

APPENDIX D

Infrastructure Project
Prioritization
Methodology

1. Objective of project prioritization

Given the limited resources in the national budget and provided by the donor community, not all infrastructure projects submitted for support can be funded. . The aggregated investment value of the national pipeline of infrastructure projects often vastly exceed the available resources.

Prioritizing scarce resources to a small list of projects is a difficult task for senior policy makers, Treasury, and ultimately the cabinet. Without quantitative information that can be compared across all the projects in the pipeline, it is impossible to allocate scarce resources efficiently. The selection process can become subject to political considerations and sub-optimal allocation of funds can occur, which means that Nauru may miss out on a project that would improve the welfare of the country.

Applying a prioritization methodology can help guide the infrastructure investment decisions of policy makers, by ranking projects in the pipeline based on objective characteristics that can: (i) be quantitatively be scored, and (ii) be applied across any type of public infrastructure projects.

This objective ranking of projects based on a balanced score of their economic, environmental, and social values can then be given to decision makers as an additional, apolitical and objective support to guide final funding decisions.

2. Prioritization methodology

The recommended methodology for public infrastructure project prioritization is a multi-sectoral, multi-criteria quantitative assessment of common project characteristics. Each project should be documented in a one-page spreadsheet that reflects the key characteristics of the project in a number of categories. These characteristics are chosen from a series of menus in the spreadsheet that lists qualities or quantities of the infrastructure project being profiled and scored.

These characteristics are then scored with the help of an algorithm. Overall project scores are between 0 and 100. Scored projects can be then ranked and prioritized, with higher score meaning that the project is a higher investment priority.

This methodology has a number of advantages:

- objective project quantitative data available for each project allowing scoring across sectors
- characteristics are scored fairly and reflect the “triple bottom line” dimensions of a project (economic, social and environmental values)
- a weighting of indicator scores allows to fine tune rankings based on evolving national strategic interest
- retain existing New Project Proposal template for project data submission to avoid excessive disruption of procedures
- enrich New Project Proposal submission with the help of an add-on simple spreadsheet.

3. Project characteristics and indicators

The following data was used in the add-on project profile spreadsheet used for the prioritization:

1. Project identifiers: Sector; Contact person; Project name; Project number; Project location.
2. Project scale and status: Project stage of development; Brief project description; Linkage or synergy with other projects; Alignment with NSDS indicators; Alignment with sector strategy; Rationale for project proposal.
3. Public services improvement: Improved Remaining Service Potential (RSP) from the asset register review; System capacity improvement; Advancement of public services indicators (KPIs); Number of districts to benefit; Contribution to reduction of service cost; Local employment during construction; Added local employment after commissioning; Added women local employment after commissioning.
4. Project risks & sustainability: Land-related risks; Vulnerability to CCA and DRM; Environmental impact; Involuntary resettlement needs; History of maintenance expenditure from operator as proxy for adequacy of maintenance management system quality.
5. Project financial and economic aspects: Investment value; Expected economic benefits (GDP growth potential); Fund mobilized for investment to date; Committed maintenance budget; Source of funds needed for services operation.

4. Indicators scores

For the scoring of each project, only a subset of the data was used with the following possible scores:

A. Project scale and status (maximum score 10)

1. Type of project: Rehabilitation: 3; Upgrading: 2; New: 1
2. Project stage of development: Feasibility: 3; Pre-feasibility: 2; Concept: 1
3. Synergy with other projects: Two projects or more: 2; One project: 1; No other project: 0
4. Advancement of NSDS: Quantitative target: 2; Qualitative target: 1; No advancement: 0.

B. Public service improvement (Maximal score 10)

1. Improved RSP (%): >70%: 3; 70–30%: 2; <30%: 1
2. Improved system capacity: 100 % for next 5 years: 2; 100% for today's demand: 1; less than 100% : 0
3. Advancement of KPIs: Achieved: 2; Advances: 1; No advancement: 0
4. Districts benefiting (10 to 14: 3; 5 to 9: 2; 1 to 4: 1)

C. Project risks and sustainability (maximal score 10)

1. Land availability: Yes: 3; Negotiation ongoing: 2; Not clear: 1
2. Negative environmental impact: No impact: 3; Moderate impact: 2; High impact: 1

3. Maintenance expenditures: Within range: 2; Low compared to target: 1; Low & not documented: 0
4. Climate Change and Disaster Risk Management vulnerability factor (0 and 100): <34: 3; 35–71: 1; >72: 0

D: Financial & economic aspects

1. Local works for construction: >60%: 3; 60–20%: 2; <20%: 1
2. Capital funding mobilized: Some secured: 2; Some discussed: 1; No mobilization: 0
3. Finance for maintenance: Mostly from service charge: 2; Mostly from government budget: 1; Not clarified: 0.
4. Percentage of women’s employment created: >60%: 3; 60–30%: 2; < 30%: 1

5. Additional weighting tool

The methodology also includes a weighting tool to allow a rescoring of projects based on different weights given to: (i) a single criteria compared to another criteria of a same group; and (ii) a criteria group compared to another criteria group (see Figure D-1). This enables different project prioritization scenarios to be explored and to test which indicators or dimensions of projects are privileged over others by giving indicators higher weight in the algorithm.

Criteria and Criteria Groups For NPP Project Assessment Scoring and Ranking	Rating of criteria	Maximal Score	Weighting within Group	Weighting Between Group
Overall Score for Ranking				100%
Project Scale and Status	10	10	100%	25%
Type of project	1 to 3	3	30%	
Project stage	1 to 3	3	30%	
Linkages/ synergy with other projects	0 to 2	2	20%	
Alignment with NSDS objectives and targets	0 to 2	2	20%	
Public Service Improvement	10	10	100%	25%
Improved Remaining Service Potential (RSP)	1 to 3	3	30%	
Capacity to meet current and future demand	0 to 2	2	20%	
Improved security and safeness for the population	0 to 2	2	20%	
Districts benefiting	1 to 3	3	30%	
Project Risks & Sustainability	10	10	100%	25%
Land availability Level of O&M cost covered from user	1 to 3	3	30%	
Negative environmental impact	1 to 3	3	30%	
Maintenance expenditure history of operator	0 to 2	2	20%	
CC & DRM vulnerability	0 to 2	2	20%	
Financial & Economic Aspects	10	10	100%	25%
Local employment & works during construction	1 to 3	3	30%	
New women local employment prospects after comm	1 to 3	3	30%	
Funding for investment mobilized	0 to 2	2	20%	
Funding committed for maintenance	0 to 2	2	20%	

Figure D-1: Weighting tool of the prioritization algorithm

By changing the weighting of one criteria or a group of criteria, great care should be taken to change the weighting of the other criteria so that the total weight of a group or of the four groups total 100%. If the weighting of a group differs from 100%, the cell color in the spreadsheet will change to red, to indicate an error. All projects being scored and ranked should also use a single, unique weighting pattern when submitting the ranking of a series of projects to policy makers for funding decisions.

6. Scoring and ranking for the NIIP 2019

The list of the scored and ranked projects included 53 projects highlighted in the NIISS document. Projects not included in the project prioritization process were:

- projects already approved and already under implementation since or before 2018
- light-duty and heavy-duty vehicles from PSA as well as NRC (except solid waste needed vehicles) due to the special nature and financing of NRC equipment and the difficulty of properly allocating the use and function of the PSA equipment from a public service perspective.

Although the prioritization methodology includes a weighting tool between the different scored criteria and between the four groups of criteria, the results of the prioritization process in Table D-1 and Figure D-2 were based on allocating one point to each score value for each criteria and a balanced weighting between the four groups of criteria (25% for each of the four groups of criteria).

The result of the prioritization process is shown in the Table D-1 and Figure D-2.

Table D-1: Prioritized project lists

Priority Serial #	Project Number	Project Name	Total Scores	Investment value (AUD1,000)
1	DOH-R-6	Renovate old building as maternity ward	82.69	320
2	DOE-R-1	Renovate two classrooms for NPS	77.88	120
3	DOH-R-7	Renovate old building as isolation ward	77.88	350
4	NUC-R-53	Relining of 4 C tanks	77.88	160
5	DOH-U-28	Construction of nursing home	76.92	4,500
6	DOH-R-9	Redevelopment of old ward for paediatrics.	76.92	480
7	NRC-R-17	Improvements to landfill site	75.96	1400
8	NUC-N-46	6.5 MW PV & 5 MW battery storage	75.96	36,660
9	NRC-R-18	Relocate medical waste incinerator to landfill site	72.12	20
10	DOE-U-20	Renovate two additional classrooms NPS	72.12	120

Priority Serial #	Project Number	Project Name	Total Scores	Investment value (AUD1,000)
11	DOE-U-21	One new classroom for Kaiser College	72.12	75
12	DOT-U-32	Addition of two sets of traffic lights on Simpson Rd	72.12	77
13	DOE-U-25	Sanitary facility, 5 community centers, and storage room	72.12	17.5
14	DOT-R-12	Rehabilitate draining sumps & soak pits	71.15	300
15	DOT-R-42	Purchase of 2 large and 2 smaller buses	71.15	222
16	DOH-U-27	Phase 3 renovations hospital improvements	70.19	4,000
17	NUC-N-51	Pipeline from AIWO to RON hospital	70.19	500
18	PSA-R-4	Government Admin Building renovation	68.27	500
19	DOT-R-14	Resealing and repair of existing roads	68.27	14,000
20	CIE-R-19	Septage new treatment plant for country	68.27	6000
21	NRC-U-34	Install recyclables sorting system	68.27	60
22	ICT-R-2	New media building	67.31	300
23	NRC-R-40	Replace heavy duty equipment for solid waste	67.31	342
24	DCA-R-10	Renovation to nav-aid equipment building	67.31	60
25	DCA-R-11	Resealing and repair of runway & taxiway	67.31	15,000
26	DCA-R-36	Replacement VHF air-ground radio	67.31	225
27	DCA-R-37	Vaisala meteorological system	67.31	490
28	NES-R-41	Replace fire trucks	66.35	150
29	NUC-R-48	Rehab of G1 Generator Ruston, 2.4 MW	66.35	1,000
30	NUC-R-49	Rehab of G5 Generator Ruston, 1.0 MW	66.35	500
31	CIE-R-16	Repairs to existing rip raps	64.42	300
32	DOE-U-22	Provide roof on play area at Nauru College	64.42	40
33	DOE-U-26	Disability access to learning village and disabled school	64.42	32
34	DOT-U-31	Develop new road for waterfront area near the port	64.42	1,200
35	DOT-R-15	Capital repair to footpaths	64.42	300
36	NUC-U-50	Conversion to synchronous generators	63.46	100
37	DOE-U-23	Provide roof on play area at BIS	62.50	40
38	DOE-U-24	Cafeteria building at Nauru Secondary School	62.50	150

Priority Serial #	Project Number	Project Name	Total Scores	Investment value (AUD1,000)
39	DOT-R-13	Repairs to roadside curbs and gutters	62.50	250
40	PAN-R-43	120-ton crane to unload containers	62.50	1,200
41	PAN-R-44	Reach stacker for 20-ft containers	62.50	500
42	NUC-N-52	Water remineralization plant	62.50	150
43	DOH-U-30	Nauru Sport Complex — Phase 2	59.62	2,883
44	PSA-R-3	Land Records building renovation	56.73	100
45	PSA-U-35	Development of new cemetery	55.77	95
46	VIE-U-47	Replacement 8" pipe cantilever to farm	55.77	1,500
47	DOH-U-29	Building of Ijuw community sport courts	54.81	63
48	CIE-U-33	Construction of new rip rap in Boe district	53.85	400
49	PAN-R-45	Replace mooring equipment at end of life	53.85	7,595
50	NFMRA-R-38	Decompression chamber rehabilitation	51.92	36
51	DOH-R-8	Hospital security fence and parking area	50.96	60
52	NFMRA-R-39	Rehabilitate 4 small boats	50.00	80
53	PSA-R-5	Home Affairs—renovate 4 buildings	44.23	150
TOTAL				105,172.5

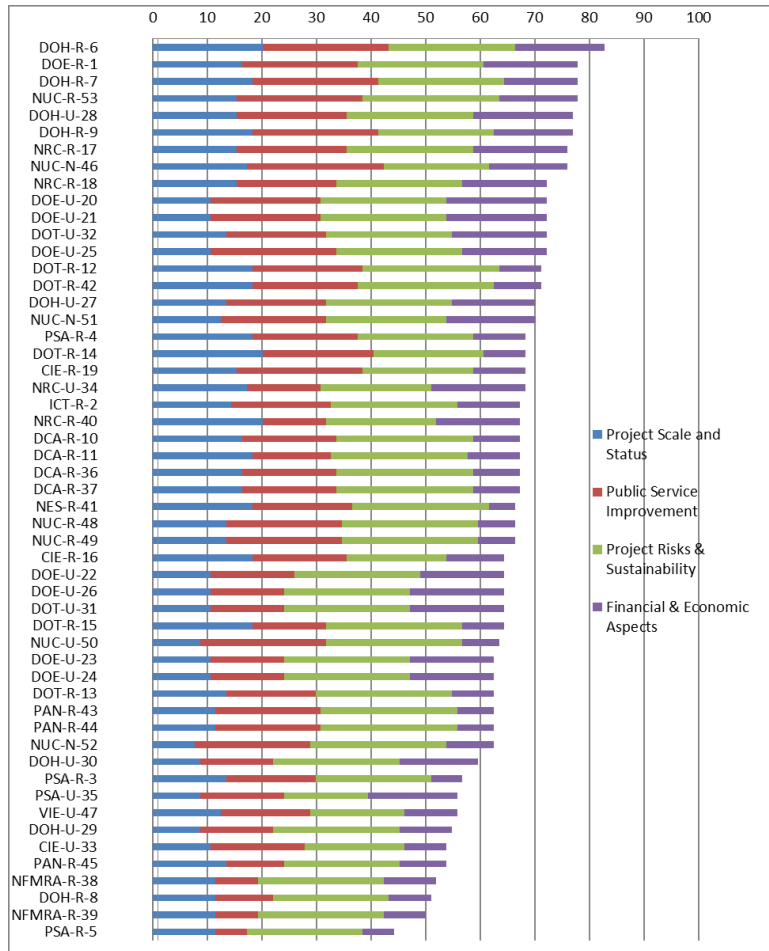


Figure DF-2: Projects scores and ranking graph

A number of points to note about the prioritized pipeline projects are:

- The NUC PV solar project (6.5 MW PV & 5 MW battery storage) is currently being evaluated by ADB and it achieved a good score and ranking of 8.
- Other NUC projects achieved differentiated ranking 4, 8, 17, 29, 30, 36 and 42 based on the type of project (linkage with NSDS target, advancement of water supply MP, rehabilitation, upgrading, etc.).
- A number of DOE and DOH projects achieved high scores because they (i) involved important and necessary building rehabilitation or upgrading tasks and (ii) these investments can significantly improve the public service quality offered to the population.
- Investments needed to address the desolate and environmentally unsound landfill site also achieve high scores (ranked 7, 9).
- The need for a new septage treatment plant for the sludge from septic tanks achieved a ranking of 20.
- The high cost resealing of roads and the runway ranked 19 and 25.

These rankings would, of course vary, if different weightings are applied to the criteria. Therefore, the rankings are only indicative and only serve as general guide for final project review and approval by authorities.

Note that a number of rehabilitation and upgrade projects have limited investment value. These fall into two groups:

1. infrastructure investment with an investment value below AUD1 million
2. infrastructure projects with investment value greater than AUD1 million.

Forty projects have an individual investment value of less than AUD1 million and a cumulative investment value of AUD8.2 million, or an average project value of AUD206,000.

Thirteen larger projects have a cumulated investment value of AUD97 million or an average project value of AUD7.4 million.