THE PROJECT	EXPECTED OUTCOMES/INFLUENCE ON THE PROJECT/EXPECTED ROLE
Don Bosco College & Vocational Technical Center	Safety standards and overseas training for EV technologies.	Facilitate practical training and workshops; enhance safety protocols.
Ministry of Education & Culture (MEC)	Development of the TVET pathway for secondary education.	Influence curriculum development at secondary and TVET levels, especially in science and technology.
National University of Samoa (NUS)	Alignment of project initiatives with academic calendars and resource availability.	Support in aligning project timelines with academic schedules; provide faculty and resources.
Samoa Qualifications Authority (SQA)	Development of workplace assessment models and qualifications for EV technologies.	Oversee the development and implementation of national qualifications and certifications.
Scientific Research organization of Samoa (SROS)	Research on environmental impacts and sustainability measures; interest in innovative technologies.	Provide critical research data, contribute to technology development and environmental assessments.
University of the South Pacific (USP) Samoa Campus	Integration of sustainable development practices in education and community engagement.	Offer expertise in sustainable practices, engage students and staff in project activities.
Samoa Polytechnic	Technical training and skill development in areas directly impacted by the project.	Develop specific technical skills among students, align training programs with project needs.
Oceania University of Medicine	Health impacts related to the project, especially in community health and safety.	Conduct health impact studies, provide health and safety training.
Institute of Research, Extension, and Training in Agriculture (IRETA)	Agricultural impacts and sustainable agricultural practices influenced by the project.	Advise on agricultural methods, ensure project aligns with sustainable agricultural practices.

Annex 3: Minutes of stakeholder consultation

Annex 4 CAP-IT project feedback channels

FEEDBACK CHANNEL	DESCRIPTION	ADVANTAGES	TARGET AUDIENCE
Community Meetings	Regularly scheduled meetings held in community centers or local gathering spots.	Face-to-face interaction; immediate feedback.	Local residents, especially elderly and those without internet access.
Dedicated Phone Line	A toll-free number that stakeholders can call to submit their grievances or feedback.	Easy access; can be anonymous.	Widely accessible to all stakeholders.
Email Address	A specific email created for the project to receive feedback electronically.	Convenient for written detailed feedback; easy to document and track.	Technologically savvy stakeholders, NGOs, and academics.
Online Portal	A website or online form specifically designed for submitting feedback and tracking resolution status.	Accessible 24/7; good for detailed feedback.	Younger population, businesses, and tech-friendly individuals.
Postal Mail	Traditional mail for submitting written feedback.	Accessible to those preferring traditional methods; anonymous.	Rural areas and those preferring traditional communication methods.
Suggestion Boxes	Boxes placed in strategic locations like local stores, schools, and community centers.	Anonymity; easy to access locally without traveling far.	Local communities, schools, elderly.
Social Media Platforms	Utilization of platforms like Facebook or Twitter where stakeholders can leave comments or messages.	Engages a broad audience; interactive and immediate.	Young adults, general public, tech-savvy stakeholders.
SMS/Text Messaging	Allows stakeholders to send quick and direct messages via mobile phones.	Fast and convenient, especially for urgent feedback.	Wide reach, including remote areas with mobile service.

Annex 5: Implementation of Environmental Education and Awareness Programs

To effectively inform communities about the benefits of sustainable transportation and the importance of protecting the environment, the following steps will be undertaken

a. Develop a Comprehensive Education Plan
   - Needs Assessment - Conduct surveys and focus group discussions to understand the knowledge gaps and concerns of different community groups (e.g., rural vs. urban, youth, women, elders).
   - Tailored Messaging - Design educational content that aligns with local cultural values, environmental contexts, and the specific goals of the CAP-IT project. Highlight relatable examples of the benefits of sustainable transportation (e.g., reduced air pollution, cost savings from EVs, and improved health outcomes).

b. Utilize Diverse Communication Platforms
   - Workshops and Training Sessions Organize in-person workshops in schools, community centers, and village halls to provide hands-on learning opportunities about sustainable practices.
   - Community Media - Leverage community radio, local newspapers, and digital platforms (e.g., social media, SMS campaigns) to reach a wider audience, particularly in remote areas.
   - Visual and Storytelling Methods - Use posters, videos, and storytelling techniques that incorporate local cultural elements to make messages engaging and accessible. Collaborate with local artists or educators to create culturally resonant content.

c. Targeted Programs for Key Stakeholder Groups
   - Youth Engagement - Partner with schools to integrate environmental education into the curriculum through activities like debates, art competitions, and field trips to renewable energy sites.
   - Women and Vulnerable Groups - Organize special sessions for women, emphasizing their role in promoting sustainable practices within households and communities. Address barriers faced by marginalized groups to ensure they have equitable access to the benefits of sustainable transportation.

d. Encourage Active Community Participation
   - Demonstration Projects - Showcase examples of sustainable transportation solutions (e.g., EV charging stations or solar-powered systems) to provide communities with tangible proof of benefits.
   - Community Challenges and Incentives - Host competitions that reward households, schools, or villages for adopting eco-friendly transportation habits or reducing waste.
   - Volunteer Programs - Train and deploy local community members as "environmental ambassadors" to spread awareness and act as resources for their neighbors.

e. Monitoring and Feedback

- Surveys and Feedback Loops - Use surveys to gauge community understanding and track behavioral changes over time. Continuously refine education strategies based on community feedback.
- Impact Reporting - Regularly report the outcomes of education programs back to the community using accessible formats like public meetings or posters.

f. Partnerships and Collaboration

- Work with Local Institutions - Collaborate with schools, NGOs, and government agencies to deliver consistent and coordinated educational messages.
- Private Sector Involvement - Partner with businesses involved in sustainable transportation to co-sponsor educational materials or events.