Group - 3 Exercise (Feb 17)

Telecom Equipment – Outdoor Unit

Pacific Region Infrastructure Facility

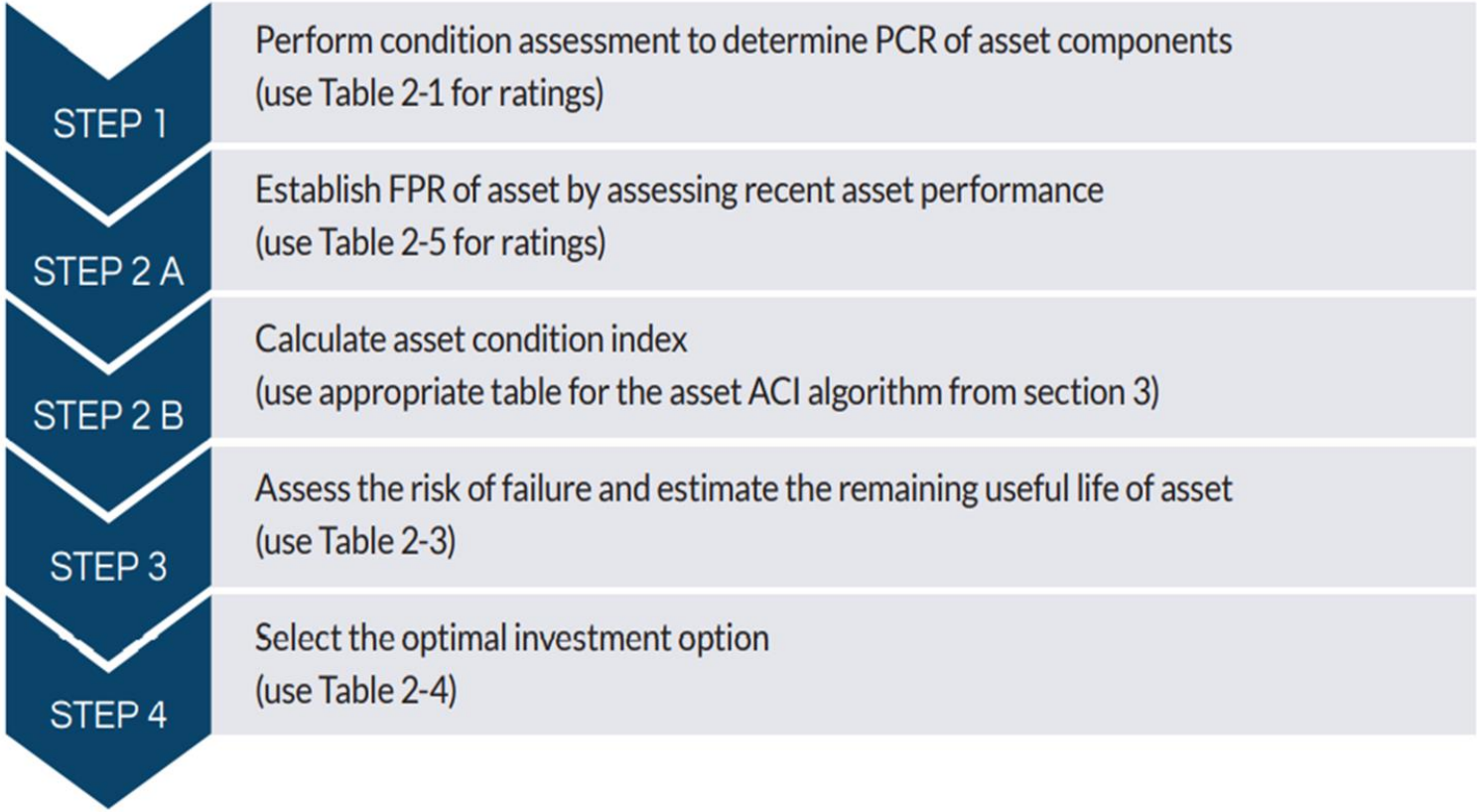
SPC Secretariat of the Pacific Community

Asset Condition Assessment

- The telecom equipment mounted on a tower in Nauru includes cell phone antennas and trans receiver. The equipment is about 5 years old. There are not many equipment failures and its physical condition is assessed to be fair.
- However the equipment is of older vintage and cannot support the data download speeds required by 90% of cell phone customers.
- Calculate its asset condition index and develop an investment plan.

Asset Condition Assessment

Since we have information available on both physical condition and functional performance of the telecom equipment, to calculate condition assessment index and develop investment plan for this outdoor unit, we will use the second approach which consists of the following steps, Figure 2-2 (Section 2):



Step 1

- Perform condition assessment to determine PCR of asset components (use Table 2-1 for ratings)

To assess the condition of telecom equipment - outdoor units (ODUs) we will need to assess physical condition of the equipment and assign an appropriate rating from Table 2-1 in Section 2, to each main component of the Outdoor Unit (described in Section 3.9.

Table 2-1 (Section 2)

Asset Component Condition	Physical Condition Rating	Interpretation
Asset Component in brand new condition, with no wear, no damage, no deformation, no defects, no deterioration, no impairment	5	Excellent
Asset Component in "like new" condition, with minor wear and no damage, no defects, no deformation, no deterioration and no impairment	4	Good
Asset Component shows minor wear, minor deformation, minor damage, minor defects, minor deterioration, minor impairment, asset condition can be maintained through normal preventative maintenance	3	Fair
Asset Component with major deformation, degradation, deterioration, damage or defects and serious impairment in condition; however component condition can be restored through economically efficient rehabilitation/refurbishment of degraded/faulty components.	2	Poor
Asset Component with major degradation, deterioration, damage or defects and serious impairment in condition, and it is not possible to restore the component condition through economically efficient rehabilitation/refurbishment	1	Very Poor

Step 1

- Perform condition assessment to determine PCR of asset components (use Table 2-1 for ratings)

In Section 3.9 to calculate the asset condition index of telecom equipment, Outdoor mounted units (ODUs) are treated as a single component asset.

Let's assess physical condition of the Outdoor units based on the information provided: The equipment is about 5 years old, there are not many equipment failures and its physical condition is assessed to be fair.

Step 1

- Perform condition assessment to determine PCR of asset components (use Table 2-1 for ratings)

Physical Condition Rating	Interpretation
5	Excellent
4	Good
3	Fair
2	Poor
1	Very poor

- Based on the provided information, which rating would you give to this telecom outdoor unit (ODU)?
- Please discuss within your group and assign a rating.

Step 2A

- Establish FPR of asset by assessing recent asset performance (use Table 2-5 for ratings)

To establish the FPR, we need performance assessment. The equipment is obsolete and does not meet the needs of 90% of the customers. Use Table 2-5 to assign a functional performance rating to the outdoor unit (ODU) equipment.

Table 2-5: Asset Functional Performance Ratings

Asset Functional Performance Rating	Condition Score	Interpretation
Asset's functional performance exceeds the upper limit of the desired service levels.	5	Excellent
Asset's functional performance meets the upper limit of the desired service levels.	4	Good
Asset's functional performance meets the lower limit of the service level requirements.	3	Fair
Asset's functional performance does not meet the lower limit of the service level requirements, however through refurbishment/renewal it is possible to restore the performance to acceptable level.	2	Poor
Asset's functional performance does not meet the lower limit of the service level requirements, and it is not possible to restore the performance to acceptable levels through renewal/refurbishment.	1	Very poor

Step 2B

• Calculate the Asset Condition Index

Now that we have assessed the physical condition and the performance of the telecom equipment and we have assigned them a rating, we will include them into Table 3-42 to calculate the Asset Condition Index.

Table 3-42 (Section 3)

Condition Criteria	Weight	Condition Ratings	Maximum Score	Actual Score
Physical Condition	4	?	20	#VALUE!
Asset Functional Performance	6	?	30	#VALUE!
Total Score	10		50	#VALUE!
Remaining Service Potential (RSP) = (Actual Score / Maximum Score) x 100				#VALUE!

Risk of Failure and Remaining Useful Life

Step 3

- Assess the risk of asset failure and remaining useful life Use Table 2-3 (Section 2) shown below

Based on the Asset Condition Index value calculated in the previous slide, find the correct row in the first column of the table and then move to column 3 in the same row to find the remaining useful and move to column 4 in the same row to find the risk of asset failure.

Table 2:3 (Section 2)

Asset Condition Index	Interpretation	Remaining Useful Life	Risk of Failure in Service
0 to 20	Very Poor	< 5% of TUL	Very High
21 to 40	Poor	<20% and ≥5% of TUL	High
41 to 60	Fair	<50% and ≥20% of TUL	Moderate
61 to 80	Good	<85% and ≥50% of TUL	Low
81 to 100	Excellent	≥85% of TUL	Very Low

Investment plan

Step 4

- Select the optimal investment plan Use Table 2-4 (Section 2) shown below

- Based on the Asset Condition Index value calculated in the previous slide, what is the recommended action?

Table 2-4 (Section 2)

Asset or Component Condition	Recommended Action for Investment Planning
ACI = 0 to 20	Plan Asset Replacement - with High Priority
ACI = 21 to 40	Plan Asset Replacement
ACI>40, but one or more component's Rating 2 or Less	Plan Renewal of Components with Condition Rating of 2 or Less
ACI >50 and all components with rating of 3 or higher	Only Scheduled Maintenance and inspectuibs are Required

Estimate of Investment Needs

- Based on information from Table 2-4, we will plan to replace existing obsolete telecom equipment with modern telecom equipment, meeting customer needs.
- Because telecom equipment is highly specialized equipment, there are no standard unit costs available in the manual.
- To prepare cost estimates, competitive bids have been obtained and based on the best offer meeting the specifications, the cost of new outdoor unit is $580,000

Group 3 Exercise Results

Condition Assessment of Telecom Outdoor Unit

- The telecom equipment mounted on a tower in Nauru includes cell phone antennas and trans receiver. The equipment is about 5 years old. There are not many equipment failures, and its physical condition is assessed to be fair.
- However, the equipment is of older vintage and cannot support the data download speeds required by 90% of cell phone customers.

Physical Condition Ratings	
Telecom equipment - outdoor unit	
Functional Performance Rating	
Asset Condition Index	
Remaining Useful Life	
Risk of Failure	
Estimated Investment	