



Building the infrastructure of the 21st century

The Government will invest in reliable, efficient and cost-effective infrastructure to support the development and growth of the agriculture sector.



CHAPTER TWO

Building the infrastructure of the 21st century

Action 2 Identifying priority infrastructure projects to underpin the productivity and efficiency of agriculture

2A Securing Australia's water supplies

The Government will secure water supplies for the growth and development of agriculture by supporting the development of new and improved water infrastructure. We will continue to work with States and Territories to support the development of efficient water markets, and viable water infrastructure, to allow for the productive use of Australia's water supplies.

The Government will build on existing water infrastructure commitments in the Murray–Darling Basin and in Tasmania by **investing a further \$500 million in developing the nation's water infrastructure**. We are establishing the National Water Infrastructure Development Fund. The fund includes \$50 million to support the detailed planning necessary to inform future water infrastructure investment decisions; and \$450 million to construct water infrastructure in partnership with State and Territory governments and industry. This includes a northern component of up to \$200 million for water infrastructure and better water resource information as announced in the White Paper on Developing Northern Australia.

2B More efficient transport infrastructure for agriculture

The Government will improve Australia's economic future and living standards by investing in our transport infrastructure. Infrastructure investment will improve the reliability, efficiency and accessibility of transport that underpins our competitive, regionally-based and export-orientated agriculture industries.

The Government has committed to invest \$50 billion for current and future infrastructure requirements, \$42 billion of which will be for the Infrastructure Investment Programme to build the road and rail infrastructure of the 21st century. Investments commenced include upgrades to national highways linking agricultural regions to their markets, as well as safety upgrades and widening of Australia's north–south freight corridor from Cairns to Melbourne.

The Government recently announced a **\$5 billion Northern Australia Infrastructure Facility** to support investment in northern Australia infrastructure projects. We also announced a new **\$100 million Northern Australia Beef Roads Fund**, to improve cattle supply chains in northern Australia and **\$600 million for projects on key roads in northern Australia**, which will leverage funding from the Northern Territory, Western Australia and Queensland.

It is important that the Government's substantial infrastructure investment is appropriately targeted to get the best value for our farmers. \$1 million will be invested to **improve the CSIRO's TRANsport Network Strategic Investment Tool (TRANSIT)** to identify opportunities for supply chain optimisation and future infrastructure investments. The results will assist State, Territory and local governments to plan their road transport systems to meet the existing and future needs of the agriculture sector. TRANSIT will analyse freight flows and costs across 25 major agricultural commodities to identify transport bottlenecks and pinch points, which will reduce industry costs and improve profitability.

2C Better mobile phone and internet coverage

Many rural areas do not have access to the mobile phone and internet services that are taken for granted in urban Australia. Reliable mobile phone and internet coverage is critical for the future growth of Australia's agriculture sector. Today's trading environment requires real-time access to, and sharing of, information. Enhancing mobile coverage in regional and remote areas also has clear social and economic benefits.

In addition to the \$100 million investment in addressing mobile coverage issues, the Government is **investing a further \$60 million in the Mobile Black Spot Programme**. This investment will be targeted at regional and remote communities that do not currently have reliable mobile coverage. Funding will improve coverage of high-quality mobile voice and wireless broadband services in rural areas, empowering agribusiness to take greatest advantage of the digital age.

The Government is also making an **equity investment of \$29.5 billion towards constructing the National Broadband Network (NBN)**. The NBN will deliver access to very fast, reliable and affordable broadband services to rural Australians.

Securing Australia's water supplies

Australia is the driest inhabited continent on earth (ABS 2013c). Australian farmers work in diverse conditions: ranging from northern Australia where groundwater is a particularly valuable resource given the high evaporation rates, to southern Australia which has a long history of irrigated agriculture. Efficient use of rainfall and available water supplies is critical to the continued profitability and productivity of Australian agriculture, while also ensuring the needs of the community and the environment are met.

Water is the most basic input to food and natural fibre production. While much of Australian extensive cropping and livestock production is based on rainfall, in 2012–13 irrigated agriculture accounted for 28 per cent of gross value of agricultural production but used less than 1 per cent of agricultural land (ABS 2014b, 2014c). In that year, the agriculture sector accounted for 65 per cent of Australia's water consumption (ABS 2014c). Irrigation is particularly important in the dairy, cotton, rice, sugar and horticultural industries. Further development of agriculture in northern Australia will also require more reliable access to water throughout the year.

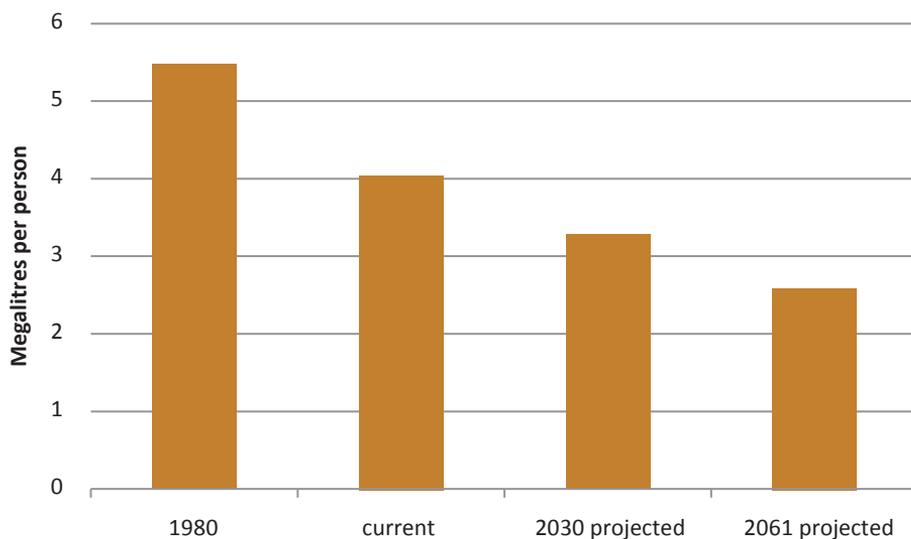
The amount of water storage capacity per person in Australia is currently 4 megalitres (Commonwealth of Australia 2014a) (Figure 6). The large number and size of water storages is a function of both Australia’s aridity and its highly variable rainfall (ABS 2010). Due to increases in the population this is expected to fall to 3.3 megalitres by 2030 (Commonwealth of Australia 2014a). Without action it is expected that water capacity will fall further to 2.6 megalitres per person by 2061 (Commonwealth of Australia 2014a). For the agriculture sector this situation is even more critical.

The Millennium Drought highlighted the difficulties that we face in securing our future water supplies. Water storages in the Murray–Darling Basin fell below 25 per cent of capacity for extended periods between 2007 and 2009 and have been below 40 per cent of capacity this year (ABARES 2015d)(Figure 7).

More can be done over the longer-term to secure Australia’s water supplies for our economic benefit and to benefit the environment. The Commonwealth is committed to working with State, Territory and local governments so that the right water infrastructure can be built where it is needed, when it is needed.



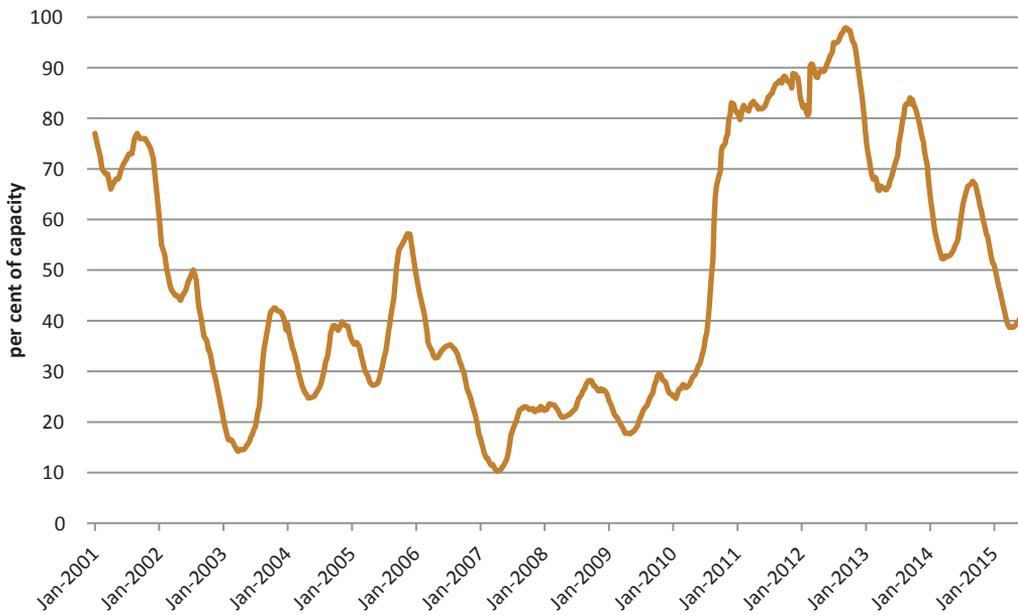
Figure 6 Australia’s water infrastructure capacity



Notes: Data based on the capacity of large dams. 2030 and 2061 projections based on ABS Series C projection of a population of approximately 29,000,000 and 36,800,000 respectively. Projected megalitres per person assumes no addition to the current dam capacity.

Source: Commonwealth of Australia 2014a.

Figure 7 Water storages in the Murray–Darling Basin (New South Wales, Victoria and Queensland)



Notes: Information on irrigation water available in the Murray–Darling Basin from 1 January 2001 to 18 June 2015. Unusable or ‘dead’ storage represents 2.66 per cent of water storage capacity. Source: ABARES 2015d.

Water needs to be carefully managed by all levels of government. Managing water resources sensibly, equitably and sustainably to ensure our agricultural competitiveness into the future is an important aspect of the Commonwealth’s leadership role in the nation’s water reform agenda.

The Commonwealth has committed more than \$15 billion in water reform since the Howard Government released the National Plan for Water Security in 2007. Investments have included the delivery of a large number of diverse water infrastructure projects, including major upgrades to off-farm water delivery networks and large-scale irrigation works in the Murray–Darling Basin. Greenfield irrigation schemes have also been developed in Tasmania.

Australian governments have worked together to ensure water is well managed since 1994. The approach is set out in the National Water Initiative (NWI), a commitment made by State, Territory and Commonwealth governments in 2004 to increase the productivity and efficiency of Australia’s water use. Full implementation of the NWI will result in a nationally-compatible market-based system for managing water resources through secure water access entitlements, statutory based water planning and the development of water markets where demand exists.

Water markets have been shown to benefit the national economy. In 2012–13, the value of trade in Australian water markets was \$1.4 billion (NWC 2013). Trading in the southern Murray–Darling

Basin is estimated to have increased Australia's gross domestic product by more than \$220 million in 2008–09, at the height of the Millennium Drought (NWC 2010).

Murray–Darling Basin Plan

The 2012 Murray–Darling Basin Plan represents a major investment in securing agricultural competitiveness into the future. The Basin Plan aims to provide communities with sufficient and reliable water supplies, to support productive and resilient water-dependent industries, and to give communities confidence in their long-term future. This rests on ensuring the Murray–Darling Basin supports healthy and resilient ecosystems.

The Government is implementing the Murray–Darling Basin Plan in a balanced way that ensures the continued viability of Australia's food-producing communities. The Government has prioritised infrastructure and capped the buyback of water entitlements at 1,500 gigalitres on average over the long-term. The Commonwealth is committed to working with Basin communities and industries on the implementation of the Basin Plan.

The Government is funding the largest investment in upgrading and refurbishing irrigation infrastructure in Australia's history, investing in the future of competitive irrigated agriculture, as well as community sustainability. To implement the Murray–Darling Basin Plan, the Commonwealth has committed almost \$13 billion through a range of programmes in the Basin through to 2024.

This investment in better infrastructure, irrigation efficiency and improved irrigation water delivery systems is helping industries and farmers increase their productivity and adjust to less water availability. The benefits from infrastructure investment include maintaining and increasing output, increasing ability for crop rotation, increasing crop water use efficiency, increasing crop diversification, improving soil management, reducing maintenance and reducing weed control requirements.

Funding to the Australian Processing Tomato Research Council, for example, has resulted in investment into conversion of surface furrow irrigation to subsurface drip technology, reaping immediate benefits. On average, water use has improved from application rates of 8 megalitres per hectare (ML/ha) to 5 ML/ha. Benefits extend to yields from tomato crops increasing almost two-fold to 100 tonnes per hectare. These yields are due in part to the efficient placement of the required water and nutrients to the roots of the plants through the subsurface drip irrigation system (APTRC forthcoming).

These reforms will mean a future for the Basin that includes strong communities with greater certainty and robust economies that are more resilient to change, underpinned by a healthy river system.

Review of the *Water Act 2007*

The Government wants to ensure that it continues to have sound water use policy for water management. In line with this aim, the Government established an independent statutory review of the *Water Act 2007* (Water Act) in 2014. The Review had a key focus on considering the extent to which the Act was effectively achieving its objectives and on identifying opportunities to reduce the regulatory burden for businesses and individuals. The Expert Panel's report was tabled in Parliament on 19 December 2014.

The Government immediately accepted two recommendations for specific regulatory reviews aimed at further opportunities to reduce the regulatory burden for the water sector. These reviews are now well underway. The Bureau of Meteorology is due to report in mid-2015 on options to reduce the water information-related regulatory burden on data providers.

The ACCC is reviewing the Water Charge Rules. An issues paper was released for consultation in May 2015 and a final report is expected in December 2015. The Government will look to deliver savings to businesses through these reviews and is also currently working with irrigation businesses to deliver a red tape reduction for the industry.

The Government is now considering the remaining recommendations made by the Expert Panel. The Panel's recommendations included improvements to the framework of the Water Act to provide certainty and stability for the irrigation industry and communities in the Murray–Darling Basin. A key aspect is the recommendation to extend the period for the Basin Plan and Water Act reviews to 2026 and 2024 respectively, which better aligns with the timeframes for full implementation of the Basin Plan. This will ensure increased certainty for business investment in the Basin and for more appropriate periods to monitor and report on the outcomes of the Basin Plan.

The Panel also recommended amending the Water Act to provide the Commonwealth Environmental Water Holder with greater flexibility in using the revenue from water trades. In addition to water acquisitions, the revenue from selling Commonwealth environmental water could be used to fund activities that maximise environmental outcomes. This would be subject to a number of safeguards, including limiting such a change to the use of revenue from the sale of allocations only (not entitlements) and ensuring trading activity does not impact on sustainable diversion limits in the long-term.

Under the Water Act, the Commonwealth Environmental Water Holder (CEWH) is currently able to trade water when environmental water needs have been met (and the water cannot be carried over) or if the proceeds from the water sale can be used to buy water in another year (or catchment) when (or where) environmental needs are greater.

In January 2014 the CEWH traded 10 gigalitres of temporary water allocations in the Gwydir Valley and in March 2014 undertook a small trade in the Peel Valley. This demonstrates the potential for

local win-win outcomes for farmers and the environment. For example, the trade in the Gwydir provided cotton farmers with an opportunity to purchase water to finish their crops or to improve their yield at a time when local floodplains required a drying phase following consecutive wet years.

The Government will respond to the report in full in coming months. As part of this, the Government will consider whether the Panel's recommended changes afford the CEWH sufficient flexibility to achieve better outcomes while maintaining the integrity of the Basin Plan.

We have delivered

Great Artesian Basin Sustainability Initiative

On 16 October 2014 the Government announced funding of up to \$15.9 million to continue the Great Artesian Basin Sustainability Initiative (GABSI) over three years, adding to the investment by the Commonwealth of more than \$112 million over 15 years (1999–2014).

GABSI funds the capping and piping repair of uncontrolled artesian bores to reduce system water loss and to recover groundwater pressure. It supports the maintenance of critical infrastructure and the sustainable management of the Great Artesian Basin.

Extending GABSI provides governments with an opportunity to work with stakeholders to develop a new delivery model that is less dependent upon government funding, to ensure a sustainable future for the Great Artesian Basin. (Department of the Environment 2015d)

Chaffey Dam

The Commonwealth has provided \$18.1 million towards a \$31.8 million upgrade and dam augmentation for the Chaffey Dam. Chaffey Dam's current capacity is 62,000 megalitres and it provides water for Peel Valley irrigators and the majority of Tamworth's population. The upgrade will increase the dam's capacity to 100,000 megalitres. (NSW Government 2015)

Tasmania Tranche II irrigation scheme

The Commonwealth has committed \$60 million in the Tasmanian Irrigation's Tranche II irrigation schemes to deliver 40,000 megalitres of new water to agriculture throughout Tasmania. This follows an investment of \$140 million in the tranche 1 schemes (Box 6).

Tasmania has 12 per cent of the nation's fresh water resources in an area of less than 1 per cent of the total Australian land mass. This abundant water resource appears plentiful but is not evenly distributed across the State (Government of Tasmania 2012). Investing in irrigation infrastructure helps deliver water where and when it is needed. With increased water for expanding irrigation over a wider area, the funding is helping to grow agriculture in a measured and sustainable way.

These projects will help secure Tasmania's water supply and deliver strong economic benefits and by providing for high value irrigated agriculture such as cropping, grazing and dairy, by encouraging investment in agriculture and in regional communities.

The additional investment will generate a further 175 full-time jobs and unlock opportunities in the dairy, wine and fruit and vegetable industries. (Tasmania Irrigation 2015)

Modernising irrigation water delivery systems

Large investments are occurring in all of the Murray–Darling Basin States to improve irrigation water delivery systems. At almost \$1 billion, the Goulburn-Murray Water Connections Project Stage 2 is the largest Commonwealth investment in irrigation infrastructure under the Sustainable Rural Water Use and Infrastructure Programme. It is estimated that this upgrade will increase system efficiency by 13 per cent to 85 per cent. The water savings yielded by the project are making an important contribution to Victoria's commitments to bridging the gap to the sustainable diversion limits under the Murray–Darling Basin Plan.

Irrigators will benefit from off-farm irrigation efficiency works involving the refurbishment and upgrading of ageing irrigation delivery infrastructure. These works include:

- converting open channels to piped systems;
- lining open channels to reduce water losses;
- upgrading pump stations; and
- improving delivery arrangements through modernising regulators, gates, supply valves and monitoring systems. (MDBA 2015)

On-Farm Irrigation Efficiency Programme

On-farm irrigation infrastructure is being modernised and water use efficiency improved by investing \$575 million in over 1,600 projects in the southern connected system of the Murray–Darling Basin.

The investment will yield about 285 gegalitres of water savings, which have been shared between farmers and the environment. (Department of the Environment 2015e)

Menindee Lakes

The Government has committed \$180 million to improve the operation and efficiency of the Menindee Lakes. Planning is underway to reduce current large water losses due to evaporation. Planned work includes new regulators between lakes and at the Darling–Anabranche junction, an enlarged outlet regulator at Lake Menindee, and drainage channels in Lake Menindee to allow access to water not currently accessible due to inadequate infrastructure. (Department of the Environment 2013)

Box 6 Collaborative investment in Tasmanian irrigation

Water infrastructure investment in Tasmania is a good example of the public–private partnership investment model. Under this model the Commonwealth, the Tasmanian government and the private sector jointly fund the capital works of new irrigation schemes. The private investment is raised through irrigators purchasing newly-created water access entitlements, the value of which is created by the water security produced by the new dams and associated works.

Under the Supporting More Efficient Irrigation in Tasmania programme the Commonwealth provided \$140 million in funding, the Tasmanian government \$80 million and private investors \$80.47 million. Under the Tasmanian Tranche II project the Commonwealth has committed \$60 million and the Tasmanian Government \$30 million. Private investment is estimated at approximately \$27.12 million.

Water infrastructure investment in Tasmania is market-driven, which results in developments that are focused on growing Tasmania's productive capacity. It's about getting water where it is most needed and most valued. It's a co-investment model between governments and the private sector run by Tasmanian Irrigation.

Tasmanian Irrigation was established in 2011 to develop, own and operate irrigation schemes in Tasmania through various financial models such as public–private partnerships. Since its establishment, 10 irrigation schemes have commenced, seven of these are operational with the other three under construction. Current schemes have the capacity to deliver around 80,000 megalitres of water. The co-planning approach has provided private investors with confidence to make substantial on farm investments based on this government investment.

Source: Department of the Environment 2015f and Tasmanian Irrigation 2015

White Paper actions

Kickstarting investment to secure Australia's water supplies for the future

The Government is committed to improved management and efficient use of water. We are establishing the National Water Infrastructure Development Fund. We are spending \$500 million to kickstart investment in securing our future water supplies. Strengthening our water storage capability by investing in water infrastructure (such as dams) in the right places, with State and Territory and private sector support, is essential for regional development. If even a small additional percentage of untapped water supplies could be harnessed, it could have significant positive



For Farmers

Farmers will have greater certainty around future water security and new opportunities to develop agriculture, including in northern Australia.

implications for water storage, flood mitigation and power generation, as well as for innovative irrigation schemes, mining projects and recreation.

The Government is meeting its commitment to start the detailed planning necessary to build new dams to secure the nation's water supplies, deliver strong economic benefits for Australia, while also protecting our environment. Reliable water supply, based on sound infrastructure, is essential for a prosperous and strong Australian economy. Investing in water infrastructure projects supports industries in regions to be as productive as they can and builds resilient communities.

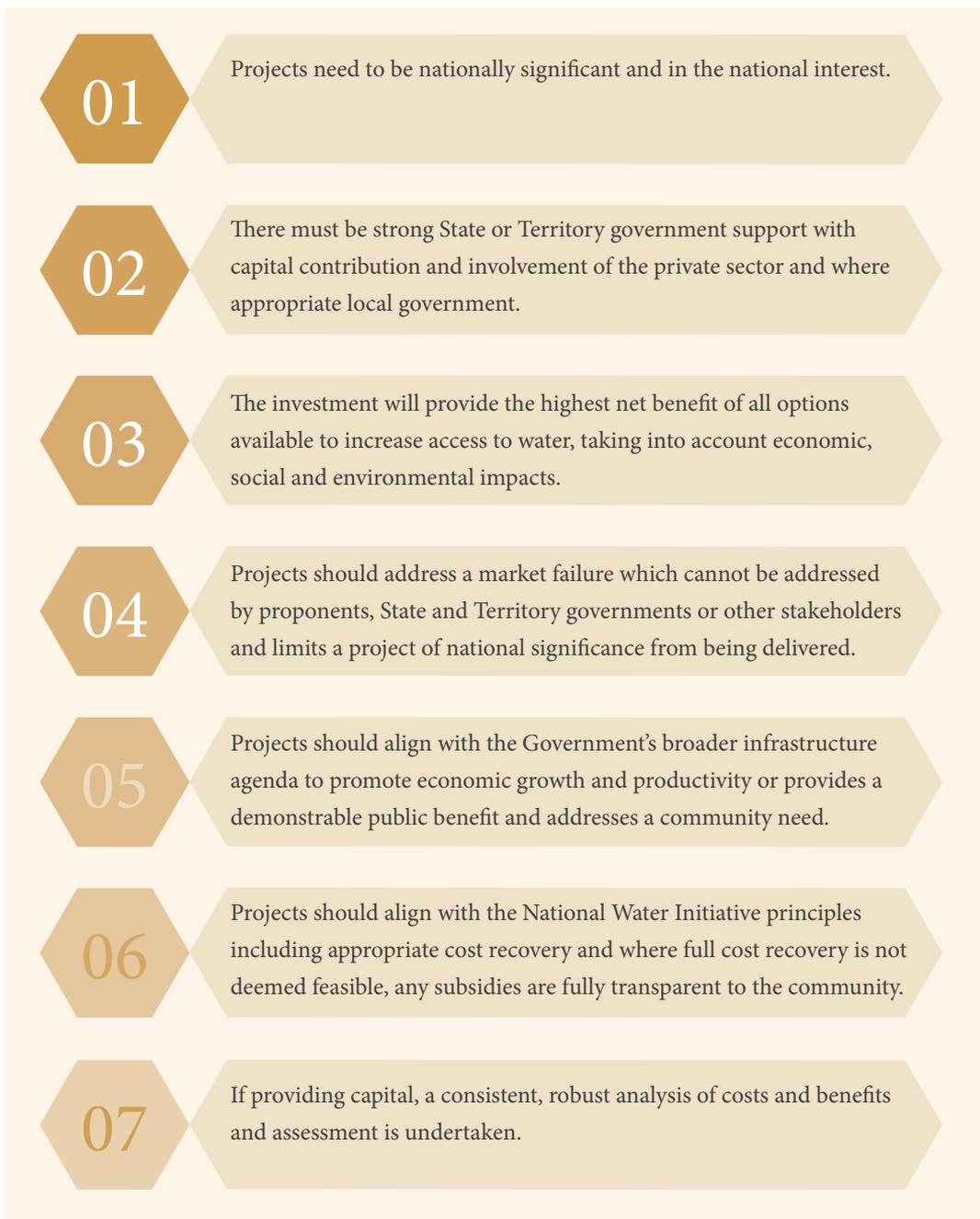
Australia's long term annual rainfall is the lowest of all continents except Antarctica. Enhancing water infrastructure can raise productivity and economic activity. For example, it can help meet critical needs for all Australians, including safe drinking water and sanitation; provide for flood mitigation; and support expanding industries such as mining, irrigated agriculture and manufacturing, particularly in rural and regional areas.

The Water Infrastructure Ministerial Working Group, chaired by the Minister for Agriculture, identified ways to accelerate investment in water infrastructure, including dams, pipelines, weirs, and groundwater storage. The working group consulted with State and Territory governments to identify potential investment opportunities, including investment in water infrastructure to meet Australia's water supply needs in the future. The working group determined that the Commonwealth can play a valuable role in supporting water infrastructure projects that have strong State support, are in the national interest, and deliver net economic and social benefits and broader public benefits. This is reaffirmed by the Government's principles for investment in future water infrastructure projects (Figure 8).

A number of potential water infrastructure projects were identified by the working group as having strong potential for Commonwealth involvement including the development of the Ord Stage 3 irrigation scheme in Western Australia and the Northern Territory, Pilbara groundwater development options in Western Australia, Rookwood and Eden Bann weir projects in Queensland, Nathan Dam in Queensland, modification to the Wellington Dam in Western Australia, and development of the Emu Swamp Dam in Queensland. There are many other projects identified by the working group as showing potential including the Macalister Irrigation District augmentation in Victoria, waste water re-use expansion in the Northern Adelaide Plains in South Australia and the augmentation of the Burdekin Falls Dam in Queensland.

The Government is also open to exploring other water infrastructure projects as priorities change over time. New suggestions and priorities are constantly being provided, such as the Dungowan Dam that was recently recommended by the NSW Government.

Figure 8 Principles for Commonwealth involvement in future water infrastructure projects



Source: Commonwealth of Australia 2014b

Under the National Water Infrastructure Development Fund, the Government is delivering \$50 million to undertake water resource assessments, feasibility assessments and business cases to support informed water infrastructure investment decisions.

Of this funding, approximately \$30 million will be used to examine water infrastructure investment in northern Australia. This includes \$15 million to determine available water and the best locations for water infrastructure in the Mitchell River catchment in Queensland, West Kimberley in Western Australia and the Darwin region in the Northern Territory; and up to \$5 million each for detailed economic feasibility assessments of Nullinga Dam in Queensland and Ord Stage 3 development in Western Australia and the Northern Territory (Commonwealth of Australia 2015i).

This initial funding will help governments and industry to make informed judgements about the best sites for new water infrastructure and accelerate the finalisation of thorough business cases. Feasibility assessments will ensure there is sufficient demand from stakeholders with capacity 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.

The funding component for northern Australia recognises its unique circumstances, especially the lack of water resource assessments at catchment level, which are a barrier to water infrastructure development. In contrast, southern Australia has an extensive range of scientific and technical research available, and generally has the necessary supporting infrastructure and functioning water markets in place.

The Government is supporting this investment in water infrastructure planning with a further \$450 million of the National Water Infrastructure Development Fund for the construction of investment ready projects, including up to \$170 million for projects in northern Australia.

The Government's new Water Infrastructure Development Fund will generally co-invest with the States and Territories and the private sector to support the detailed planning and development of water infrastructure projects. This model is supporting Commonwealth investment in Tasmanian Irrigation Tranche II. Funding allocation will be merit-based, with consideration given to how proposed projects relate to the States' long-term strategic plans.

More efficient transport infrastructure for agriculture

The Government is committed to investing \$50 billion in current and future infrastructure requirements. Of this, \$42 billion is in the Infrastructure Investment Programme to build the road and rail infrastructure for the 21st century. This investment will improve the productive capacity of Australia's transport networks, delivering lower costs for business and broader benefits to the Australian community.

Australia has an extensive road network, in 2013 it stretched 872,849 kilometres (BITRE 2014). Agricultural supply chains in Australia can involve transport distances of over 1,000 kilometres between production, processing and markets (CSIRO 2015a). Transport is a large component of overall costs to farmers. From farm to destination (including domestic and international destinations) transport costs account for an average of 21 per cent of farm gate value. For some farmers transport can cost up to 48.5 per cent of farm gate value (Goucher 2011). Much of the agriculture freight task is time critical. Fruit and vegetables, for example, have a short shelf life and need to get to their end destination quickly and with minimal damage. For some products a continuous cold chain is critical to delivering high quality produce to consumers—with this being more challenging for supply chains extending to overseas markets.

The pressure on our road and rail infrastructure continues to increase. By 2030, total domestic freight (in tonne-kilometres) is expected to increase by around 70 per cent from 2010 levels, with road and rail freight likely to increase by over 80 per cent. At a practical level this will mean approximately 300,000 more trucks on the road and greatly increased rail movements (BITRE unpublished).

Taking action now will make sure our farmers can get our food where it's needed when it's needed.

Roads

The Commonwealth does not build roads or plan transport networks; that's the job of State, Territory and local governments. The Commonwealth nonetheless provides considerable funding for improving and maintaining roads across Australia. The Commonwealth ensures the funds it provides for roads deliver strong national benefits, are targeted appropriately and spent on value-for-money projects. It also has a role in ensuring that planning reflects national objectives and doesn't stop at the State border.

The Government is investing in major upgrades and construction assisting agriculture. These include the Perth Freight Link, the Great Northern Highway between Muchea and Wubin, the Bruce Highway, the Toowoomba Second Range Crossing, the Warrego Highway between Toowoomba and Miles (Box 7) and several cattle roads in the Northern Territory (Box 8).

Box 7 Priority road upgrades that benefit the agriculture sector

The Commonwealth's \$50 billion commitment for current and future infrastructure requirements, of which \$42 billion is in the Infrastructure Investment Programme, includes funding for major investment projects, Black Spot projects, the National Highway Upgrade Programme and the Roads to Recovery Programme. These initiatives fund safety improvements to dangerous roads, key national highway networks, and significant local roads. Farmers often need to navigate thin, unsealed or poor-quality roads to reach regional centres. Bulk freight is then restricted to major highways. The Government is investing at all levels—and working with State, Territory and local governments—to improve the safety and quality of local, regional and arterial roads.

The Commonwealth's priority road investments will reduce freight costs by improving delivery times and reducing vehicle operating costs. These include:

- The **Perth Freight Link** will create a new connection between the Roe Highway and the Fremantle Port.
- The upgrade of the **Great Northern Highway** between Muchea and Wubin will improve freight efficiency and safety by enabling road trains to travel further south.
- The 10-year programme of works to deliver upgrades on the **Bruce Highway** will improve access, safety and productivity along Queensland's main north–south corridor. This is integral to servicing agricultural, resource and tourism sectors in Australia's north-east.
- Construction of the **Toowoomba Second Range Crossing**, including a bypass to the north of Toowoomba, will improve the connection between international gateways and the productive farm land of the Darling Downs.
- The package of 15 upgrade works on the **Warrego Highway** between Toowoomba and Miles will better connect the agricultural and resource regions west of Toowoomba to the Port of Brisbane. These upgrades will ease congestion for freight operators and commuters. This will make the journey in and out of Toowoomba easier, faster and safer.
- The Australian Government is also working with the Northern Territory Government to **upgrade roads in the Northern Territory**, including the Buntine, Plenty, Victoria and Stuart highways. These roads are critical to the movement of stock.
- The duplication of the **Princes Highway East** between Traralgon to Sale will increase capacity, reduce transit times and improve traffic flow and safety for the thousands of vehicles, including freight vehicles, using this road every day.
- The upgrade to the **Princes Highway West** will improve safety and productivity along the highway that connects Melbourne, Geelong, Warrnambool and Portland to South Australia. It is used by heavy vehicles to transport dairy, timber, grain, livestock and other agricultural commodities from the Green Triangle Agricultural District.

- The realignment of the **New England Highway** at Bolivia Hill, including the construction of a bridge, will improve safety and reduce travel times and operating costs. The New England Highway is crucial to linking Sydney, northern NSW and south east Queensland and servicing the agricultural, tourism and resource industries in these regions.
- The upgrade to the **Midland Highway**, which is a key link between northern and southern Tasmania, will benefit agricultural producers, who contribute up to 2.2 million tonnes of agricultural, dairy and mining goods freighted along the highway each year.

While substantial improvements have been made in road standards, there is more to be done. The Government is investing in our road infrastructure to improve Australia's economic future and living standards.

Source: Department of Infrastructure and Regional Development 2015a

The Government recognises first- and last-mile issues also have a significant impact on the agriculture sector. We are working towards opening previously closed routes and improving access to larger more productive freight vehicles. State, Territory and local governments regulate the vehicles that are allowed to operate on local roads at the start and end of a journey. State, Territory and local governments need to lead by working with their agricultural industries and taking practical actions to improve road transport systems.

For example, in 2014 the South Australian Government partnered with the State's agriculture industries to identify and quantify the impact of road transport issues (South Australian Government 2014). They are proposing to address road transport limitations by improving regulations and undertaking minor capital infrastructure works.

More funding is being provided through the National Stronger Regions Fund to local governments as well as not-for-profit organisations to deliver essential economic infrastructure. This could benefit agricultural businesses through infrastructure such as intermodal facilities and last-mile access roads. The Deputy Prime Minister, the Hon. Warren Truss MP, announced the successful round 1 projects in May 2015. Round 2 of the National Stronger Regions Fund opened on 15 May 2015 and will close on 31 July 2015.

The Commonwealth will continue to work with State, Territory and local governments, consult with farmers and agribusiness to support projects with strong productivity benefits, and plan for Australia's future transport needs.

Box 8 Developing infrastructure in northern Australia

On 18 June 2015 the Commonwealth announced a range of initiatives that will help support regional industries, including agriculture in the north of Australia. These are:

- Providing \$600 million over five years for northern Australia priority road projects, with works to include safety and productivity improvements, such as widening overtaking lanes and renewing pavement on key roads such as the Great Northern Highway, Arnhem Highway, Flinders Highway, Barkly Highway, Hann Highway, the Outback Way and Tanami Road.
- Establishing the \$100 million Northern Australia Beef Roads Fund to improve the productivity and resilience of cattle supply chains in northern Australia.
- Assessing future investment options for rail projects in northern Australia, with a key focus on undertaking a pre-feasibility study of the proposed Mount Isa to Tennant Creek railway.
- Releasing Infrastructure Australia's *Northern Australia Audit—Infrastructure for a Developing North*, which identifies the infrastructure assets and needs of northern Australia.
- Developing a northern Australia infrastructure project pipeline in consultation with the jurisdictions to provide a single portal of information on potential specific infrastructure investment opportunities.
- Establishing the \$5 billion Northern Australia Infrastructure Facility to support investment in these key northern Australia infrastructure projects.
- Extending the Regional Aviation Access Programme to provide additional works on remote airstrips in Australia.

Source: Commonwealth of Australia 2015i

Rail

Rail has and will continue to play an important role in the movement of agricultural products to market. Grains, sugar, fertiliser and other bulk products account for about 8 per cent of all rail freight, behind coal and iron ore (which comprise 80 per cent) (Australian Railway Association 2014).

The Commonwealth's priority is the future development of a new inland rail corridor between Brisbane and Melbourne. The Government currently has \$300 million committed to project development activities to bring this project to fruition.

Inland rail would extend the national rail network with new and upgraded track, primarily in the agricultural belt from Parkes in New South Wales to Toowoomba in Queensland and provide new or improved access to the ports of Melbourne, Port Kembla, Botany, Newcastle and Brisbane.

Construction of the inland railway is expected to reduce current transit times by about a quarter (for Melbourne to Acacia Ridge) and result in the switching of about 2 million tonnes of agricultural products currently using road transport to the railway by 2050. The extension of the network would also significantly reduce rail transit times between Brisbane, Adelaide and Perth, potentially opening up new domestic markets for agricultural producers.

The Government will also investigate a dedicated freight rail link to the Port of Brisbane that would complement the construction of inland rail.

Regional rail lines are typically the responsibility of State governments. In some instances they have been leased to the private sector, most notably in Western Australia and South Australia.

Jurisdictions and the private sector assess constraints in their networks and prioritise projects for investment in accordance with their strategic plans. These assessments have led to recent announcements for investment in some of these networks, including:

- In November 2014, the NSW Government announced a \$400 million commitment to its Fixing Country Rail programme to meet forecast growth in freight demand and improve efficiency of freight connections between regional New South Wales and key markets.
- In May 2015 GrainCorp announced a \$60 million investment in 13 sites across its eastern States network. This will include new sites, new loading equipment and upgrades to existing infrastructure (GrainCorp 2015).
- Quattro Ports has begun construction of a new open access bulk agri-terminal at Port Kembla that will receive grain by rail and provide more competition along the supply chain (Quattro Ports 2015).
- The Victorian Government, in its 2015-16 Budget, committed up to \$220 million to standardise the gauge and increase the axle load of the Mildura line. These efficiency improvements will deliver freight to Victoria's ports as cost competitively as possible.

The Government also recognises the significant investment made into rail by the mining sector. There would be advantages in all rail infrastructure being available over time to service the needs of other sectors, including agriculture. The Commonwealth urges the rail infrastructure owners and operators, industry and State and Territory governments, to consider the current and future needs of other industries during planning, approval, construction and operation of private rail lines.

We have delivered

Efficient land and rail infrastructure underpins a viable and sustainable agriculture sector. The Government has made a commitment to an investment of \$50 billion for current and future infrastructure requirements, of which \$42 billion is in the Infrastructure Investment Programme to build the road and rail infrastructure for the 21st century.

Fixing freight transport

The Government has established a single, nationally consistent framework for heavy vehicles. The framework will enable the heavy vehicle sector, including transporters of agricultural goods, to more successfully move goods across Australia and to ports for export.

Key improvements include:

- reducing transport costs by reducing the number of trips required for the same freight task through the Performance Based Standards Scheme; and
- harmonising heavy vehicle access arrangements between States and Territories.

Other areas of improvement benefiting agriculture include more flexible arrangements for fatigue management and work diaries. These changes will be especially beneficial for transport operators moving livestock or working in regional and remote areas. (Department of Infrastructure and Regional Development 2014)

Freeing access for B-doubles

B-double trucks no longer require permits to access key freight routes. As-of-right access reforms means that the same amount of freight can be carried by fewer trucks, improving productivity and safety outcomes and reducing operating costs for industry. (Department of Infrastructure and Regional Development 2014)

Investing in road infrastructure

The Government's Infrastructure Investment Programme includes programmes that will significantly benefit the agriculture sector. These include, improving key highways linking our capital cities and major centres; improving regional roads and bridges under the Roads to Recovery and Bridges Renewal Programmes; and addressing safety issues under the Black Spots Programmes. (Department of Infrastructure and Regional Development 2015a)

Expanding the Tasmanian Freight Equalisation Scheme

The Government is investing \$202.9 million over the next four years to expand the Tasmanian Freight Equalisation Scheme (TFES).

From 1 January 2016, TFES assistance will be extended to all currently eligible goods shipped from Tasmania regardless of destination. This means that expanded TFES assistance will cover goods from Tasmania transhipped through the mainland to all overseas markets. This is in addition to the support being provided under the scheme for shipping produce to mainland Australia and for shipping inputs for agricultural production from the mainland to Tasmania. (Department of Infrastructure and Regional Development 2015b)

Coastal shipping

The Australian Government has announced changes to build a more competitive and efficient coastal shipping industry. Legislation is currently being prepared to implement the reforms. Under the new Act the Australian Government will introduce a single permit system for coastal shipping, replacing the existing tiered licence system.

A Coastal Shipping Permit will provide unrestricted access to coastal shipping for all vessels (Australian and Foreign) for up to 12 months. Any foreign vessel that undertakes more than 183 days of coastal trading in a permit period will be required to have two senior Australian crew on board the vessel for the entire permit period and all crew must receive Australian wages and conditions. Foreign vessels engaged in less than 183 days of coastal trading in a permit period will be able to operate under their existing international on-board arrangements.

The potential benefits of these reforms to farmers and regional Australia are clear. Cheaper, more accessible shipping would provide additional, more efficient options for the interstate transport of goods. For example, the proposed changes would reduce restrictions on manufacturers seeking to move fertiliser and its input products. The changes would also increase choice for primary producers seeking to move goods to market. Simplifying the coastal shipping rules for moving cargo has the potential to open Australian waters to more efficient shipping services at competitive prices. (Department of Infrastructure and Regional Development 2015d)

Regional Development Australia

The Government supports the 55 Regional Development Australia Committees across Australia. Committee members are local people who develop local solutions to local infrastructure issues. Committees are focused on enhancing the development of Australia's regions. (RDA 2015)

\$1 billion National Stronger Regions Fund

The Government is funding priority infrastructure in regional areas through the \$1 billion National Stronger Regions Fund. The Fund will support investments in priority infrastructure areas (including freight and transport projects). Projects will focus on strengthening regional economies by improving the productivity, employment and workforce skills of Australians. (Department of Infrastructure and Regional Development 2015c)

Role of Infrastructure Australia

The Australian Government undertakes a rigorous assessment of all projects seeking Commonwealth funding, including an evaluation by Infrastructure Australia for projects seeking \$100 million or more in Commonwealth funding. (Infrastructure Australia 2015)

White Paper actions

Unlocking a more efficient agricultural transport system

The Government is **expanding the CSIRO's TRANSPORT Network Strategic Investment Tool (TRANSIT) to cover 25 agricultural industries at a total cost of \$1 million.** These include wheat, cotton, canola, barley, grain sorghum, oats, lupins, dairy, sheep, sugarcane, grapes, potatoes, tomatoes, rice, bananas, onions, lettuce, carrots, strawberries, mango, melons, chicken meat, pigs and peanuts. For these agricultural industries, TRANSIT will assist in identifying opportunities for supply chain optimisation and future infrastructure investments. Its results will equip the State, Territory and local governments to improve agriculture supply chains so that they can meet the existing and future needs of the agriculture sector. These investments will minimise costs and maximise long-term profitability for the sector.

The Commonwealth invests in projects that provide the greatest return for the Australian economy. TRANSIT will help us identify opportunities to do this for agriculture.

Commonwealth investment in infrastructure is based around a number of cost–benefit principles, including savings in operating costs and improvements in service reliability. By providing an estimate of benefit, TRANSIT is a powerful tool in assessing future supply chain and transport logistics improvements and related infrastructure investment options.

TRANSIT was developed by the CSIRO. It maps every possible combination of road and rail transport route to identify the best way to optimise vehicle movements in the agricultural supply chain. This information is then used to identify best-value infrastructure investments aimed at reducing costs to producers and others in the supply chain.

TRANSIT is currently being used to evaluate transport options for the livestock industry in northern Australia. By using TRANSIT to inform investment decisions, significant savings can be gained for agriculture and other road users. For example, TRANSIT estimated that, for the 1.6 million cattle transported between Clermont and Roma in 2007–2011, road upgrades and the removal of tick clearing requirements would have reduced transport cost by 19 per cent. This would provide a \$75.6 million saving in livestock transport costs (CSIRO 2015a).

The Commonwealth's recently announced \$100 million Northern Australia Beef Roads Fund will draw on TRANSIT modelling to identify road infrastructure investments or regulatory reforms that have the potential to improve productivity in the northern cattle supply chain. This is a practical example of how the model can support better planning and investment decisions and delivers improved outcomes to the industry.



For Farmers

Farmers will see reduced transport costs from fixing road and rail inefficiencies including bottlenecks and pinch points.

Better mobile phone and internet coverage

Access to reliable and affordable mobile phone and internet coverage in remote and regional areas is essential to Australia's future growth, and the growth of the agriculture sector. Improved services have the potential to revolutionise agriculture in Australia. For good reason communication coverage was the issue most often raised by the agriculture sector during the development of this White Paper. This is an area of critical importance to the Government.

The use of information technology has evolved from basic GPS to precision farming. The next frontier is 'big data'—or data-enabled agriculture, which will provide information to assist better decision making through real time delivery of relevant and specific knowledge. The potential for productivity gains through increasing yields, reducing costs and reducing agricultural risks is progressing through initiatives currently underway. These include Sense-T in Tasmania and the GrainGrowers ProductionWise programme. Farm machinery companies have developed applications that not only warn farmers of the need for maintenance, but also use data collected to facilitate real time benchmarking, further driving productivity gains. Today's farmers need access to mobile phone coverage and broadband internet to run their businesses efficiently. Those farmers that have access to these services are able to run their businesses from the stockyard, from their tractor or while they are harvesting. But communication services are often not available, or are unreliable or expensive.

The Government is committed to improving access to communications technology for all Australians—particularly those in regional areas who often face the greatest difficulties with service.

While mobile carriers claim to provide coverage to 99 per cent of Australia's population, around 70 per cent of Australia's landmass does not have terrestrial mobile coverage (Commonwealth of Australia 2015j).

Traditionally, analogue phone services to regional Australia were funded via the Universal Service Obligation levy, however, these traditional policy responses need to be updated so that internet connectivity can be funded as an essential service.

The Department of Communications has released a discussion paper to consider how best to fund 'non-commercial' telecommunications services into regional areas (Department of Communications 2015a).

Expanding mobile coverage to areas where it is currently inadequate or non-existent has clear economic, social and safety benefits. A study commissioned by the Australian Communications and Media Authority found that in the seven years to 2013, mobile broadband contributed 2.1 per cent of productivity gains in the agriculture sector (CIE 2014). Due to comparatively higher costs and lower levels of revenue, mobile network operators are reluctant to invest in extending coverage into regional areas on a commercial basis. To help address this, the Australian Government established the \$100 million Mobile Black Spot Programme.

The policy was designed to attract co-funding from other levels of Government and the private sector. The total investment as a result of the program is around \$385 million. A second round of investment in mobile blackspots was announced in June, with the Federal Government contributing an additional \$60 million.

The Government is also committed to delivering Australia's National Broadband Network (NBN) to all Australians, including those on the land. The Government is making an equity investment of \$29.5 billion towards constructing the NBN.

Access to the NBN and improved mobile coverage could transform farm businesses. Improved connectivity will help increase farm gate returns (Salim, Mamun & Hassan 2015). Communication technologies are already making it possible for farmers to access new market opportunities. Farmers are in a stronger negotiating position when they have a greater choice of markets to supply their produce.

Mudgee Lamb, a family sheep farm in Mudgee New South Wales, is direct marketing to over 12,000 customers solely through Facebook (NBN 2015a).

The NBN has also transformed the way Kirby SMART Farm in Armidale, New South Wales operates. The NBN has allowed the introduction of modern farming techniques and technologies including:

- remote monitoring of soil moisture levels and environmental conditions;
- low cost wireless tracking systems to understand livestock activity;
- improved farm efficiency through video monitoring of key equipment; and
- instant high-quality communication with experts around the world (NBN 2015b).

With a view to further improvements, on 5 May 2015 the Government appointed an independent Committee to undertake a review of regional telecommunications. The Committee will consider the infrastructure and services provided by the rollout of the NBN and the Government's Mobile Black Spot Programme. The Committee will report to Government on their findings by 23 August 2015. This review will enable regional and agricultural communities to say how the Government can improve these key services faster.

We have delivered

Providing a regional satellite service

Satellite is one of the most economic ways of delivering high speed broadband in areas where fixed wireless and fixed line services can be prohibitively expensive to deliver. However, satellite broadband has some limitations, such as limited monthly data allowances and fixed capacity during busy hours. The Government spent more than \$34 million to improve the Interim Satellite Service after the initial program was poorly managed, delivering speeds little better than dial-up in busy hours (Department of Communications 2014).

The NBN will launch its two next generation KA-band satellites in 2015-16, which will revolutionise broadband services for the bush, offering speeds and data allowances vastly in excess of what is available on previous satellite services. The Government has created a roundtable with regional organisations, such as School of the Air, that will fund and deliver public interest services that will not count to regional users' data allowance. (NBN 2015c)

National Broadband Network (NBN)

The Government is making an equity investment of \$29.5 billion towards constructing the NBN. The coming year will see major improvements in NBN coverage across the country. As at April 2015, 288,000 premises of the 1.07 million premises (28 per cent) passed by the NBN's fixed wireless network were in regional areas. An additional 308,200 premises in the fixed line footprint were in regional areas. In the National Rollout Plan, through to September 2016, 1.18 million premises of the 2.25 million premises (52 per cent) where the NBN will be available or under construction are in regional areas. (NBN 2015d)

Mobile Black Spots Programme

The Government has established the \$100 million Mobile Black Spot Programme. We expect the first base stations under the Programme to begin rolling out in the second half of 2015. Round 1 of the Programme will deliver 499 new or upgraded base stations across the country. The Programme will deliver handheld or external antenna coverage (or both) to the broader geographic area of approximately 3,000 of the 6,221 nominated black spot locations. These 499 base stations will provide new and upgraded handheld coverage to 68,600 square kilometres and new external antenna coverage to over 150,000 square kilometres. Over 5,700 kilometres of major transport routes will receive new handheld or external antenna coverage.

The positive response to the Programme has prompted the Government to invest an additional \$60 million to improve mobile phone coverage and competition in regional Australia through a second round. Commencing in 2016-17, round 2 will build on the work done under round 1. As with round 1, the Government's investment is expected to generate at least matching funding from State, Territory and local governments, communities and industry. (Department of Communications 2015b)