ENVIRONMENTAL IMPACT ASSESSMENT
FOR THE PROPOSED DEVELOPMENT, IMPROVEMENT AND RELOCATION PROJECT FOR A SITE AT M-DOCK LOCATION IN MEDALAII HAMLET OF KOROR STATE OF THE REPUBLIC OF PALAU

Final Draft
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Environmental Impact Assessment
For the Proposed Development, Improvement and Relocation Project for a Site at M-Dock Location in Medalaii Hamlet of Koror State of the Republic of Palau

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## ORGANIZATIONS/INDIVIDUALS CONTACTED

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1.1 Project Summary

This Part I of this EIA report discusses and provide information about the proposed development and improvement project. Sections below should provide adequate summary and basic information about the proposed further development, improvement and relocation project. The applicant, PALAU EQUIPMENT COMPANY INC. is planning to construct, develop, improve as well as relocate certain facilities and operations of the existing business to new location in M-Dock area of Medalaii Hamlet of Koror State.

1.1.1 Proposed Development and Relocation Project

The applicant, Palau Equipment Company Inc. (PECI), is proposing to conduct further development, improvement and relocation of certain business operation or actions from existing site in Malakal Island to a new location in M-Dock area in Medalaii hamlet of Koror State. Palau Equipment Company Inc. has been advised or informed by Koror State Government to relocate certain aspect of its business operations to a new site in M-Dock area of Medalaii Hamlet.

The successful completion of the planned development and relocation project will require and involve further development and improvement of the new location. The proposed project site is part of an existing mangrove forest area. The site that has been leased to the applicant is part of a mangrove forest area located along existing causeway road to M-Dock and the current Public Solid Waste Landfill Site. Successful backfilling and reclamation of the existing mangrove forest will result in the creation of additionally needed new "man-made dry lands spaces" for further preparation, construction, development and improvement. Moreover, the new man-made dry land site will provide sufficient man-made dry land spaces for the proposed further development, improvement and relocation project.

The additional new man-made dry land spaces will provide opportunity for the applicant to relocate existing PECI facilities and operations in Malakal Island to a new and more convenient site in M-Dock location in Medalaai Hamlet. At present, the PECI company operates following facilities including Pump Machine, LPG Gas, CS Auto Shop, Presser Can, Acetylene and Oxygen in Malakal Island area. The design and plan also shows the layout of the new Public Secondary Access Road to be built and maintained.
along the boundary or between Public Solid Waste Landfill Site and the new PECI location. Koror State Government will be responsible for proper operation, uses and maintenance of the new public secondary access road.

The new site is, however, a part of a mangrove forest located to the east of the existing **PUBLIC SOLID WASTE LANDFILL SITE** in M-Dock. The applicant would have to backfill and reclaim part of the existing mangrove forest area to create the additionally needed man-made dry land spaces. The mangrove forest area to be backfilled and reclaimed to create and develop the needed new. The new man-made dry land space is immediately located along the northeastern boundary of the existing reclaimed portion of the mangrove forest area. The applicant hopes to request and obtain the needed fill materials from existing or on-going operations involving or requiring earthmoving and landscaping actions or activities for use to backfill and reclaim current mangrove forest area to create the needed man-made dry land spaces.

Further backfilling and reclamation of existing mangrove forest area along the existing man-made shoreline of the **Public Solid Waste Landfill Site** will result in the creation of the additionally needed new man-made dry land spaces for the proposed further development, improvement and subsequent relocation of the present facilities and operations in Malakal Island. It is important to mention that obtaining required fill materials from on-going operations will minimize need to disturb adjacent environment and possible destruction of resources.

The proposed project location is approximately 550 feet in length and about 70 feet wide. The proposed secondary access road along the entire boundaries of the proposed development and relocation project site and the public landfill area is about ten (10) feet wide. The new secondary access road as shown in the "design and plan" will help in providing needed access to the new development and the proposed operation. It is estimated that the proposed development, improvement and relocation project will require about 44,000.0 square feet of existing mangrove forest area.

1.1.2 **Environmental of the Proposed Project Location**

The natural quality and habitat value of the environment of the location of the proposed relocation project has changed, compromised and reduced over the years. In addition, the location and its environment is expected to continue to be subject to further risk, changes and destruction because of the increased economic development and human activities of and within the area. The resources of the area have also been affected by the changes and degradations over the years.

Poorly planned, located and operated land based developments and activities including increased demands for further social and economic development growth continues to contribute to changes and degradation of the resources and environment of the area. The current Solid Waste Public Landfill Site for the majority of the Palau population should be relocated to a more appropriate site within dry land areas.
It is important to note that it is neither proper nor suitable for a major public solid waste landfill facilities to be located within wetlands or mangrove areas where toxic substances could be allowed to easily leached out into adjacent and nearby marine areas. Previous studies and surveys have recommended for proper relocation of the existing public solid waste landfill facilities to a more appropriate site. The existing landfill (in M-Dock) serves as a source of pollution to the marine environment as noted by previous studies of the site. Toxic waste materials from the landfill site could continue to contaminate the quality of the marine environment as well as the resources of the adjacent and nearby areas.

1.1.3 Resources of the Proposed Project Location

The value of the ecosystem of the area of the proposed project as habitat or as fishing ground for subsistence or recreational fishing has been minimized or reduced because of the changes and degradation. It is important to mention as well that marine resources of the affected areas have become fewer and less divers. Only few marine species were observed in less frequency in the area during the surveys or visits to the proposed project location.

The changes, however, attracts certain sea birds and fish species to the area. Certain species of fishes as archer fish (uloi), half-beak needlefish (kiew) and mud skipper (temaitolok) were readily observed in the area. Birds as reef-heron(sechou), jungle-fowl(malkureoml), banded rail(terriid) and collared kingfisher(tengadidik) were observed within the adjacent man-made shoreline area during site visits. Birds species were mostly observed within the adjacent landfill site and the trees within the proposed project site.

In addition, because of the changed and degraded conditions of the marine environment, only few species or types of fish and crab were found in less frequency within the proposed project location in M-Dock area during the survey. Fish species as archer fish, half beak needlefish and mud skipper were observed within the proposed project site during the survey. Mud skippers were seen during low tidal conditions.

Species of crabs as fiddler crabs (Uca) and thalamita (eleched) were observed at the site of the proposed relocation project. Fiddler crabs were mainly observed during low tidal conditions. Few species of birds were observed within the proposed project location during the survey perhaps because of increased activities.

More information on the resources and the environment of the proposed project location are provided at appropriate sections of the later part of this EIA report. The site of the proposed relocation project is part of a mangrove forest area that is located immediately along the man-made shoreline of the existing public solid waste landfill site. The proposed relocation project site is a mangrove forest that has been subject to changes and degradation over the years. The seafloor the mangrove forest of the proposed relocation project site is littered with debris and waste materials.
Two species of mangrove trees as rhizophora (tebechel) and sonneratia (urur) were observe to be the dominant plant species found within the affected mangrove location in M-Dock area of Medalaii Hamlet. These two species are common type of plants found in mangrove forest areas throughout Palau.

The man-made shoreline of the man-made dry land area bordering the proposed project site is vegetated with mostly secondary plant species as grass, papaya and bananas. These plant species have been transported to and properly disposed off at the site (public landfill) as solid waste materials.

1.1.4 Adverse Impacts Resulting from the Proposed Project

The primary impacts of the planned further development, improvement and relocation project on the quality of the affected mangrove forest and adjacent marine environment areas should only be minimal. Further clearing and destruction of the already changed and disturbed mangrove areas should only result in minimal impacts on marine resources and marine environment of the adjacent locations.

The quality and value of the mangrove forest and marine environment of the proposed relocation project site as habitat and nursery area for marine species is reduced and minimal as a results of the on-going activities within the adjacent public solid waste landfill site. In addition, it is important for this EIA report to mention that it is quite improper for solid waste landfill site to be located within mangrove forest or the marine environment. Previous studies that have been conducted of the landfill site recommends proper relocation of the public solid waste landfill to a new and more appropriate site or location in Babeldaob Island to minimize further impacts into the marine environment.

The proposed development, improvement and relocation project is planned or intended for a mangrove forest area. The proposed relocation project site is part of a mangrove forest area adjacent to present public solid waste landfill site in M-Dock area of Medalaii Hamlet. The proposed relocation project site is also a mudflat area that is exposed during low tidal conditions and totally submerged during high tidal conditions. Existing mangrove trees within the proposed project site would have to be cleared to allow the development and relocation project to proceed.

In addition, the affected location is submerged during high tidal conditions. To create the needed dry land spaces, the applicant would have to conduct further backfilling and reclamation of the disturbed mangrove forest and mudflat areas immediately located along the causeway road and the man-made shoreline of the existing public landfill site. The required or needed earthmoving and backfilling actions should result in further changes to the area. In addition, minor soil erosion and sedimentation of the adjacent and nearby mangrove areas could also result from the required earthmoving, reclamation and construction actions. In addition, clearing of the existing mangrove tress within the site would also have to be done to allow the proposed project to proceed.
The planned backfilling and reclamation actions should result in the creation of adequate man-made dry land areas for the proposed development, improvement and relocation project. The applicant, PECI, has been instructed by Koror State Government to relocate most of the existing facilities along with the on-going operations from Malakal Island to the new site in M-Dock.

Again, it is important to mention that the new location in M-Dock area that has been leased or given by Koror State Government to the applicant is a disturbed mangrove forest area that would have to be backfilled and reclaimed to create the needed dry land spaces. The applicant would have to spend or invest additional resources to create the needed man-made dry land spaces before proceeding with the needed development and proper relocation of existing facilities and operation.

Relocation of the present operations from Malakal Island to the new location in M-Dock area could result in further changes to the already degraded and altered environment of the area. The use of heavy equipments during construction period could contribute to and result in the generation of additional noise in the area. Minor dust emission could also result from the required earthmoving (backfilling and reclamation) actions. The proposed relocation actions could temporarily and adversely impacts other developments or activities in the area.

The planned further development, improvement, relocation actions and operation of the facilities could also result in increased human activities in the area. The successful development and operation of the facilities could also attract more people to the area for the services and uses of the facilities. The applicant, Palau Equipment Company Inc., offers valuable and needed public services that are likely to attract more customers and visitors and therefore increase vehicular traffic to and from the M-Dock area.

The proposed relocation of valuable public facilities to the new area is expected to have both positive and negative impacts on the community as well. The new location is more convenient and easily accessible to the public. In addition, the successful development and operation of the proposed relocation project is expected to result in further changes to the already disturbed environment of the area in M-Dock location.

1.1.5 Minimizing Possible Adverse Impacts

The applicant hopes to minimize and/or avoid further changes and impacts in the area and the surrounding environment through successful implementation and maintenance of competent mitigation and control measures including those that maybe recommended by EQPB office as proper and necessary. In addition, the applicant hopes to implement the proposed development, improvement and relocation project in an environmentally sound and sustainable manner to help in minimizing possible adverse impacts.

Every effort would be made to isolate and restrict possible soil erosion and sedimentation problems resulting from the required backfilling, reclamation and construction activities.
to within the proposed project area. Proper erosion and sedimentation control measures (temporary and permanent) would be properly installed and maintained during the construction and subsequent operation of the planned development, improvement and relocation of the on-going facilities.

In addition, “best management practices” (BMP) would be implemented as well to ensure greater minimization of possible adverse impacts that may result from the required earthmoving and reclamation actions. Heavy equipments involved or assigned to the proposed project construction and development would be properly maintained to minimize possible noise and air pollution.

The applicant will manage as well as coordinate all of the needed activities to assure that they follow or comply with the requirements and conditions of the needed earthmoving permit that would be properly issued by the Palau Environmental Quality Protection Board (EQPB) office. Proper management of the proposed development and relocation project is important and needed to assure successful development and implementation of the plan.

Moreover, possible dust emission that may or could result from the needed earthmoving actions would be minimized through implementation of adequate mitigation and control measures. Loose soil would either be compacted and/or covered with suitable materials when or as needed to help in minimizing dust emission and soil erosion problems. All earthmoving activities would be conducted only during fair weather conditions to minimize possible adverse impacts as soil erosion and sedimentation of adjacent and nearby marine environment.

Exposed or sensitive areas and improperly restored section(s) of the new man-made shoreline or sections of the new location could contribute to possible soil erosion and sedimentation of the adjacent and nearby areas. The applicant hopes to properly restore and/or stabilize sensitive and exposed areas within the new man-made dry land and its shorelines either temporarily and/or permanently to help in minimizing further risk, damage(s) and/or possible adverse impacts on the quality of the environment and the resources of the affected location.

Moreover, the applicant will also install and maintain permanent measures as the needed retaining wall(s) along outer edge or sensitive areas within the new man-made dry land location to minimize or reduce possible adverse impact on the environment and its resources erosion. Permanent control measures will also protect or secure the quality of the new property.

1.1.6 Benefits to be realized from the Proposed Project

The residence of Koror State will benefit from the successful completion of the planned further development, improvements and relocation project. In particular, residence of Medalaii Hamlet will be able to enjoy and benefit from the planned relocation of the
needed facilities from Malakal Island area to the new and more convenient and easily accessible site in M-Dock area.

In particular, the planned relocation of propane gas facilities to an area closer to the center of population will greatly benefit the people of Koror State. The existing location in Malakal Island is far and quite inconvenient because of the increased vehicular traffic situation during certain hours of the day.

1.1.7 Conclusions

As noted earlier in this EIA report, the applicant trust that the proposed development, improvement and relocation of the on-going operations from an area in Malakal Island to a new site in M-Dock location is beneficial for the communities. PECI feels that its operations and services would be more readily accessible and convenient for the majority of the Palau population at the new location. In addition, the planned relocation of existing facilities and operations to a new site will allow the company and its operations to continue to promote and contribute to sustainable economic and social developments for the people of Koror State, in particular.

The planned development, improvement and relocation project by Palau Equipment Company Inc. is consistent with existing laws and regulations of the State of Koror as well as the Republic of Palau. The proposed further development, improvement and relocation project is planned for a location that is and has been properly classified as “Class B” waters of the ROP and Koror State. The proposed project site by the small boat marina, is also located along the man-made shoreline of the existing "public solid waste landfill site" in M-Dock area of Medalaii Hamlet. According to current Environmental Regulations, sites within or under Class B category could be properly backfilled and reclaimed to create additionally needed new man-made dry land spaces.

It is important to mention that Koror State Government officials have encouraged and advised the applicant, PECI, to consider proper relocation of existing operations from Malakal Island location to a new site in M-Dock. In support of the plan, Koror State Government issued proper documents including "lease agreement" to PECI for the use of property in M-Dock area of Medalaii Hamlet.

This Environmental Impact Assessment (EIA) report, base on its evaluation and assessments during the walkthrough surveys of the proposed project site, trusts that the proposed development, improvement and relocation project could be successfully completed with only minimal or negligible changes to the environment and resources of the location. The environment of the affected location could be considered as a changed and degraded because of the present activities within the nearby and surrounding areas.

It is important to mention as well that possible adverse impacts that may result from the proposed relocation project on the environment and the resources of the area could be further minimized through proper implementation and maintenance of competent erosion
control and mitigation measures. More information on proper erosion control and mitigation measures to be implemented and maintained by the applicant during construction, relocation and subsequent operation of the facilities to help in reducing and minimizing possible adverse impacts on the environment and its resources are discussed in more detail in appropriate sections of the later part of this EIA report.
PART 2

PROJECT INTRODUCTION

2.1 Project’s Overview

This Environmental Impact Assessment (EIA) report has been adequately prepared for proposed Development, Improvement and Relocation Project by the applicant, Palau Equipment Company Inc. (PECI). The proposed project will involve proper relocation of portions of existing business operations and programs from the current site in Malakal Island to a new location or area in M-Dock location of Medalaii Hamlet of Koror State.

This EIA report has been properly prepared to comply and conform to the requirements and standards of the existing "environmental regulations" that have been promulgated pursuant to the Environmental Quality Protection Act (EQPA) of the Republic of Palau. The EQPA has since been codified as Title 24 of the Palau National Code Annotated (PNCA). This Environmental Impact Assessment report has also been adequately prepared following the requirements and standards of the existing Environmental Impact Statement (EIS) Regulations of the ROP that have been promulgated by EQPB Office pursuant to Title 24 PNCA.

This report has also been prepared following the “Checklist of Requirements for Environmental Impact Assessment (EIA) Report” that have recently been adopted by the Environmental Quality Protection Board (EQPB). Moreover, this EIA report has been thoroughly prepared and should provide all of the relevant data and information needed about the planned further development, improvement and relocation project, the environment and resources of the affected location to allow the EQPB Office to evaluate, deliberate and make competent determination about the proposed relocation project by the applicant, Palau Equipment Company Inc., (PECI). Because of limited spaces, the applicant would have to backfill and reclaim sections of existing mangrove forest to create needed man-made dry land areas.

The PECI company has been advised by Koror State Government to relocate most of its facilities and current operations to a new site in Medalaii Hamlet. Although the new location in M-Dock area of Medalaii Hamlet would be more convenient and readily accessible to majority of the Palau population currently residing in Koror State, the site or location is, however, a part of a mangrove area. The new location or site would have to be properly cleared, backfilled and reclaimed first to create adequate and additionally needed new man-made dry land spaces. The new location would also have to be properly prepared and developed for the proposed development, improvement and relocation project. It is also important to mention that the new site will require the applicant to
invest additional resources and man-power to have the site properly developed and prepared to allow the proposed development, improvement and relocation project to proceed in an environmentally sound and sustainable manner.

2.2 Project Applicant

Palau Equipment Company Inc (PECI) is the primary applicant for the proposed construction, development, improvement and relocation project. The proposed project by the applicant involves relocation of certain business facilities and related operations from the present Malakal Island site to a new location in M-Dock area of Medalaai Hamlet of Koror State.

The applicant, Palau Equipment Company Inc., PECI, will be responsible for proper oversight of the needed land reclamation, construction, development, improvement and relocation actions. The PECI will also continue to assure proper management of the various aspect of the business operations including the relocation of individual facilities at the existing location in Malakal Island to the new site or location in M-Dock location of Medalaai Hamlet of Koror State. The new location in M-Dock area will enable the operations and services to be more accessible and the opportunity to be able to better provide and cater to needs of the people and the communities.

The new location, however, is part of an existing mangrove forest area at the M-Dock location. Moreover, the new site that has been designated by Koror State Government is part of a wetland areas and has to be backfilled and reclaimed properly to create the needed dry land spaces. During the first phased of the proposed development and relocation project, the applicant, PECI, will have to reclaim, backfill and develop portions of existing mangrove forest area.

The successful completion of the reclamation actions will result in the creation of adequate and additionally needed new man-made dry land spaces. The new man-made dry land areas will enable the applicant to proceed with the proposed development of the new site and eventually the subsequent relocation of existing facilities in Malakal Island location to the new and more accessible site.

It is important to mention again that after the development of the new site has been successfully completed, the applicant will proceed to prepare each of the specific or individual site for each of the separate facilities and operations. The individual program or operations includes WATER PUMP MACHINE, CS AUTO SHOP, PRESSER CAN, OXYGEN PLANT, ACETYLENE PLANT AND LPG GAS PLANT. The applicant will be able to resume or continue with the operations and proper delivery of valuable services from the new and more convenient site in M-Dock area of Medalaai Hamlet will benefit the public.

The applicant has adequate resources and manpower capabilities to be able to assure successful completion of the proposed further development, improvement and relocation
project in an environmentally sound and sustainable manner. The applicant is confident that the successful relocation and continued operations of existing facilities will help in promoting sustainable economic and social development growth for the people of the communities.

2.3 EIA Preparer

Environmental Consultant, Marhence Madrangchar is assisting PECI with the preparation of this EIA Report for the proposed plans to relocate the above mentioned operations (Water Pump Machine, CS Auto Shop, Presser Can, Oxygen Plant, Acetylene Plant, and LPG Gas Plant) to a new and more convenient location in M-Dock area of Medalaii Hamlet of Koror State. Preparation of this EIA report for PECI required the Consultant to be responsible for proper collection of essential data and information.

Marhence Madrangchar, a marine biologist, has successfully prepared required EIA reports for numerous development projects throughout Palau. The Consultant is quite knowledgeable and familiar with the environmental regulations, requirements and standards of the Republic of Palau.

The consultant has previously served as “Executive Officer” of the Environmental Quality Protection Board (EQPB) Office. The "Consultant" has also served as chairman and member of the "Board" of the Palau EQPB. The consultant has also served for many years as "marine biologist" for the former "Trust Territory of the Pacific Island" government.

2.4 EIA Process

The existing EIS Regulations, Chapter 2401-61, that have been promulgated pursuant to Title 24 PNCA establishes general standards and requirement for environmental review and consideration. Further, the Regulations requires all major development projects to prepare either an EIA or EIS report for review, evaluation and favorable consideration by EQPB Office.

It is important to note that preparation of EIA or EIS report is complicated but a useful process that is intended to assure that major developments projects and uses of natural resources proceeds in an environmentally sound and sustainable manner. The EIA report is a requirement of the "Permitting Process" that has been established by EQPB Office pursuant to the existing environmental laws and regulations of the ROP.

Under Regulations, applicants for major development projects are encouraged to prepare either an EIA (Environmental Impact Assessment) or an EIS (Environmental Impact Statement) report for review and consideration by EQPB office. Much larger development project that could result or have significant or drastic impact on the resources as well as environment are required to prepare an EIS report. On the other
hand, smaller development projects that could only result in minor changes and impacts are encouraged to only prepare an EIA report for review and favorable consideration.

The Process is an important part of the Republic of Palau's efforts aimed at the greater protection of the environment and its resources. Moreover, the "permitting process" helps in assuring that all important data and essential information on the resources as well as the conditions of the environment are brought to the attention of the EQPB Office for proper evaluation and favorable consideration.

2.5 EIA Methodology

This EIA report provides summary of relevant data and information regarding the proposed further development, improvement and relocation project as well as the resources and the conditions of the environment site in M-Dock area of Medalaii Hamlet of Koror State. In addition, the EIA Methodology is part of the process or an attempt to provide summary of information and discussions regarding the proposed further development, improvement and relocation project to EQPB Office for proper evaluation and consideration. Moreover, the process is an attempt that is intended to assure that all essential data and information are made available for proper evaluation and consideration by concerned individuals and relevant authorities.

Walkthrough and reconnaissance survey of the affected location or site in M-Dock area of Medalaii Hamlet is an important part of the EIA process. The site visit or survey provided opportunity to collect relevant data and information about the conditions of the environment as well as the resources of the affected location. Site visit(s) also provided opportunity to conduct proper evaluation of the conditions of the environment and its resources.

Interviews with officials of Koror State Government and representatives of nearby developments and activities provided additionally needed information and better appreciation of the proposed development, improvements and relocation project. This EIA report also considered requirements of the existing Koror State Master Development Plan. Koror is probably the only State of the Republic of Palau that has officially prepared a Master Development Plan. The Plan, however, should be revised to better reflects the needs of the people of Koror State.
PART 3
PROJECT DESCRIPTION

3.1 Introduction

The existing EIS regulations, Chapter 2401-71, that have been promulgated pursuant to Title 24 PNCA, requires all EIA reports to provide adequate information and proper description of the proposed development, improvement and relocation project for review, evaluation and favorable consideration by the Environmental Quality Protection Board (EQPB) office.

This Part 3 of the EIA report has been adequately prepared and should provide all of the relevant data and information about the planned further development and relocation project. In addition, sections below also provide relevant information on all of the various aspects of the proposed operations by PECI for the new site in M-Dock location in Medalaii Hamlet of Koror State.

3.2 Goals and Objectives of the Planned Project

There are two main goals or objectives of the proposed development, improvement and relocation project. The first objective of the plan is to backfill and reclaim existing mangrove forest areas to create the additionally needed man-made dry land spaces. The second part or objective of the plan is to develop the site following the design and in a manner that will allow proper developments or establishments of the different facilities and operations to proceed within the new site.

The applicant, Palau Equipment Company Inc., PECI, is planning to relocate portions of existing business operations and activities from the present location in Malakal Island to the new site in M-Dock area of Medalaii Hamlet of Koror State. The applicant, PECI, has been advised or encouraged by Koror State Government Officials to relocate portions of its existing business activities and operations to a new and more appropriate location that has been designated at M-Dock area of Medalaii Hamlet.

The new location, however, is part of an existing mangrove forest area. The new site has to be backfilled and reclaimed to create the needed new man-made dry land spaces. The new location is also a mangrove forest area that is immediately located along the man-made shoreline of the present public solid waste landfill site as mentioned earlier. As noted earlier, proper development of the new location will require further clearing of the existing mangrove forest.
During the initial phase of the planned development and relocation project, the applicant would have to backfill and reclaim the changed and degraded existing mangrove forest area to create the additionally needed new needed man-made dry land spaces. The designs and plans for the proposed development, improvement and relocation project that has been incorporated as ATTACHMENT A of this EIA report for review, evaluation and information shows the part and dimensions of the mangrove forest area that would have to be properly backfilled and reclaimed.

The proposed further development, improvement and relocation project is planned for a site that is immediately located along the existing man-made shoreline of the already backfilled, reclaimed and created man-made dry land spaces. In addition, the proposed project site is located along the man-made shoreline of the existing public solid waste landfill site. It is important to make it clear that the actual relocation of the existing facilities and related operation to the new location in M-Dock area will only proceed as soon as the new and needed man-made dry land spaces have been properly created and developed following the designs and plans that have been incorporated as part of this EIA report as mentioned earlier.

Although relocating to a new site in M-Dock will allow the operation to be much closer to the center of population and, therefore, would be more easily accessible by those who needs the services, the process or plan will require additional cost and investment by the applicant. Further development and improvement of the new site including the actual relocation of existing facilities and various aspects of the operations will definitely require additional funds and investment by the applicant.

The planned further development, improvement and relocation project is part of the plans by the applicant to continue to promote sustainable economic and social growth. The proposed project will involve proper relocation of on-going operations (CS Auto Shops, Presser Cans, Oxygen, Acetylene and LP Gas) to a new and more accessible location in M-Dock area of Medalaii Hamlet. The applicant trust that continued involvement in project as the recycling and reuse of solid waste materials will assure that economic development and social growth within Koror State and the Rep. of Palau, in general, will continue to proceed in an environmentally sound and sustainable manner.

Because of the continued economic and social growth, it is necessary for the applicant, Palau Equipment Company Inc. (PECI), to continue to improve and expand its basic facilities and services to meet the growing or increasing public demands.

The successful completion of the proposed plan will require development and completion of several actions. First, the applicant must successfully complete the needed backfilling and reclamation actions. The processes are essential and must result in the creation of needed new man-made dry land spaces at the new location in M-Dock of Medalaii, Koror State.

The second part of the proposed relocation project will involve successful development and preparation of the new man-made dry land areas. This part of the proposed project
will involve further backfilling, improvement and development of the needed new man-made dry land spaces. Specific site for each of the individual operations needs to be properly developed and prepare successfully for the particular operation.

The third and perhaps the most critical part of the planned project involves creation, development and preparation of the specific site for each of the operation. The "design and plan" that is provided as part of this EIA report as ATTACHMENT A for review and information provides more detail information about the planned project. The applicant has designated the site or location for each of the operation within the property and the newly created man-made dry land areas. After the preparation of each of the specific or appropriate site for each of the operation, the applicant will proceed with the planned development and eventual relocation of existing facilities and associated operations.

The on-going operations that would be relocated to the new site in M-Dock includes Water Pump Machine, CS Auto Shop, Presser Cans, Oxygen Plant, Acetelyne and LPG Gas. Again, the design and plan for the proposed development, improvement and relocation project is provided as ATTACHMENT A of this EIA report, as mentioned above, for information, evaluation and ready reference. The designs and plans that have been incorporated as part of EIA report should provide more detail information about the proposed development, improvement and relocation projects.

The proposed excavation, backfilling and reclamation actions are essential to create additionally needed new man-made dry land spaces. Due to complicated land ownership situation and limited spaces, Koror State Government had leased portions of mangrove forest areas to the applicant for further reclamation and backfilling to create the needed man-made dry land spaces for the planned development, improvement and relocation of existing operations. The new location is a mangrove forest area that is adjacent to the existing public solid waste landfill site in M-Dock as mentioned earlier.

### 3.3 Regional Setting

The Republic of Palau is an archipelago of more than 350 small, high and low raised islands. Some of the islands are of volcanic and while others are raised limestone in origin. Further, some of the islands are atolls in origin and formation. Regional map showing the ROP in relation to other island nations around the Western Pacific Region is provided in the following page as Figure 3 - 01 of this report for information.

The islands of the ROP are said to be part of the underwater mountain ranges that stretches from Japan down to the islands of the Papua New Guinea of the south western region of the Pacific Ocean. At irregular intervals along its 2,500 miles length, portions of these under water mountain ranges peaks above water surface creating islands that make up the archipelago of the Republic Of Palau.
A barrier reef almost completely encircles the entire archipelago, creating a lagoon of up to twelve miles wide and as much as 130 feet in depth. Much of the northern portion of the lagoon is occupied by the island of Babeldaob, the second largest of all of the Islands in the Micronesian group. Only nine of the islands that make up the Republic of Palau are of significant sizes and are currently and permanently occupied or populated. The rest of the islands are uninhabited.

The Republic of Palau is located in the western region of the Pacific Ocean and lies at approximately 500 miles (850 kilometers) north of the equator at latitude 7°20’ North and longitude 134°28’ East. The ROP is the western most of the island group of the Caroline Islands of the Micronesian region of the Pacific Ocean. Philippine Sea is to the east of the Islands of Palau. The Palau used to be part of the former Trust Territory of the Pacific Islands (TTPI) before becoming a separate and independent Island Nation officially known as the Republic of Palau.

The Republic of Palau is situated some 1,800 nautical miles south of Tokyo, 722 nautical miles southwest of Guam, 1,700 nautical miles southeast of Hong Kong and 528 nautical miles to the east of the Manila of the Islands of the Philippine.

The ROP has a total landmass of approximately 190 square miles (492.1 sq. km.), with the island of Babeldaob, the largest of the islands of the archipelago, comprising over 124 square miles (369 sq. km.). The islands of the ROP are of four geological types including volcanic, high limestone, low platform and atolls.

3.4 Project Setting

The Republic of Palau is traditionally and politically divided into sixteen (16) States. Ten (10) of the 16 States including Ngarchelong, Ngaraard, Ngiwal, Melkeok, Ngchesar, Ngardmau, Ngaremengui, Ngatpang, Aimekiik and Aira are contained within the island of Babeldaob. The remaining six of the States including Kayangel, Koror, Peleliu, Angaur, Hatohobei (Tobi) and Sonsorol are of individual islands and separate of the main island of Babeldaob.

Vicinity map showing the entire archipelago or the 16 states of the ROP is provided as Figure 3 - 02 of this report for information and ready reference. At present, Koror State serves as the commercial and business center for the Republic of Palau and is by far the most urbanized States of the ROP. The capital of Palau had recently been relocated to Melkeok State of the eastern side of Babeldaob Island.

Koror State has modern infrastructure and services and paved roads and vehicular traffic congestion as many metropolitan areas. The other 15 of the States, on the other hand, are mostly of rural communities with limited infrastructure including unimproved dirt roads that makes travel within and between states rather difficult and time consuming.
Although the national government has recently moved to the new Capitol Building in Ngerulmud in Melkeok State along the east coast of Babeldaob Island, most of the offices remains in Koror State to serve the majority of the Palau population. It is predicted (2020 PNMDP) that the newly completed asphalt paved highway will provide incentives for people with traditional roots to the states in Babeldaob to relocate back to their home State.

3.5 Project Location

Koror State has ten traditional hamlets including Ngermid, Ngerkesoaol, Ngerchemai, Iyebukel, Meketii, Idid, Ikelau, Ngerbeched, Medalaii, Meyuns, and Arkabesang. Koror State lies in an east-west direction and Ngerkesoaol is located in the north-eastern part of the state while Arkabesang is at the south-western extreme part of the State.

The proposed development, improvement and relocation project is intended for a site in M-Dock location at Medalaii Hamlet of Koror State, Republic of Palau. Location map of the State of Koror showing the site of the planned development, improvement and relocation project is provided as Figure 3 - 03 of this EIA report for information and ready reference.

Under existing ROP laws, each of the individual State of the Republic of Palau owns all of the resources and submerged lands from the traditional baseline to 12 nautical miles outside of the reef. On the other hand, the national government of the Republic of Palau owns all of the resources within the 200 nautical miles, “Exclusive Economic Zone” (EEZ), from the traditional baseline and seaward (offshore).

The official census report of 2000 (Republic of Palau 2001 Statistical Yearbook published July 2001 by the Bureau of Budget and Planning of the Ministry of Finance ROP), estimated Palau’s total population to be about 19,129. The "Statistical Yearbook" also estimate that more than half (13,303) of the population resides in Koror State, the center of business and administration, of the Republic of Palau.

As one of the smallest of the states of the Republic with a total landmass of only 7 square miles (18 square kilometers), the 13,000 plus population gives Koror the undisputed distinction as being the most populated and quite congested of the 16 states of the ROP.

The proposed project site encompasses a total of approximately 37,736 square feet of mangrove forest and mudflat areas along the "northeastern" side of the existing public solid waste landfill site in M-Dock area of Medalaii Hamlet. The existing "public landfill site" is a man-made dry land areas that has been created over the years through discharge and backfilling of former mangrove forest and wetland areas with solid waste materials and overburden soils. It is, however, important to mention that any man-made dry land spaces created through backfilling and reclamation of marine areas including mangrove forest is a public lands of the concerned State of the Republic.
The location of the planned further development, improvement and relocation project is part of an environment that has been previously disturbed and continues to be subject to further changes and degradation. The new location for the proposed further development, improvement and relocation project is a portion of a mangrove area that is immediately located along the man-made shoreline of the existing public landfill site.

This EIA report trust that the existing "public landfill facility" is wrongfully located within a marine area and an environment not suitable as landfill site. "Landfill Sites" serves as sources of pollution to adjacent and nearby marine environment.

It is important for this EIA report to mention that continued increase in economic and social growth within Koror State clearly indicates that pollution could continue to contribute to further degradation of the marine environment of the area. Proper improvement and expansion of basic public infrastructure and services is essential in order to ensure that economic growth or social development within the State proceeds in an environmentally sound and sustainable manner.

The Republic of Palau (national government) should seriously consider immediate relocation of the existing "national landfill" to a more suitable or appropriate dry land location in Babeldaob Island to minimize possible impacts and further risk on the quality of the environment and the resources of Palau. Previous surveys and studies have identified several locations or sites in Babeldaob that would be more suitable or appropriate as solid waste disposal site for the public. In addition, these studies and surveys have clearly noted that it is inappropriate to operate solid waste disposal site within mangrove forest or the marine environment. Pollution from landfill site could easily leached or leaked into the adjacent and surrounding marine environment where they would be allowed to further impact the resources.

### 3.6 Existing Conditions and Surrounding Land Uses

Pictures showing the proposed relocation project site including the surrounding locations of M-Dock area of Medalaii Hamlet of Koror State are provided as ATTACHMENT A of this EIA report for further evaluation and information. Again, the proposed project location is part of an area that has been altered, changed and degraded over the years as mentioned earlier. Other developments within the area could be observed from the picture.

The proposed project site is immediately located along the man-made shoreline of the existing public solid waste landfill site in the M-Dock area of Medalaii Hamlet. The use of the M-Dock site as public landfill started many years ago to accommodate both the economic and social growth of the communities.

With the increasing developments (economic and social growth) the existing landfill site has become inadequate and now serves as a source of pollution to the adjacent and
nearby marine environments. Reports of previous surveys and evaluations of the landfill site strongly recommends relocation of the public landfill to a more appropriate location.

Several sites or areas in Babeldaob Island have been identified by the studies as more suitable locations for use as public solid waste landfill sites for the Republic Of Palau. These studies further encourages officials of the ROP to relocate the landfill as soon as practical to minimize continued contamination of the marine environment in M-Dock location of the State. Increased cost associated with the relocation of the landfill to Babaldaob is perhaps the main reason for the lack of action.

3.6.1 Existing Site Conditions

The applicant has been advised by Koror State Government, as mentioned earlier, to relocate certain aspects of its existing operations including Water Pump Machine, CS Auto Shops, Presser Cans, Oxygen, Acetylene and Propane Gas to a new site that has been designated in M-Dock location of Medalaii Hamlet.

The location of the proposed development, improvement and relocation project is a public property of Koror State Government. Under existing laws, all submerged lands from the shorelines to 12 nautical miles outside of the barrier reefs are properties of the concerned or respective State. A portion of the mangrove location that has been properly leased to the applicant for the proposed further development, improvement and relocation project is submerged lands that must first be backfilled, reclaimed to create the needed dry land spaces.

As mentioned earlier, the site for the proposed relocation project is part of a disturbed and degraded mangrove forest area. Moreover, the new site for the proposed relocation project is part of a mangrove forest area that is immediately located along the side of the causeway road to M-Dock Marina and the man-made shorelines of the existing Public Solid Waste Landfill area.

The existing Public Solid Waste Landfill Facility or Site is operated and maintained by the Bureau of Public Works of the Ministry of Resources and Development of the National Government. Koror State Government, on the other hand, collects solid wastes from individual homes throughout Koror State and transport them to the public landfill site for proper disposal.

The affected site is part of a marine environment that has been subject to changes and degradation over the years. Other nearby sections of the mangrove areas have been backfilled and reclaimed to create additionally needed man-made dry land spaces for existing social developments and operations as small boat marinas, dive shops and State Offices.

Because of the changes and degradation due to increased developments and activities within the surrounding areas, the environment or the ecosystem of the proposed
relocation project area only provide limited habitat value to certain wildlife and marine species. Only limited species were observed within the affected area during the surveys of the site to collect needed information for the preparation of this EIA report.

The man-made shoreline and seabed of the mangrove forest of the proposed project site is covered with silt and sediments. The mud flat or sea floor is also littered with debris and trashes including aluminum cans, plastic containers, old batteries, discarded car tires and rusted metals. Direct discharge of surface runoffs laden with debris including silts and sediments from adjacent and nearby land areas also contributes to further changes and degradation of the quality of the environment of the mangrove and the surrounding marine environments. Improperly managed land based activities and the poorly operated solid waste landfill site also serves as stationary source of pollution to the adjacent marine environment of the area.

Moreover, pollution in the area continues to contribute to further degradation of the quality of the marine environment of the area. The value of the man-made shoreline, mudflat and mangrove forest areas of the location as shelter and habitat areas for seabirds and marine lives have become limited or reduced.

The changes, however, have attracted certain wildlife species as banded rail (terriid), junglefowl (malkureomel), night heron (melebaob), micronesian starling (kiuid), collared kingfisher (tengadidik), black noddy (bedaoch) and egret (sechou) to the area. The changes has also brought other plant types as coconut (liuis), bananas (tuu), taro (kukau) and papayas (bobai) to the new man-made dry land areas.

### 3.6.2 Surrounding Land Uses

Under the present Koror State Master Plan, areas along the sides of the causeway road to M-Dock location in Medalii hamlet of Koror State could be used for both commercial and social developments. Because of increasing demands, submerged lands immediately located along the causeway road and around the M-Dock area have been backfilled and reclaimed to create needed man-made dry land areas that would provide adequate and suitable spaces for new developments.

Developments including private residences, hotels, dive shops, small boat marina, restaurant, Koror State Government offices, solid waste landfill and other facilities have been constructed, built and maintained along the causeway and within adjacent man-made dry land spaces.

The new site for the proposed development and relocation project is located immediately along the existing causeway road and the man-made shoreline of the existing "public solid waste landfill" site. The Bureau of Public Works, Ministry of Resources and Development of the National Government operates the landfill facility for the public. Koror State Government, on the other hand, is responsible for the collection and transportation of solid waste materials to the landfill site.
The adjacent man-made dry lands spaces that is presently used as public solid waste landfill site for the people of Koror State is a former mangrove forest area. The man-made shoreline of the landfill site is vegetated with secondary plant species as hibiscus, bananas and grass. These secondary plant species have been transported to and disposed at the landfill site along with solid waste materials for proper disposal.

3.7 Total Project Area

The location of the proposed development, improvement and relocation project encompasses a total area of approximately 37,736 square feet of mangrove forest areas in M-Dock location of Medalaii Hamlet. In addition, the location that has been leased or provided by Koror State Government to the applicant, PECI, for the proposed further development, improvement and relocation project is along the man-made shoreline of the existing public solid waste landfill site.

The new location or site will require or involve backfilling and reclamation actions to create the additionally needed man-made dry land spaces. The proposed backfilling and reclamation actions are needed to create about 37,736 square feet of new man-made dry land spaces as shown in the designs and plans.

It is estimated that approximately 188,680 cubic feet of fill materials would be needed to backfill and reclaim the mangrove areas to create the essentially needed man-made dry land spaces of about 37,736 square feet man-made dry land spaces. The "designs and plans" that have been incorporated as part of this EIA report should provide all of the needed information about the proposed development and relocation project to allow EQPB to deliberate and favorably consider the request by the applicant.

3.8 Description of Proposed Project

The Palau Equipment Company Inc. (PECI) is planning relocate certain portions of its existing operations in Malakal Island to a new location in M-Dock area of Medalaii Hamlet. The new location is part of an existing mangrove forest area as mentioned earlier. The proposed project location is a mangrove forest area that is immediately along the southeastern side of causeway road to M-Dock.

The planned project site is also an inter-tidal part of mangrove forest located along the northeastern man-made shoreline of the existing "public solid waste landfill" site. The successful implementation of the planned relocation project will requires PECI, the applicant, to properly develop the new mangrove forest location in M-Dock area of Medalaii Hamlet.

The new site, part of the existing mangrove forest area, will require further earthmoving, backfilling and reclamation for its proper development and improvement. It is important to conduct further earthmoving, backfilling and reclamation of mangrove forest location
in M-Dock area of Medalaii Hamlet to create the needed new man-made dry land spaces for the planned development, improvement and relocation project.

Proper development and improvement of the existing mangrove location will result in the creation of needed new man-made dry land spaces. The new man-made dry land areas will provide the applicant with adequate dry land and space for the construction of facilities and essential structures to house needed operations.

The new facilities and operations that will have to be relocated from the location in Malakal Island to the new site in M-Dock area of Medalaii Hamlet includes Water Pump Machine, Automobile Repair Shop, Aluminum Can Recycling, Oxygen, Acetelyne and LPG Gas.

The applicant plans to resume or continue the operation of the above facilities as soon as the needed facilities are properly installed within the new site. The designs and plans for the proposed development and relocation project is provided as ATTACHMENT A of this EIA report as mentioned earlier.

Because of limited dry land spaces, complicated zoning laws and traditional land ownership situations, the applicant, Palau Equipment Company Inc (PECI), has no choice but to relocate its existing facilities and operations in Malakal Island site to a new location in M-Dock area of Medalaii Hamlet of Koror State. Approximately 37,736 square feet of man-made shoreline and disturbed mangrove forest areas would have to be backfilled and reclaimed to create suitable and adequate man-made dry land spaces as noted above.

The proposed further development and relocation project could be successfully completed or implemented with only minimal changes and damages to the mangrove environment and its resources. Possible disturbances and impacts could also be minimized through proper implementation and maintenance of adequate mitigation and control measures. Proper mitigation and control measures would be adequately installed and properly maintained around the site prior to the start as well as during the duration of the planned relocation project.

In addition, to assure successful construction, development and completion of the planned relocation project, the applicant will implement the proposed project in an environmentally sound and sustainable manner. Adequate mitigation and control measures recommended by EQPB office will be properly installed and maintained prior to and during the construction and subsequent operation of the proposed and relocation project.

It is important for this EIA report to mention that there are also other developments, operations and boating activities within the adjacent and nearby areas. It is therefore important for the applicant to coordinate as well as manage its activities and operations in a manner that will not disturb or disrupt on-going operations in the adjacent and nearby areas.
3.8.1 Project Layout

The Site Plan for the proposed project that is provided as ATTACHMENT A of this report shows the layout of the planned further development, improvement and relocation project. The design and layout of the planned development and relocation project is sensitive to the environment and the resources as well as the existing land uses of the affected location in M-Dock area of Medalaii Hamlet.

The successful completion of the proposed further earthmoving, backfilling and reclamation actions will result in the creation of additionally needed man-made dry land areas. The new man-made dry land will provide adequate spaces to the applicant for the planned relocation. The new man-made spaces would be properly developed and improved by the applicant according the plans.

After needed developments and improvements have been completed, the applicant will proceed with the relocation of related facilities and operations from the present location in Malakal Island to the new and more accessible site in M-Dock. As shown in the plan, the layout of the individual facilities at and within the new site will also provide adequate access and spaces for users and guests of the operations.

The total man made dry land areas that would be needed for the proposed relocation project is about 37,736 square feet of shallow mangrove forest and mud flat areas. Complete copy of the design and plans for the proposed further development, improvement and relocation project is provided as ATTACHEMENT A of this EIA report as mentioned earlier for review and further evaluation.

The design and plan shows the actual layout of the proposed development, improvement and relocation project. More detailed information including sizes and dimension of the proposed relocation project are also shown in the design and plans for review, evaluation and favorable consideration.

3.8.2 Clearing of Vegetation

The planned further development, improvement and relocation project will require some clearing of secondary vegetation along the existing man-made shoreline and mangrove trees within mangrove area of the proposed relocation project site in M-Dock location of Medalaii Hamlet. The proposed relocation project site is a disturbed and degraded mangrove area.

The proposed project site is immediately located along the causeway road to M-Dock small marina and the existing "public solid waste landfill site" for the community. The Bureau of Public Works of the Ministry of Resources and Development of the National Government is responsible for proper operation of the landfill site while Koror State Government collects and transport solid waste materials to the site in M-Dock for proper disposal. The present public solid waste landfill site is a former mangrove forest area that
has been previously cleared of its mangrove trees backfilled and reclaimed with overburden soils and solid waste materials.

The site of the proposed relocation project is part of an area that has been subject to changes and degradation over the years because of the uses of the adjacent and surrounding areas. Parts of the mangrove area have been cleared, backfilled and reclaimed to create additionally needed man-made dry land spaces.

Other portions is presently used as Public Solid Waste Landfill Site for the majority of the Palau Population. Other adjacent areas around the site are used as small boat marinas and aluminum recycling operations.

Some clearing of mangrove trees within the proposed project location is needed. Minimal clearing along the existing man-made shoreline and the small section of the immediate mangrove forest area that has been leased by Koror State Government to the applicant, PECI, would be required for the successful preparation and completion of the proposed further development, reclamation and relocation project.

Two species of mangrove trees including rhizophora (tebechel) and sonneratia (urur) are the dominant species observed or found at and within the proposed project site during the survey. The man-made shoreline is vegetated with grass and other plants as papaya, bananas and other secondary species.

### 3.8.3 Earthmoving and Reclamation Actions

About 37,736 square feet of mangrove and mudflat areas would have to be backfilled and reclaimed to create the additionally needed man-made dry land spaces. The applicant hopes to conduct most of the earthmoving (backfilling and reclamation) actions during low tides and fair weather conditions to help in minimizing and reducing soil erosion and sedimentation of the adjacent areas and surrounding environments. In addition, silt fence or curtain will be completely installed around the site to help isolate silts and sediments from impacting adjacent and nearby areas.

The proposed relocation project site would be backfilled and reclaimed to a height or depth of about four (4) feet above the existing sea floor or mud flat to create the needed man-made dry land areas of approximately 37,736 square feet. The design and plans that have been provided as part of this EIA report shows the dimensions of the fill area.

After the backfilling and reclamation have been completed, the outer edges of the fill area or the extended new man-made shoreline would be properly secured or restored by the applicant to minimize continued soil erosion and sedimentation of adjacent and nearby areas. Large rock boulders would be used to properly restore or create new seawall along the outer edges of the man-made dry land areas to help in minimizing soil erosion and sedimentation of the adjacent and nearby marine environment.
Approximately 150,944 cubic feet of fill materials would be needed to backfill and reclaim the near shoreline mangrove areas to create the additionally needed man made dry land spaces. The total mangrove area to be backfilled to create needed man-made dry land areas is about 37,736 square feet for the planned development, improvement and relocation of existing facilities and operations.

Prior to any earthmoving, backfilling and reclamation activities, competent erosion and sedimentation control and mitigation measures would be properly installed around essential areas of the project site. These competent mitigation and control measures would be properly maintained as necessary throughout the duration of the proposed project. Proper mitigation and control measures are discussed in more detail in appropriate sections of the later part of this EIA report.

The planned earthmoving (backfilling and reclamation) actions will start from the existing man-made shoreline and proceeds outward into the adjacent mangrove areas. Needed earthmoving would be restricted to within the wetland areas that have been designated as the applicant property.

After the needed backfilling and reclamations actions have been completed the applicant will proceed immediately to properly secure and restore sensitive edges and shorelines areas of the new man-made dry land site. Restoration of sensitive areas of the proposed project will help in reducing possible erosion and sedimentation of adjacent and nearby environments.

Because of the congestion and limited dry land spaces in Koror State, the applicant has been authorized by Koror State Government to develop and utilize an existing section of a mangrove forest in M-Dock location of Medalaii Hamlet. The applicant has no choice but to create the needed dry land spaces through backfilling and reclamation of mangrove and near shore marine environment, as mentioned earlier.

Again, the proposed project site is a portion of the near-shore mangrove forest areas along the public solid waste landfill site. It is estimated that about 150,944 cubic feet of fill materials would be needed to backfill and reclaim the existing shallow mangrove forest area to create the needed man-made dry land areas. Approximately 37,736 square feet of new man-made dry land spaces would have to be created for the proposed development and relocation project.

It is estimated that approximately 410 feet by 100 feet of man-made shoreline and mangrove areas would be backfilled and reclaimed to new elevation of about 4.0 feet above the existing elevation of the seafloor to create adequately needed dry land spaces. The applicant will acquire fill materials from on-going earthmoving project or activities throughout Koror State.

As mentioned above, the applicant has been advised by Koror State Government to relocate from the present location to a new site in M-Dock area. The new location or site
in M-Dock is a mangrove forest area that would have to be backfilled and reclaimed properly by the applicant to create the additionally needed dry land spaces.

The needed or required fill materials would be transported to the proposed project site in M-Dock area of Medalaii Hamlet. The applicant, PECI, will be responsible for proper management and successful implementation of the proposed reclamation, development and relocation project.

3.8.4 Development and Improvement Project

Discussions of the main aspect of the proposed development, improvement and relocation projects are provided below for proper review, evaluation and favorable consideration by EQPB Office.

3.8.4.1 Relocation to New Location

The Palau Equipment Company Inc (PECI) is a locally owned and operated business. The company, PECI, is presently operating all of its business activities within a location in the northwestern part of Malakal Island of Koror State. The present location is part of "public land" of Koror State Government.

The PECI has been advised and encouraged by Koror State Government officials to relocate most of its operations (Water Pump Machine, Auto Shop, Recycling Cans, Presser Cans, Oxygen, Acetylene and LPG Gas) to a new location in M-Dock area of Medalaii Hamlet of Koror State. The new site that has been designated for the planned relocation project is part of a mangrove area.

Moreover, the new location is also a part of a mangrove forest area that is immediately located along cause way road to M-Dock and the man-made shoreline of the present "public solid waste landfill site" in M-Dock area. Further, it is important to note as well that the proposed project location is part of an inter tidal zone.

At low tide the mud flat is exposed while during high tidal conditions the mud flat is completely submerged. Average depth of water of the location during high tidal conditions is about four (4.0) feet.

3.8.4.2 Operation at New Location

Before proceeding with the planned development and relocation project, the applicant would have to backfill and reclaim the new mangrove site to create the additionally needed man-made dry land spaces. Approximately 410 feet by 100 feet, as shown in the design and plan, of shallow mangrove forest area would have to be cleared, backfilled
and reclaimed to about 4.0 feet above the existing sea floor to create the additionally needed new man-made dry land areas.

The total area of the mangrove forest area that would be cleared, backfilled and reclaimed is estimated to be about 41,000.0 square feet or 14,000.0 sq. yards to create the needed man-made dry land spaces for the planned development and relocation project. The new man-made dry land areas should provide adequate spaces to allow proper relocation of existing facilities and operations.

A permanent retaining wall would be installed completely along the seaward edge of the newly created man-made dry land areas to prevent and/or minimize further soil erosion and sedimentation of adjacent and nearby areas. Either a rip-rap retaining wall or perhaps a concrete sea wall would be properly installed or built by the applicant along the exposed edges of the newly created man-made dry land areas to adequately stabilize and protect the property.

3.9.8 Description of Project Phases

Following sections of this EIA report discusses the different phases of the proposed further development, improvement and relocation project.

3.9.8.1 Pre-Construction Phase

The applicant is planning to relocate certain aspect of its existing operations in Malakal Island to a new location in M-Dock area of Medalaii Hamlet. The new location, as mentioned above, is part of a mangrove forest area in M-Dock location.

It is, therefore, essential for the applicant to prepare the new site adequately before proceeding with the proposed further development, improvement and relocation project. Access to the site must also be properly prepared. The new access road should be adequately constructed and properly surfaced to assure vehicular access as well as minimize soil erosion and sedimentation.

It is essential for the applicant, Palau Equipment Company Inc., to obtain all of the required permit(s) from EQPB and other concerned offices before proceeding with implementation of the proposed further development, improvement and relocation project. Proper document(s) authorizing the uses of the property must be properly secured before proceeding with the proposed development and relocation project.

The applicant needs to consult Koror State Office as well as other concerned National Government office(s) regarding the types of permits or licenses needed for the proposed relocation and subsequent business operations. The proposed project boundary should be properly identified to avoid or prevent improper actions.
Before proceeding with the proposed relocation project, the applicant will have to install essentially needed silt fence or silt curtain completely around needed areas of the project site. Erosion Control measures must be properly installed and maintained during the duration of the planned project to assure that they contribute to the protection of the environment of the affected area.

Regular maintenance of the silt curtain is essential to assure that silts and sediments are isolated to within the site or location of the proposed relocation project. Regular inspection of the control measures or silt fence is essential to assure that the control measures function properly. The bottom of the silt curtain must be outfitted with adequate weight and post should be properly installed to hold or secure the needed silt curtain properly.

3.9.8.2 Construction Phase

Actual construction of the proposed further development, improvement and relocation project will proceed only when the applicant had properly prepared the needed new man-made dry land site. This EIA report recommends consultation with EQPB office before proceeding with the proposed relocation project. Discussions with EQPB office is important as it allows both the applicant and the EQPB Office to become more aware of the proposed relocation project and appreciative of the needs to promote environmentally sound and sustainable development.

Construction and development of the new man-made dry land site in M-Dock location including the relocation of the existing facilities and operations from an area in Malakal Island could take about nine (9) Months to complete. During the initial part of the proposed project, the applicant will be involved in the preparation, establishment and development of the new location in M-Dock area.

Backfilling and reclamation of the mangrove area is essential for the creation of needed additional dry land spaces for the proposed relocation and operation project. The applicant will install competent mitigation and control measures around the fill area as mentioned earlier in this EIA report. Silt fence will be properly installed around the fill site before proceeding with any earthmoving activities to help isolate or prevent silts and sediments from impacting the adjacent and nearby areas.

The initial part of the proposed relocation project will involve backfilling of about 410 feet by 100 feet (41,000 square feet) of the mangrove forest area to create the additionally needed new man-made dry land spaces. The designs and plans that have been prepared and incorporate as part of this EIA report should provide more detail information on the site of the proposed relocation project including the plans for the needed developments and uses of the new location.

Under the second phase of the proposed relocation project, the applicant will build and develop the site as well as the foundations for the basic structures that would have to be
relocated to the new site at M-Dock. The later part of the plans for the proposed relocation project will involve relocation of five existing operations from Malakal Island to a new site in M-Dock of Medalaii. The existing operations that would have to be relocated includes WATER PUMP MACHINE, CS AUTO SHOPS, PRESSER CANS, OXYGEN OPERATION, ACETELYNE, and LPG GAS. It should be noted that a new Water Pump Machine will be added to operation to enhance the program.

The new site for development is, however, a part of an existing mangrove forest area. The proposed relocation project site will have to be backfilled and reclaimed to create the additionally needed man-made dry land spaces. Koror State Government endorses the plan and has issued the needed "lease agreement" or land use right that would allow the applicant, PECI, to proceed with the successful implementation of the proposed development, improvement and relocation project.

After all of the backfilling and reclamation to create the additionally needed new man-made land spaces have been successfully completed, the applicant will make every effort to restore and rehabilitate sensitive and exposed areas around and within the newly created man-made dry land location. This is an important part of the process that will have to be properly completed to protect the property as well as prevent further degradation of the quality of the environment of the area and the surrounding locations.

3.9.8.3 Operational Phase

The successful development of the new site will allow the applicant, PECI, to proceed with the construction of each of the facilities to house the individual operation. The Palau Equipment Company Inc, the applicant, will be responsible for the proper development, improvement and relocation of each of the existing facilities at the present site in Malakal Island to the new location in M-Dock.

PECI will also be responsible for proper management of the planned development and its operation to assure that program proceeds in an environment sound and sustainable manner in the new location in M-Dock area of Medalaii Hamlet.

3.9.8.4 Abandonment Phase

As mentioned earlier, PECI has adequate resources and man power capabilities to be responsible for the successful completion of the proposed development, improvement and relocation project. The applicant could also be able to assure proper management and sustainable operation of the facilities. The likelihood that the planned development, improvement and relocation project and its subsequent operation would be abandoned is remote and highly unlikely.

It is important to mention, however, that should the proposed development, improvement and relocation project is abandoned, the applicant will be responsible for proper
Restoration of any disturbed areas of the proposed relocation project site in M-Dock location. Any loose soils will be compacted and restored. Selected or suitable plant species would be properly planted as necessary within sensitive areas of the site. Proper restoration is important and should help to minimize or reduce possible soil erosion and sedimentation of the nearby marine environment.

### 3.10 Project Duration and Schedule

The applicant, Palau Equipment Company Inc., hopes to proceed with the planned relocation of the existing facilities from Malakal site to the new location in M-Dock area in Medalaii Hamlet as soon as the needed permit have been obtained from EQPB offices.

The duration of the planned development and relocation project is expected to be about nine (9) months.

As mentioned earlier in the EIA report, the site that has been leased out by Koror State Government to the applicant, PECI, is part of an existing mangrove forest area. Again, the new location or property had to be backfilled and reclaimed to create the needed man-made dry land spaces by the applicant.

The initial process, creating the needed man-made dry land spaces, will take about four (4) months as mentioned above. Development and preparation of the new site will take additional four (4) months. In addition, the applicant trust that it would take another one (1) month to assure that the facilities are all in good working conditions and ready to resume full operation and continue to serve the needs of the public.

In summary, after the needed dry land areas have been created, the applicant will proceed to develop and prepare the new location. Specific areas and foundation for each of the facilities and different operations would have to be properly designated and prepared. In addition, access road and adequate parking spaces would have to be established and prepared for the successful operation.

### 3.11 Project Cost

The successful construction of the planned development, improvement and relocation of the existing facilities by Palau Equipment Company Inc. (PECI) is expected to costs approximately Eighty Thousand USD ($80,000.00). Development and preparation of the new location is expected to be the most costly part of the plan.

The applicant, PECI, has more than adequate resources to assure successful completion of the planned construction, development and relocation of the existing facilities from Malakal Island to the new site in M-Dock area of Medalaii Hamlet.
PART 4

DISCUSSION OF ALTERNATIVE PLANS

4.1 Introduction

This section of the EIA report discusses other alternative plans that were evaluated and considered by the applicant, Palau Equipment Company Inc., during the planning process. The existing Environmental Regulations of the Republic of Palau that have been promulgated by EQPB Office pursuant to Title 24 PNCA also encourages every EIA report to evaluate, discuss and consider other alternative locations for proposed relocation project as part of the effort aimed at minimizing further changes and degradation to the quality of the environment and the resources of the affected location and the surrounding and nearby areas.

4.2 The Preferred Alternative Plan

The “Preferred Alternative Plan” involves further development and improvement of the mangrove location or a site in M-Dock area of Medalaii Hamlet of Koror State. The successful completion of the "Preferred Alternative Plan" will result in the development or creation of adequate man-made dry land for the applicant, PECI. The new man-made dry land areas will enable the PECI to relocate existing facilities and operations from the present location in Malakal Island to new site in M-Dock area of Medalaii Hamlet of Koror State. The successful completion of the Preferred Alternative Plan will allow the applicant to relocate existing operations in Malakal Island to new location in M-Dock area in Medalaii Hamlet. Koror State Government has other plans for the present location in Malakal Island and has advised the applicant, PECI, to relocate its facilities and operations to the site in M-Dock.

The “preferred alternative plan” was selected as the final plan because of the increasing public needs and specific plans by Koror State Government for the use of lands in Malakal Island. The preferred alternative plan was also selected due to limited dry land spaces and complicated land ownership situation in Koror State. In addition, the benefits that may or would be derived from the successful relocation and continued sustainable operation of existing business activities far out-weigh any impact that may result from the planned relocation project.

Koror State Government does not have suitable public lands available for further development and improvement. To acquire the additionally needed dry land spaces, Koror State Government leased a small portion of existing mangrove forest to the
applicant for further development and improvement. The applicant has no choice but to conduct further backfilling and reclamation of mangrove areas to create the additionally needed man-made dry land spaces for development and eventual relocation of existing facilities and operations as advised by Koror State Government.

The proposed further development, improvement and relocation project could be accomplished in a manner that will result in minimal change or adverse impact on the quality of the existing environment and resources of the area. The proposed project location has been subject to increased human activities and further development and is less likely to result in significant impact or drastic changes to the quality of the concerned marine environment and resources of the affected area. The proposed project location is adjacent to the existing public solid waste landfill site.

The environment of the area has been subject to changes and degradation over the years and as a result, the resources are few and biodiversity is limited. The development of the already disturbed mangrove forest property should only result in minor changes and damages to the quality of the environment and the resources of the area. The preferred alternative plan is designed to assure that the more productive and biologically diverse adjacent and nearby marine locations would be minimal.

4.3 The No Action Alternative Plan

The “No Action Alternative Plan” would mean that the planned further development, improvement and relocation project proposed by the applicant and encouraged by Koror State Government would not be allowed to proceed or implemented. Additionally, the benefits that would otherwise be created and made possible from the successful completion and continued operation of the facilities would not be realized by the applicant as well. The decision and instruction by Koror State Government, trustee of all public land of the State, for the applicant to relocate to new site by the "public solid waste landfill" in M-Dock area would be disregarded and ignored.

Under the "No Action Alternative Plan" the existing operations including Auto Shop, Presser Can, Oxygen, Acetelyne and LPG Gas will not be relocated to the new location in M-Dock area of Medalaii Hamlet. The on-going operations and existing facilities would continue to remain in Malakal Island ignoring decision and advised by Koror State Government to relocate to new site in M-Dock location. Koror State Government could also decides to stop or terminate PECI's on-going business operations and continued public services.

More importantly, the decision and future plans by Koror State Government for the use and sustainable development of public lands in Malakal Island would be ignored by PECI as a result of the “No Action Alternative Plan”.

In addition, under the No Alternative Action Plan, the people of the community will not be able to enjoy and benefit from the planned further development, improvement and
relocation of the operations to a more convenient and easily accessible location in M-Dock area of Medalaii Hamlet.

Moreover, under the No Action Alternative Plan, the already disturbed and altered environment of the area would continue to remain in their present degraded and deteriorating conditions. The man-made ecosystem with very little value as wildlife habitat, shelter or grazing areas would continue to deteriorate and subject to further changes. It is important to note that the environment of the subject location should continue to be impacted by the on-going uses or activities. Possible adverse impacts could also continue to spread to nearby areas and surrounding marine environments. In addition, under the "no action alternative plan" increased developments, uses and human activities around the area will continue to degrade the already deteriorated qualities of the environment of the area.

4.4 Other Alternative Plans

During the planning and consultation process, several alternative plans, layout and configurations were considered, discussed and evaluated from the standpoint of impacts on the environment and resources. The benefits and long term objectives of planned development and relocation project were carefully considered and evaluated during planning process.

The applicant, PECI, also considered other areas around the State. PECI also discussed the plans as well as the needs of the operation for additional spaces with Koror State Government office. Because of limited land spaces and environmental considerations, the location by the "public solid waste landfill site" at M-Dock was considered by Koror State Government officials and recommended to the applicant. The new site in M-Dock of Medalaii Hamlet is considered to be a more suitable location for the proposed further development, improvement and relocation project because of its proximity to the center of population. Because of the present conditions of the new location, the applicant will, however, has to invest more funds and resources into the development and improvement of the new location in M-Dock location of Medalaii Hamlet.

Other configurations and different layout of the proposed development, improvement and relocation project were also considered but dismissed from further evaluation during the planning process. Other configurations and layout would most likely result in increased environmental concerns. More clearing of mangrove forest may be required for the successful development and implementation of the relocation plan. Due to environmental considerations, other alternative mangrove areas were discontinued and dismissed from further evaluations. According to Koror State Government officials, the concerned areas or locations in Malakal Island are intended for other future plans and developments. Because of limited spaces, finding another alternative site would be difficult. Further, this EIA report trusts that development of another similar location would definitely result in a more drastic and significant changes and adverse impacts to the quality of the environment and the resources of the State.
PART 5
DESCRIPTION OF THE ENVIRONMENT

This section of the EIA report has been adequately prepared following requirements of existing EIS regulations, Chapter 2401-61 of Title 24 PNCA. The sections below should provide adequate and relevant information about the environment and the resources of the location of the proposed relocation project.

In addition, this part of the EIA report should also provide needed information about basic public infrastructure and services available to the concerned areas in M-Dock location of Koror State.

5.1 Existing Environment of the Site

The proposed development, improvement and relocation project will involve or require additional clearing, backfilling and reclamation of a disturbed and degraded mangrove forest areas to create the needed man-made dry land areas for the planned development and relocation of existing facilities and related operations in Malakal Island to the new site in M-Dock area of Medalaii Hamlet. The new site for the proposed development and relocation project encompasses a man-made shoreline and disturbed mudflat and shallow mangrove forest area in M-Dock location of Medalaii Hamlet. Again, the proposed project site is a disturbed mangrove forest area along the northeastern man-made shoreline of the existing "public solid waste landfill" location in M-Dock area as mentioned in the earlier sections of this report.

It is important to note that the environment of the affected location could be generally described as an environment that has been subject to changes and degradation over the years. Moreover, the environment of the affected area is expected to continue to be subject to further changes and degradation due to increased human activities and the present uses of adjacent and nearby areas in M-Dock location.

Koror State is one of the smallest of the States of the Republic in term of land mass and yet provides homes to well over half of the ROP’s 19,000 plus population. The State is the center of commercial and business developments in the Republic of Palau.

Because of limited dry land spaces and increased demands, social and economic developments have been allowed to extend further beyond the natural shorelines and into the marine environment around the State. As a result of increased development, the quality of the near shore marine environment around the State continues to be subject to
changes and degradation. **Pictures** of the affected location and the surrounding areas in M-Dock of Medalaii Hamlet are provided as part of this EIA report as **Attachment D** for evaluation and information.

The quality of the environment of the area is greatly influenced and affected by increase human activities, weather conditions and tidal exchanges. During poor and rainy weather conditions, surface runoffs laden with silts and sediments as well as other pollutants from poorly managed land base activities discharges into the marine environment of the area. Results of the water quality tests of the samples taken from the site during fair weather and high tidal conditions are also provided as part of this EIA report as **Attachment D** for further analysis and evaluation.

Surface water runoffs from the roads and the landfill site discharges directly into the mangrove and bay area continues to affect quality of the marine environment of the near-shore areas. These kinds of environmental problems could be easily minimized or reduced through proper implementation of competent mitigation and control measures. In addition, pollutant from poorly managed boating activities also contributes to continued degradation of the marine environment of the area.

The deeper lagoon and protection provided by group of limestone rock islands located immediately to the southwest, as shown in earlier map, provides shelter and protection for the bay area. Shelter and protection including deep lagoon areas makes M-Dock a suitable dock and marina for small boats.

The shelter and enclosure also influence water circulations or tidal exchanges within the bay and lagoon area. Rather than flowing directly outward, the tides from the area flows to the channel and then follows the current in a northwest direction along the channel. Tidal exchanges allow or provide for nearly 100 per cent water exchanges within the proposed project location. The mudflat is exposed during low tide and completely submerged or covered with water during high tide.

Turbid water limits ability of the lights to penetrate the water column and therefore affects photosynthesis and growths for numerous benthic marine organisms including seaweeds, algae and corals. Turbidity is quite high in the area during rainy weather conditions.

Silts and sediments also affect the growth and health of most benthos organisms including corals, bi-valves, algae and sponges. Additionally, increased nutrients from runoffs also allow increased growth of algae. The proposed project site is forested with mangrove trees as discussed in this EIA report.

### 5.2 Assessment of Resources of the Site

The assessments of resources required several visits to the affected site during both high and low tidal conditions. The visits and surveys of the proposed project site allowed
collection of relevant information on biological and physical resources of the proposed relocation project site in M-Dock area of Medalaii Hamlet. Visits also allowed better understanding of the environment of the proposed project location.

### 5.2.1 Biological Resources

Sections below summarizes results of the assessment and evaluation of biological resources of the proposed development and relocation project site in M-Dock area of Medalaii Hamlet of Koror State. More detailed information on the resources of the proposed relocation project site are discussed in the following sections of this EIA report. Needed information on the resources of the proposed relocation project site were collected during visits to the location (site) during both the low tidal and high tidal conditions.

#### 5.2.1.1 Wildlife Resources

**Terrestrial and Mangrove Plants.** The proposed further development, improvement and relocation project is intended for mangrove and man-made shoreline areas in M-Dock location of Medalaii Hamlet of Koror State, Republic of Palau. The proposed relocation project site is a mangrove forest or marine environment of Koror State that has been subject to changes, alterations and continued degradation over the years due to increased human activities. The natural quality and values of the marine environment of the area of the proposed project location has long been disturbed and changed by increased human activities and demands from increased developments.

Vegetations along the man-made shoreline areas are mostly secondary plant species that have been transported along with solid waste materials to site for disposal. Several species of secondary plant types were observed along the existing man-made shoreline adjacent to the proposed project location. The proposed project site, as mentioned earlier, is a disturbed mangrove forest area.

Secondary plant species including Banyan tree (Lulk- *Ficus microcarpa var.*), Tropical almond (Miich- *Terminalia samoensis*), Lead tree (Telentund- *Leucaena leucocephala*), Hibiscus (Ernall- *Hibiscus sp.*), Vine (Kemokem- *Derris trifoliata*) and Grass family (Udel- *Poaceae sp.* ) were observed along man-made shoreline as well as within the man-made dry land areas that borders the proposed project location. Again, the proposed project location is a mangrove forest area that is located along the man-made shoreline of the existing public solid waste landfill site.

Two type of mangrove trees were the dominant species of plants within the affected mangrove location. The two species of mangrove trees including Urur (sonneratia sp.) and Tebechel (rhizophora sp.) were the dominant plant species observed within the proposed project location which is a mangrove forest area. Sonneratia sp. and rhizophora
sp. are the two common species of mangrove trees found in mangrove forest areas around Palau.

**Fauna and Avifauna.** As mentioned above, the affected site is part of a mangrove forest area that could be generally characterized as having a disturbed and changed environment that offers only limited habitat, grazing and shelter values for most wildlife species. Because of the increased social developments and human activities, only few wildlife species were actually seen within the affected mangrove forest area. These species were also observed less frequently as a result of increased human activities as mentioned earlier.

During the survey and observation of the site, several species of seabirds including White Terns (Sechosech-*Gigis alba*), Black Nody (Bedaoch-*Anous minutus*), Reef Herron (Sechou-*Ecreta sacra*), Junglefowl (Malkureomel-*Galus galus*) and Collard Kingfisher (Tengadidik-*Halcyon chloris*) were seen along man-made shoreline around the adjacent solid waste landfill site and the mangrove forest areas of the proposed project location at M-Dock area in Medalaii Hamlet of Koror State. In addition, Vanikoro Swiftlets (Esisekiaid-*Aerodramus vanikorensis*) were observed flying over the mangrove forest areas as well.

While Terns (Bedebedechakl) and Black Nody (Bedaoch) were observed flying over the area. These species normally flies over mangrove forests and shallow reef areas as they attempt to prey on small surface swimming fish as herring and anchovies. Sheath-Tailed Bats and Vanikoro Swiftlets often zig-zag the air space feeding on small flying insects (mosquito, flies and moths). Sheath-Tailed Bat is a mammal species. Reef Heron and Collard Kingfisher were also observed around the proposed project area during low tidal conditions, perhaps, feeding on small reef fish and crabs. Sheath-Tailed Bats (Esisewalik-*Emballonura semicaudata*) feed on small flying insects.

Stray dogs and cats were the other mammal species observed around the project location. Fruit Bats (Olik) were only observed flying over the area towards nearby limestone rock islands. Perhaps, because of increased activities and uses of adjacent properties around the project location, only few wildlife species were observed during the reconnaissance survey and observation of the site.

### 5.2.1.2 Marine Resources of the Project Area

The proposed further development, improvement and relocation project is planned for the mangrove forest area that is immediately located along the man-made shoreline of the present public landfill site. It is important to note that the public landfill site is also a man-made dry land area. The "public landfill site" has been created through discharging of solid waste materials into the former mangrove forest areas by M-Dock location of Medalaii Hamlet of Koror State.
M-Dock area is a man-made dry land spaces surrounded or sheltered by limestone rock islands. As a result, M-Dock provides suitable mooring and berthing facilities for small boats for the general public. The landward of the boat dock is public landfill facilities. The proposed project site is a mangrove forest area located along man-made shoreline of the public landfill site. Fish species including Archer Fish (Uloi), Half Beak Needle Fish (Kiyeu) and Mullet (Blilech) were seen at the proposed project site during high tide.

The proposed project location is a mangrove forest that has already been subject to changes, alterations and degradation over the years. The proposed relocation project will require further development and improvement of the already changed and deteriorated man-made shoreline and mangrove forest area.

It is important to note again that the adjacent mangrove forest and marine environment of the area is expected to continue to be impacted and subject to further degradation due to increased human activities and demands for further developments. It is also essential to mention that continuing to operate and maintain the existing public landfill in the area is an environmental risk to the marine resources and environment of the surrounding and nearby sites.

The affected location including the adjacent mangrove forest and the inner reef flat are parts of inter-tidal zones. These areas are submerged during high tidal conditions and exposed at lowest tidal conditions. The later part of the inner reef flat, on the other hand, is part of sub-tidal zone that would remain submerged at all tidal conditions.

Poor environmental conditions and increased human activities continue to influence the quality of the ecosystem and the biodiversity of marine species of the area. The seabed of the affected inner reef flat area is covered with thin layer of fine silts and sediments that have accumulated over period of time. During several visits to the site, the marine water quality of the affected mangrove forest and inner reef flat areas appeared to be very turbid and degraded.

**Mangrove Forest.** The successful implementation of the planned further development and relocation project should result in the destruction of few mangrove trees that have been allowed to continue to vegetate and/or remain within the site.

The existing mangrove forest of the affected location continues to provide limited shelter and protection for the area. Two different species of mangrove trees including Tebechel (*Rhizophora sp.*) and Urur (*Sonneratia sp.*) were observed within the footprint of the proposed relocation project site.

**Seagrass and Corals.** Temperature and light intensity are important factors that could either have an adverse affects or positive enhancement of the quality of the marine environment and the value of the ecosystem as marine life habitat. Sea-grass growths in shallower and nearby part of the reef flat are short and stunted and sparsely distributed in small batches over the inner reef flat.
As expected no sea-grass growth was observed within the mangrove and mudflat areas of the relocation project site. The mangrove and mudflat areas of the proposed project site are inter tidal zone and mostly exposed at lowest tidal conditions. Sea-grass, algae and corals prefer later part of the inner reef flat that remains submerged (Sub-Tidal Zone) at all tidal conditions.

**Marine Invertebrates.** The man-made shoreline, mangrove and mudflat areas of the proposed project location provides limited habitat to only few marine species. Around the man-made shoreline and near-shore mudflat areas of the affected site, Land Crab (*Rekung-Cardisoma hirtipes*), mud crabs (*Senges-Sesarma bidens*), Crayfish (*Elamrou-Thalassina anomala*) and Fiddler Crabs (*Ebuche- Uca dussmieri*) were observed.

Snails (*Besungel-Terebralia sulcata*) and Oysters (*Iued*) were also seen along the existing pier and dock area of the nearby location. None of these species were actually observed at the proposed project site.

**Coastal Fish.** As mentioned earlier in this EIA report, mangrove forest area provide shelter, habitat and feeding area for certain species of fish. Visits to the affected site were made both during high tidal as well as low tidal conditions. During the survey of the proposed project location at high tidal conditions three species of fish including Halfbeak needlefish (*Kieu- Hemiraphus sp.*), archer fish (*Uloi-*) and Mullet (*Blilch-*) were observed.

It is, however, important to note that two of the species (Halfbeak needlefish- *Kieu* and Archer fish-*Uloi*) were seen more often in the proposed project location. The proposed project location is a mangrove forest along public landfill site.

### 5.2.1.3 Endangered and Protected Wildlife Species

Being a member of the United Nation (UN) as an independent nation has both its merits and obligations. One of the many obligations of being part of the UN is to cooperate with other independent nations in adopting and implementing existing and relevant United Nations Treaties, Conventions and Protocols that are intended to promote greater protection of the quality of the environment and the unique and valuable wildlife species. One of the many UN Treaties that the ROP has adopted relates to the protection of certain species of fish, mammals, birds, plants and reptiles that have been declared as becoming “endangered, threatened and rare” wildlife species because of their dwindling population.

The existing Endangered Species Act of the ROP, Title 24 of Chapter 10 of the PNCA is an attempt by the ROP to ensure greater conservation and protection of these valuable wildlife resources as required by the UN Treaty. None of these species that have been classified as an “Endangered, Threatened or Rare” wildlife species under current laws and regulation was/were observed or found within the proposed project site in M-Dock location in Medalaii Hamlet.
In addition to the protection of Endangered, Threatened and Rare wildlife species, the ROP, through Title 24, Chapter 12 (Protected Sea Life) and Chapter 14 (Protected Land Life) also provides for further protection for additional marine and terrestrial wildlife species. Under the Act, practically all birds are protected except for reef heron (Sechou), collard kingfisher (Tengadidik), Red Junglefowl (Malkureomel), Swamphen (Uek) and Cockatoo (Iakkotsiang).

Existing Palau laws also provide protection for numerous other marine resources including giant clams, mangrove crabs, lobsters as well as other species of reef fish as Groupers (Temekai and Tiau), Rabbitfish (Meas), and Napoleon Wrasse (Maml). In addition, existing ROP laws also provide protection for Dugong (Sea Cow-Mesekiu).

None of the above mentioned species were found within the site during the survey. The likelihood that any of these valuable species would be disturbed or damaged by the successful completion of the proposed relocation project is highly unlikely.

### 5.2.2 Physical Resources

This section of the EIA report provide adequate summary of the physical resources of the proposed project location at M-Dock area of Medalaii Hamlet. The proposed project site is located along the man-made shoreline of the "public landfill" area of the southeastern costal area of Medalaii Hamlet of Koror State.

#### 5.2.2.1 Water Resources of the Site

During rainy weather conditions, road ditches and drainage systems collects surface water runoffs from nearby uplands areas and discharges these runoffs laden with debris and silts and sediments into the shorelines and mangrove areas of the proposed project site. The project site is part of a marine environment that has been subject to changes, destruction and degradation over the years.

The marine water quality of the general project area was evaluated during the preparation of this EIA report. During fair weather conditions, the quality of the marine water appears to be clean, but during inclement weather conditions of the environment begins to deteriorate poorly.

During and immediately after rainy weather conditions, the marine water is especially turbid and poor. Again, the proposed project site is part of a mangrove forest area immediately located along the man-made shoreline of the existing public landfill site in M-Dock location.

Road ditches and drainage systems should not be allowed to discharges polluted surface water runoffs directly into the marine environment. It is essential for the Republic to consider possibility of creating and maintaining sediment basin as part of road drainage
system to help in receiving surface water runoffs first and allow proper collection of debris before discharging into the adjacent marine environment.

In general, the project site exhibits characteristics of tidal driven flow on the reef flat and the adjacent channel areas. The Ebb Tidal current flows outward while the flow tides or the rising tides flow landwards and eventually floods the affected mangrove forest areas and the shores of Medalaili Hamlet of Koror State.

The water exchanges promoted by tidal conditions help in sustaining the quality of the environment of the affected location. Outgoing tides helps in carrying pollution from the near shore areas outwards into open lagoon areas while incoming tides helps in bringing in fresh nutrient and clean water to the near shore marine environment.

During flow tidal conditions, the top half of the water column flows out while the bottom half of the water column remains in deeper areas of the lagoon. Except in the very shallow near shoreline areas where water exchanges is about 95 per cent.

The water quality of the marine environment of the area is also subject to risks from increase human activities and the poorly managed land based activities. Results of the water quality tests of the proposed relocation project at M-Dock site are provided as part of this EIA report as Attachment D for further evaluation and consideration.

The mangrove forest area is often littered with trash and debris. Most of the near-shore marine environment around the project site in M-Dock area is and have been disturbed because of increased developments and human activities. Again, the proposed project location is a disturbed mangrove forest area immediately located along the man-made shores of existing public solid waste landfill site.

Under the existing “Environmental Regulations” that have been promulgated pursuant to Environmental Quality Protection Act of the ROP that has since been codified as Title 24 of the PNCA, marine waters are classified according to the quality and current uses of the concerned waters. The Class AA waters are near pristine natural conditions and must be afforded full protection.

Only compatible recreational, oceanic researches and other aesthetic enjoyments could be allowed within the subject area(s). The second classification is Class A waters. The Class A designation are marine waters or environments around the ROP that allows swimming, bathing and other water recreational sports as well as the support and propagation of aquatic life.

The third classification of marine waters is Class B waters. Body of waters classified as Class B are waters that are currently used as small boat harbors, bait fishing, or waters that have been used commercially or as industrial developments.

This EIA report trust that body of waters of the affected location is and should be declassified accordingly as Class B waters to allow present uses and on-going activities.
The present uses of the adjacent site will continue until the new public "solid waste landfill" is established or becomes operational.

The proposed project location is a mangrove forest area immediately located along man-made shoreline of the public landfill site. The proposed project location is located landward of a small boat marina.

5.2.2.2 Soil and Land Use Considerations

The location of the proposed project is part of an existing mangrove forest area. The project site is located by the current public solid waste landfill facilities in M-Dock area of Medalaii Hamlet of Koror State. Most of the project site is a shallow mudflat and mangrove areas that is mostly exposed during low tidal conditions. The mudflat of the proposed project site is flooded or covered with saltwater during high tide. The adjacent property is a man-made dry land area that is being used and maintained as a "public solid waste landfill" site. Koror State Government operates and maintains the landfill site for the majority of the Palau population currently residing in Koror State.

The mudflat of the mangrove forest area is quite shallow and often covered with fine silts and sediments caused by surface water runoffs from upland areas. Surface water runoffs discharges directly into the mangrove forest areas during rainy weather conditions. The soil of the mudflat and mangrove areas of the proposed project location is mostly of peat and fine sediments (USDA Soil Survey classification).

The constitution and existing laws the Republic of Palau, §141 to §144 of Subchapter III, Chapter 1 of Title 27 of the Palau National Code Annotated (PNCA), gives ownership of resources and jurisdiction over the internal waters to each of the 16 states of the Republic of Palau. In addition, Koror State Government is the trustee of all public land of the State and fully supports and endorses the plan by the applicant, PECI, to conduct further development and improvements including the relocation of operations to the affected site in M-Dock location of Medalaii Hamlet.

The applicant's plan requires further backfilling and reclamation of the mangrove forest and mudflat area along the solid waste landfill site. The actions are needed to create needed new man-made dry land spaces for successful development and relocation of PECI operations to the new M-Dock site.

As mentioned in the earlier part of this report, the affected location is a part of an area that has been subject to changes, alterations and degradation over the years. The proposed further developments, improvements and relocation project is consistent with the present use of the area. Koror State Government office authorizes and endorse the applicant's relocation plan. The concerned site has been properly leased out to the applicant, PECI, by Koror State for the proposed development and relocation project.
The Koror State Master Plan of 1976 designates and classifies lands within and around the project location at M-Dock area of Medalaii Hamlet as suitable for commercial and economic development. As a result, most of the developments in the area bordering the project site are economic or commercial activities.

These current uses of nearby areas, the shoreline and sheltered bay area as small boat mooring and berthing areas will always continue to contribute to the degradation of the quality of the marine environment of the area. The demand for economic growth and increased boating activities in M-Dock area is most likely to continue to influence the quality of the environment of the area.

5.2.2.3 Air Quality

The air quality regulations of the ROP have been promulgated by EQPB pursuant to Title 24 PNCA have been in effect since May 1996. These valuable regulations incorporates specific ambient standards with respect to level of pollutants such as hydrocarbons, sulfur oxides, particulate matters, nitrogen oxides, carbon monoxides, photochemical oxidants for the Republic.

Although the Republic collects no data due to limited resources, the air quality of the project location and the Republic of Palau, in general, is expected to be of ambient air quality because of light industrial developments.

There are no significant stationary sources of air pollution in the area of Medalaii Hamlet or the neighboring hamlets of Koror State to be of concern for the people. Residential and small business operations as restaurant, small retail stores, small boat marina and small hotel are some of the developments and land uses within the nearby and surrounding areas.

5.2.2.4 Noise Considerations

There are no stationary sources of noise pollution within the vicinity of the proposed relocation project area. While the ROP is yet to establish its capability to collect needed data on noise level, noise pollution is not expected to be a serious consideration in and around the proposed relocation project site in M-Dock area of Medalaii Hamlet of Koror State.

It is, however, important to mention that intermittent noise occur occasionally from the motorized watercrafts, overhead aircraft, and passing heavy equipments. In addition, noise from the traffic on the main highway through nearby areas occasionally contributes to minimal noise problems in the area.
The concern has increased over the years perhaps due to the increased economic and social growth within Koror State. Otherwise, the present noise level seems to be tolerable and accepted by the people of the community.

5.2.2.5 Social and Economic Conditions

The population of the Republic of Palau has been estimated (Republic of Palau - 2001 Statistical Yearbook) to be around 19,129. About 70% of the population is estimated to reside in Koror, the administrative and business center of the Republic of Palau. Koror State is also one of the smallest of the 16 States of the ROP in term of land mass. Although the capital has since been relocated to Ngerulmud location in Melkeok State of the east coast of Babeldaob Island, most of the key government offices are still located within Koror State to serve majority of the Palau population still residing within the State.

The planned development, improvement and relocation project is intended to cater to the needs and demands of the growing population of Palau, in general. The planned relocation project is aimed at locating the operation in a site that is closer and more accessible to the people. The operation is aimed at allowing the increased social and economic development growths to proceed in a more environmentally sound and sustainable manner. Use of propane gas is more environmentally friendly than the use of fuel as kerosene.

The people and Republic of Palau have changed and evolved from a subsistence lifestyle. The people of Palau are now enjoying cash economy of a modern day society receiving a steady cash flow from outside markets. The proposed further development, improvement and relocation project by the applicant, PECI, is expected to continue to contribute to sustainable social and economic growth of the ROP.

The successful implementation and operation of the proposed further development, improvement and relocation project is an effort by the applicant to ensure that the economic and social growth within Palau and Koror State, in particular, continues to proceed in an environmentally sound and sustainable manner that will not jeopardize or compromise future possibilities and opportunities.

One of the ways to assure greater protection of the more sensitive and valuable habitat and ecosystem is to create and install adequate basic infrastructure and services to guide developments and social growth. Not allowing the proposed relocation project to proceed is inconsistent with Koror State development plan.

5.2.2.6 Solid Wastes, UXO Substances and Hazardous Materials

The plan to conduct and implement the proposed further development, improvement and relocation project in M-Dock area of Medalaii Hamlet of Koror State is not expected to
result in the generation of significant amount of solid wastes or toxic substances. The applicant's plan is intended to promote sustainable economic and social growth. The plan only involve relocation of the same facilities and operations from Malakal Island to a new location in M-Dock area of Medalaii Hamlet. Moreover, the plan is expected to improve quality of services to the public.

Relocating existing operations to new location is not and should not result in the generation of additional solid waste, UXO substances or hazardous materials. The proposed project will only involve relocation of the same operations to a new location that is closer to majority or the center of the population. Again, the plan is endorsed by Koror State Government as mentioned earlier.

The likelihood that there would be significant amount of hazardous or toxic waste materials generated by the planned relocation project is remote and unlikely. No additional toxic waste materials would be generated as a result of the successful completion of the planned relocation project. Koror State Government is responsible for proper disposal and management of solid waste materials throughout Koror State.

The near shore marine environment of the area is, as mentioned earlier, littered with trash, debris and discarded old cars. It is important to note again that the proposed relocation project site is part of a mangrove forest area and marine environment that has been subject to changes, alterations, pollution and degradation over the years due to use of the adjacent or nearby site as solid waste landfill site for the general public.

**5.2.2.7 Historical and Archaeological Resources**

The proposed further development, improvement and relocation project involves moving or relocating existing operations from Malakal Island location to a new site in M-Dock area of Medalaii Hamlet. The relocation to new site in M-Dock area is recommended by Koror State Government as an effort toward promoting sustainable development. During the reconnaissance survey and investigation, no historical or archaeological resources of the ROP or the State of Koror, in particular, was observed or found within the proposed project site.

The new site is a mangrove forest area and the likelihood that any historical resources or cultural properties of the ROP would be found within the proposed relocation project site is remote and highly unlikely. Again, the site of the proposed relocation project is a mangrove forest area along the man-made shoreline of the existing public landfill site, a former mangrove forest area.

In an attempt to comply with appropriate historical standards and requirements, the applicant will apply for and received necessary “Historical Clearance” from the HPO of the Ministry of Community and Cultural Affairs prior to proceeding with successful implementation of the proposed development, improvement and relocation project.
5.2.2.8 Infrastructure

The successful completion and operation of the planned development, improvement and relocation project would benefit from the existing public infrastructure and services available in the new area of the proposed project. The infrastructure as the secondary access road will provide convenient access to the site. The relocation project and related operations will also benefit from public utilities as the telecommunication, power and water systems.

The planned development, improvement and relocation of existing facilities is an effort by the company, PECI, to continue to improve its facilities as well as upgrade the quality of services for the public. The proposed relocation is also a part of the company's plan to also ensure that business operation and its activities proceeds in an environmentally sound and sustainable manner.

In addition, because of future development and improvement plans by Koror State Government for the area, the applicant is encouraged to relocate other aspects of the existing operations from the present location in Malakal Island to a new site in M-Dock area of Medalaii Hamlet. Koror State Government, perhaps, has other plans for the existing location in Malakal Island and has duly advised and encouraged PECI to relocate parts of its operations to the designated new site in M-Dock area of Medalaii Hamlet.

The new site in M-Dock location that has been designated by Koror State for the planned development and relocation is part of an existing mangrove forest area. Before the proposed relocation efforts could proceed, the applicant would have to clear, backfill and reclaim the new site to create the additionally needed man-made dry land spaces. The new man-made dry land areas to be created will and should provide adequate man-made dry land spaces for the successful implementation of the proposed relocation of certain operations from Malakal location to new site. The existing facilities and operations to be relocated to the new site in M-Dock site includes Water Pump Machine, Auto Shop, Presser Cans, Oxygen, Acetelyne and LPG Gas.
PART 6
POSSIBLE ENVIRONMENTAL CONSEQUENCES

The existing environmental regulations of the ROP that have been promulgated by EQPB pursuant to Title 24 PNCA requires every EIA report to discuss and disclose information on possible impacts that may result from the successful completion of the proposed relocation actions on the quality of the environment and the resources of the affected location.

This EIA report has been adequately prepared and should provide adequate discussions of the possible impacts and consequences that may result(s) from the successful completion of the planned development, improvement and relocation project to allow EQPB Office to evaluate and make competent determination.

6.1 Environmental Consequences of the Proposed Project

The new site for the proposed development, improvement and relocation project is part of a mangrove forest area that is immediately located along the existing public "solid waste landfill site" in M-Dock area of Medalaii Hamlet. The location of the proposed project is forested with two species of mangrove trees as mentioned earlier in this EIA report. These species of mangrove trees would be destroyed and removed from the proposed project site. The successful implementation of the proposed relocation project will result in both adverse and positive impacts on the quality of the environment and the resources of the area. The value of the location as habitat for certain species of fish will be further minimized and degraded. In addition, the value of the mangrove forest as habitat for certain species of sea birds would be compromised as well as a result of destruction of existing mangrove forest. It should be noted that any adverse impacts or changes resulting from the successful completion of the planned actions would, however, only be minimal and negligible on the quality of the environment and the resources of the area.

The successful completion of the proposed relocation project could also have positive impacts and benefits on economy and social developments. The planned improvement and relocation project is intended to further enhance basic services to the public and especially the people of Koror State.

The proposed excavation, backfilling and reclamation actions needed for the successful implementation of the planned development, improvement and relocation actions is expected to result in minor changes to the environment and resources of the location. In addition, the successful completion of the planned relocation project should also result in
further changes to the topography and soil texture of the affected location in M-Dock area of Medalaii Hamlet. Moreover, reclamation and backfilling of the existing mangrove forest could result in the creation of additional man-made dry land spaces for the State of Koror.

It is also important to mention as well that the planned development, improvement and relocation project could also result in minor soil erosion and sedimentation of the adjacent and nearby marine environment. The required earthmoving activities including reclamation, backfilling and landscaping are likely to results in increased turbidity of the water and possible sedimentation of the adjacent areas. The mangrove trees within proposed relocation project location would be cleared and removed from the proposed project site.

In addition, the planned further development, improvement and relocation of existing facilities and operations is expected to cause further changes to an environment that has been subject to continued disturbances and degradation over the years. Because of the poor and degraded quality of the marine environment of the proposed project site, any possible adverse impacts that may result from the successful implementation of the proposed further development, improvement and relocation actions on the quality of the environment and the resources of the location should only be minimal and negligible.

6.2 Impacts of the Proposed Project on Specific Resources

The following sections of this Part 6 of the EIA report discusses possible impacts that could or may result from the successful implementation of the planned development and relocation project on the quality of the environment and the resources of the proposed project location in M-Dock area of Medalaii Hamlet of Koror State.

6.2.1 Impacts on Biological Resources

Possible impacts that may result from the successful implementation of the proposed actions on biological resources of the proposed relocation project site in M-Dock location in Medalaii Hamlet of Koror are summarized below for evaluation and information.

6.2.1.1 Impact on Wildlife Resources

This EIA report trust that the successful completion and implementation of the planned further development, improvement and relocation project at the site in M-Dock area of Medalaii Hamlet should only result in minor impacts and changes on the quality of the environment and the resources of the project area. The proposed project is designed and will be implemented in a manner that will result in only minor damages and degradation to the quality of the already changed man-made environment of the area.
Few secondary plants that have been allowed to restore the shoreline of the existing man-made dry lands areas by the proposed relocation project site. These secondary plants could stand the risk of being damaged by the successful implementation of the planned development and relocation project. In addition, few mangrove trees of mostly *Rhizophora sp.* (Tebechel) and *Sonneratia sp.* (Urur) species that vegetate the proposed project site would have to be cleared or removed to allow successful completion of the proposed relocation project. Most of the mangrove trees within the project site that would be destroyed have limited values and needs as construction or building materials. The more suitable ones could be taken home by interested individuals for use as building materials or as firewood for cooking purposes. The less suitable ones could be used as fill remain or disposed at the adjacent public solid waste landfill site.

The proposed relocation project location is part of a disturbed environment. The affected location is a mangrove forest area with reduced value as habitat area or nursing ground for most marine fish species. Two species of mangrove trees (*rhizophora sp.* and *sonneration sp.*) were observed at the affected mangrove area. Mostly secondary type of plants as hibiscus (ermall), bananas (tuu) and papaya (bobai) have been allowed to restore the man-made shoreline along the proposed project site.

The successful implementation of the planned development, improvement and relocation project that is intended for a disturbed mangrove forest site in M-Dock area of Medalaii is expected to further change the condition as well as alter the habitat value of the affected location. Mangrove trees will be removed and the mangrove area or mudflat would be backfilled and reclaimed to create the additionally needed new man-made dry land spaces.

In addition, the successful completion and subsequent operation of the planned relocation project will further change the already reduced habitat value of the affected site. Certain bird species as junglefowl (malkureomel), white-tailed tropicbird (dudek), pacific reef heron (sechou), banded rail (terriid), black noddy (bedaoch), white tern (dudek), vanikoro swiftlet (chesisekiaid), collarated kingfisher (tengadidik), micronesias starling (kiuid) and chestnut mannikin (kanaria) were observed within and by the surrounding sites in M-Dock area of Medalaii Hamlet of Koror State.

These birds species are more mobile wildlife species and will/would simply move away or migrate elsewhere to avoid being disturbed or damaged. These species of insects, birds and reptiles are attracted to the site by the on-going activities. Disposal of solid waste materials attract certain species of insects, birds and reptiles to the landfill area to feed on scraps of food and insects.

### 6.2.1.2 Impacts on Marine Resources

The required actions would result in immediate impacts on the less mobile benthos organisms including shells and bi-valves, the primary inhabitants of the near shore mangrove environment of the State. It is important to note, however, that any potential
impacts resulting from the planned relocation project on other marine life as fish or crab would be negligible. Only few fish were observed within the proposed project location during the survey. These species will simply move elsewhere during reclamation, construction and relocation process.

In addition, the successful completion of the proposed new development and relocation project will undoubtedly change the environment and perhaps create new habitat area for other species. The proposed excavation, backfilling, relocation and increased uses of the area will further impact as well as change the habitat and shelter value of the area.

The additional earthmoving and destruction of the existing mangrove forest area will make the area less suitable as habitat area for certain fish species or other forms of marine life. On the other hand, the resulting changes from the successful completion of the proposed project would benefit other fish species. Such species as the rabbit fish, archer fish and halfbeak needlefish are normally attracted to changed marine areas to feed on discarded food staff from users of the facilities.

### 6.2.1.3 Impacts on Endangered and Protected Species

The proposed relocation plan should not result in any direct impact to any of the “Endangered, Threatened, Rare and/or Protected” wildlife species of the ROP. In addition, the successful implementation and subsequent operation and uses of the planned development, improvement and relocation project will not result in damages or impacts to any valuable habitat, protected or conservation areas.

The new location for the proposed development, improvement and relocation project is part of a man-made shoreline and mangrove areas that has been subject to alterations and degradations over the years due to increased human activities and developments. The proposed project location is adjacent to an existing public landfill site. It is important to mention that the present and existing public landfill site is a former mangrove forest and mudflat areas.

The likelihood that any valuable, endangered, threatened, rare or protected resources of the ROP would be adversely damaged or impacted is remote and highly unlikely. No endangered, rare or threatened species of the ROP was observed during surveys of the proposed relocation project location.

### 6.2.2 Impacts on Physical Resources

Summary of possible impacts on physical resources of the site of the proposed relocation project in M-Dock area of Medalaii Hamlet are discussed in the following sections of this part of the EIA report.
6.2.2.1 Impacts on Water Resources

The proposed development, improvement and relocation project will require further backfilling and reclamation of existing man-made shoreline and mangrove forest area. The successful completion of the proposed project will also require further clearing of mangrove trees within the proposed relocation project site. It is also important to mention that the successful completion of the proposed actions is expected to result in minor changes or adverse impacts on the quality of the mangrove environment or the marine water of the area.

The quality of the marine environment of the affected location in M-Dock area of Medalaii Hamlet of Koror State is degraded due to increased developments and human activities within nearby and surrounding areas or locations.

Any adverse impacts or changes that may result from the successful completion of the planned further development, improvement and relocation project as the increase in turbidity, soil erosion and sedimentation of the adjacent and nearby marine environment will only be temporary and minimal. In addition, possible impacts could be minimized through successful implementation and maintenance of adequate mitigation and control measures.

The quality of the marine water of the bay area will always continue to be subject to degradation and changes resulting from increased human activities. It is therefore appropriate for the environment of the area to be considered as Class B waters to allow or accommodate existing private uses and public developments that have existed in the area over the years to continue with their sustainable operation. It is important to mention that boating activities in the bay area has continued to increase in recent years.

6.2.2.2 Impacts on Soil and Land Use Planning

Any impacts resulting from the proposed further development, improvement and relocation project from Malakal Island location to the new site in M-Dock of Medalaii Hamlet should only be minimal and negligible. The proposed relocation project could enhance values of the existing land uses and developments within nearby areas of Medalaii Hamlet.

The successful completion of the planned development project would result in creation of additionally needed man-made dry lands. In addition, creating needed new man-made dry lands would also change soil conditions as well as the topography and value of the location. The successful creation of the needed man-made dry land spaces will allow the applicant to relocate existing facilities along with related operations to a new and more convenient site in M-Dock location of Medalaii.

The proposed project location is a mangrove forest area. The soil of the seafloor is made up of mostly of peat, fine silts and sediment as most mangrove areas around Koror State's
coastal areas. It is anticipated that relocating on-going operation from Malakal Island to the new site will further change the value of the location as wildlife and fish habitat area.

In addition, development of the new property will further change and alter the soil types and topography of the site. The new location in M-Dock area for the proposed relocation project is part of an mangrove area. Because of limited lands, Koror State Government leased portion of a mangrove forest in M-Dock to the applicant. In order to proceed with the planned relocation of certain programs or activities of PECI operations to the new site in M-Dock area, the applicant would to first develop and improve the new location. The new location that Koror State Government leased to the applicant is part of a mangrove forest area in M-Dock location.

Firstly, the new relocation site is a mangrove forest area that would have to be backfilled and reclaimed to create the additionally needed man-made dry land spaces for the planned development and relocation of existing facilities. As soon as the needed facilities have been properly relocated to new site, the company will proceed with business activities in providing essentially needed services to the community. One type of activity that PECI is involved in is marketing or providing propane gas to the community. Cooking with propane gas is much better than cooking with either kerosene or electricity. Moreover, propane gas generate less pollution.

One of the primary impacts of the planned development and relocation project is the alteration of the topography and configurations of the portions of the existing near-shore man made shoreline and mangrove forest areas of Medalalai Hamlet of Koror State. The proposed project will involve excavation, backfilling and reclamation of existing man-made shorelines and mangrove forest areas to about four feet (4.0 ft) above the existing sea floor elevation to create adequate man made dry land spaces for the proposed relocation project. Under the existing laws of the ROP, the State owns all of the submerged lands as well as all of the resources within the area from the shoreline to 12 nautical miles of the seaward edge of the barrier reefs. The Koror State is fully supportive of the proposed relocation project even though implementation of the plan would require further destruction and changes to the existing man-made shorelines and mangrove forest areas.

The proposed project is not expected to impacts any future plans of the State. The State Government is encouraging the applicant to relocate most of its on-going operations in Malakal Island to a new site that has been designated in M-Dock area by the existing public solid waste landfill site. The marine waters along the man-made shoreline of the existing public landfill site is and should be classified as "Class B" waters of the Republic of Palau and Koror State because of the on-going uses or activities.

6.2.2.3 Impacts on Air Quality

Only minor dust emission problems may result from the required earthmoving activities. In addition, poorly maintain equipment assigned to the relocation project could also
contribute to air pollution with carbon monoxide emissions. It is important to note that any adverse impacts resulting from the planned actions on air quality of the area should only be minimal and temporary.

The location is surrounded with open space and any minimal impacts resulting from the operation of the proposed project would most likely disperse in open space. In addition, after successful completion of the proposed relocation project, air quality in the area should return to normal.

6.2.2.4 Impacts on Noise Level

The use of heavy equipments assigned to the project will undoubtedly generate and contribute to increased noise level in the area. In addition, poorly maintained equipments could also generate and contribute to increased noise level in the area. Any increase in noise level will only be minimal and negligible.

Any adverse impacts resulting from the proposed development and relocation project should only be temporary and restricted to during construction of the proposed project. The noise level should return to normalcy immediately after the successful completion of the project.

In addition, any noise generated during construction and relocation of the proposed project will more or less dissipate in open air spaces around the project site. Moreover, any noise pollution or impact from the sustainable operation of the proposed relocation project could be further minimized through proper operation, maintenance and management of the planned relocation project.

It is essential to mention that improperly maintained heavy equipments, vehicles or machines have tendency to generate more or increased level noise. The applicant will conduct proper and regular maintenance of all equipments and vehicles assigned to the operations of the company to assure that they generate reasonable amount of noise.

6.2.2.5 Socio-Economic Impacts

The successful completion of the planned further development and relocation project is not expected to have or result in any adverse affect on any of the existing land uses or the economic and social developments within the neighboring areas of M-Dock location of Koror State. The proposed relocation project will, however, benefit from the existing infrastructure and services. The operation of the relocation project will benefit from the existing infrastructure as the access road and the adjacent public solid waste landfill.

The proposed further development, improvement and relocation project may indirectly contribute to and enhance the present economic and social developments within the surrounding areas.
The general public is expected to benefit from the improved facilities and convenient location of the relocation project. The new location will and would be closer to the center of population and the community as well. The successful development and implementation of the proposed further improvement and relocation project would definitely have positive economic and social impacts for the people of the area.

In addition, moving the facilities to the new location in M-Dock area of Medalaaii Hamlet would be more readily accessible and convenient for the majority of the people residing in Koror State. Because of the increased vehicular traffic, the Malakal area is becoming more inconvenient.

### 6.2.2.6 Impacts of Solid Wastes and UXO Materials

The proposed further development, improvement and relocation of existing operations from its present location in Malakal Island to a new site in M-Dock is not expected to result in the generation of increased solid, toxic or hazardous wastes materials. The amount of solid waste generated by the relocation and subsequent operation is expected to remain at the same level or amount before the relocation to a site in M-Dock location of Medalaaii hamlet.

The new location for the on-going operation is immediately and conveniently located along the man-made shoreline of the existing public solid waste landfill site. Possible adverse impact(s) of the planned relocation project on the environment and the resources of the area is/are to be expected to be minimal. The quality of the environment of the new location is already subject to changes and degradation by the on-going operations or activities.

Various operations associated with the proposed relocation project are only expected to generate minimal amounts of waste materials. Continued recycling or re-use of materials by the applicant will help in minimizing solid waste materials.

It is unlikely that any Unexploded Explosive Ordnances (UXO) materials would be found or have any impacts on the environment and the resources of the affected site at M-Dock area of Medalaaii Hamlet of Koror State. Again, the proposed relocation project location has been subject to increased activities and it is, therefore, unlikely that any UXO would be found within the boundary of the proposed relocation project site. UXO materials is/are not expected to be of major concern for people around or nearby the affected site in M-Dock area of Medalaaii Hamlet of State.

### 6.2.2.7 Impacts on Historical Resources

It is unlikely that any historical or archaeological resources of the ROP or the State of Koror, in particular, would be found or located within the proposed project relocation site. The planned development, improvement and relocation project is intended for a
section of a mangrove forest and a marine environment that has been subject to changes, degradations and disturbances over the years. Moreover, the proposed development and relocation project is intended for a site that is immediately located along the man-made shoreline of the present public landfill site at M-Dock location.

In compliance with existing ROP standards, the applicant, Palau Equipment Company Inc. has to apply for and must receive the needed “Historical Clearance” from HPO of the Bureau of Arts and Culture of the Ministry of Community and Cultural Affairs before proceeding with the planned relocation project. The applicant, PECI, place greater values on historical and cultural resources and will comply with the requirements of the existing laws and regulations of the ROP.

Successful development, implementation and completion of the proposed relocation project will only proceed after the relevant and required "Historical Clearance" from HPO office has been approved and issued for the planned project. Copy of the needed "Historical Clearance" for the proposed relocation project would be made available for information and ready references.

6.2.2.8 Impacts on Basic Infrastructure

The successful completion of the planned further development and relocation project is not expected to result in significant or drastic impacts on basic public infrastructure and services. Any additional demand or usages of basic public infrastructure and services resulting from the successful development, relocation and subsequent operations of the planned project should only be minimal and negligible. The proposed project is only an effort by the applicant to relocate existing facilities and operations to a new location in M-Dock from the present site in Malakal Island.

The proposed project is only an attempt to relocate the same on-going operations to a new site in M-Dock location. The only basic public infrastructure that maybe impacted the most would be the secondary road from the main road to M-Dock as well as the access road from the M-Dock road to Koror State's "recycling office" which is located to the south of the public solid waste landfill site. The vehicular traffic on the road to M-Dock is light and possible impacts would be minimal. In addition, any impacts on the access road to the Koror State recycling office would be negligible and insignificant as well. This access road is, however, narrow and winding.

On the other hand, the successful implementation of the planned development and relocation project should enhance accessibility of the public and the community to facilities as well as the services of the company. The planned relocation could help in reducing vehicular traffic or the congestion on the main road to Malakal Island. The planned construction and subsequent relocation of portions of existing PECI operations to the new location in M-Dock could also have positive impact on the community. The planned relocation to new site will place operation near the center of the population in Koror State.
PART 7
MITIGATION AND CONTROL MEASURES

This section of the EIA report discusses and identifies competent mitigation and control measures for implementation by the applicant to minimize possible adverse impacts that may result from the planned development and relocation project on the quality of the environment and the resources of the area.

This part of the EIA report has been properly prepared following the requirements of existing EIS regulations and should provide relevant and adequate information for review and favorable consideration.

7.1 Mitigation of Possible Direct Impacts on the Environment

The applicant, PECI, plans to install and maintain adequate mitigation and control measures as an effort aimed minimizing further impacts and degradation of the already deteriorated and disturbed marine environment with limited resources. Where necessary and as needed, permanent mitigation measure(s) would also be properly installed and maintained to control or minimized continued environmental concerns. In addition, the applicant will also conduct all of the required excavation, backfilling, reclamation and development activities in a manner that will not contribute to further degradation of the already compromised and disturbed environment with reduced resources.

Proper management of the required actions of the proposed relocation project could also allow the planned project to be implemented in an environmentally sound and sustainable manner. The following sections of this part of the EIA report identifies and discusses adequate mitigating and control measures that would be properly implemented and maintained by the applicant during duration of the planned project to minimize further degradation of the quality of the environment and the destruction of the resources of the affected site.

7.1.1 Use of Silt Curtain

Possible adverse impacts as turbidity, soil erosion and sedimentation resulting from the proposed development, improvement and relocation activities on the quality of the water and the nearby marine environment could be effectively minimized through proper installation and maintenance of silt curtain around the backfill and reclamation areas. Adequate and competent control measures should be able to isolate fine silts and
sediments generated or caused by the required earthmoving, excavation, backfilling and reclamation actions from migrating or spreading elsewhere. Allowing silts and sediment to spread to surrounding areas could increase or cause further impacts on the quality of the marine water and resources of the surrounding and nearby areas of the lagoon. Near-shore and lagoon areas serve as habitat and nursing ground to numerous species of marine lives.

The Silt Curtain would and must be properly installed and deployed completely around the entire backfill and reclamation sites prior to the commencement of the proposed development and relocation project. Proper silt curtain must be deployed adequately with suitable floatation and anchoring (weight) devices to ensure that the control measures actually serves and achieves its intended purposes.

The silt curtain shall also be maintained regularly or as needed to minimize and prevent possible adverse impact resulting from the proposed project on the quality of the environment and resources of the nearby areas. It is important to note that improperly deployed or maintained mitigation and control measures could reduce the effectiveness of the control measures.

All of the needed earthmoving, backfilling and reclamation activities should only be conducted within a properly enclosed and isolated areas of the proposed relocation project site. This is an important process that should help in isolating soil erosion and sedimentation problems from impacting the quality as well as the resources of the adjacent and nearby marine environment. It should be mentioned as well that all earthmoving would be conducted only during fair weather conditions to help in minimizing possible adverse impacts on the adjacent and nearby marine environment. It is also recommended that most of the earthmoving activities be conducted during low tidal conditions to minimize soil erosion and sedimentation.

### 7.1.2 Restoration of Seawall

Sensitive shorelines and un-restored seawall can serve as source of continued erosion and sedimentation of the adjacent and nearby marine areas. Additionally, exposed loose soil could also contribute to soil erosions and degradation of the quality of the marine environment and the resources of the surrounding areas. The applicant will install proper sea wall as well as restore sensitive shoreline areas of the proposed project location to help in reducing as well as minimizing marine pollution.

Possible soil erosion problem would be minimized by the applicant through proper implementation and maintenance of competent control measures of the proposed development, improvement and relocation project. In addition, proper management and coordination of activities required for the successful completion of the proposed development and relocation project will help in minimizing adverse impacts on the environment and the resources of the area.
After all earthmoving, backfilling, reclamation, excavation and landscaping works have been completed, all loose soils should and would be adequately and properly compacted. Permanent seawall or retaining wall would be installed as needed to minimize or prevent continued soil erosion and sedimentation of adjacent and nearby areas.

Where possible or needed, large rock boulders could and may be utilized as necessary to restore or rehabilitate sensitive man-made shoreline or restore sensitive or damaged seawall around the proposed relocation project site. Proper retaining wall will also improve the quality and value of the newly created man-made dry land areas.

In addition, any scrub metals, old tires, plastics and all trash materials discarded along the man-made shoreline and the mangrove area would be properly removed and disposed at the adjacent public solid waste landfill site. Proper landscaping efforts including planting of suitable species of trees, shrubs or ornamental plants within exposed and sensitive areas to prevent erosion and provide shelter as well as create aesthetic beauty to the area should be considered. Proposed project design and plans that have been incorporated as part of this EIA report provides more detail and specific information on the proposed development and relocation project.

### 7.1.3 Use of Best Management Practices

Great deal of adverse impacts or pollution from any successful project on the quality of the environment and resources of the proposed project location could be minimized through proper implementation and better management and coordination of the activities required for the successful completion of the planned improvement and relocation project.

Implementation and use of best management practices could also ensure better protection of resources during construction phase of the proposed development and relocation project. The applicant hopes to implement the following best management practices.

- It is recommended that most of the reclamation and backfilling activities be conducted during low tidal conditions.

- It is also recommended that all earthmoving activities shall be conducted only during fair weather conditions.

- All equipments assigned to the proposed project shall be properly maintained to minimize noise pollution and contamination of the air quality of the environment of the area.

- Access to the proposed project site would be properly surfaced with large rock aggregates or coral materials to prevent possible transportation of loose soils elsewhere.
- Proper maintenance of mitigation and control measures be implemented regularly or as needed.

- Refueling of equipments must be conducted in a manner that best prevent or avoid possible contamination of the marine environment. Every effort would be made to prevent spill of fuel as well as minimize refueling at the site during construction.

Construction of the proposed development, improvement and relocation project would be properly conducted and activities related to successful implementation of the plan be adequately managed by the applicant or its agent.

### 7.2 Mitigation of Possible Impacts on Specific Resources

The following sections of this part of the EIA report discusses and proposes competent mitigation and control measures for implementation by the applicant to mitigate and/or minimized changes and possible damages or impacts on the specific resources of the proposed relocation project location at M-Dock area.

#### 7.2.1 Biological Resources

Proper mitigation and control for implementation to minimize possible impacts on specific biological resources of the proposed project site in M-Dock area of Medalaii Hamlet are outlined below for review and evaluation.

#### 7.2.1.1 Mitigation of Impact on Wildlife Resources

Any adverse impact resulting from the successful implementation of the proposed development, improvement and relocation project on wildlife species including plant resources would be minimal and negligible. The planned further development and relocation project as well as most of the activities relating to the proposed project will mostly involve a man-made shoreline and a changed mangrove forest areas.

In addition, the proposed project site or the concerned mangrove forest area is part of a location that has been subject to changes, disturbances and deterioration over the years. The location of the proposed development and relocation project is also adjacent to existing public solid waste landfill site. It should be made clear that the public landfill site is or was improperly located, as noted earlier, within mangrove forest.

This EIA report trust that it is not necessary to propose any specific mitigation or control measure for implementation to mitigate damages on terrestrial wildlife resources. It is, however, important to mention that the proposed improvement and relocation project will be implemented in an environmentally sound and sustainable manner that will not result
in significant damages to the adjacent environment and its resources. Although the proposed relocation project site is part of a mangrove area that has been subject to changes and degradation over the years the applicant understand and appreciate the need to protect natural resources through sustainable development.

In addition, the affected site is also a part of mangrove area that is immediately located along the existing public landfill site. The applicant, however, will make every attempt to avoid destruction of the terrestrial resources outside of the boundary of the project site.

7.2.1.2 Mitigation of Possible Impacts on Marine Life

Any adverse impact that may result from the planned further development, improvement and relocation project on marine resources should only be minimal and negligible. The planned development and relocation project is intended for an environment that has been subject to changes and degradation over the years. The value of the ecosystem as habitat and shelter areas for marine life has been minimized or compromised by the previous and on-going actions.

To minimize further damages, adequate mitigation and control measures would be installed to completely isolate or enclose the proposed project site. Silt fence would be properly installed around the boundary of the proposed project to isolate erosion and silt problems from impacting nearby and adjacent environments. In addition, needed control measures would also be properly maintained during the period or duration of the project.

Required earthmoving, backfilling, reclamation and relocation activities would be disallowed outside of the boundary of the proposed relocation project site to minimize further damages, and destruction of marine life.

It important to note that the more mobile species of fishes will simply migrate elsewhere or to nearby lagoon areas to minimize or avoid possible impacts by the proposed earthmoving actions or the successful completion of the planned relocation and improvement related activities. Only the less mobile species as clams and snails would stand the risks of being damaged by the required actions.

7.2.1.3 Mitigation of Impacts on Endangered and Protected Species

This EIA report does not suggest or recommend any specific mitigation or control measure for implementation by the applicant for the protection of endangered, rare and threatened species. There was no sighting of any Endangered, Threatened or Rare wildlife species of the ROP during the surveys and field investigation of the affected location at M-Dock.
Any protected fish as the rabbit fish species would simply migrate elsewhere to avoid being damaged or impacted by the required earthmoving, reclamation and construction actions.

The planned development, improvement, reclamation, construction and relocation actions are not expected to result in the destruction of any unique and important wildlife species of the State or the Republic of Palau.

However, to avoid possible damages to adjacent marine and terrestrial environment, the applicant hopes to only conduct earthmoving activities within properly enclosed areas of the proposed project location. In addition, all earthmoving, backfilling and reclamation activities would be restricted to only within the boundary of the project location and during fair weather conditions.

### 7.2.2 Physical Resources

The applicant trust that it is important to minimize possible impacts on physical resources of the Republic of Palau. Necessary mitigation and control measures for implementation by the applicant to minimize possible impacts to specific physical resources are discussed below.

#### 7.2.2.1 Mitigation of Impact on Water Resources

As mentioned earlier, the required earthmoving, reclamation and relocation actions for the affected mangrove forest area, site of the proposed relocation project, could result and have impacts on the quality of the marine water of the area. It is important to note that after the successful completion of the needed earthmoving, reclamation and relocation actions, the marine water quality of the adjacent and nearby locations should return to normal.

Any loose soil stockpiled for more than 15 days must be properly covered with plastic tarp to minimize possible soil erosion and sedimentation of nearby areas.

To avoid impacting the quality of the marine water of the nearby areas, the applicant, as mentioned earlier, will have to deploy and properly maintain adequate silt curtain around the proposed relocation project site. The silt curtain should be properly and completely installed around the reclamation site or the proposed project location to isolate any problem from affecting the quality of the marine water of the nearby environment.

Sensitive areas within the proposed project site would be properly restored to minimize continued soil erosion and possible impacts on the adjacent marine water. Man-Made shoreline around the new man-made dry land areas should be completely restored to avoid continued soil erosion and sedimentation of adjacent and nearby areas.
The applicant would also implement other competent mitigation and control measures that may be identified or recommended by EQPB Office to further minimize possible adverse impacts on the marine environment.

7.2.2.2 Mitigation of Impact on Soil and Land Use

Koror State Government has leased portion of a mangrove forest area along a man-made dry land and shoreline area in M-Dock location to PECI for further reclamation to create additionally needed man-made dry land spaces. The new man-made dry land spaces to be created would be used for the planned relocation project as discussed earlier. The proposed development, improvement and relocation project is expected to further alter and changes the topography, elevation, configuration and perhaps the texture of the soil of the area.

The successful completion and subsequent operation of the programs is expected to enhance the value of the new location. The planned earthmoving and reclamation of the existing mangrove forest area is expected to further change the texture, topography, elevation and configuration of the affected location. The planned development will also result in the removal of small portion of the mangrove forest within the site of the proposed relocation project.

Backfilling or reclamation of the existing mangrove forest area is an important part of the proposed relocation project. The process will result in the creation of additionally needed man-made dry land spaces for Koror State Government. The newly created man-made public land will, in return, be leased out to the applicant, PECI, for the proposed further development and relocation project.

The successful completion of the planned development and relocation project is expected to result in some changes or impacts. The needed backfilling and reclamation of the existing mangrove forest area is expected to change the environment and habitat value as well as the topography and texture of the soil of the affected mangrove area. In addition, the successful completion of the planned development and relocation project is also expected to result or have minor impact on other land uses or activities within the adjacent and nearby man-made dry land areas.

Other impacts as soil erosion and sedimentation and increased water turbidity could also result from the needed construction actions. These impacts will only be temporary and restricted to during the construction period of the proposed relocation project. The quality or the condition of the adjacent and nearby marine environment should return to normal after the successful completion of planned development and relocation project.

Moreover, the planned further development, improvement and relocation project is consistent with the existing requirements and standards of the current ROP's environmental Laws and the Building and Zoning Regulations as well as the Master Development Plan of Koror State. The planned development and relocation project is
intended for a location by the existing public landfill site at M-Dock area of Medalaii Hamlet.

### 7.2.2.3 Mitigation of Impact on Air Quality

As mentioned earlier, any adverse impact resulting from the development, improvement and relocation project on the air quality of the area would be minimal and insignificant. Although the ROP is yet to establish its capability to collect basic data, the air quality of the Republic is expected to be in-near pristine quality or level. Although tourism growth has continued to increase over the years, industrial developments, has only progressed slowly over the past years.

To minimize further degradation or possible impact and contamination of the air quality of the area, the applicant will ensure that all equipments assigned to the construction of the proposed development, improvement and relocation project would be regularly serviced, repaired and maintained in good working condition.

Stockpiled loose soils would be properly covered during rainy and windy weather conditions to minimize possible erosion and dust emission that could contributes to further degradation of the marine environment or the air quality of the area. Other sensitive areas could also be adequately compacted to minimize possibility of dust emission as well as soil erosion and sedimentation of nearby marine environment.

### 7.2.2.4 Mitigation of Increased Noise Pollution

The proposed further development, improvement and relocation project is less likely to generate significant amount of noise. Possible noise generated by the proposed project should only have minimal impact on the neighboring developments. The proposed relocation project is planned for a location in M-Dock areas of Medalaii Hamlet. M-Dock is a mooring and berthing facilities for the small boat for the public.

The planned further development, improvement and relocation project is an effort by the applicant, PECI, to relocate existing facilities and operations in Malakal Island to the new site in M-Dock area of Medalaii Hamlet. Koror State Government advised the applicant to relocate its related facilities and operations to a site in M-Dock area.

The applicant trust that relocating existing facilities and operations to the new location in M-Dock is not expected to increase the level of noise pollution in the new area. The M-Dock is a small boat marina for the general public.

Some noise would be generated by the uses of heavy equipments during the construction of the new facilities. After the construction, noise level should return to normal. It is therefore not necessary for this EIA report to propose any control measures for implementation by the applicant. The applicant, however, will conduct all construction
activities during the day to minimize possible noise impact on the neighboring residences.

Koror State Government, trustee of all state public lands, recommended the proposed relocations of the operation to the new site, because of the zoning requirements of the State. According to Koror State master development plan Malakal Island is zoned for other purposes and uses.

The proposed further development, improvement and relocation project is only intended to allow existing operations to continue to provide valuable public services to benefit the growing population of Koror State and the people of Palau. It is not necessary for this EIA report to suggest any specific mitigation or control measure for implementation by the applicant to minimize noise pollution.

It is, however, important to mention that the proposed project only involves, as noted earlier, relocation of existing facilities and operation to a new location. The area of M-Dock of Medalaii Hamlet, as mentioned above, is an area used for mooring and berthing of small boat.

The M-Dock is a public place used for berthing and mooring of small boats. Small outboard motor boats comes in and out of the dock area on a regular basis every day. In addition, tourists and guests come to the dock for a boat ride or leave the dock area in bus to return to their hotels after a boat rides.

7.2.2.5 Mitigation of Socio-Economic Impact

The proposed development and relocation project is expected or intended to enhance economic and social development growths within Koror State and the people of the Republic of Palau, in general. The successful completion of the planned development and relocation project is expected to have positive impacts and benefits for the people and communities. Again, the successful completion of the proposed improvement project will result in proper relocation of the company and its services to a more easily accessible location that is closer to the center of community.

As mentioned above, the proposed development, improvement and relocation project is expected to have positive impact on socio-economic growth. It is, therefore, not necessary for this EIA report to suggest possible mitigation or control measures for implementation by the applicant.

7.2.2.6 Mitigation for Solid and Hazardous Waste Impact

The successful completion and subsequent operation of the proposed development, improvement and relocation project is only expected to result in minimal increase in the
generation of solid wastes materials. Some solid waste materials would be generated by
the operation but the volume of wastes would only be minimal.

The current operations would be relocated to a site along the side of the current "solid
waste landfill site" in M-Dock. The applicant could easily transport and properly
discharge its solid waste materials to the adjacent landfill site for proper disposal.

It is important to mention again that the plans involves reclamation of mangrove forest to
create additionally needed man-made dry land spaces. The proposed plans will also
require relocating existing facilities and its operations from existing location in Malakal
Island to a new site in M-Dock area of Medalaii Hamlet of Koror State. The proposed
project is only an effort to continue to maintain existing operation and is not expected to
result in the generation of additional or hazardous waste materials.

To assure proper management and handling of solid waste materials during construction
and subsequent operation of the facilities, the applicant could place adequate containers
within appropriate areas of the site for temporary storages and proper handling and
management of solid waste materials generated by operation of the facilities and
program.

The applicant is conscious of the needs and importance of proper management of waste
materials. The applicant is currently operating an aluminum waste recycling operation.
PECI, the applicant, is and will be responsible for proper collection and transportation of
solid wastes to the adjacent public Landfill site for proper disposal.

The Bureau of Public Works of the Ministry of Resources and Development of the
National Government is charged with the responsibility of proper maintenance and
operation of the M-Dock National Landfill for the general public. The applicant will be
responsible for proper disposal solid waste materials generated by the operation.

It should be noted that other aspects of the applicant operations are involved in the
recycling waste materials as the aluminum cans. Recycling of aluminum materials will
help in the reduction of solid waste materials.

In addition, the applicant hopes to cooperate with EQPB Office and the Bureau of Public
Works of Koror State Government regarding proper recycling, reuse and reduce concept
of proper management of solid waste materials. Special care and attention would be
given toward proper handling of toxic substances as the old batteries and used oil bi-
products.

7.2.2.7 Mitigation for Impacts on Historical Resources

As mentioned in the earlier part of this EIA report, no historical or archaeological
property(ies) was/were found or observed within the proposed project site in M-Dock
area during the preliminary and reconnaissance survey.
The applicant has, as required, applied for and received the needed "Historical Clearance" from the HPO office of the Bureau of Culture and Arts of the Ministry of Community and Cultural Affairs for the proposed further development, improvement and relocation project.

This EIA report does not suggest or propose any mitigation measure for implementation by the applicant. The applicant (PECI), however, will implement the proposed relocation project in accordance with terms and conditions of the Clearance or Permit from HPO office.

The applicant, PECI, is conscious of the need to preserve valuable historical resources of the ROP and will consult HPO office of the Bureau of Arts and Culture, Ministry of Community and Cultural Affairs, as necessary, during implementation of the proposed development, improvement and relocation project.

### 7.2.2.8 Mitigation of Impacts on Basic Infrastructure

As mentioned earlier, the planned development, improvement and relocation project is not expected to result in increased adverse impacts on the Republic of Palau's basic infrastructure and services. It is therefore not necessary or essential for this EIA report to suggest any specific mitigation or control measures for implementation by the applicant.

The successful implementation planned development, improvement and relocation project is expected to have positive impact and benefits for the public. Demands of the planned project on existing public infrastructures or facilities as the roads, power and water systems should only be minimal and negligible. The planned project is only an attempt to relocate an existing environmentally friendly facilities and operations from the present location in Malakal Island to a new site in M-Dock as encouraged by Koror State Government.

In the future the applicant may wish to expand or improve its operations and services to better serve the needs of the public. The present plans, however, will only involve relocation of existing operations from a site in Malakal Island to a new location in M-Dock area and is not expected to result in further impact(s) on basic public infrastructure. Because of future plans for the existing location in Malakal Island, the applicant has no choice but to relocate its current facilities and on-going programs or operations to a new location in M-Dock as mentioned above. Koror State Government has leased a new site in M-Dock to the applicant for proper relocation of its present operations.

### 7.3 Operation and Maintenance Plan

Proper operation and maintenance of the environmentally friendly facilities and programs after the relocation to a new site in M-Dock area of Medalaii Hamlet will continue to be the responsibilities of the applicant, PECI.
During construction and relocation of the operation, proper mitigation and control measures identified above would be properly implemented, installed and maintained to assure successful completion of relocating existing operation to the new site. Permanent control measures as the seawall, as mentioned above, will installed to reduce or avoid possible impacts on the adjacent and nearby environment.

The applicant will also be responsible for proper management of the activities to assure that operation of the programs or the company is sustainable. Needed solid waste disposal containers would be properly placed within the site for temporary storages of solid waste materials. These temporary storage containers would be maintained within the site for proper storages of toxic waste materials as oil and fuel by products. The applicant, PECI, may from time to time have to evaluate the needs of the programs to assure environmentally sound and sustainable operation.

7.4 Unavoidable Impacts

While certain impacts resulting from the activities and actions required for the successful completion of the proposed development and relocation project could be mitigated and minimized through successful implementation of proper mitigation and control measures, other impacts could not be avoided. These unavoidable impacts are listed below for review and ready references:

1. Noise impacts. Use of heavy equipments at the site during construction and relocation operation will generate noise within the affected area. After the successful completion of the planned development and relocation project, noise level should return to near normal. Equipments assigned to the project will be properly maintained and serviced to minimize possible noise pollution.

2. Reclamation actions to create additionally needed new man-made dry land spaces for the proposed development and relocation operations' basic infrastructure will change the topography and environmental conditions of the area. Existing plants (vines and mangrove trees) along the shoreline and within mangrove area of the proposed project location will be damaged and removed by the required or needed clearing, backfilling and reclamation actions.

Filling and reclamation of the already degraded mangrove area to create needed new man-made land spaces for the applicant will change the already degraded and changed environment. With limited dry land spaces, the value of the new man-made lands to be created by the applicant would be significant and beneficial to both the applicant and Koror State Government.

3. Needed earthmoving and reclamation of the mangrove and mudflat areas could cause erosion and increase water turbidity of the marine environment. The actions will also alter existing topography of the site.
Benthic organisms as snails or clams could be damaged by the required actions. The changes and further alteration of the environment will result in the creation of new habitat areas for certain species.

4. Further development and relocation of existing facilities and operations to the new site could result or have some impacts on the developments and on-going activities and programs in the area of M-Dock location of Koror State. Vehicular traffic in the area may become a concern.
PART 8
FINDINGS AND CONCLUSIONS

Based on the survey, assessment and evaluation of the new location at M-Dock area of Medalaii Hamlet of Koror State as well as the magnitude of the planned development and relocation project, it can be concluded that any negative and adverse consequences or impacts that may result from the successful completion of the required actions should only be minimal and negligible. Possible adverse impacts or consequences that would or may result from actions required for the successful completion and implementation of the proposed development, improvement and relocation project could be further minimized and reduced by applicant and proponent(s) of the proposed development, improvement and relocation project through proper implementation and maintenance of adequate mitigation and control measures.

This EIA report for the proposed relocation project, base on the above summary and conclusions suggest that preparation of an Environmental Impact Statement (EIS) report is not required or necessary for the magnitude of the planned development, improvement and relocation project that is intended primarily to improve or enhance the quality of basic infrastructure and services for the community and the general public. Careful assessment and evaluation of the affected location further suggest a “Finding of No Significant Impact“ (FONSI) of the proposed development, improvement and relocation project on the conditions and quality of the environment and the resources of the area. Reasons for the determination of a FONSI are briefly discussed and summarized as follows:

1. The actions required for the successful completion of the planned development, improvement and relocation project are expected to only result in minimal and insignificant adverse impacts on the already disturbed and changed mangrove forest and marine environment and resources along man-made shoreline of M-Dock Solid Waste Landfill Site of Medalaii Hamlet of Koror State of the Republic of Palau. The resources of the site are few and biodiversity is reduced. The quality of the environment of the area has been changed and degraded. In addition, the environment of the area should continue to deteriorate due to increased human activities and improperly planned and managed urban developments within and around the neighboring areas.

2. Proper implementation of competent mitigation and control measures that have been identified in the earlier part of this EIA report could and should prevent most of the adverse impacts resulting the planned development, improvement and relocation project from impacting the resources and the quality of the already changed and degraded environment of the nearby and surrounding areas.
3. The proposed development project involving relocation of the existing PECI operations from Malakal Island site to a new location in M-Dock area of Medalaii Hamlet of Koror State will further change and alter the existing configuration and topography of the affected mangrove location. The required change will have both positive and negative impacts or affects on the quality of the environment, resources and the habitat value of the area. Removing or damaging the mangrove forest will further affect the value of the already changed and degraded environment of the area as habitat and grazing areas for certain marine life or species.

It is however important to mention that certain species of marine lives (crabs and fishes) will benefit from the new changes. Types of fish as mudskipper, archerfish, halfbeak needlefish and rabbit-fish will simply migrate, relocate or move elsewhere during construction, improvement and relocation of the planned development and improvement project. These marine fish species could also return to the area after the successful completion of the planned relocation project. These species of fish or marine lives seem to enjoy and benefit from changes resulting from man-made actions.

4. The benefits to be derived from the successful completion of the proposed development, improvement and relocation project far-outweigh any negative and adverse consequences that may results from the required actions on the environment and its resources. The proposed further development, improvements and relocation of the existing operations to new location in M-Dock site in Medalaii Hamlet will enhance both the economic development and social growth in the area and the community. The proposed development, improvement and relocation project is expected to have support and endorsement of the people of Koror State.

Parts of the operation and relocation project involves the recycling of waste materials. Relocating existing operations in Malakal Island site to the new site in M-Dock location of Medalaii Hamlet as requested by Koror State Government will benefit the community. As mentioned earlier, the new site in M-Dock is closer to the majority of the population and center of the community.

5. The quality of the marine environment of the affected area should continue to be subject to further risk and degradation even if the planned project is not implemented as a result of the disapproval of the needed earthmoving permit by the EQPB office. Surface water runoffs from poorly managed and implemented land based activities continues to impact and degrade the quality of the marine environment of the area. During rainy weather condition surface water runoffs laden with debris, trash and silts discharges directly into to the bay area and depositing its contents including silts, sediments and debris into the marine water of the bay area.

6. The planned development, improvement and relocation actions will not threaten or destroy any threatened or endangered species or damaged any significant wildlife habitat area. No threatened or endangered species or significant habitat was observed during survey of the proposed project location. Because of increased human activities, the value of the area as wildlife habitat is minimal and insignificant.
7. The environment of the area is not in pristine condition. The location is and has been subject to changes, disturbances, and continued degradation resulting from increased human activities over the years. The water quality of the bay area has been subject to degradation due to poorly conducted and managed land-based activities. The man-made shoreline continues to be disturbed and altered by on-going uses of the adjacent man-made dry land areas as **Public Solid Waste Landfill Site**. The proposed relocation project location is a mangrove forest area along the shoreline of the existing public solid waste landfill site. The public landfill site is a former mangrove forest area that has been created through backfilling and disposal of solid waste materials over the years. This EIA report trust that it is inappropriate for public "solid waste landfill" facilities to be located within wetlands or mangrove forest areas.

8. All of the reclamation efforts would be conducted with dredged coral materials and overburden soils from construction sites to minimize impacts resulting from further earthmoving actions. Competent control measures would be properly installed and maintained during the duration of the proposed project and as needed.

9. The species observed at the site are not unique or rare. These species are common inhabitants of the shorelines and mangroves forest areas around Palau. The proposed relocation project site is a degraded environment that is immediately located along the man-made shoreline of the existing public solid wastes landfill site at M-Dock location.

10. The successful completion of the proposed backfilling and reclamation actions will result in the creation of additionally needed man-made dry land spaces for the applicant. The needed additional dry land spaces will allow the applicant to relocate existing facilities and on-going operations to a new and available site in M-Dock area. Relocation of on-going operation to a new site in M-Dock will require additional expenditure or cost to the applicant. Koror State Government, however, has plans for location in Malakal Island and has instructed the applicant, PECI, to relocate its present and on-going operations to a designated new site in M-Dock area Medalaii Hamlet.
This Environmental Impact Assessment (EIA) report has been prepared by Marhence Madrangchar, a marine biologist. This EIA report has been prepared following existing environmental standards and requirements of the "Environmental Regulations" of the Republic Of Palau that have been promulgated by EQPB Office pursuant to EQPA, Title 24 PNCA (Palau National Code Annotated).

Marhence Madrangchar is a local consultant who has successfully prepared numerous EIA reports for major development projects throughout the Republic of Palau.

Copy of a signed “Accountability Statement of EIA Preparer” is incorporated as Attachment D of this EIA report for evaluation and ready references.
REFERENCES CITED


6. Republic of Palau. Fishery Zones and Regulation of Foreign Fishing, Republic of Palau Public Law (RPPL) No. 6-7-14 § 1, Modified.


10. Republic of Palau NATIONAL ENVIRONMENTAL MANAGEMENT STRATEGY. In association with the South Pacific Regional Environmental Programme (SPREP).


ATTACHMENTS

Attachments:
Attachment A: Design and Plans
Attachment B: HPO Historical Clearance
Attachment C: Pictures of the Location
Attachment D: Accountability Statement of EIA Preparer
Attachment A

Project Design and Plan
Attachment B
HPO-Historical Clearance
Attachment C

Pictures of the Proposed Project Location
Project location is a mangrove forest area along shoreline of this man-made dry land areas

Secondary vegetation within the man-made dry land areas bordering the proposed project site
Man-made dry land area bordering the proposed project location at M-Dock area of Medalaii Hamlet

Proposed project location in M-Dock site of Medalaii Hamlet is a mangrove area that has to be backfilled and reclaimed to create the needed dry spaces.
Vegetations of man-made shoreline of the site are secondary plant species transported to the site.

Rhyzophora and Sonneratia are the dominant plant species of the affected mangrove forest of the proposed project location.
The proposed project location is a disturbed and degraded mangrove forest area in M-Dock area

The proposed project location is a mangrove forest area immediately location along the shoreline
Attachment D

Water Quality Test Results
Attachment E

Accountability Statement of EIA Preparer
ACCOUNTABILITY STATEMENT OF EIA PREPARER

This is to certify that all of the data or information contained in the enclosed Environmental Impact Assessment (EIA) are true to the best of our knowledge and information, and that an objective and thorough assessment of the project was undertaken in accordance with the dictates of reasonable and sound judgment. Should we learn of any information which would make the enclosed EIA inaccurate, we shall bring said information to the attention of the Environmental Quality Protection Board (EQPB).

We hereby bind ourselves jointly and solidarity to answer for any penalties that may be imposed for any misinterpretations or failure to state material information in the enclosed EIA report.

In witness whereof, we hereby set our hands this _____ day of _____________, 20____.

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SUBSCRIBED AND SWORN to before me this _____ day of _____________, 20____ in Koror, Republic of Palau.

Notary Public
Palau EQPB
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