Loan Repayment Fund Report

Proposed New Loan with the ADB to Fund Renewable Energy Projects in the Southern Group

MINISTRY OF FINANCE AND ECONOMIC MANAGEMENT

December 2014

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1 Executive Summary

This report outlines the impact of a proposed borrowing of $12.98 million from the Asian Development Bank (ADB) for the purposes of developing a series of renewable energy investments across the Southern Group of the Cook Islands. Overall, the value of the project is $27.18 million and will:

- support the construction of up to six solar photovoltaic power plants in the Cook Islands Southern group (Mauke, Mitiaro, Mangaia, Atiu, Aitutaki and Rarotonga);
- provide institutional strengthening to the Office of the Energy Commissioner (OEC) and Renewable Energy Development Division (REDD); and
- provide project management support to the power utilities, Te Aponga Uira (TAU), and REDD to implement core and non-core subprojects.

It is expected that the project will provide increased energy security in an environmentally sustainable manner by increasing the use of renewable energy sources. The project has two major outputs, solar photovoltaic power system development, and institutional strengthening and project management support.

The Government is preparing to take a $12.98 million loan from the Asian Development Bank's (ADB) ordinary capital resources (OCR) in conjunction with a European Commission (EC) grant of $8.37 million (equivalent to EUR 5 million) and $5.83 million of its own contributions (made up of land acquisition, tax and duties (exemption), and solar photovoltaic module procurement from the Japanese Pacific Environment Community (PEC) Fund managed by the Pacific Islands Forum Secretariat valued at approximately $4.2 million).

Table 1.1 Funding sources for the Renewable Energy Project in the Southern Group

Type of Source	$m	% of Cost
Asian Development Bank Loan	12.98	48%
European Commission Grant	8.37	31%
Government of the Cook Islands	5.83	21%
Total	**27.18**	**100%**

Note : For the purposes of the activity the Cook Islands contribution also includes recognition of an amount of $4.6 million which is provided through the Japanese Government's Pacific Environment Community Fund which is managed by the Pacific Island Forum Secretariat.

Currently, the net public sector debt of $86 million is just under 22 per cent of estimated GDP for 2014/15. By way of comparison, total private sector debt to local banks was just under double net public sector debt at $170.5 million, or 43 per cent of GDP. The Cook Islands government does not source debt from the local banking system, therefore it is not competing with households or the private sector for debt financing.

MFEM recommends that net public sector debt levels be maintained at around 30 per cent of GDP. Whilst the recent performance of the Cook Islands economy has been reasonable, growth forecasts estimate slower growth going forward. The Cook Islands is also a small open economy with little diversification and vulnerable to shocks, both natural and economic. Maintaining debt somewhere below the 35 per cent of GDP agreed to under the Fiscal Responsibility Ratios will add to the overall resilience of the country and ensure there is sufficient future capacity (around $18 million of possible debt capacity) within the public sector to cope with:

- fluctuations in exchange rates, if the debt is a non-New Zealand dollar denomination;
- the need to take on further debt if immediate reparations are required to repair crucial pubic infrastructure following a natural disaster such as a cyclone; and
- the need to absorb shocks to revenues in the face of a major global economic decline, such as the global economic recession of 2008/2009.

Thirty five percent of GDP equates to $138 million. MFEM is of the view that net public sector debt should be at or below $119 million. However, any debt that is incurred should be rigorously tested to ensure that it is focussed on investments that provide a robust economic rate of return which would exceed the cost of borrowing. Borrowing should not be used for recurrent or operating expeditures, except for in the direst of circumstances.

The Fiscal Responsibility Ratio (FRR) for debt servicing is the ratio of net debt servicing to revenue, which is set at five per cent of total revenue. The total revenue aspect of the ratio excludes revenues from those SOEs that also are servicing debt, namely, the Ports Authority.

By 2017/18 the proposed net debt servicing to total revenue FRR will marginally exceed this benchmark when repayment of the loan associated with the Rarotonga ring main loan commences. Whilst this ratio is projected to be surpassed in 2017/18, there are considerations that need to be taken into account when concluding whether the net debt servicing ratio is a significant issue or not:

- Firstly, the total debt servicing includes loans which are currently serviced by the Port Authority (the numerator) but the revenue portion (denominator) is limited to revenue earned by the General Government Sector, including the Port Authority revenue, inclusion of these revenues reduces the rate from 3.5 per cent in 2014/15 to 3.4 per cent and from 5.1 per cent in 2017/18 to 5.0 per cent.
- Secondly, there is a question of the appropriateness of five per cent FRR and whether it is too low. An independent macroeconomic assessment undertaken by the ADB in 2013 outlined that the debt servicing to revenue ratio was too conservative and inconsistent with the debt to GDP ratio. The review suggested that a more reasonable and consistent ratio of debt servicing to GDP would be 10 per cent.

The additional proposed new debt will take the total gross debt portfolio for the Crown to $115.8 million. Offsetting this is the LRF estimated to be $16.9 million by the end of 2014/15. The debt position net of the LRF would be $99 million, or 25 per cent of GDP.

The proposed new debt contributes towards a $27.2 million investment in renewable energy which will see significant social and economic benefits.

The lender is a credible multilateral institution which has been a close partner with the Cook Islands since 1976.

The Ministry of Finance recommends that the borrowing proceed.

2 Requirements for Taking on Crown Debt

2.1 Statutory Requirements

Proposals to take on new loans on behalf of the Crown must be treated under the processes established within the *Ministry of Finance and Economic Management Act 1995/96* (MFEM Act) and the *Loan Repayment Fund Act 2014* (LRF Act).

The LRF Act requires the Ministry of Finance and Economic Management (MFEM) to analyse and report to the Parliament and the public on the impact of any new borrowing in the context of the Government's lending policy, including the amortisation schedule, the impact on debt service burden of the government over the life of the loan, and an assessment of the sustainability of aggregate government debt.

Reports should be made in advance of loan agreements being finalised. This report outlines the impact of a proposed borrowing of $12.98 million from the Asian Development Bank (ADB) for the purposes of developing a series of renewable energy investments across the Southern Group of the Cook Islands.

Section 54 of the MFEM Act requires that the Minister inform Parliament at the subsequent seating of the raising of any loans.

2.2 Reporting on the Impact of Proposed Borrowings

The report of new borrowings is to inform all stakeholders of the impact of the borrowing on the budget. This is the first such report and has been structured in a manner to fully inform stakeholders of the:

- budgetary capacity of the Cook Islands Budget to hold debt;
- current level of public sector debt;
- status of the Loan Reserve Fund – the mechanism for servicing the debt of the Cook Islands;
- proposed new debt and what it is for; and
- integrity and credibility of the lender.

The conclusion will summarise and make recommendations on the appropriateness of the borrowings.

3 Public Debt Carrying Capacity of the Cook Islands

The Cook Islands medium term fiscal policy is guided by a number of fiscal responsibility ratios, these ratios provide policy guidance on the ongoing management of public finances. These ratios were established in conjunction with the Asian Development Bank (ADB) following an economic crisis which affected the country in the mid nineties. There are two ratios which specifically deal with debt: the net public sector debt to GDP ratio; and the net debt servicing to GDP ratio. The Organisation for Economic and Cooperative Development (OECD) defines net debt as follows.

> "Government net debt comprises all financial liabilities minus all financial assets of general government. Financial assets of the general government sector have a corresponding liability existing outside that sector. The exceptions are monetary gold and Special Drawing Rights, financial assets for which there is no counterpart liability.
>
> Monetary gold and Special Drawing Rights may be included as assets of the general government sector or they may be classified as assets of the central bank, at the discretion of the government."[i]

This definition would include all debt and all financial government financial assets (including all unencumbered cash reserves and liquid financial assets). The Cook Islands has maintained a more conservative approach and excluded unencumbered cash from the definition of net public sector debt.

3.1 Net public sector debt to GDP

The net public sector debt to GDP ratio is set at 35 per cent of estimated GDP. Currently, the net public sector debt of $86 million falls well below that level, at just under 22 per cent of estimated GDP for 2014/15. The net debt to GDP ratio provides a broad indication of a nation's capacity to repay its public sector debt.

This ratio is also used as an indicator for how much credit is being utilised by the public sector in competition with the private sector, although this does not apply to the Cook Islands, as all borrowing is through overseas official lenders and not local money markets. Total private sector debt to local banks was just over double net public sector debt at $170.5 million, or 43 per cent of GDP.

Vigilance around the level of net public sector debt (the quantitative factor) is extremely important, as is vigilance around what that debt is used for (the qualitative factor). A country with a ratio of 50 per cent of GDP which has borrowed to invest in assets and infrastructure aimed at providing a good economic and financial return is in a more sustainable position than one that with a ratio of 30 per cent of GDP which has used that money to finance ongoing operating deficits.

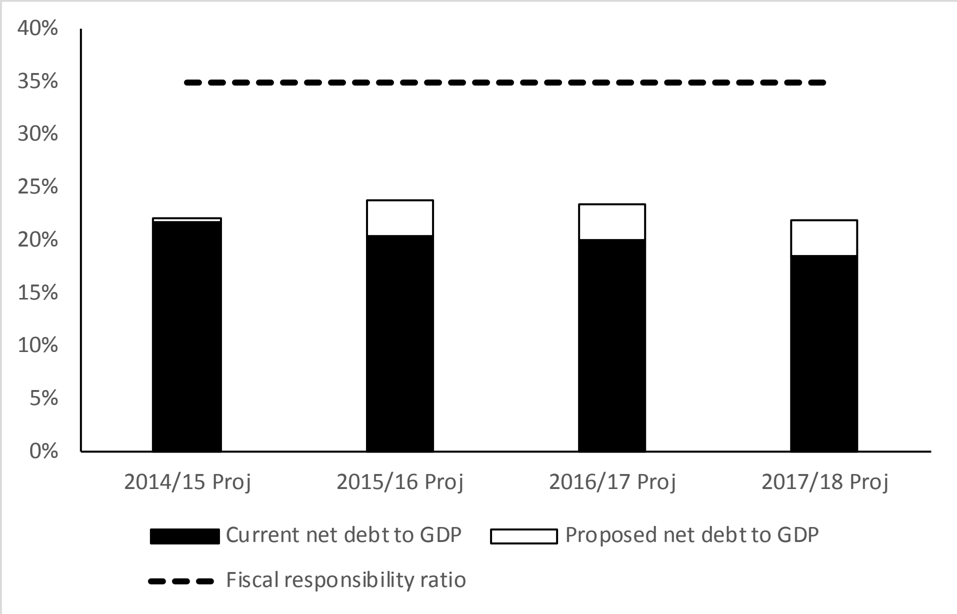
MFEM recommends that net public sector debt levels in the Cook Islands should be maintained at around 30 per cent. Whilst the recent performance of the Cook Islands economy has been reasonable, growth forecasts estimate slower growth going forward. The Cook Islands is also a small open economy with little diversification and vulnerable to shocks, both natural and economic. Maintaining debt somewhere below the 35 per cent of GDP will add to the overall resilience of the country and ensure there is sufficient future capacity (around $18 million of possible debt capacity) within the public sector to cope with:

- fluctuations in exchange rates, if the debt is denominated in non NZD;
- the need to take on further debt if immediate reparations are required to repair crucial pubic infrastructure following a natural disaster such as a cyclone; and
- the need to absorb shocks to revenues in the face of a major global economic decline, such as the global economic recession.

Thirty five percent of GDP equates to $138 million. MFEM is of the view that net public sector debt should not exceed $119 million.

However, any debt that is incurred should be rigorously tested to ensure that it is focussed on investments that provide a robust economic rate of return which would exceed the cost of borrowing. Chart 3.1 illustrates the Government is currently well within its fiscal responsibility ratio threshold of 35 per cent even after taking into account the proposed renewable energy loan. The new loan proposal would take the net debt ratio to approximately 20.4 per cent of estimated GDP in 2014/15, with a peak of 23.2 per cent of estimated GDP in 2016/17.

Chart 3.1 Net public sector debt as a proportion of Cook Islands GDP



3.2 Net Debt Servicing to Revenue

The FRR for debt servicing is the net debt servicing to revenue provides an assessment of the ability of the Crown to service its debt obligations. The benchmark is set at five per cent of total revenue. The total revenue aspect of the ratio excludes revenues from those SOEs that also are servicing debt, namely, the Ports Authority. As Chart 3.2 demonstrates, by 2017/18 the proposed net debt servicing to total revenue will exceed this benchmark when repayment of the loan associated with the Rarotonga ring main loan commences.

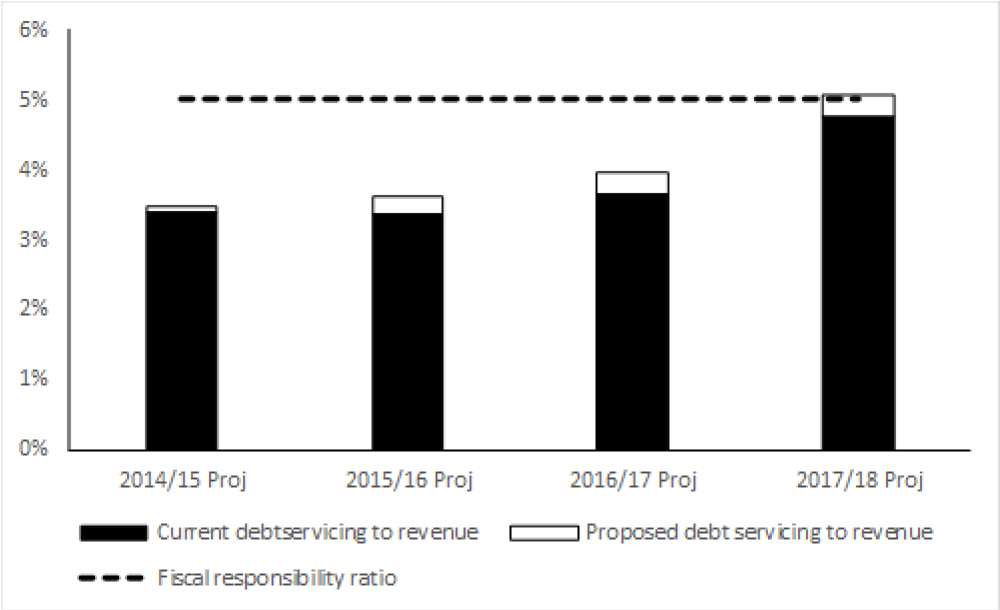
Including the proposed loan, estimated debt servicing ratio will increase to 3.5 per cent in 2014/15, before increasing to 5.1 per cent in 2017/18. Debt servicing falls in later years as the debt stock reduces.

Whilst this ratio is projected to be surpassed in 2017/18, there are considerations that need to be taken into account when concluding whether the net debt servicing ratio is a significant issue or not.

Firstly, the total debt servicing includes loans which are currently serviced by the Port Authority (the numerator) but the revenue portion (denominator) is limited to revenue earned by the General Government Sector, including the Port Authority revenue. Inclusion of these revenues reduces the rate from 3.5 per cent in 2014/15 to 3.4 per cent and from 5.1 per cent in 2017/18 to 5.0 per cent.

Secondly, there is a question at the appropriateness of five per cent level and whether it is in fact too low. An independent assessment undertaken by the ADB outlined that the debt servicing to revenue ratio was too conservative and inconsistent with the debt to GDP ratio and that a more reasonable and consistent ratio of debt servicing to GDP would be 10 per cent.[ii]

Chart 3.2 Net Debt as a proportion of Revenue



4 Current Debt Levels

Total gross debt owed by the Crown initially projected for June 2015 was $98.1 million at the time of the Pre-Election Economic Update (including the full obligation associated with Te Mato Vai). It is now estimated to be $93.7 million by 30 June 2015. Total net debt owed by the Crown (which includes the monies held in the LRF) at 1 July 2014 was $75.5 million, and is estimated to be $77.7 by 30 June 2015.

The variance compared to the 2014 PEFU was due to the delay in drawdown of the Rarotonga Water Ringmains Upgrade project ($6.4 million) now re-phased out to 2015/16, the finalisation of the debt conversion for the Avatiu Port Development loan (USD $13.3 million) and the Economic Recovery Support Program loan (USD $10 million) to New Zealand dollars (NZD) of $3.7 million and $1.6 million on foreign exchange gain.

Table 4.1 - Reconciliation on 2014/15 Loan Movement

Movement Reconciliation	$ Million
Initial estimated gross debt for 30 June 2015 (PEEFU)	98.1
Movement during the period	
Loan conversion adjustments	3.7
Delay in drawdown - Water/Road loan from China	-6.4
Unrealised exchange (gain)/loss	-1.6
Total movement during the period	-4.4
Estimated gross debt for year ending 30 June 2015	93.7

As at 1 July 2014 the Cook Islands currently had 21 outstanding loans with three lenders, these loans vary in amounts and maturity. Full details are provided in the table at Appendix 1. The denomination of the debt varies, but is held mostly in SDR (a composite currency of USD, GBP, JPY and EUR[iii]), NZD and RMB.

Total Crown debt as illustrated in Chart 3 is mainly denominated in SDR with 35 per cent, followed by NZD with 34 per cent, RMB with 32 per cent and two per cent denominated in Euro.[iv]

Recent actions by the Government has seen the total share of NZD denominated loans increasing to 34 per cent as a result of recently converted loans held with the ADB valued at USD $23.3 million (Ports Authority loan of USD $13.3 million and Economic Recovery Support Program (ERSP) tranche one of USD $10 million).[v]

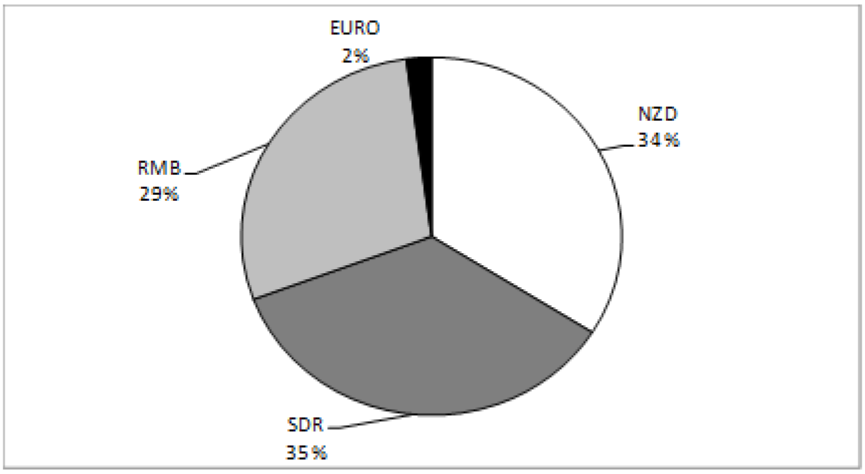
The action to convert the remaining principle on three loans with the ADB from USD to NZD whilst the NZD has been historically strong (at a weighted average rate of 0.8338USD) has locked in some significant gains on what was expected at the time of taking out the original loans as shown in Table 4.2. It is estimated that this has provided around $3.9 million in savings.

Table 4.2 – Impact of Recent Loan Conversions

	Denomination	Restructured Loan	Original Loan	Saving
Loan 2472	USD		8,419,792	
Avatiu Port Development	NZD	10,058,287	12,028,274	1,969,987
Exchange rate	NZD/USD	0.8371	0.7000	0.14
(Restructure as of 15 May 13)				
Loan 2739	USD		4,428,273	
Avatiu Port Amendment	NZD	5,290,016	5,751,004	460,987
Exchange rate	NZD/USD	0.8371	0.7700	0.07
(Restructure as of 15 May 13)				
Loan 2565	USD		9,166,667	
Economic Restructuring Programme	NZD	11,053,499	12,488,647	1,435,148

	Denomination	Restructured Loan	Original Loan	Saving
Exchange rate (Restructure as of 1 October 13)	NZD/USD	0.8293	0.7340	0.10
Total Original Loans	USD		22,014,731	
	NZD	26,401,802	30,267,924	3,866,122
Weighted Average Exchange Rate	NZD/USD	0.8338	0.7273	

Chart 4.1 Composition of Crown Debt estimated for 30 June 2015 by Currency

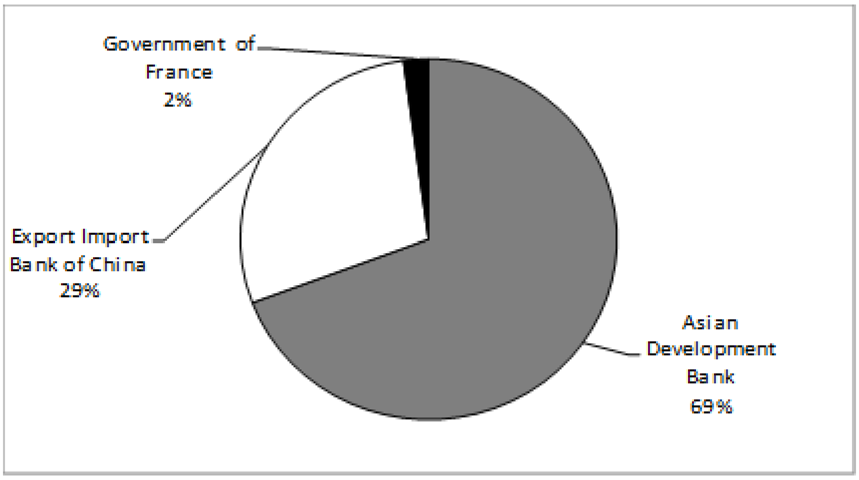


4.1 *Gross Debt by Lenders*

The majority of the Crown's borrowings rest with two lenders, the ADB and the Export Import bank of China (EXIM Bank; a state bank solely owned by the Chinese government and under the direct leadership of the Chinese State Council).

The Standard and Poor's credit rating for the ADB is AAA[vi] and for Exim Bank is AA- [vii]. By comparison, the Standard and Poor's credit rating for the Cook Islands was BB-.

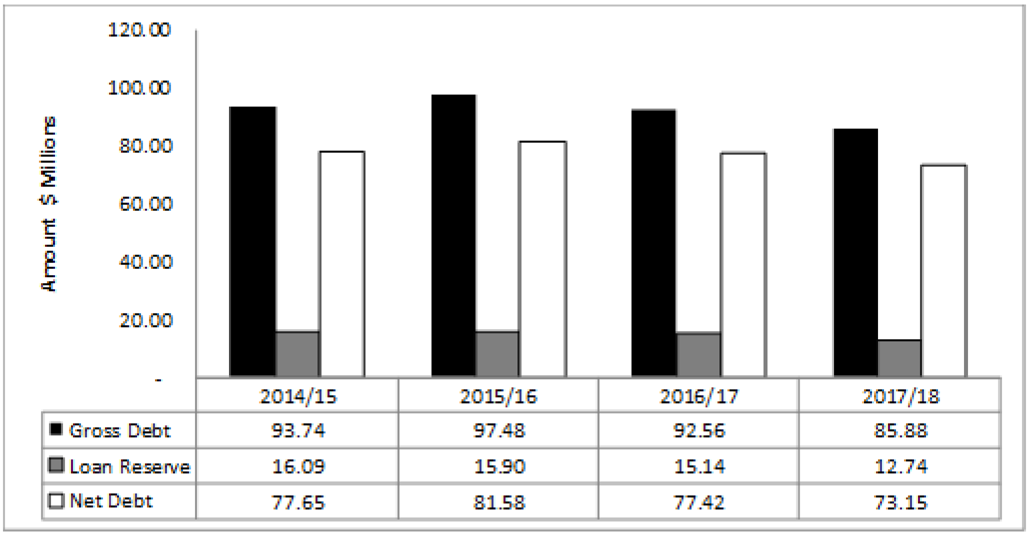
Chart 4.2 Gross Debt Estimates by Lenders as at 30 June 2015



4.2 *Crown Debt Outlook*

If no new debt was taken on by the Crown and exchange rates remain unchanged from current levels, then it is expected that total debt would gradually reduce as the principle is repaid and this impact is outlined in Chart 4.3.

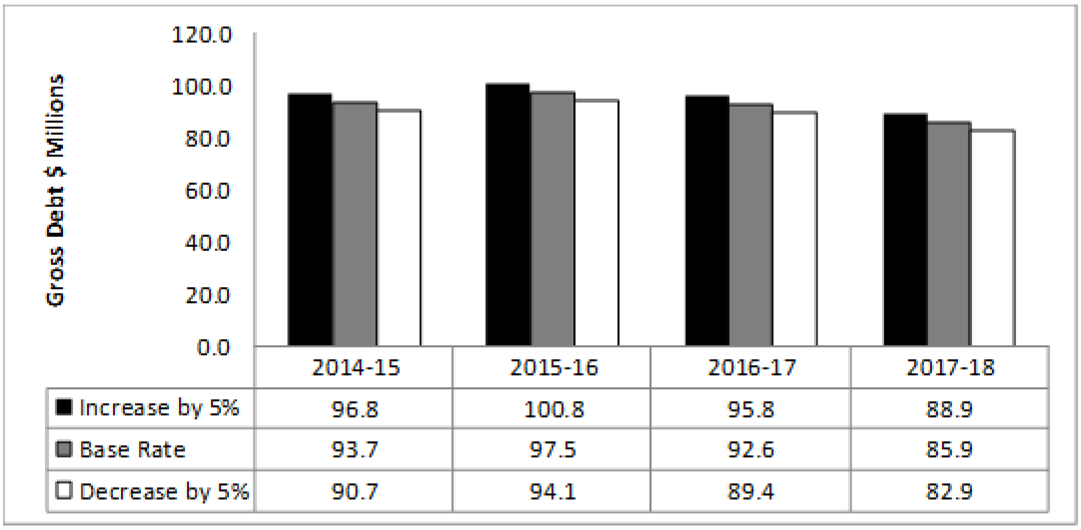
Chart 4.3 Cook Islands overall debt position outlook



	2014/15	2015/16	2016/17	2017/18
Gross Debt	93.74	97.48	92.56	85.88
Loan Reserve	16.09	15.90	15.14	12.74
Net Debt	77.65	81.58	77.42	73.15

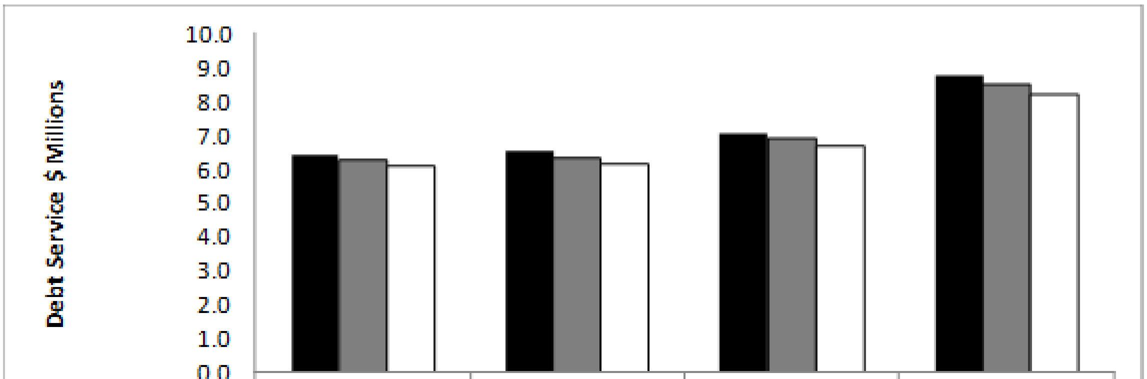
However, the largest risk to the stock of debt and the capacity to service the debt is the long term level of the New Zealand dollar. A sensitivity analysis undertaken by MFEM demonstrates the impact of a five per cent appreciation or depreciation in the New Zealand dollar on the level of gross borrowings. The outcomes of this analysis are shown at Chart 4.4 and on the debt servicing requirements at Chart 4.5.

Chart 4.4 Sensitivity of Total Crown Gross Debt



	2014-15	2015-16	2016-17	2017-18
Increase by 5%	96.8	100.8	95.8	88.9
Base Rate	93.7	97.5	92.6	85.9
Decrease by 5%	90.7	94.1	89.4	82.9

Chart 4.5 Sensitivity of Debts Servicing Costs

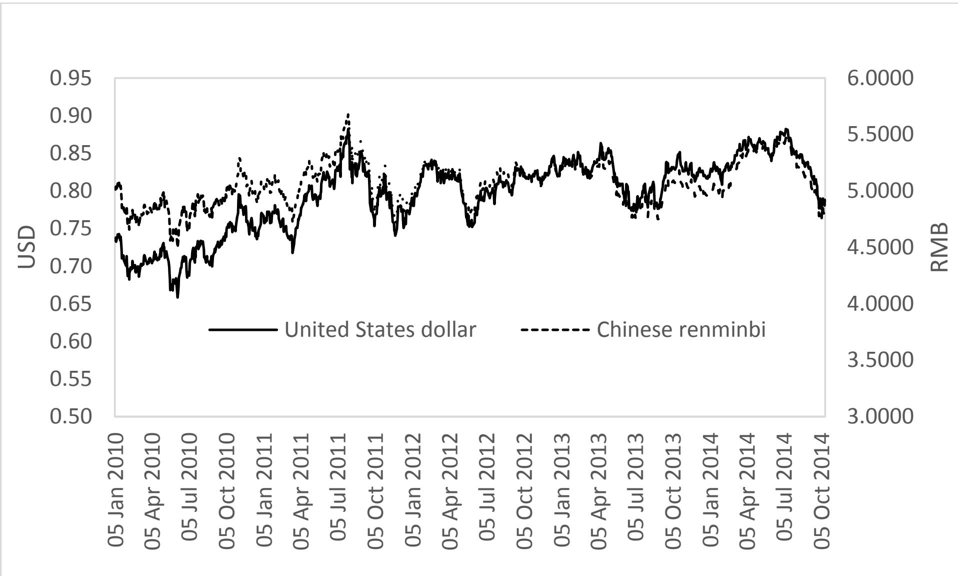


	2014-15	2015-16	2016-17	2017-18
Increase by 5%	6.4	6.5	7.1	8.8
Base Rate	6.2	6.3	6.9	8.5
Decrease by 5%	6.1	6.1	6.7	8.2

If the exchange rate was to depreciate by five per cent, total Crown debt would increase by an estimated $3.1 million and debt servicing costs would increase by $0.2 million per annum.

The NZD is an open and highly traded currency its value fluctuates as shown in Chart 4.6, of particular note is that in the recent period from July to early October 2014 the NZD has weakened from 0.876USD to 0.788USD, a 10 per cent decline. The linking of the RMB to the USD has seen this also impact the RMB/NZD exchange rate of 5.4345 to 4.8284, representing an 11 per cent decline.

Chart 4.6 USD/NZD and RMB/NZD Exchange Rate 2010 to Oct 2014



5 The Loan Repayment Fund

5.1 Creation of the Loan Repayment Fund

In 2001, an informal reserve was established to enable the Crown to access and subsequently on-lend concessional loans to State Owned Enterprises (SOEs). Repayment terms with the external lenders included a grace period (of normally five years) that was not extended to the SOEs. SOEs were required to service the average debt servicing cost at the initial point of drawing down the loan. These funds were subsequently set aside into a debt reserve.

In February 2014, the Parliament of the Cook Islands passed *the Cook Islands Loan Repayment Fund Act 2014* formally creating a Loan Reserve Fund (LRF). The effect of the LRF is to quarantine those monies previously accumulated from being utilised for anything outside of debt servicing requirements. It also legislated a framework for management of all sovereign public debt and ensures the timely allocation of money from the Budget and repayment as required of all sovereign debt held by the Crown.

At the time of this publication, the LRF has sufficient funds to fully cover all debts owed by on behalf of SOEs to lenders. These SOEs include the Bank of the Cook Islands, Te Aponga Uira as well as Telecom Cook Islands Limited.

MFEM, has put out to tender the analytical services and management of the LRF to local banking institutions, it is expected a formal commercial arrangement will be in place by January 2015.

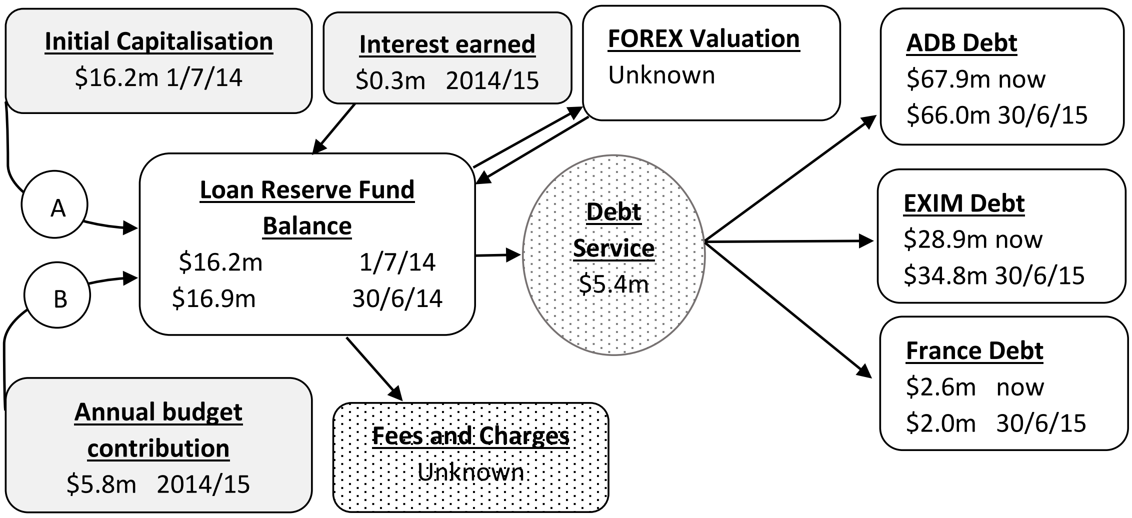
Table 5.1 Loan Repayment Fund Transactions

Debt Reserve Working	Transfer In	Transfer Out	Balance	SOEs Debt
Budgets 2005-2006			17,018	
2006-07 transfer to reserve	1,529	-	18,547	22,390
2007-08 transfer to reserve	1,287	-	19,834	23,497
2008-09 transfer to reserve	1,100	-	20,934	21,018
2009-10 transfer to reserve	1,100	-	22,034	18,465
2010-11 loan repayment	-	1,529	20,505	17,365
2011-12 loan repayment	-	1,429	19,076	16,177
2012-13 loan repayment	-	1,529	17,547	14,548
2013-14 loan repayment	-	1,336	**16,211**	13,347

5.2 Balance of the Loan Repayment Fund and Transactions

The amount put aside as the original loan fund had a balance of $16.2 million as at 30 June 2014. This balance will be transferred to capitalise the LRF. The LRF will have the capacity to invest in other currencies, but such investments will be limited to holding stocks of currency in which debt has been incurred (RMB, USD, EUR and SDR currencies). Ultimately, the value of the fund could be affected by net foreign exchange valuations. Figure 5.1 outlines the manner by which the LRF will operate.

Figure 5.1 Loan Repayment Fund Transactions



A	As at 30 June 2014, LRF balance of $16.2 million will be transferred as the fund's initial opening balance.
B	Annual contribution by Government will be the average of the total amortised debt repayment schedule revised annually for exchange movement and new debt.

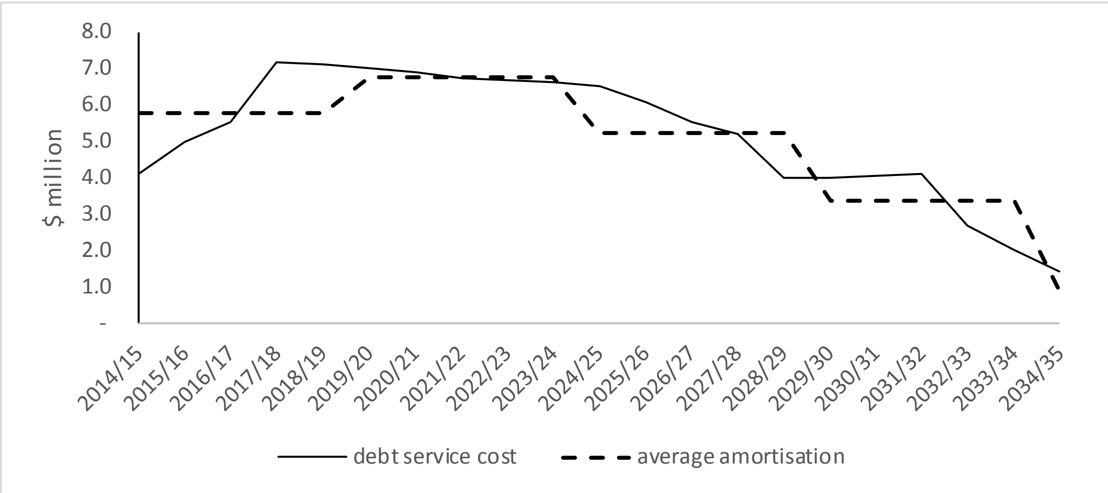
5.3 Long Run Amortisation of Debt and the Loan Repayment Fund

Table 5.2 estimates the movement of the LRF over the next four years, including the proposed new loan (terms are assumed to be similar to other ADB lending). The amount of $6.2 million transferred in annually is the total average amortised debt repayment for the Crown over a period of five years. This differs from the actual debt service which is the total amount transferred out of the LRF.

Table 5.2 Loan Repayment Fund Statement 2014/15

	2014/15	**2015/16**	**2016/17**	**2017/18**	**2018/19**
Opening LRF balance	16,211	16,436	16,400	15,702	13,368
Transfer in	6,230	6,230	6,230	6,230	6,230
Interest earned (avg 2%)	324	329	328	314	267
Total transfer in	6,554	6,558	6,558	6,544	6,497
Repayment from LRF balance					
Principal	1,200	1,227	1,253	1,253	968
Interest	125	114	103	92	81
Total repayment from LRF	1,325	1,341	1,356	1,345	1,049
Repayment of other debt					
Principal	3,092	3,065	3,664	5,425	5,479
Interest	1,912	2,189	2,235	2,108	1,980
Total repayment other debt	5,004	5,254	5,899	7,533	7,459
Other service fees	-	-	-	-	-
Proposed LRF stock balance	**16,436**	**16,400**	**15,702**	**13,368**	**11,358**

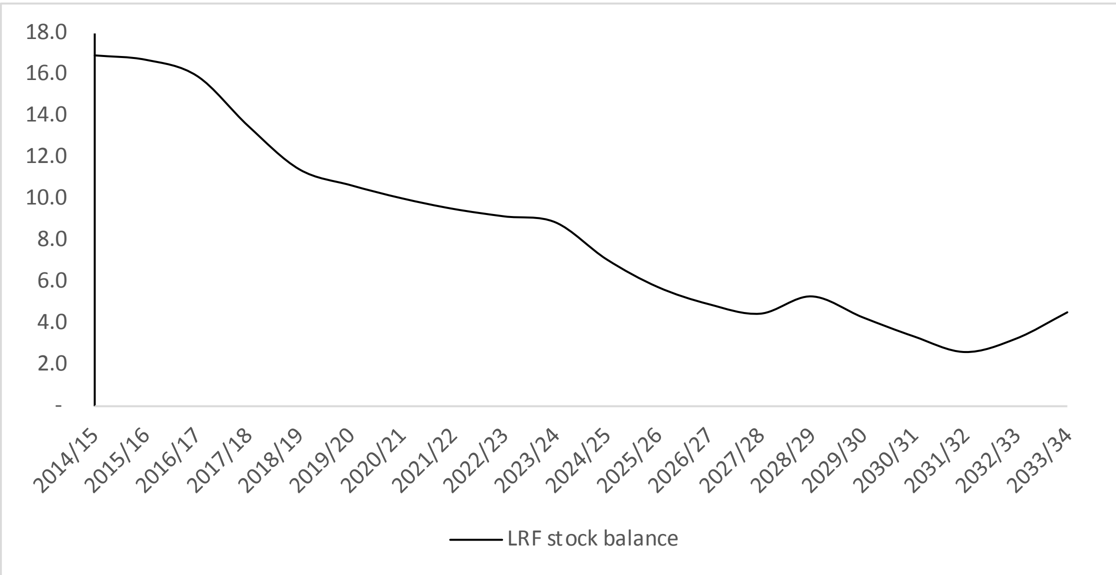
Chart 5.1 Debt servicing vs average amortisation – 20 years



As illustrated in Chart 5.1, the amount transferred into the LRF is revised up or down every five years depending on the level of debt servicing. This method smooths out the lumps in future cash requirements for actual debt servicing.

This annual amortised amount will be reviewed and adjusted annually to take into account changes to the stock of debt – including any new debt taken on by the Crown and significant changes to the exchange rate.

Chart 5.2 Movement in the LRF – 20 years



6 Proposed New Debt

The Government is preparing to take a $12.98 million loan from the Asian Development Bank's (ADB) ordinary capital resources (OCR) in conjunction with a European Commission (EC) grant of $8.37 million (equivalent to EUR 5 million) and $5.83 million of its own contributions (made up of land acquisition, tax and duties (exemption), and solar photovoltaic module procurement from the Japanese Pacific Environment Community (PEC) Fund managed by the Pacific Islands Forum Secretariat valued at approximately $4.2 million).

Table 6.1 Funding sources for the Renewable Energy Project in the Southern Group

Type of Source	$ m	% of Cost
Asian Development Bank Loan	12.98	48%
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Note : For the purposes of the activity the Cook Islands contribution also includes recognition of an amount of $4.6 million which is provided through the Japanese Government's Pacific Environment Community Fund which is managed by the Pacific Island Forum Secretariat.

Overall, the value of the project is $27.18 million and will

- support the construction of up to six solar photovoltaic power plants in the Cook Islands Southern group (Mauke, Mitiaro, Mangaia, Atiu, Aitutaki and Rarotonga) ;
- provide institutional strengthening to the Office of the Energy Commissioner (OEC) and Renewable Energy Development Division (REDD); and
- provide project management support to the power utilities, Te Aponga Uira (TAU), and REDD to implement core and non-core subprojects.

It is expected that the project will provide increased energy security in an environmentally sustainable manner. The outcome will be an increased access to a higher share of electricity generated by renewable energy sources. The project has two major outputs, solar photovoltaic power system development, and institutional strengthening and project management support.

6.1 Solar Photovoltaic Power System Development

The project will construct up to six solar photovoltaic power plants with a total installed capacity of about a three megawatt peak, coupled with advanced secondary battery energy storage installation, and rehabilitate the existing distribution network for core and non-core subprojects. The project will feature three core subprojects on Mangaia, Mauke, and Mitiaro and up to three non-core subprojects on Aitutaki, Atiu, and Rarotonga.

6.2 Institutional Strengthening and Project Management Support

The project will provide institutional strengthening to OEC and REDD in order that they may:

- Develop the energy efficiency policy implementation plan including an energy audit and monitoring scheme to enhance demand side energy efficiency management practices for targeted major electricity consumer groups;
- Develop capacity for renewable energy technology assessment and appropriate off-take tariff setting for power purchase agreements for private sector funded projects; and
- Update the Cook Islands renewable energy chart implementation plan (CIRECIP) through refining electricity load demand up to 2020, renewable technology choice, and least cost investment plan. The consultants to be engaged under this component will be the project owner's engineers (POE) who will also provide project management support for REDD and TAU to help implement core and non-core subprojects in the Southern group islands.

7 The Financial and Economic Analysis

The financial and economic analysis of the project was carried out by the ADB in conjunction with MFEM and OPM and is in accordance with the guidelines of the ADB. A full analysis is provided at http://www.adb.org/projects/documents/renewable-energy-sector-project-rrp. The following summarises the outcomes of the more detailed analysis.

7.1 Financial Analysis

All financial costs and benefits are expressed in 2014 prices. Cost streams used for calculating the financial internal rate of return (FIRR) are capital investment, and operation and maintenance, costs. The analysis quantifies costs and benefits for the subprojects on Mangaia, Mauke, and Mitiaro.

The financial costs include the:

- initial costs of the hardware and electrical works needed for the installation and integration of the solar photovoltaic plant in the respective island's electrical grid; and
- annual and periodic operation and maintenance (O&M)expenditures, including replacement of parts. Taxes and duties on capital and operational expenditure for the core subprojects in the outer islands are exempted by the government.

The financial benefits include avoided system losses due to transmission line rehabilitation and reduction in diesel fuel consumption resulting from displacement by solar photovoltaic generation.

If the financial internal rate of return (FIRR) is equal to or greater than the weighted average cost of capital (WACC) then a project is considered financially viable. A comparative assessment of the FIRR and FNPV was conducted under the following scenarios:

- construction delay of one year;
- increase in transmission losses by 3 per cent after refurbishment;
- reduction in solar generation by 10 per cent; (iv) increase in O&M costs by 10 per cent; and
- reduction in diesel cost by 10 per cent.

Under all scenarios, the FIRR for all the subprojects exceeds the WACC, and the financial net present value (FNPV) is positive. The analysis shows that all subprojects are most sensitive when the current diesel cost decreases by 10 per cent.

7.2 Economic Analysis

This economic analysis was carried out in accordance with the ADB guidelines for the economic analysis of projects. The analysis was conducted for a project life of 25 years plus the project implementation period of three years. The residual value at the end of the project life is assumed to be zero. All prices and costs are expressed in 2014 prices. Traded goods and services are multiplied by a shadow exchange rate factor (SERF) of 1.15. Non traded goods and services are assumed to reflect economic prices. Unskilled labour costs are multiplied by a shadow wage rate factor (SWRF) of 0.95. A discount rate of 12 per cent per annum is assumed.

The financial capital costs were converted to economic costs after deducting taxes, subsidies, and price contingencies, then applying the SERF and SWRF. The capital costs of the project include costs related to civil works, solar photovoltaic system, advanced battery storage, grid refurbishments, other associated costs, and physical contingency. These costs occur primarily during the construction period in the first three years of the project. The operation and maintenance (OM) costs, assumed to remain constant in real terms, comprise costs for maintenance, salaries, overheads, and administration expenses. The OM costs occur throughout the operational life of the project, which is 25 years, and also include replacement costs for batteries (every 15 years) and inverters (every 10 years)

The economic benefits of each subproject were estimated on the assumption that solar photo voltaic power generation will substitute current diesel generation, and any increase in demand will be met by diesel generation. The economic benefits include:

- avoided system losses due to rehabilitated transmission lines; and
- reduction in diesel fuel consumption due to displacement by solar photo voltaic generation.

Grid refurbishment is assumed to reduce transmission losses by 12 per cent, which is a net benefit. Benefits are also derived from the volume of diesel required to generate the equivalent amount of electricity displaced by solar photo voltaic generation, which is multiplied by the diesel price. Solar photo voltaic generation is assumed to decrease by 0.8 per cent annually.

The economic internal rate of return (EIRR) is the rate of return for which the present value of the net benefit stream is zero, or at which the present value of the benefit stream is equal to the present value of the cost stream. The economic net present value (ENPV) is the difference between the total social benefits and costs discounted at the economic cost of capital (ECC), which is assumed to be 12 per cent. The three core subprojects on Mangaia, Mauke, and Mitiaro achieve an EIRR at or above the ECC. Their aggregated EIRR is 13.7 per cent and the ENPV is NZ$1.89million.

8 The Lender

The ADB is a multilateral bank and major regional institution with USD 115 billion in assets and USD 98 billion, of which the Cook Islands is a small shareholder (0.003%). The last Standard and Poor's rating was undertaken in July 2014, it outlines:

- A stable outlook reflecting the ADB business profile which will remain anchored by larger borrowers treating the bank as a preferred creditor at least over the next 24 months.
- The ADB will continue to effectively execute its policy role while ensuring sustained financial support from shareholders through timely contributions to general capital increases.
- The stand-alone credit profile is 'aaa' reflecting the Standard and Poor's opinion that the ADB's business profile is "extremely strong" and its financial profile is "very strong".
- The business profile is assessed as extremely strong and is based on our view of the bank's policy importance to its shareholders and its governance and management expertise.

The ADB has provides borrowing through either through the:

- Asian Development Fund (ADF) includes funds provided by member countries for lending to poorer nations at very generous concessional rates.
- Ordinary Capital Resources (OCR) includes paid-in capital, retained earnings (reserves), and proceeds from debt issuance. OCR loans are generally made available to DMCs that have attained a higher level of economic development.

The Cook Islands has not been eligible to borrow from the ADF for some time now, and is proposing to borrow from the ADB's Ordinary Capital Resources (OCR) in New Zealand dollars.

The cost of the loan will be the three year NZD swap rate plus 0.5 per cent spread and a 0.15 per cent commitment charge.

9 Conclusion

The additional proposed new debt will take the total gross debt portfolio for the Crown to $114.7 million. Offsetting this is the LRF estimated to be $16.1 million by the end of 2014/15 resulting in a net debt position of $98.6 million (20 per cent of estimated GDP).

The net debt servicing as a proportion of Crown Revenue would become 3.4 per cent in 2014/15, and is estimated to surpass the threshold in 2017/18 (at 5.1 per cent) by 0.1 per cent. Whilst this breaches the debt servicing FRR, MFEM have outlined that this in itself does not represent a significant issue.

The proposed debt is contributing towards a $27.2 million investment in renewable energy which will see significant social and economic benefits.

The lender is a credible multilateral institution which has been a close partner with the Cook Islands since 1976.

The Ministry of Finance believes the borrowing is sustainable and recommends that the borrowing proceed.

Appendix 1 Projected Status of Government loans estimated at 30 June 2015[viii]

Loans drawn down	Date loan taken	Original loan amount (000)	Current balance (000) (NZD)	Expected date of repayment	Amount covered by LRF
ADB 461 (SF) Multi Project	November, 1980	SDR 1,000	524	August, 2020	-
ADB 567 (SF) CIDB Project	July, 1982	SDR 1,500	489	April, 2022	489
ADB 849 (SF) 2nd Multi-Project	December, 1987	SDR 2,067	1,806	August, 2027	1,806
ADB 1031 (SF) Outer Islands Telecom Project	October, 1990	SDR 3,541	4,280	August, 2030	4,280
ADB 1155 (SF) 2nd CIDB Project	March, 1992	SDR 939	1,079	December, 2031	1,079
ADB 1171 (SF) Emerg. Telecom Rehab Project	August, 1992	SDR 291	371	June, 2032	371
ADB 1309 (SF) Pearl Industry Dev. Project	December, 1994	SDR 336	416	August, 2034	-
ADB 1317 (SF) Educ'n Dev Project	February, 1995	SDR 1,836	2,535	August, 2034	-
ADB 1380 (SF) 3rd CIDB Project	January, 1996	SDR 1,538	2,127	September, 2035	2,127
ADB 1466 (SF) Economic Restructure Program	September, 1996	SDR 3,430	4,700	September, 2036	-
ADB 1588 (SF) Cyclone Emergency Rehab Project	January, 1997	SDR 475	788	January, 2038	-
Restructured French Loans	January, 1999	Euro 5,413	1,995	September, 2018	1,995
ADB 1832 (SF) Waste Mgt Project	December, 2001	SDR 1,695	2,143	June, 2033	-
ADB 2174 (SF) Cyclone Emergency Assist Project	June, 2005	SDR 1,895	3,644	June, 2045	-
China - Multi-Functional Indoor Sports Stadium	August, 2008	RMB 74,100	12,293	August, 2028	-
ADB 2472 (OCR) Avatiu Port Development Project*	September, 2009	NZD 10,058	9,796	November, 2033	-
ADB 2473 (SF) Avatiu Ports Development project	September, 2009	SDR 8,346	8,166	November, 2040	-
ADB 2565 OCR Economic Recovery Support Program 1*	January, 2010	NZD 11,053	9,546	October, 2024	-
ADB 2739 (OCR) Amendment Avatiu Port project*	December, 2011	NZD 5,290	5,290	November, 2035	-
China - Rarotonga Water Ring Main Upgrade	December, 2012	RMB 118,000	14,507	December, 2032	-
ADB 2565 OCR Economic Recovery Support Program 2	December, 2012	NZD 7,250	7,250	December, 2028	-
Total loans drawn down			**93,745**		**12,147**
Debt Committed but not yet drawn					
China - Rarotonga Water Ring Main Upgrade	December, 2012	RMB 118,000	8,025	December, 2032	-
ADB Renewable Energy Project	December, 2014	NZD 12,980	12,980	December, 2039	-
Total proposed new debt			**21,005**		**-**
Total loans commitment			**114,750**		**12,147**

10 References

[i] http://stats.oecd.org/glossary/detail.asp?ID=1138 Accessed 14 October 2014

[ii] http://www.mfem.gov.ck/docs/Admin/Cook%20Islands%20Macroeconomic%20Assessment%20(June%202013).pdf Accessed 14 October 2014

[iii] The SDR weighting is USD 41.9 per cent, JPY 9.4 per cent, GBP 11.3 per cent and EUR 37.4 per cent http://www.imf.org/external/np/tre/sdr/sdrbasket.htm accessed 14 October 2014

[iv] Base rate used for budget assumption with +/- five per cent

Foreign Exchange Currency	**-5%**	**Budget assumption base rate**	**+5%**
EURO	0.6663	0.6330	0.6029
USD	0.8916	0.8470	0.8067
RMB	5.4989	5.2240	4.9752
SDR	0.5832	0.5540	0.5276

[v] The exchange rate assumptions reflect the 10 day average exchange rates as at 14 August 2014 which were used for the purposes of producing the 2014/15 Budget documentation.

[vi] http://www.adb.org/sites/default/files/sp-report.pdf Accessed 14 October 2014
[vii] http://www.reuters.com/article/2012/11/30/idUSWLB151420121130 Accessed 14 October 2014

[viii] The loans marked with an asterix contain the original date the loan was taken out, however the original amount was in either USD or NZD, and has been subsequently converted.