Asset Management Policy and Strategy

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1. Introduction

The SIIP Asset Management Framework is directly linked to delivery of SIIP's program goals

Good asset management practice will be central to the success of SIIP

Infrastructure provides value through economic and social development. SIIP Hub will work with Solomon Islands Government and Development Partners to ensure that SIIP infrastructure is planned, designed and constructed to deliver this value over its whole life.

This means making the right decisions at the right time. Planning and design decisions must ensure that infrastructure assets are built to withstand the expected levels of use and environmental conditions. Early decision making should also take into account the resources that will be available to sustain service over the asset life.

SIIP will also more broadly support the Government to develop sustainable capacity to plan, manage, finance, construct and maintain infrastructure.

The common goal with both of these SIIP themes is realising better value from infrastructure through coordinated decision making and activity over the lifecycle. This is very closely aligned with the international definition of asset management.

The SIIP Hub will be guided by an asset management framework

SIIP's pursuit of the two high level outcomes of high quality infrastructure and enhanced infrastructure governance will be driven and guided by a range of documented policies, strategies and frameworks.

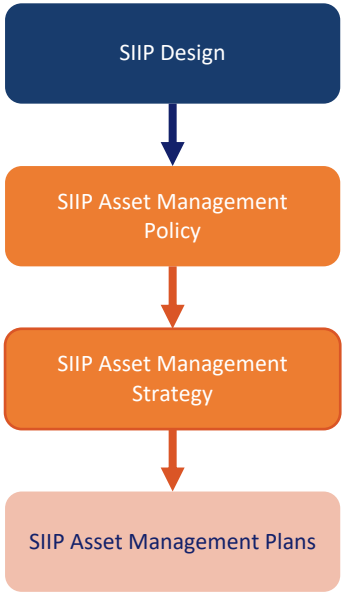
These will take the form of a suite of SIIP 'foundation' documents and are to include guidance and standards for asset management.

Following international best practice, SIIP has adopted an asset management framework which aims to provide a clear 'line of sight' between the organisational goals, the asset management objectives and the activities and outputs of SIIP.

The SIIP asset management framework is made up of:

- a **Policy** which captures SIIP's commitment to implementing best practice in Asset Management
- a **Strategy** which sets out in broad terms how SIIP will implement asset management
- **Plans** for each known infrastructure project detailing the program of activities and resources required, and how they will be mobilised, to ensure the asset provides expected value over its expected life.

Figure 1.1 SIIP Asset Management Framework



This document sets out the SIIP Asset Management Policy and Strategy. Asset Management Plans will be developed for each item of SIIP infrastructure once they are identified. These Plans will form a critical part of the handover support for asset managers who will be responsible for sustaining and ultimately renewing or disposing of the asset at the end of its life.

The context for SIIP asset management contrasts SIIP's limited lifecycle role against the goal of lifecycle sustained infrastructure

The SIIP goal provides the basis for the Asset Management objectives

SIIP is a 10 year, $250 million infrastructure program with the overall goal:

> *To improve the quality and accessibility of economic infrastructure to contribute to broad-based, inclusive and sustainable economic growth in Solomon Islands*

The SIIP Program Logic illustrates how the activities and outputs of SIIP are intended to contribute to this overall goal. This Program Logic has been the basis for the preparation of the Asset Management Policy and Strategy.

SIIP's goals, infrastructure role and asset management priorities are explored in more detail in Appendix 1 (Developing the Asset Management Policy).

SIIP will be directly responsible for specific infrastructure assets for limited periods of the infrastructure lifecycle

An infrastructure asset manager is normally responsible for the whole lifecycle – the development and custodianship of infrastructure. The asset manager's primary goal is to efficiently deliver an intended level of service (value) for which the infrastructure exists.

SIIP's role does not span the full range of the asset manager's responsibilities. Although SIIP's role will be flexible, it is more likely to be only directly engaged in some phases of the lifecycle of specific assets which might include buildings, roads, wharves, airports and other structures.

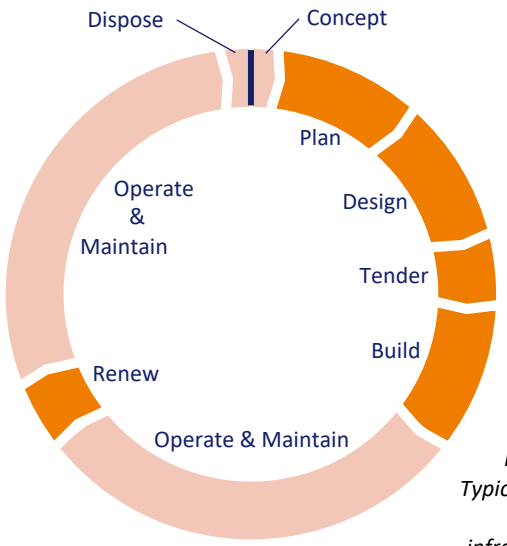


Figure 1.2 Typical phases of the infrastructure lifecycle

However, the organisational goals of SIIP place a strong emphasis on the long term sustainability of SIIP infrastructure. This means that SIIP should do everything it can to ensure that SIIP infrastructure is:

- resilient against foreseeable conditions and events; and
- is managed and maintained over its whole lifecycle.

So while SIIP's role in the lifecycle may be limited to one–off interventions, it's approach to asset management must encompass the whole lifecycle.

This approach will also support the broader SIIP goal of enhancing infrastructure governance across the whole of the Solomon Islands infrastructure sector.

Good collaboration between all the agencies involved in the lifecycle will be key to success.

Agencies involved in the infrastructure lifecycle include those accountable for funding, planning, engineering, purchasing, operating and maintaining assets. SIIP should seek to support enhanced role clarity and coordination of all these activities through a comprehensive approach to asset management.

2. SIIP Asset Management Policy

The SIIP Asset Management Policy commits the organisation to implementing a lifecycle approach to asset management

SIIP Asset Management Policy October 2021

SIIP is improving the quality and accessibility of economic infrastructure to contribute to broad-based, inclusive and sustainable economic growth in Solomon Islands.

Over the 10 years timeframe SIIP will plan design and construct economic infrastructure. This is likely to include transport (roads, bridges, ports and airports), electricity, ICT, water and sanitation, and infrastructure that supports rural development.

SIIP will also support Solomon Islands Government with high quality analysis, research, advice and capacity development to strengthen infrastructure governance, management and safeguards.

SIIP will adopt and promote an asset management approach to ensure that infrastructure investments are sustained and the value of existing infrastructure can be enhanced.

This policy defines the commitments and principles of the SIIP asset management approach. The Asset Management Strategy will describe how SIIP will deliver this policy

SIIP Asset Management Approach

SIIP asset management will primarily be focused on realising sustained value from infrastructure delivered by SIIP.

In order to achieve this SIIP will integrate decision making over the whole lifecycle of assets through a coordinated approach to asset acquisition and management.

SIIP will seek to clarify roles and improve collaboration between funders, planners and infrastructure managers over the whole asset lifecycle.

SIIP will seek to engage with and build capacity in all levels of infrastructure governance in Solomon Islands to ensure that asset management plans are relevant, current and implementable.

SIIP will seek to ensure that planning and procurement decisions reflect as closely as possible the anticipated use, environmental conditions and risks over the whole asset lifecycle, and that these decisions reflect the likely availability of capacity and capability to maintain, repair, renew and dispose of assets

Developing the asset management culture in SIIP and Solomon Islands Government

Pursuit of best practice
SIIP will implement asset management by drawing on international standards and guidance

Appropriate for Solomon Islands context
SIIP will seek to algin asset management strategy and plans with Solomon Islands infrastructure sector practice and aspirations.

Consistency with other SIIP policy
SIIP asset management practice will also be aligned with SIIP policies for safeguards, CCDR and Local Content.

Linking infrastructure to the value it creates
Maintain a clear linkage between policy, strategy and planning to ensure that infrastructure delivers value

Managed handover of quality infrastructure
Prepare asset management plans with costed plans of work and funding sources to maintain asset condition and performance over the whole asset lifecycle

Identify opportunities to build an asset management culture in Solomon Islands
SIIP will assess and monitor asset management maturity within Solomon Islands Infrastructure agencies to identify opportunities for support

3. SIIP Asset Management Strategy

The SIIP Asset Management Strategy has been devised primarily to resolve infrastructure sustainability challenges

SIIP will be investing in infrastructure but will have limited control over downstream asset management

SIIP will directly build and upgrade infrastructure in the Solomon Islands. It may also take lead responsibility for co-financed projects.

The assets which result from these investments are likely to be transferred to the appropriate Solomon Islands agency to undertake the management, maintenance and renewal activities critical to the asset life.

There is a very challenging environment in the Solomon Islands for the sustainability of infrastructure

The Solomon Islands is exposed to cyclones, earthquakes, tsunamis, floods and landslides. These hazards are estimated to cause around AU$5m of damage to infrastructure per year.

With a few exceptions, there is minimal asset management competency within the Solomon Islands infrastructure sector. Consultations and research indicate that most agencies would not meet minimum levels of asset management 'maturity' as defined in international standards.

Current funding for maintenance and renewal activity to sustain existing assets is also significantly lower than required. It is estimated that the entire development budget for the Ministry of Infrastructure Development (MID) is less than 1/3 of that required to sustain existing infrastructure, let alone funding construction of new assets.

For SIIP these challenges mean that infrastructure investments may not yield the hoped-for value in terms of development and social benefits.

SIIP infrastructure handed over under these conditions would be highly likely to deteriorate more rapidly than intended, provide lower levels of service and heighten critical risks associated with structural failure. Major repair and renewal works would be likely to be required early in the asset life diverting scarce resources from elsewhere.

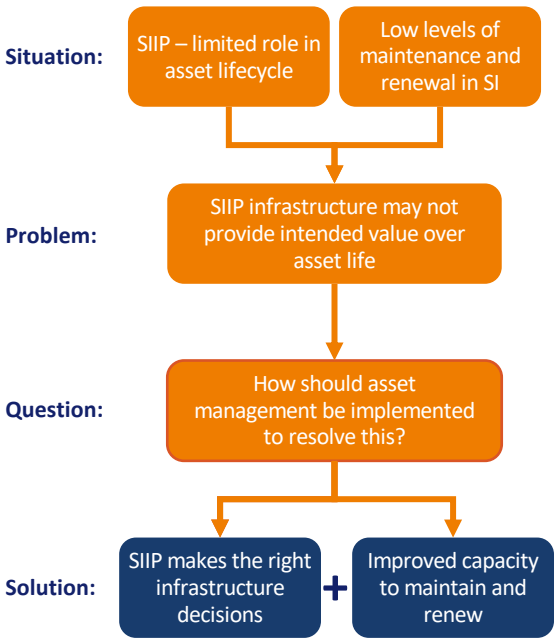
Furthermore, SIIP could face significant challenges in developing robust business cases for infrastructure investment, given the foreshortened asset lives that would be expected as a result of the low maintenance capacity. SIIP would have to either build in shorter asset lives to decision making, or attempt to design out maintenance at much greater capital cost.

The key question is: How should SIIP implement asset management to ensure that infrastructure investments provide value over the intended asset life?

SIIP must have an asset management strategy focused on resolving this asset sustainability challenge in order to achieve the program goals. The strategy must respect the fact that SIIP is likely to have limited roles in downstream lifecycle phases (operation and maintenance) and will need to progress a range of asset management support initiatives.

The strategy that is set out in more detail in the following pages revolves around specifying and building the right infrastructure within the context of these lifecycle challenges, coupled with concerted efforts to build Solomon Island capacity in asset management

Figure 3.1 SIIP Asset Management Strategy logic



The SIIP asset management strategy will seek to integrate functions, actions and decisions over the infrastructure lifecycle

The SIIP Asset Management Strategy represents a balanced and pragmatic approach which supports the end of program outcomes of better infrastructure governance and a legacy of sustainable infrastructure.

The strategy is based around lifecycle infrastructure management. The discontinuity in roles over infrastructure lifecycle means it will be critical for SIIP to understand and support both the upstream strategic planning, and the downstream capacity to maintain and renew infrastructure.

Building this downstream asset management capacity will be essential for enabling sensible and cost-effective decisions to be made during the earlier planning, design and procurement phases. Without this, SIIP will be under pressure to demonstrate value-for-money investment cases.

The strategy will be implemented through eight areas of action which will drive better infrastructure decisions and stronger asset management capacity for maintaining and renewing assets over the lifecycle. Each of these areas of action are described in more detail on the following pages.

SIIP will primarily seek to support improved asset management within the current organisational structures

Providing the powers and accountabilities are in the right places structural change is not usually a prerequisite to implementing good asset management practice.

Instead SIIP will focus primarily on offering assistance within the current Solomon Island infrastructure structures.

SIIP will establish relationships with those responsible for infrastructure management across Solomon Island Government agencies and will offer capacity building and technical assistance where needed.

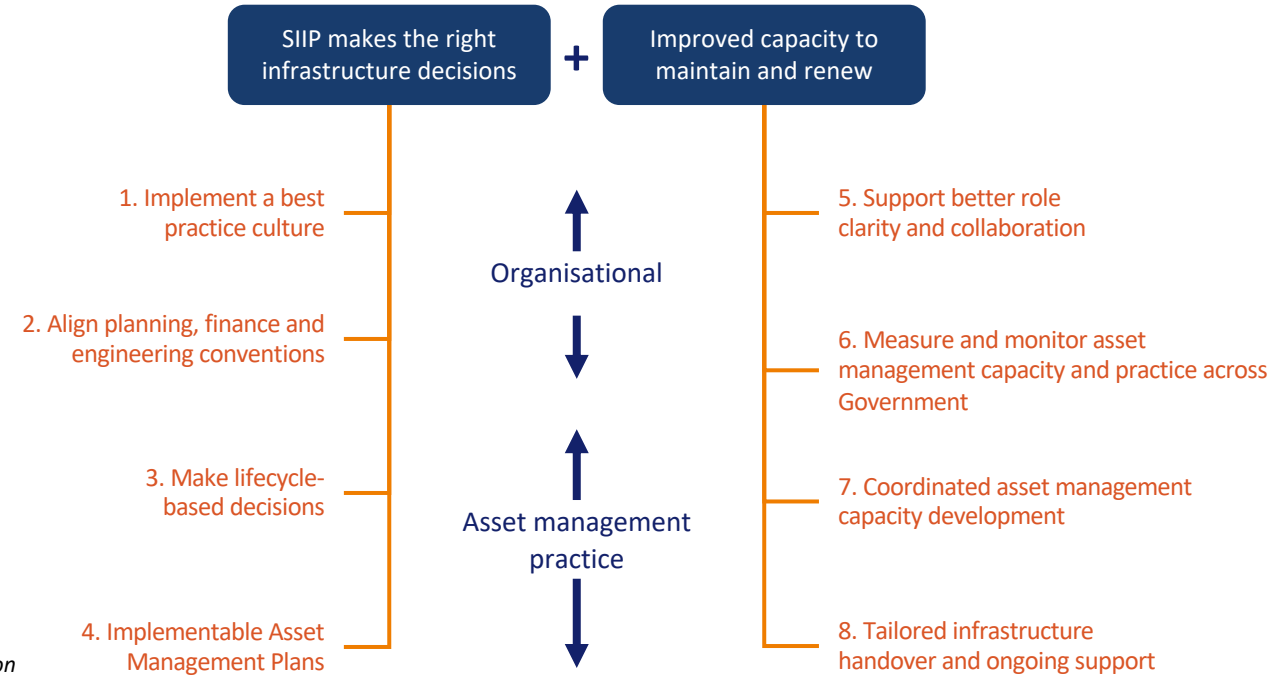


Figure 3.2 Eight Areas of Action

Area of action 1

International standards, best practice and guidance will steer SIIP's implementation of asset management

SIIP will be guided by standards that will be relevant and useful to the local context

SIIP's infrastructure role in the Solomon Islands is limited to defined interventions for specific assets. However, SIIP has committed to taking a lifecycle approach to ensuring its investments maximise value to Solomon Islanders. SIIP will therefore implement asset management in close alignment with internationally recognised standards and guidance.

SIIP will adopt international standards for definitions and good practice.

The International Standards Organisation (ISO) publishes internationally recognized standard for asset management. This clarifies definitions of terms used in asset management and provides a benchmark for good practice to be measured against.

- ISO 55000 provides an overview
- ISO 55001 sets out system requirements
- ISO 55002 provides advice in interpretation and implementation

SIIP will use guidance that is aligned with the ISO standards

The International Infrastructure Management Manual (IIMM) is published by the Institute of Public Works Engineering Australasia (IPWEA) and puts the ISO standards into practice. The IIMM is updated and republished every 5 years and is consistent with the ISO.

The definition of infrastructure in the IIMM is stationary systems which form a network and serve communities. It is relevant to all fixed assets that SIIP would be anticipated to invest in.

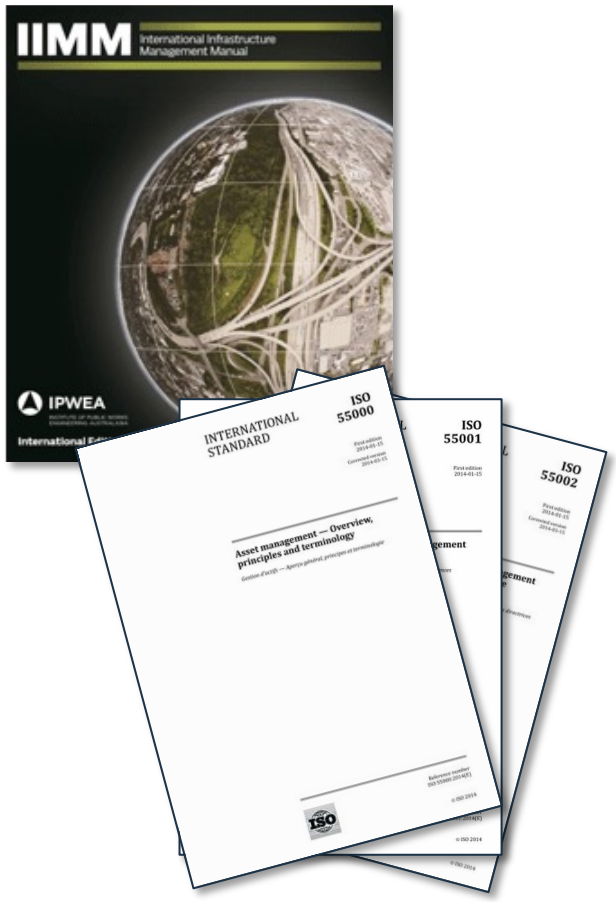
The approach of IIMM is to set out a practical process supported by examples. It is a clear and well illustrated document which can be accessed at many levels by planners, financiers and engineers.

Asset management standards and guidance apply to all stages of the infrastructure lifecycle, not just maintenance

The ISO standards and the IIMM both cover the whole asset lifecycle – from identification of need through to disposal. SIIP will plan and implement asset management practice for directly delivered and co-financed (where SIIP takes the lead) infrastructure from the beginning of SIIP's involvement.

The asset management process will guide the decisions that need to be made at each stage of the project and asset lifecycle with a focus on managing risks over the whole lifecycle.

Figure 3.3 International standards and guidance



Area of action 2

Asset management conventions which are common to planning, financial reporting and engineering functions

SIIP will adopt standard asset management conventions to help integrate work and action across agencies involved in infrastructure

Asset management is a business process which brings together planning, financial management, and engineering functions in order to make better decisions. The coordinated actions that arise from these decisions are intended to ensure infrastructure provides the intended value to communities at the lowest cost.

The asset management lifecycle approach uses conventions which create a common framework for these disciplines (figure 3.4 & 3.5).

The conventions highlighted below are of particular concern to SIIP's asset management planning.

Breaking down assets into components of differing attributes is important for planning lifecycle activities to maintain levels of service

Assets are made up of parts, each of which have different lifespans and maintenance requirements.

For example a road is made up of several structural layers which are treated as separate components. While the base layers may only need capital renewal every 50 years, the surface could require renewal at 7 year intervals.

SIIP will componentise assets to ensure that the right asset management actions are implemented at the right times over the asset life.

Distinctions between types of infrastructure work and expenditure are particularly important for decision making about planning, budgeting, reporting and implementing asset management

Capital investment is the synonymous with the value created and is the expenditure which creates 'new' assets or 'upgrades' existing assets.

'Upgrading' is investment which raises the level of service that the asset provides (for example road widening, road sealing, increasing depth of a shipping channel).

'New' assets might be entirely new infrastructure or a new component added to an existing asset (eg road safety barriers, or drainage infrastructure)

Capital investment is accrued into the value of the assets (added to the balance sheet). The asset value then depreciates over time. In order to sustain asset value funding needs to be available to renew assets or components.

Maintenance is the activity required to enable an asset (or component of an asset) to deliver the required level of service over the expected life of that asset

Maintenance is not done to increase the expected level of service of an asset or extend its life beyond that which was anticipated when the asset was created – these would be capital expenditure interventions.

Maintenance can be planned (routine) work to sustain the condition of the asset, or unplanned work to repair an asset after failure and return it to its service potential.

Maintenance does not add to the value of the asset. It is treated as a recurrent expenditure and should be expensed on the profit and loss sheet.

Renewal is the work done to extend the expected life of the asset (or component).

When asset (or components) reach the end of their useful life, they can be too expensive to maintain, or not capable of providing the level of service required. Renewal, replacement or rehabilitation is undertaken to return the asset to service. If the asset is no longer required, it is disposed of.

Renewal is a capital re-investment in the asset and is accrued to the asset value. The asset will continue to depreciate after renewal.

The conventions around investment, asset value, depreciation and maintenance inputs are critical for proper planning and budget forecasting

The degree to which an asset has depreciated from its original 'as new' value provides an indication of the asset condition and consequently the level maintenance effort that will be required to continue to deliver the expected level of service.

For a group of assets, the depreciation provides an indication of the level of renewal investment required to sustain the assets. Good asset management practice strives to reduce the 'lumpiness' over time of the renewal investment required. Renewal backlogs (of undone work) can drive a downward spiral of service deliver and higher costs. Asset mangers should strive to avoid this situation developing.

Asset management conventions applied over the infrastructure lifecycle

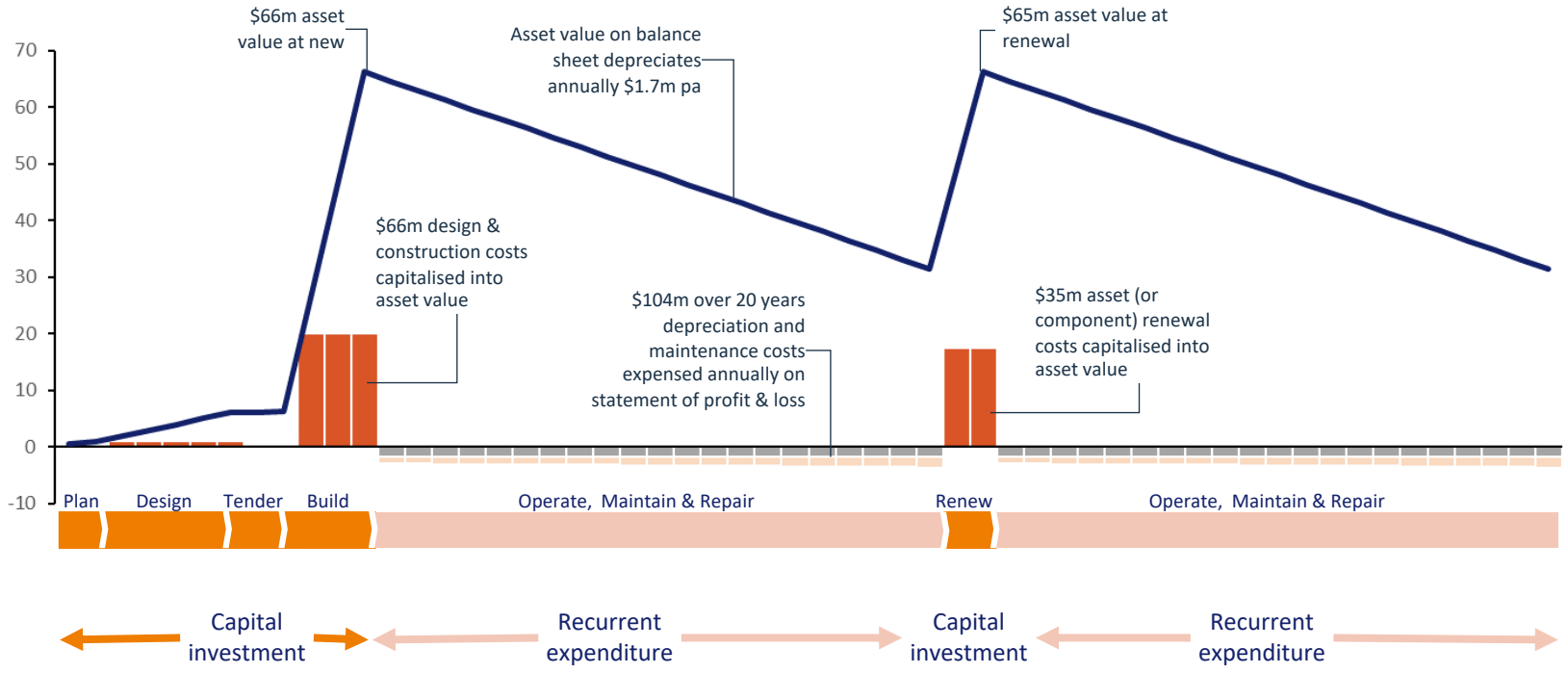
SIIP will use these conventions to maintain an overview of the balance between investment and the residual downstream whole of life costs

This overview can be illustrated by a simple example (figure 3.4). Every $60 million of infrastructure constructed could create an annual downstream maintenance liability of around 1% to 2%. In addition, investments might require capital renewal of components over assets' 40 year lifespan.

Put together this could result in the order of a $2 million annual liability for the asset managing agency in order to sustain the asset's level of service over its's intended useful life.

SIIP will monitor the program's overall funding liabilities which are passed onto Solomon Island infrastructure agencies and work with the Government and development partners to find a sustainable way of managing these liabilities.

Figure 3.4 Typical infrastructure lifecycle costs and asset value profile



Area of action 3

Infrastructure decision making focused on best outcomes over whole lifecycle

SIIP will focus infrastructure decision making on ensuring the expected value is provided at the lowest whole-of-life cost

Decisions made during the project phases of infrastructure lifecycle will be informed by whole of life costs and value.

These will include (but are not limited to) decisions relating to:

- levels of service;
- design parameters;
- procurement strategies;
- asset life; and
- maintenance & renewal requirements.

When developing project options for comparison and assessment, these will include (when appropriate) non-infrastructure solutions such as potential regulatory, enforcement, demand management and planning solutions.

SIIP will seek to ensure that SIIP infrastructure decisions reflect how risks should best be managed over the lifecycle

Infrastructure project phase decision making will also involve consideration of risks that are identified over the whole lifecycle. Specific to asset sustainability, these will include the following risk types:

- climate change risks (e.g. raising of flood levels);
- natural hazard risks (e.g. cyclone impacts);
- regulatory and compliance related risks (e.g. enforcement of vehicle loading);
- asset management risks (e.g. availability of funds and capacity to implement Asset Management Plans)

These risks will be identified, evaluated and management strategies developed for all SIIP infrastructure projects. Options may include:

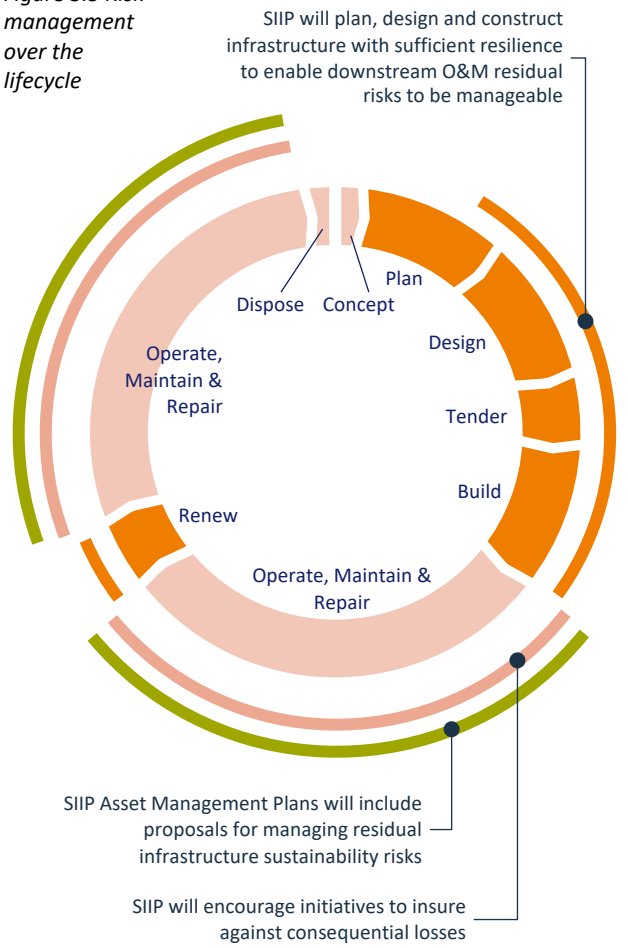
- more resilient infrastructure (potentially at higher cost);
- insurance or donor indemnity arrangement to return assets to the expected level of service.

SIIP will seek to ensure that agencies have that capacity to manage the residual post-handover components of infrastructure lifecycle risks

After handover to the Solomon Island Government agency, management of these risks effectively becomes an operations and maintenance responsibility of the agency. As the asset manger they would normally be expected have the plans (and access to resources) in place to return assets to the required level of service.

SIIP will seek to ensure that these residual risks are manageable and that the managing agency has the plans, capacities and contingencies available to undertake their asset management functions in this regard.

Figure 3.5 Risk management over the lifecycle



Area of action 4

Asset Management Plans developed through engagement with downstream asset managers

SIIP will prepare an Asset Management Plan for each asset which SIIP directly delivers, or takes a lead responsibility for delivering

SIIP will be engaged in a broad range of infrastructure activities. These might include:

- building new infrastructure assets;
- upgrading existing infrastructure (raising the level of service);
- renewing, or rehabilitating, existing assets (or components of assets);
- repair and maintenance activities.

In line with asset management conventions, these activities are distinct and treated differently. The first three are treated as capital projects and should be recorded on an asset register.

Where SIIP is directly responsible for capital infrastructure projects, SIIP will prepare Asset Management Plans for each project. These Plans will be significantly more than a handover document. They will be initiated at the beginning of the project, developed over the planning, design and construction phases and be transitioned to the infrastructure manager.

SIIP will engage the downstream asset mangers in the project planning, design and construction phases. Asset managers will be closely involved in the development of the Asset Management Plan. This will ensure that the Plan can be integrated into the organization's asset management processes.

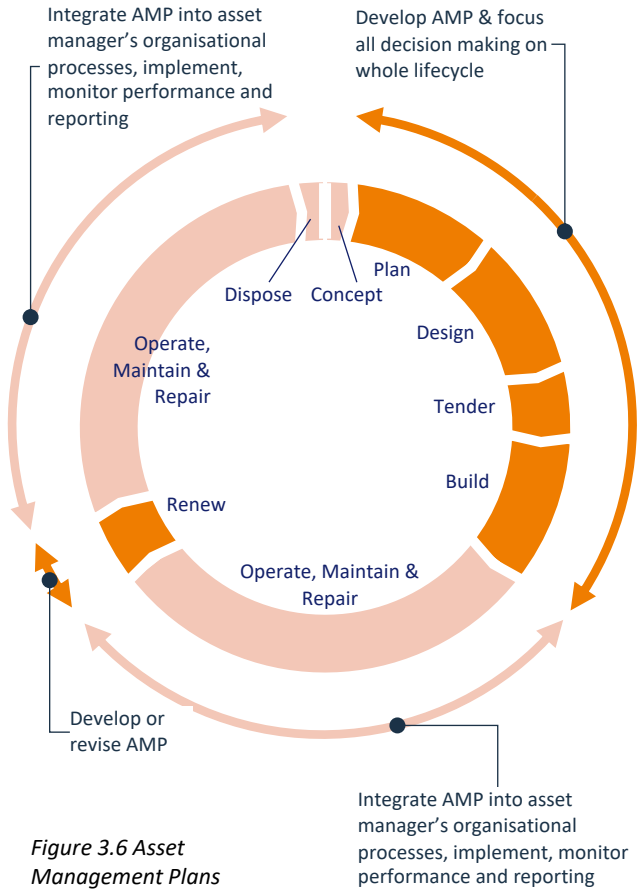


Figure 3.6 Asset Management Plans over the lifecycle

The Asset Management Plans will define the activities to be undertaken and the resources required to deliver the required level of service

The primary purpose of the Asset Management Plan will be to ensure that SIIP infrastructure will provide the intended value and will be sustainable.

Plans will be developed to be aligned with the SIIP Asset Management Policy and Strategy. They will be consistent with the ISO Standards and IIMM Guidance.

Each Plan will:

- provide a complete description of the asset and its components;
- define the levels of service to be provided by the asset;
- set out customer service requirements;
- set out the levels of demand, risks and environmental conditions anticipated over the asset life;
- set out the lifecycle planning and activities that need to be undertaken to develop, manage, operate, renew and dispose of the asset;
- Include a long-term capital and recurrent budget forecast;
- identify the expected sources of funding for maintenance and renewal programs;
- set out performance and risk management requirements and reporting.

Area of action 5

Demonstrating and promoting greater role clarity and collaboration across organisations and agencies

SIIP will seek to ensure that there is a clear understanding of roles and accountabilities in the lifecycle of SIIP infrastructure

While SIIP is likely to only be involved for discreet phases of the lifecycle, the end of program outcomes are focused on the whole infrastructure lifecycle. SIIP will therefore need to encourage effective organisational coordination over infrastructure lifecycles.

A range of agencies and disciplines are involved in the infrastructure lifecycle and SIIP will use Asset Management Plans to clarify roles and accountabilities for all actions in relation to SIIP infrastructure.

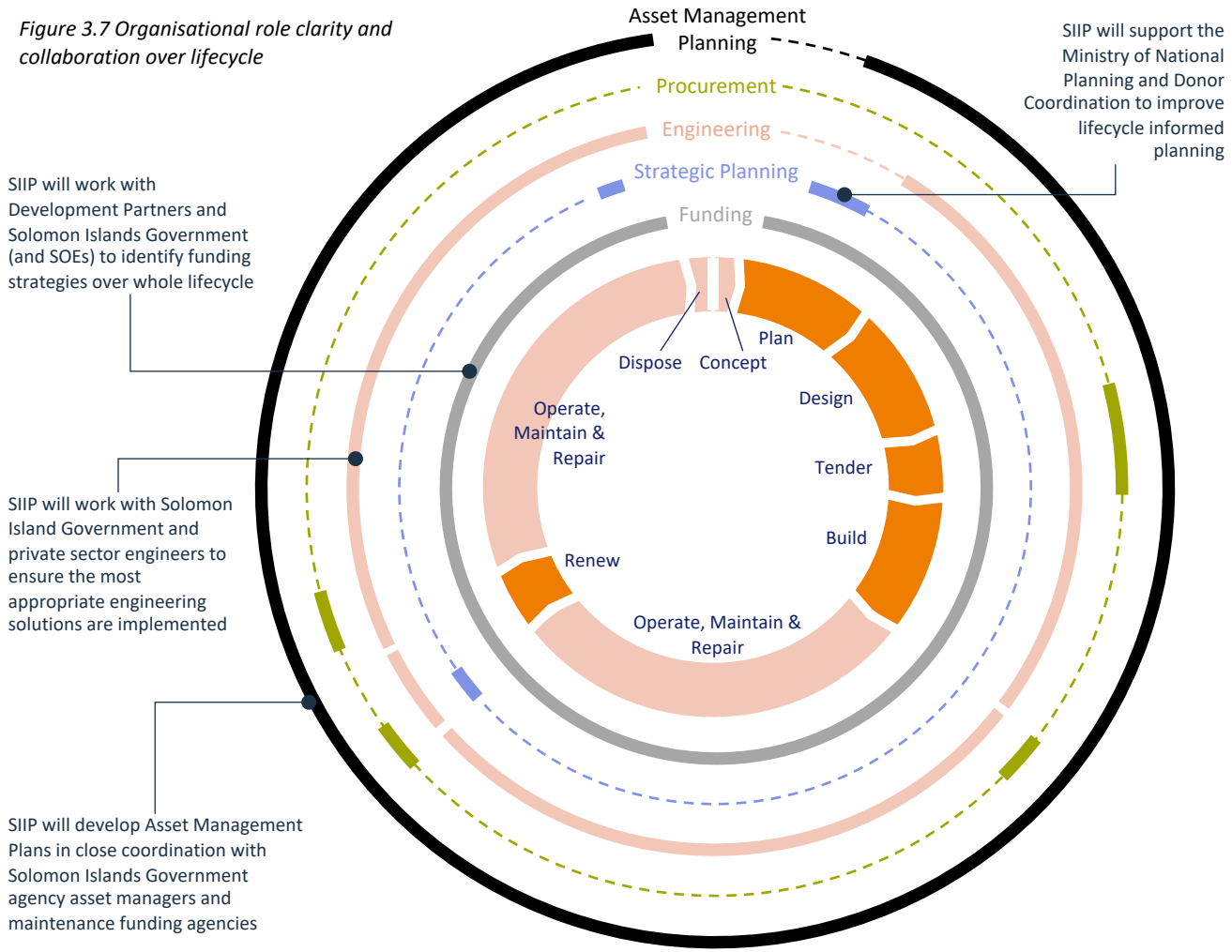
Where there are accountability gaps, SIIP will highlight these and offer support to identify solutions.

Role clarity will support improved collaboration across the infrastructure sector

Once there is broad understanding of roles in the development and management of SIIP infrastructure, it will be possible to build a culture of collaborative working towards common goals and more sustainable outcomes.

SIIP will seek to engage strategic planners, funders, engineers, asset managers and procurement agencies to work together to ensure the right infrastructure decisions are made and capacity is in place to manage assets as intended.

Figure 3.7 Organisational role clarity and collaboration over lifecycle



Area of action 6

Measuring asset management capability against benchmarks of good practice

SIIP will monitor the development of asset management capacity across Solomon Islands Government agencies

Infrastructure asset management in the Solomon islands is highly decentralised with infrastructure planning, finance, procurement and engineering functions sitting across different ministries and agencies.

SIIP will build a picture of how this works across the sector and assess how effectively the different functions are being undertaken so that requests for support can be responded to in a coordinated way.

SIIP will seek ongoing engagement with agencies to be able to monitor improvements in infrastructure governance and the implementation of asset management practices.

There will be more focused engagement with agencies who will become responsible for the ongoing management of SIIP infrastructure

Directly delivered and co-financed infrastructure projects will be handed over to Government agencies for ongoing management, maintenance and operation.

SIIP will engage with asset managers in these agencies from the inception of the project to develop a clear understanding of the capacity and resource challenges which will affect the ability to implement asset management plans.

SIIP will develop an asset management maturity index for assessing current status and improvement

SIIP will review alternative ways of indexing asset management maturity against benchmarks of good practice. A method suitable for the Solomon Islands context will be developed (or adapted from existing systems) and used to monitor asset management improvement in the Solomon Islands.

This monitoring will also be used to support the annual review of the implementation of the SIIP Asset Management Strategy.

The IPWEA International Infrastructure Management Manual (IIMM) uses an asset management maturity index (figure 3.8) to help organisations to make decisions about what levels of competence they want to achieve in each of the areas of practice.

The Pacific Regional Infrastructure Facility (PRIF) uses a Public Investment Management Diagnostic Framework in which diagnostic indicators are scored on a scale of 3 levels. The Framework includes indicators covering some aspects of asset management.

Asset management maturity assessment will be ongoing and will be part of the improvement cycle, both internally within SIIP and externally across Government.

Figure 3.8 International Infrastructure Asset Management Manual (IIMM) asset management maturity index

	Minimum	Core	Intermediate	Advanced
AM Policy Development				
Demand Forecasting				
Levels of Service				
Asset Register Data				
Asset Condition				
Risk Management				
Decision Making				
Operational Planning				
Maintenance Planning				
Capital Works Planning				
Financial and Funding Strategies				
AM Teams				
AM Plans				
Information Systems				
Service Delivery Mechanisms				
Quality Management				
Improvement Planning				

Area of action 7

Building culture of competent lifecycle asset management

Asset management capacity building will seek to secure the sustainability of SIIP infrastructure investments, and enhance infrastructure governance in Solomon Islands

Solomon Islands Government agencies will require significant support to develop the capability and secure the necessary resources for sustaining SIIP infrastructure assets after handover.

A key focus of capacity development will be to empower asset managers with the capability, information and knowledge to be able to secure funding through various channels and implement Asset Management Plans. These channels may include user revenues, donor support, Government appropriation and global funds for climate adaption.

There is a significant way to go before Solomon Islands asset management practice meets minimum standards for good practice

An initial review (desktop research and consultations) of infrastructure asset management practice across Solomon Islands government agencies, SOEs and Development Partners has indicated that there is generally a very low level of asset management capability and capacity. This observation was shared by most of the persons spoken to. (see appendix 2)

SOEs are probably the most advanced, having a reasonable knowledge of their asset quantum, value and condition. SOEs are focused on the importance of the maintenance task in order to sustain the value of assets. They are able to make decisions about how to best use revenues to sustain their assets through renewal and maintenance. However they also recognise that they are only just embarking on their asset management journey.

SIIP will identify areas for potential improvement in asset management capacity across all infrastructure management related agencies.

Through the asset management monitoring program, SIIP will identify areas for improvement. The monitoring will look both broadly across all relevant areas of Government, and with more detail at those agencies that will be directly responsible for SIIP infrastructure.

The asset management maturity monitoring will measure practice over a range of asset management functions and this will be used to identify specific opportunities for training or technical assistance.

SIIP will seek to implement asset management capacity development through the SIIP Capacity Building and Local Content Strategy

SIIP will ensure that there is a coordinated approach between the asset management monitoring program and the Capacity Building & Local Content activities.

This program is likely to implement a range of technical advice, training and other capacity building measures.

Asset management capacity development by SIIP will primarily focus on strengthening the functions critical to the SIIP outcomes of enhanced infrastructure governance and a legacy of sustainable infrastructure. Support will be designed to be relevant and appropriate for the Solomon Islands context.

SIIP will also identify opportunities for Solomon Island agencies to share good practice between themselves and to potentially reduce duplication of processes and tools.

SIIP will work with other development partners to coordinate support for continuous improvement in asset management

World Bank are currently supporting the Ministry of Infrastructure Development with a Technical Assistance (TA under Resilient Transport in Small Island Developing States program) to develop a Resilient Asset Management Strategy.

SIIP will seek to remain engaged with this program and other asset management related technical assistance so that capacity building support can be coordinated.

Area of action 8

Transitioning asset management responsibilities from SIIP to the Solomon Island asset managers

SIIP Asset Management Plans will include a handover plan for transitioning projects to Solomon Island infrastructure agencies for ongoing management

Infrastructure delivered through SIIP will be handed over to responsible agencies for ongoing operation, maintenance and renewals. SIIP will manage this handover with the aim of ensuring that SIIP infrastructure provides value over its expected life.

SIIP will prepare implementable Asset Management Plans for each project which include proposals to ensure this transition is effective.

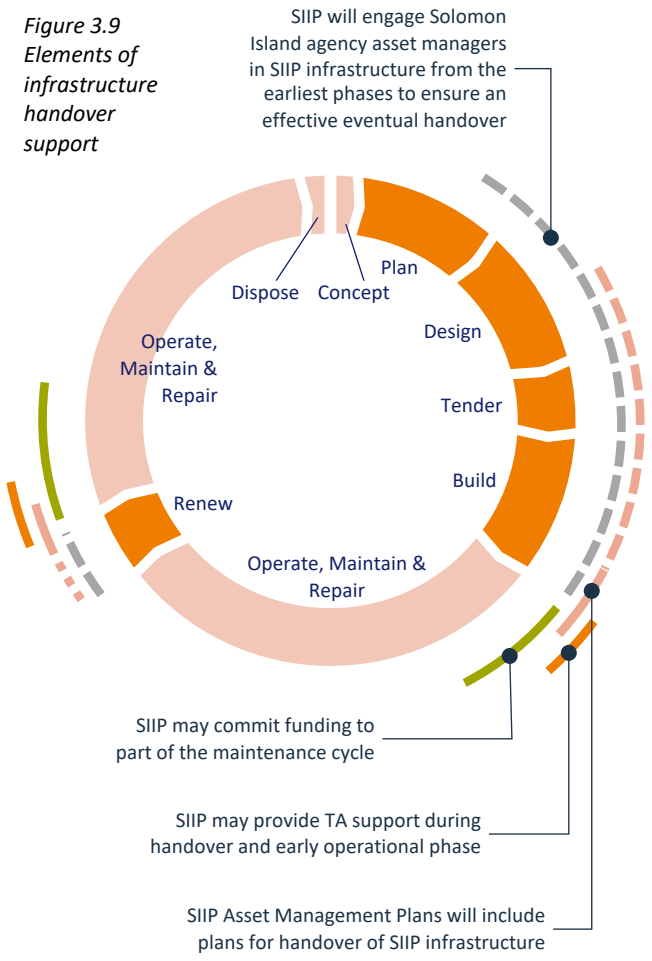
Asset management maturity monitoring will identify handover needs

SIIP will use the asset management maturity assessment of the managing agency to identify and tailor appropriate handover support measures. This may target gaps in asset management capability, or the agency's ability to raise sufficient funding for implementation of the Asset Management Plan.

Early involvement of asset managers in SIIP projects will ensure a more effective handover of assets

SIIP will seek to engage infrastructure asset managers from the earliest stages in the project to ensure that asset management challenges and risks are properly identified and addressed during planning and design phases.

Figure 3.9 Elements of infrastructure handover support



This will also help to ensure that SIIP Asset Management Plans will be consistent with data platforms and practices within infrastructure agencies.

In some situations SIIP may also provide TA or funding support to ensure that maintenance is funded in early years and asset management practices become embedded.

It will be important to establish proper asset maintenance practices within agencies taking over SIIP infrastructure. SIIP may support this through specialist TA to help integrate new assets into the agency's asset base and strengthen the organization's ability to manage the assets properly.

SIIP may also consider providing funding support for maintenance activities during early years of operation. Modality options for this could include budget support, or through a build and maintain procurement (if risks outside contractor control could be effectively managed). In this latter case it is unlikely that the maintenance part of the contract could be novated to Government efficiently, so SIIP might effectively remain the entity responsible for the asset management until the contract ended.

4. Strategy annual review and update

Reviewing and updating the Asset Management Strategy annually

SIIP will review the strategy annually to ensure that it is consistent with the emerging infrastructure strategy

SIIP will have annual Workplans approved by the Steering Committee, which will include infrastructure projects requested by Solomon Island Government. SIIP does not presently have a long-term planned infrastructure program, however this may be developed as the program progresses.

It is therefore important to regularly review the asset management strategy to make sure it remains relevant to the projects that proceed.

SIIP will review annually the asset management goals, the strategy logic, the strategic actions and this strategy review process.

The implementation of the asset management strategy will also be assessed annually and an improvement program developed

The assessment will be based on answers to a series of questions and will also be informed by the wider SIIP Monitoring Evaluation and Learning program.

The assessment questions will be reviewed each year to ensure that they remain relevant to the emerging infrastructure projects.

Each year this review and an updated Policy and Strategy will be submitted to the steering committee for endorsement.

Is SIIP making the right decisions in infrastructure projects?	Is the Asset Management Policy and Strategy endorsed by the SIIP Steering Committee?
	Is the Asset Management Policy and Strategy reviewed, updated and reconfirmed annually?
	To what extent do SIIP asset management activities align with international standards and guidance?
	Are asset management definitions and conventions used across planning, finance and engineering functions?
	Are lifecycle risks and costs part of infrastructure decision making?
	Asset Management Plans prepared for each infrastructure project in coordination with downstream asset managers?
	Are Asset Management Plans informed by assessment of managing agency's capacity to maintain and renew?
Is there improved capacity for downstream management, operation, maintenance and renewal of SIIP infrastructure?	Does SIIP have updated assessment of Solomon Islands Government asset management maturity?
	Do SIIP projects undertake detailed assessment of managing agency's capacity to maintain and renew infrastructure?
	Do SIIP and other agencies understand the allocation of accountabilities and roles over the lifecycle?
	Is there established coordination arrangements for relevant entities for all phases of lifecycle?
	Are asset management capacity needs being identified and communicated to the SIIP Capacity Building function?
	Do Asset Management Plans include detailed transition arrangements for infrastructure management?
	How likely is SIIP infrastructure to be maintained as anticipated in the Asset Management Plan?

Appendix 1

Asset Management Policy Development

Contents

1 Background

1.1 Purpose

The Solomon Islands Infrastructure Program (SIIP) Design sets out a schedule of SIIP foundation documents that are to be developed by the hub early in the program. These include an "Asset Management Strategy and Plan" covering directly delivered and co-financed projects where the program has lead responsibility.

It has been agreed between SIIP Hub and Department of Foreign Affairs and Trade (DFAT) that the most appropriate documentation for this stage in the program would be an Asset Management Policy and an Asset Management Strategy. Asset Management Plans would be developed for each of the infrastructure projects as they become known. The overall architecture of the SIIP asset management documentation is referred to as the Asset Management Framework (Table 1).

Table 1 SIIP Asset Management Framework

Document(s)	Purpose
Asset Management Policy	Commitment to implementing best practice in Asset Management (whole of life infrastructure management for SIIP) to ensure value is realised over whole asset life.
Asset Management Strategy	How SIIP will implement asset management for SIIP program and detailed requirements for Asset Management Plans
Asset Management Plans	Plans for each known project detailing the program of activities and resources required, and how they will be mobilised, to ensure the asset provides expected value over its expected life.

The Asset Management Framework applies principally to SIIP infrastructure and primarily seeks to ensure that the SIIP infrastructure provides expected value, over the expected asset life, under the anticipated levels of use and environmental conditions.

SIIP Asset Management practice should also be consistent with current practice and future aspirations in the Solomon Islands Infrastructure sector[1]. It should also seek to demonstrate a standard of practice which will support capacity development in asset management.

[1] For the purposes of SIIP Asset Management Solomon Islands Infrastructure Sector is made up of all Ministries and State Owned Enterprises (SOEs) engaged in the planning, funding, procurement, operation, maintenance, renewal and disposal of economic infrastructure.

1.2 SIIP Asset Management Principles

The underlying principles of the SIIP Asset Management Framework are based on international standards and guidance:

- **A top-down approach is used -** in which the Asset Management Policy drives the Strategy, and the Strategy sets out the requirements for asset management planning for SIIP infrastructure as well as proposals for building asset management capacity in Solomon Island Infrastructure Sector.
- **Infrastructure must be developed and managed to serve the goals of the organisation** - the policy for SIIP asset management is developed from the overall goals and guiding principles for SIIP
- **SIIP investments must be planned, justified, designed and procured on the basis of anticipated risks over the asset lifecycle –** anticipated use, environmental conditions and risks need to be clearly accounted for from the outset of project development
- **Asset management is not just an engineering function** - it is a multi-disciplinary 'corporate function' which enables engineers, financial advisers and policy advisers to work together to make better decisions about infrastructure investment and management
- **Planning and procurement should seek to anticipate and mitigate risks** - over the whole life of assets

[2] ISO 55000, 55001 and 55002

1.3 SIIP Asset Management Policy

The SIIP Asset Management Policy is the fundamental driver of asset management implementation and practice across the SIIP program. It should be endorsed and owned by the SIIP Steering Committee and the intentions and commitments should be known and acted on throughout the organisation.

The Policy has been developed on the basis of:

- SIIP Design goals, objectives and guiding principles;
- consultations with DFAT and Solomon Islands Infrastructure agencies; and
- international best practice.

This document proposes the SIIP Statement of Asset Management Policy and describes how the Asset Management Policy fits with overall goals, objectives and guiding principles of the SIIP program.

1.4 Standards and Guidance for Asset Management

Preparation of the SIIP asset management framework and documents has been guided by ISO standards[2] for asset management and the International Infrastructure Management Manual[3]. These resources represent the leading edge of international asset management practice.

However, it must be recognised that asset management maturity levels are very low across the Solomon Islands Infrastructure Sector and in most cases the practice does not meet the minimum international

[3] Institute of Public Works Engineers Australia (IPWEA) and New Zealand Asset Management Support (NAMS)

standards. The SIIP Asset Management Framework therefore seeks to achieve a pragmatic balance between international best practice and what is useful and implementable in the context of Solomon Islands Infrastructure Sector.

The most common overall purpose for asset management is – ***to realise value from the assets***. In this context "value" can be measured in a broad range of economic, social and environmental outcomes. This purpose is reflected across all the international standards and guidance (Table 2).

Table 2 International standards guidance and commentary on asset management

Publication	Goals for asset management
ISO 55000 Standards for Asset Management	*"Coordinated activity of an organization to realise value from assets"*
International Infrastructure Management Manual, IPWEA	*"The systematic and coordinated activities and practices of an organisation to optimally and sustainably deliver on its objectives through the cost-effective lifecycle management of assets"*
International Monetary Fund	*"Potential gains from better asset management are considerable. Revenue gains from nonfinancial public corporations and government financial assets alone could be as high as 3 percent of GDP a year, equivalent to annual corporate tax collections across advanced economies. In addition, considerable gains could be realized from government nonfinancial assets. (Managing Public Wealth IMF 2018)"*
The Asset management Council, Australia	*"The life cycle management of physical assets to achieve the stated outputs of the enterprise".*

2 The rationale for the Asset Management Policy

2.1 SIIPs role in Solomon Islands infrastructure

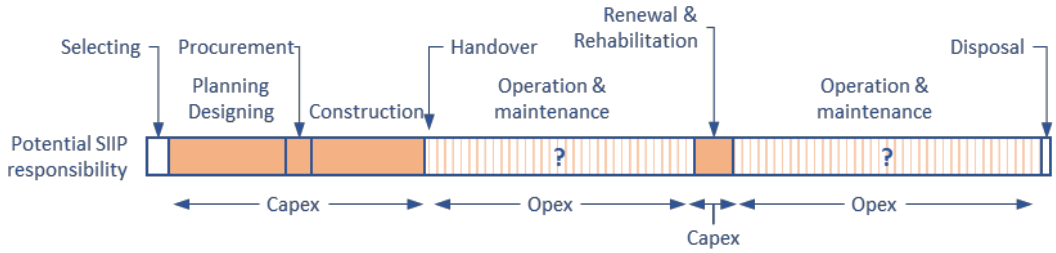
There is expected to be *"a legacy of high profile, resilient and accessible infrastructure assets in a range of sectors across the country that supports inclusive economic growth"*[4] by the end of the SIIP. To achieve this SIIP will directly deliver infrastructure as well as take lead responsibility on co-financed projects.

SIIP could therefore be responsible for all stages in new infrastructure development from planning through to handover. Beyond handover it is generally expected that a Ministry of SIG or a SOE would become responsible for management, operation, renewal and/or disposal of new assets created through SIIP, although this might not always be the case.

SIIP may also take on responsibility for some existing asset renewals, however it is not clear, at this stage, whether SIIP will take responsibility for any infrastructure maintenance related functions. Traditionally, development partners have focussed most support on Capital Investment (Capex) programs with Operating Expenditure (Opex) maintenance and repair activity becoming the responsibility of the recipient.

However, SIIP could commit to funding a fixed period of maintenance for new infrastructure developed through the program, possibly through a build and maintain type of contract. However, this commitment would not extend beyond the ten year SIIP program and maintenance for most assets would eventually become the responsible of a SIG agency during the expected asset life (Figure 1).

Figure 1 Indicative Infrastructure lifecycle and SIIP involvement



The responsibilities of SIIP and SIG agencies are therefore likely to be split over the lifecycle of infrastructure that is constructed, renewed or upgraded through the program. The disjointed nature of the infrastructure governance presents some challenges for whole-of-life asset management.

- It will be critical that decisions made during planning, design and construction should reflect the realities of anticipated downstream risks, maintenance policies and institutional capacity.
- SIIP infrastructure handover will need to be supported with clear and appropriate asset management documentation, and potentially some ongoing technical advisory support for asset owners which would be identified during project planning

[4] SIIP Design Document

- Infrastructure managers from SIG agencies should be fully involved through the planning and construction phases and be supported through the early stages of operation and maintenance
- Asset management plans should identify sources of Opex funds for maintenance, Capex funds for renewals, and address risks around the availability of funds
- A multi-donor coordinated approach to asset management capacity development should seek to empower infrastructure managers with the tools and information needed to secure funds and spend them efficiently to ensure the investments realise value over the anticipated lifecycle

2.2 SIIP guiding principles, goals and outcomes relating to asset management

The SIIP Design sets out 5 Guiding Principles "*…to inform program decision-making and to guide the design and implementation of infrastructure projects funded under SIIP."* Each of these has relevance for the Asset Management Policy.

1. Under **alignment** there is an 'additionality' requirement for SIIP funding so that it does not displace other sources of public or private funding. This could be an important consideration for any SIIP direct or budget funding support for Opex maintenance operations which could displace SIG funding - potentially resulting in further Opex liability.
2. I**nclusivity** policies will influence how asset management is implemented and the Asset Management Policy and Strategy should recognise this.
3. The **Climate Change and Disaster Resilience** (CCDR) is to be integrated *"…into every stage of the infrastructure life-cycle including planning, delivery and maintenance."* Management of these and other risks is central to realising infrastructure value through proper asset management. SIIP asset management practice should anticipate these risks during the project planning phases and deliver infrastructure which achieves the best balance of risk, performance and cost over the whole asset life. Anticipated asset reinstatement costs following environmental events should be internalised within Opex budget forecasts.
4. **Local content** is another policy area which sits alongside asset management policy and should be part of the context within which asset management decisions are made. The development of asset management capacity and capability within Solomon Islands Infrastructure Sector will be a key part of any strategy which seeks to ensure value is realised from SIIP infrastructure over its life. The biggest opportunities for local content are often during maintenance and renewal phases of the asset lifecycle.
5. Asset management capacity development is also signposted to under the **safety and quality** principle which will drive SIIP to address quality issues over the infrastructure lifecycle from planning to disposal. International asset management standards and guidance (Table 2) compliment the G20 Principles for Quality Infrastructure Investment and will support SIIP in developing a culture of infrastructure lifecycle management.

The SIIP Program Goal and Outcomes provide a clear focus for asset management policy based around the twin themes of:

- a legacy of high quality, sustainable, infrastructure which supports inclusive economic growth; and
- sustained capacity for infrastructure governance and management within Solomon Islands Government.

Although the SIIP Asset Management Framework and Policy is primarily aimed at SIIP infrastructure it also has an important role to play in supporting capacity development in the Solomon Islands Infrastructure

Sector. Building this capacity will be critical for ensuring that value is realised over the whole lifecycle of SIIP infrastructure. Without better asset management project viability becomes questionable due to shorter expected asset lives.

Building sustained capacity in infrastructure governance and management will be a significant challenge which will require better role clarity and collaboration across government. Asset management is the business process which supports infrastructure governance and is implemented to ensure that investment and expenditure supports governments' goals. Better infrastructure governance revolves around the clear location of accountabilities across government, SOEs and the private sector for managing risks, allocating resources and delivering service.

At the next level down the SIIP Program Logic tree there are three Intermediate Outcomes with direct relevance.

1. **Infrastructure policies and plans which include the integration of CCDR**. Building resilience against risks such as climate change and natural hazards into the lifecycle is a core element of the asset management practice of balancing risk, performance and cost over asset life.
2. **Planning and building lifecycle informed infrastructure** requires a clear understanding of risk and performance over the lifecycle stages. Asset management provides a framework for making lifecycle decisions which integrates risk management, planning and budget commitments to deliver value over the whole asset life.
3. **High quality infrastructure** must be sustainable over asset life. Asset Management planning should be part of project development to ensure that early decisions reflect anticipated risks, conditions and resources over the whole of the lifecycle. Asset Management Plans must be realistic and implementable.

2.3 Rationale summary

The principles of asset management (as set out in international standards and guidance) sit at the heart of the SIIP Design. Realising value (inclusive economic development) from economic infrastructure is central to SIIP's goals and is also the primary focus of asset management.

However SIIP's accountability in the infrastructure lifecycle may be limited and the program must seek to embed infrastructure governance best practice within the Solomon Islands Infrastructure Sector to ensure there is a pipeline of viable projects and a sustainable end of program legacy.

In its role as infrastructure investor, SIIP should be seeking to ensure all decisions are informed by the expected realities and risks over the whole infrastructure life - not just the creation of the asset.

The SIIP Asset Management Policy should seek to capture the broad range of asset management related aspirations in the SIIP design into a concise and focussed statement of commitment.

3 Proposed Asset Management policy

The statement of policy captures SIIP's commitment to implementing an asset management framework which aligns with the goals and objectives of the program.

It is anticipated that this narrative and policy will be reviewed by SIIP Hub team leadership, DFAT and the SIIP Steering Committee. In line with best practice the policy statement should be agreed to, and endorsed, at the highest level in SIIP (the SIIP Steering Committee).

The Asset Management Policy is set out below.

SIIP Asset Management Policy

October 2021

SIIP is improving the quality and accessibility of economic infrastructure to contribute to broad-based, inclusive and sustainable economic growth in Solomon Islands.

Over the 10 year timeframe SIIP will plan design and construct economic infrastructure. This is likely to include transport (roads, bridges, ports and airports), electricity, ICT, water and sanitation, and infrastructure that supports rural development.

SIIP will also support Solomon Islands Government with high quality analysis, research, advice and capacity development to strengthen infrastructure governance, management and safeguards.

SIIP will adopt and promote an asset management approach to ensure that infrastructure investments are sustained, and the value of existing infrastructure can be enhanced.

This policy defines the commitments and principles of the SIIP asset management approach. The Asset Management Strategy will describe how SIIP will deliver this policy.

SIIP Asset Management Approach

SIIP asset management will primarily be focused on realising sustained value from infrastructure delivered by SIIP.

In order to achieve this SIIP will integrate decision making over the whole lifecycle of assets through a coordinated approach to asset acquisition and management.

SIIP will seek to clarify roles and improve collaboration between funders, planners and infrastructure managers over the whole asset lifecycle.

SIIP will seek to engage with and build capacity in all levels of infrastructure governance in Solomon Islands to ensure that asset management plans are relevant, current and implementable.

SIIP will seek to ensure that planning and procurement decisions reflect as closely as possible the anticipated use, environmental conditions and risks over the whole asset lifecycle, and that these decisions reflect the likely availability of capacity and capability to maintain, repair, renew and dispose of assets

Developing the asset management culture in SIIP and Solomon Islands Government

Pursuit of best practice - SIIP will implement asset management by drawing on international standards and guidance

Appropriate for Solomon Islands context - SIIP will seek to algin asset management strategy and plans with current Solomon Islands legislation and asset management practice.

Consistency with other SIIP policy - SIIP asset management practice will also be aligned with SIIP policies for capacity development, safeguards, CCDR and Local Content.

Linking infrastructure to the value it creates - Maintain a clear linkage between policy, strategy and planning to ensure that infrastructure delivers value

Managed handover of quality infrastructure - Prepare asset management plans with costed plans of work and funding sources to maintain asset condition and performance over the whole asset lifecycle

Identify opportunities to build an asset management culture in Solomon Islands

SIIP will assess and monitor asset management maturity within Solomon Islands Infrastructure agencies to identify opportunities for support

Appendix 2

Persons and organisations consulted

Name	Position	Organisation
Mike Qaqara	Director of Transport Infrastructure Management Services Division	Ministry of Infrastructure Development
Moses Virivolomo	Permanent Secretary	Ministry of Communication and Aviation
Dung Anh Hoang	Senior Transport Specialist	World Bank
Joe McCarter	First Secretary	New Zealand Ministry of Foreign Affairs and Trade
Emma Tiaree	Local Content Adviser	AIFFP
Andrew Elborn	Counsellor	Solomon Islands Governance Program, Department of Foreign Affairs and Trade
Donald Kiriau	CEO	Solomon Power
Bennie Smith	General Manager Special Projects	Solomon Power
Ian Gooden	CEO	Solomon Water
McKinnie Dentana	Permanent Secretary	Ministry of Finance and Treasury
Deborah Wargent	Procurement Adviser	Solomon Islands Governance Program