



CHAPTER 7

STRATEGIC CONSIDERATIONS

Nullinga Dam and Other Options Preliminary Business Case



CONTENTS

7	STRATEGIC CONSIDERATIONS	2
7.1	Purpose	2
7.2	Queensland Government	2
7.3	Australian Government	6
7.4	Local Government	9
7.5	Conclusion	10

TABLES

Table 1	Service Need and Shortlisted Options Alignment with Government Policies and Programs	10
---------	--	----

FIGURES

Figure 1	Water Supply Schemes in Queensland with Unallocated Supplemented Water Available	4
----------	--	---



7 STRATEGIC CONSIDERATIONS

CHAPTER SUMMARY AND CONCLUSIONS

- A review of Queensland Government, Australian Government and relevant local government plans, programs and policies was conducted against the identified service need and shortlisted options.
- The service need and shortlisted options are considered to align with the strategic objectives of various plans, programs and policies, including:
 - Queensland Government
 - State Infrastructure Plan
 - Project Assessment Framework
 - Far North Queensland Regional Water Supply Strategy
 - Cairns Regional Water Supply Security Assessment
 - Queensland Agricultural Land Audit
 - Advancing North Queensland
 - Reef 2050 Plan
 - Australian Government
 - Australia Infrastructure Plan
 - Northern Australia Audit
 - Developing Northern Australia White Paper
 - National Water Initiative
 - National Water Infrastructure Development Fund
 - National Water Infrastructure Loan Facility (NWILF)
 - Reef 2050 Plan
 - Local Government
 - Cairns Regional Council: Our Water Security.

7.1 Purpose

This chapter considers how the identified service need and shortlisted options align with, or contribute to, the strategic objectives of the Queensland Government, Australian Government and relevant local government plans, programs and policies.

7.2 Queensland Government

7.2.1 Infrastructure

7.2.1.1 State Infrastructure Plan

The SIP outlines the strategic direction for the planning, investment and delivery of infrastructure in Queensland. The SIP identifies what the government ultimately wants from its infrastructure and how this



can best be achieved and is designed to provide confidence and certainty to business, industry and the community.

The SIP outlines the following outcomes the Queensland Government is seeking to achieve in relation to investment in the 'water' asset class:

- water supply infrastructure is in place or in train where there is a sound business case and water resources are available
- appropriate solutions, including demand management, are evaluated and implemented after the water needs of local government have been assessed in partnership with the state
- greater use of recycled water has been encouraged by state policies, where it is fit-for-purpose and economically viable
- water demand and the effects of stormwater and sewerage discharge on the environment has been minimised, the effects of flooding mitigated and reuse of water maximised through urban design
- State dams are safe during extreme climate events
- water is regarded as a valuable finite resource and the impact on availability and cost of water use behaviours is recognised by Queenslanders
- the water management and trading framework maximises the efficient use of water and water infrastructure.

The SIP also sets out an approach to options assessment and prioritising further infrastructure projects.

The service need and shortlisted options are considered to align with the aspects of the SIP above by recognising the initiatives in the Cairns Water Security Strategy to meet future water demand in Cairns, and by providing a range of solutions to the opportunity to increase agricultural production in the Atherton Tablelands region, including consideration of water trading, reform and better use of existing infrastructure.

7.2.1.2 Project Assessment Framework

The Project Assessment Framework (PAF) is used across the Queensland Government to ensure a common, rigorous approach to assessing projects at critical stages in their lifecycle, from the initial assessment of the service required, through to delivery.

This PBC is aligned with the PAF process by being completed in accordance with the Building Queensland Business Case Development Framework. The BCDF supplements the Project Assessment Framework by providing detailed guidance on how to complete the assessments required to develop robust business cases, in line with the PAF.

7.2.2 Water Policy

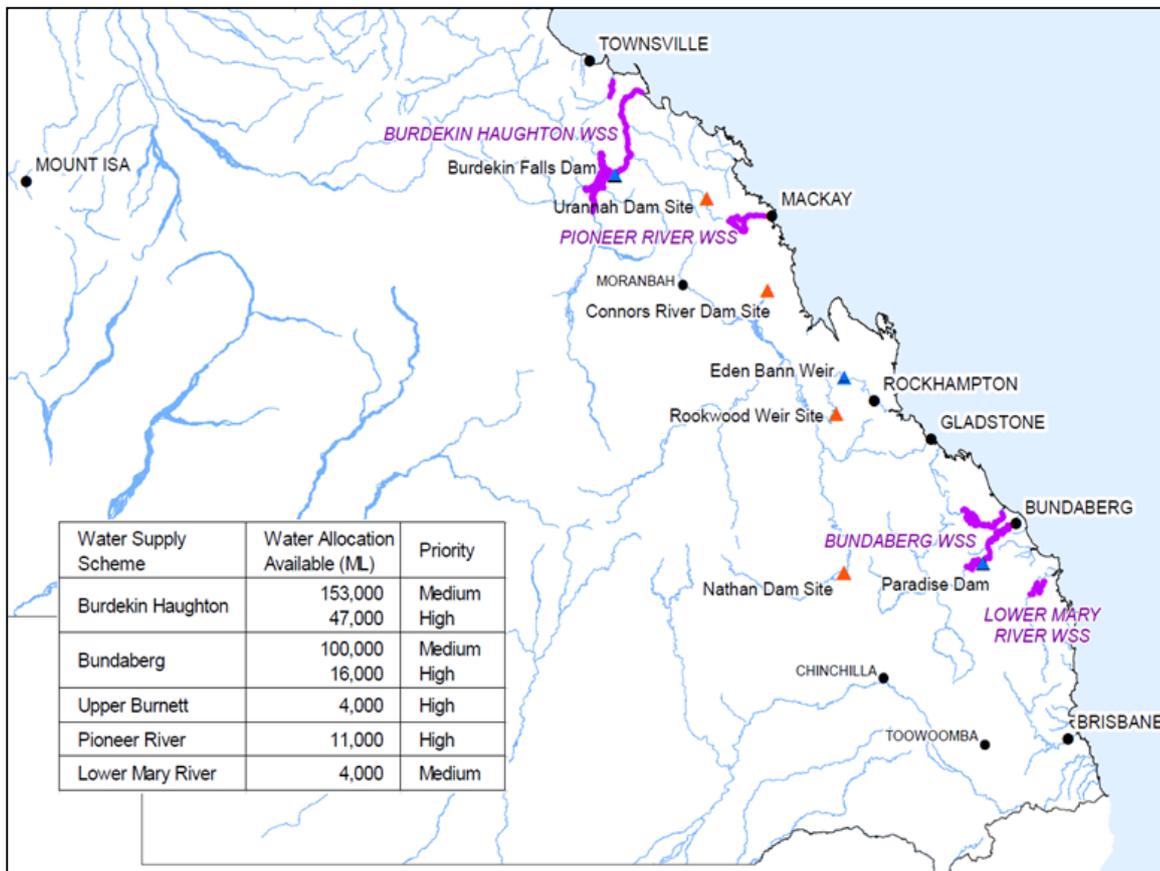
7.2.2.1 Regional Bulk Water Supply Infrastructure

SunWater is responsible for Queensland's regional network of bulk water supply infrastructure outside the South East Queensland area. SunWater's infrastructure supports around 5,000 customers across the mining, power generation, industrial, local government and irrigated agriculture sectors.

Within the SunWater network, there are currently a number of areas within Queensland which have unallocated supplemented water (i.e. available for purchase). These include the water supply schemes in Figure 1. In particular, Paradise Dam (constructed in 2005) in the Bundaberg Water Supply Scheme has underutilised capacity and uptake of water usage has not reached anticipated levels.



Figure 1 Water Supply Schemes in Queensland with Unallocated Supplemented Water Available



Source: SunWater

7.2.2.2 Far North Queensland Regional Water Supply Strategy

The Far North Queensland Regional Water Supply Strategy (FNQRWSS) was released in 2010. At the time, the FNQRWSS provided guidance for management of and planning for future urban, rural and industrial water needs in Far North Queensland while seeking to achieve optimal environmental, social and economic outcomes.

The FNQRWSS considered existing water supply arrangements in the region and sought to identify the most effective ways of meeting the region’s future water supply needs. The FNQRWSS indicated the future water supply shortfall for Cairns was expected to be met by:

- demand management strategies that target a reduction in per capita consumption
- development of local solutions
- alternative water sources such as desalination and fit-for-purpose recycled water and storm water reuse
- access to strategic reserve in Barron River and/or purchase supplemented water from the MDWSS
- further investigation of additional storage sites such as Nullinga Dam to be considered after portfolio of demand and supply side options to meet future requirements have been exhausted.

The FNQRWSS outlined the future potential water supply shortfall for agriculture in the region may be met by:

- on farm efficiency gains



- water trading of sleeper and dozer entitlements
- efficiency improvement in the MDWSS distribution network
- new storages such as Nullinga Dam – subject to a viable business case and necessary approvals.

The PBC has considered the initiatives identified in the FNQRWSS as part of the identification of the service need and the development of the shortlisted options. It is considered that the shortlisted options align with the initiatives set out in the FNQRWSS by incorporating a number of those initiatives in the shortlisted options.

7.2.2.3 Cairns Regional Water Supply Security Assessment

DEWS, in partnership with CRC, released the Cairns Regional Water Supply Security Assessment (Cairns RWSSA) in October 2014. The Cairns RWSSA represented a collaborative approach between DEWS and CRC to establish a shared understanding of the existing security of water supply in Cairns and the capacity to support future growth.

The Cairns RWSSA considered a number of growth scenarios to identify the timing and magnitude of potential water supply risks. It undertook detailed hydrological assessments of the performance of Copperlode Falls Dam and Behana Creek and concluded that, under existing water demands, Cairns could expect to experience Level Four restrictions approximately once every 100 years.

The Cairns RWSSA provided valuable information to the community and water supply planners about the water supply security for Cairns, and provided a foundation for future water supply planning. CRC has continued to review its water demand forecasts considering updated population projections and demand management initiatives.

Building Queensland has worked closely with DEWS and CRC to understand current and future urban water requirements in Cairns. Building Queensland has followed the Cairns RWSSA in developing the service need and shortlisted options for consideration in the PBC, particularly, the conclusion there is no urban water supply problem for Cairns to be addressed in the PBC.

7.2.3 Agriculture

7.2.3.1 Queensland Agricultural Land Audit

The Queensland Agricultural Land Audit was released in May 2013. The Queensland Agriculture Land Audit identifies land important to current and future agricultural production and the constraints to development; and helps to guide investment in the agricultural sector and inform decision making to ensure the best use of our agricultural land in the future.

Chapter Six of the Queensland Agricultural Land Audit covers Far North Queensland and identified significant areas of land suitable for irrigated agriculture. The MDWSS is recognised as a strength of the region, with 25,000 hectares of irrigated agriculture. The Queensland Agricultural Land Audit found many undeveloped areas within the existing scheme with the potential for horticultural production that are favourable for development.

The shortlisted options align with the findings of the Queensland Agricultural Land Audit, having identified significant areas within and adjacent to the existing scheme suitable for future agricultural production, including high-value horticultural production.



7.2.4 Planning

7.2.4.1 Advancing North Queensland

Advancing North Queensland: Investing in the Future of the North was released in June 2016. The strategy outlines five priority areas the Queensland Government will focus on to drive economic development in the region: roads infrastructure, water security, research and innovation, tourism, trade and investment and North Queensland Stadium.

Advancing North Queensland acknowledges water security and water infrastructure are critical to sustain agricultural industries and boost regional development. The Queensland Government committed to progressing feasibility studies funded by the Australian Government under the NWIDF, including this PBC, and continuing to produce Regional Water Supply Security Assessments and working with councils at risk of running out of water due to drought.

The service need and shortlisted options examine the need for potential new water infrastructure for agricultural purposes and support the water security priority area of Advancing North Queensland.

7.3 Australian Government

7.3.1 Infrastructure

7.3.1.1 Australian Infrastructure Plan

The Australian Infrastructure Plan sets out the infrastructure challenges and opportunities Australia faces over the next 15 years and the solutions required to drive productivity growth, maintain and enhance the nation's standard of living and ensure that Australian cities remain world-class. It highlights that infrastructure investment in Northern Australia should enhance our regional productive capacity to take advantage of growing demand for our produce in South-East Asia and China. At the same time, regulatory frameworks and operational arrangements should be aligned with any new infrastructure investments to maximise potential productive capacity.

The Australian Infrastructure Plan notes that successful irrigated agriculture is dependent on producers having access to reliable and secure water resources and that regional water infrastructure that supports irrigated agriculture faces particular challenges because of the increasingly variable climate, growing demand and difference in the ability or willingness to pay. It also notes that the flexibility and autonomy offered by water trading has facilitated the movement of water to higher value uses and increased agricultural production.

The shortlisted options align with the findings of the Australian Infrastructure Plan by considering a range of potential initiatives to increase agricultural production.

7.3.1.2 Northern Australia Audit – Infrastructure for a Developing North

The Northern Australia Audit: Infrastructure for a Developing North was published in 2015 and assessed critical economic infrastructure gaps and requirements to meet projected Northern Australia population and economic growth through to 2031.

The Northern Australia Audit found that water availability varies dramatically in Northern Australia and highlighted significant challenges, including limited existing infrastructure, which are likely to affect the development of Northern Australia. It concluded that for prospective agricultural developments there may be a range of potential water supply options, by which case-by-case evaluation is important, including water trading, expansion of existing irrigation areas and planning new dams.



The shortlisted options align with the findings of the Northern Australian Audit by considering a range of solutions to access new water supplies to provide economic and social benefits to the Tablelands region.

7.3.1.3 White Paper on Developing Northern Australia

The Our North, Our Future: White Paper on developing Northern Australia was released in June 2015. The White Paper outlines the Australian Government's vision for the future of Northern Australia and identifies actions over the next 20 years to unlock the North's full potential.

The development of the right water infrastructure in the right areas is considered key to realising the vision set out in the White Paper. The White Paper announced the establishment of the NWIDF and committed up to \$5 million from the NWIDF to assess the economic feasibility of Nullinga Dam, along with other projects. The White Paper also announced the \$5 billion Northern Australia Infrastructure Facility, providing concessional finance to encourage private sector investment in northern Australia.

The shortlisted options consider Nullinga Dam and other options to address the service need of the opportunity for expansion of irrigated agriculture in the Tablelands region in Northern Australia. This PBC represents progress towards realising the vision set out in the White Paper by considering the economic feasibility of Nullinga Dam and whether it is the right water infrastructure to unlock the potential of northern Australia.

7.3.2 Water

7.3.2.1 National Water Initiative

The Australian Government and each of the States and Territories are parties to the Intergovernmental Agreement on a National Water Initiative (NWI). The NWI is the national blueprint for water reform and represents a shared commitment by governments to increase the efficiency of Australia's water use, leading to greater certainty for investment and productivity, for rural and urban communities, and for the environment. The NWI has driven reforms for better water management and use through changes to planning frameworks, water access entitlements, water markets, water pricing, water use efficiency and the integrated management of water.

Pricing Principles have been agreed pursuant to the NWI Agreement and include 'Principle 1: Cost recovery for new capital expenditure', which applies to rural surface and groundwater based systems.¹ For new or replacement assets, Principle 1 generally provides that charges will be set to achieve full cost recovery of capital expenditure (net of transparent deductions/offsets for contributed assets and developer charges and transparent community service obligations) through either:

- a return of capital (depreciation of the Regulated Asset Base (RAB)) and return on capital (generally calculated as rate of return on the depreciated RAB)
- a renewals annuity and a return on capital (calculated as a rate of return on an undepreciated asset base (Optimised Replacement Cost (ORC)))

The shortlisted options have considered the NWI Pricing Principles, including the proposed approach to capital investment and lower bound and upper bound pricing.

7.3.2.2 National Water Infrastructure Development Fund

The objective of the NWIDF is to undertake detailed economic planning to inform water infrastructure investment decisions and expedite the construction of water infrastructure. It aims to help secure the

¹ NWI Principle Principles: Principle 1: Cost recovery for new capital expenditure, paragraph 13.



nation's water supplies and deliver regional economic development benefits for Australia by providing access to secure and affordable water to underpin growth in irrigated agriculture, while also protecting our environment. The NWIDF is separated into a feasibility component and a capital component.

Feasibility Component

The NWIDF feasibility component is comprised of \$59.5 million to fund feasibility studies into new water infrastructure across Australia, with funding available over four years from 1 July 2015 to 30 June 2019.

The feasibility component aims to help governments and industry make decisions based on evidence about the best sites for new water infrastructure, and accelerate the completion of thorough business cases. The feasibility assessments also aim to confirm sufficient demand from users to meet the ongoing costs of water supply, so farmers are not burdened with ongoing operational and maintenance costs they cannot afford over the longer term.

Capital Component

The NWIDF capital component is comprised of \$440 million to facilitate the construction of new water infrastructure, with funding available over 8 years from 1 July 2017 to 30 June 2025.

The Australian Government announced \$247.5 million in funding commitments during the 2016 Federal Election. An Expression of Interest (EOI) process is underway to allocate the remaining \$192.5 million, with \$40 million available for infrastructure located in Northern Australia. Applications through the EOI process must be made by the State or Territory government and have the support of the Minister responsible for water, and are subject to a number of eligibility criteria, including:

- matching funding commitments approved by the State or territory
- ready to progress to construction, with all relevant Australian Government and Queensland government approvals in place
- supported by a clear and credible business case demonstrating economic viability over its proposed operational life
- commitment to implementation of NWI consistent management of water resources in the catchment where the infrastructure is proposed.

The EOI Guidelines exclude some activities from receiving funding, including dam safety upgrades and water infrastructure primarily for urban and potable use.

It is considered the shortlisted options align with the objectives of the NWIDF to undertake detailed economic planning to inform water infrastructure investment decisions and stimulate regional economic development benefits. As indicated above, the Nullinga Dam was allocated up to \$5 million to develop a detailed economic feasibility assessment. The shortlisted options include the Nullinga Dam option and consider the feasibility of this option and other options to meet the identified service need for the region, and whether further investigation into Nullinga Dam is warranted at this time.

In March 2017, the Queensland Government and SunWater submitted an Expression of Interest application to the NWIDF seeking a capital contribution towards several of the sub-projects in Option 3 to modernise the existing MDWSS distribution system. If it proceeds, the Nullinga Dam option may seek funding consideration from the Australian Government for a portion of the capital component of the NWIDF, subject to meeting the relevant conditions. An application for funding consideration from the Australian Government for Nullinga Dam is unlikely in the short term, as Nullinga Dam is a number of years away from having the necessary approvals and other conditions required before construction could commence.



7.3.2.3 National Water Infrastructure Loan Facility (NWILF)

The \$2 billion NWILF provides State and Territory governments with concessional loans to co-fund the construction of water infrastructure.

The NWILF is designed to assist State and Territory governments to co-invest in vital water infrastructure. Funding aims to accelerate the construction of major water infrastructure projects such as dams, weirs, pipelines and managed aquifer recharge projects to provide affordable and secure water supplies to support the growth of regional economies and communities across Australia.

The NWILF Investment Guidelines set out the investment priorities for the loan facility which closely align with the eligibility criteria for the NWILF: at least a 51 per cent funding commitment approved by the State; and preference is given to water storage infrastructure, including the construction of dams and weirs that deliver broad public benefits, including through increasing regional water availability and security for water users.

The shortlisted options align with the objectives of the NWILF by investigating the delivery of broad public benefits through expansion of the existing irrigation scheme or new bulk water supply such as Nullinga Dam, with ensuing economic growth for the region. If it proceeds, the Nullinga Dam option may be eligible to access the NWILF, subject to meeting the relevant conditions. However, Nullinga Dam is a number of years away from having the necessary approvals and other conditions required before construction could commence.

7.3.2.4 Reef 2050 Plan

The Reef 2050 Plan was released by the Australian and Queensland Governments in March 2015. The plan is the overarching framework for protecting and managing the Great Barrier Reef until 2050 and outlines management measures for the next 35 years to ensure the outstanding universal value of the Reef is preserved now and for generations to come.

The potential impact of the shortlisted options on the objectives of the Reef 2050 Plan has been considered. The environmental impacts from the Nullinga Dam option on the Great Barrier Reef are expected to be minimal as the Walsh River, as a tributary of the Mitchell River, flows into the Gulf of Carpentaria (which is not part of the Great Barrier Reef or included in the Reef 2050 plan) and associated irrigated agriculture is likely to be located adjacent to the Walsh River. Improvements to the MDWSS rules and operation and modernisation of the MDWSS and conversion of losses may result in a marginal increase in agricultural production, with associated water quality impacts on the Barron River.

7.4 Local Government

7.4.1 Cairns Regional Council

7.4.1.1 Our Water Security: Water Security Strategy

CRC released the Cairns Water Security Strategy in 2015. This document sets out a preferred strategy for implementing a series of short, medium and long-term initiatives to address the future demand for water in Cairns over the next 30 years. The conversion of losses from the MDWSS and Nullinga Dam are identified in the Water Security Strategy as long-term options, subject to further investigation of availability, impact and cost.

The Water Security Strategy is subject to annual review. Building Queensland has consulted closely with CRC to determine the current status of the various initiatives in the Cairns Water Security Strategy and its



updated demand profile. The service need identification and shortlisted options are considered to align with CRC’s 2016 annual review of its Water Security Strategy.

7.5 Conclusion

The review of relevant government programs and policies has concluded that the identified service need and shortlisted options align with, and contribute to, the strategic objectives of various plans and programs of the Queensland Government, Australian Government and CRC. A summary of the alignment is outlined in Table 1.

Table 1 Service Need and Shortlisted Options Alignment with Government Policies and Programs

DOCUMENT	ALIGNMENT
QUEENSLAND GOVERNMENT	
State Infrastructure Plan	The service need and shortlisted options recognise the outcomes sought in the SIP from the ‘water asset’ class and provide a range of solutions to the opportunity to increase agricultural production in the Tableland region, including water trading, reform and better use of existing infrastructure options.
Far North Queensland Regional Water Supply Strategy	Initiatives identified in the FNQRWSS have been considered as part of the identification of the service need. The shortlisted options align with the initiatives set out in the FNQRWSS by incorporating a number of those initiatives in the shortlisted options.
Cairns Regional Water Supply Security Assessment	Development of the service need and shortlisted options has considered the Cairns RWSSA to understand current and future urban water requirements in Cairns.
Queensland’s Agricultural Land Audit	The shortlisted options align with the findings of the Queensland Agricultural Land Audit, having identified significant areas within and adjacent to the existing scheme suitable for future agricultural production, including high-value horticultural production.
Advancing North Queensland	The service need and shortlisted options examine the need for potential new water infrastructure for urban and agricultural purposes and support the water security priority area of Advancing North Queensland.
Reef 2050 Plan	Potential impact of the shortlisted options on the objectives of the Reef 2050 Plan has been considered. Environmental impacts from the Nullinga Dam option on the Great Barrier Reef are expected to be minimal as the Walsh River, as a tributary of the Mitchell River, flows into the Gulf of Carpentaria and associated irrigated agriculture is likely to be located adjacent to the Walsh River. Improvements to the MDWSS rules and operation and modernisation of the MDWSS and conversion of losses may result in a marginal increase in agricultural production, with associated water quality impacts on the Barron River.
AUSTRALIAN GOVERNMENT	
Australian Infrastructure Plan and Northern Australia Audit	Shortlisted options align with the findings of the Australian Infrastructure Plan and Northern Australia Audit by considering a range of potential initiatives to increase agricultural production.
White Paper on Developing Northern Australia	Shortlisted options show progress towards realising the vision set out in the White Paper by considering the economic feasibility of Nullinga Dam and whether it is the right water infrastructure to unlock the potential of northern Australia.
National Water Initiative	Shortlisted options have considered the NWI Pricing Principles, including the proposed approach to capital investment and lower bound and upper bound pricing.



DOCUMENT	ALIGNMENT
National Water Infrastructure Development Fund	Shortlisted options align with the objectives of the NWIDF to undertake detailed economic planning to inform water infrastructure investment decisions and stimulate regional economic development benefits. The Nullinga Dam was allocated up to \$5 million from the feasibility component to develop a detailed economic feasibility assessment. An application has been made under the capital component for the conversion of losses option. If it proceeds, the Nullinga Dam option may be eligible to access the capital component of the NWIDF, subject to meeting the relevant conditions.
National Water Infrastructure Loan Facility	Shortlisted options align with the objectives of the NWILF by investigating the delivery of broad public benefits through expansion of the existing irrigation scheme or new bulk water supply such as Nullinga Dam, with ensuing economic growth for the region. If it proceeds, the Nullinga Dam option may be eligible to access the NWILF, subject to meeting the relevant conditions.
Reef 2050 Plan	See above.
LOCAL GOVERNMENT	
Our Water Security—Water Security Strategy (CRC)	Service need and shortlisted options have considered the Cairns Water Security Strategy in detail and align with CRC’s 2016 annual review of the strategy.