Sustainable development of northern Australia

A report to Government from the Northern Australia Land and Water Taskforce

December 2009
Sustainable development of northern Australia
A report to Government from the Northern Australia Land and Water Taskforce

December 2009

CHAIR
Mr Joe Ross

MEMBERS
Mr Richard Ah Mat
Mr David Baffsky AO
Dr Stuart Blanch
Mr David Crombie
Ms Elaine Gardiner
Mr Kim Hill
Dr Rosemary Hill
Dr Andrew Johnson
Ms Shirley McPherson
Mr Michael Roche
Mrs Terry Underwood OAM
Professor Bob Wasson
Mr Walynbuma Wunungmurra
Preface

Northern Australia is a unique part of our country and integral to our national identity. It is home to the oldest living culture in the world. Its natural and cultural landscapes underpin multibillion dollar tourism, fishing and conservation industries. Its enormous reserves of minerals and resources are essential to Australia’s national prosperity and its open grassland supports the northern pastoral industry, which is such a major part of the north.

The north has a wealth of opportunities. However, strong leadership and strategic focus on the region, east to west is required to build a shared vision and establish a national path for development that is genuinely sustainable.

Much of the natural landscape remains intact, supporting functioning, productive and healthy ecosystems. The north’s free-flowing rivers provide valuable natural infrastructure for diverse environmental, cultural and economic uses.

Indigenous culture and heritage across the north is diverse and strong. Any consideration of the north must recognise the region’s significance for Indigenous people and their connectedness to land and water.

The nation’s capacity for science and innovation is proven, but both western and Indigenous knowledge of northern Australia will be needed to ensure future decision making is well informed. It is also important that we unlock the active, innovative and energetic contributions of the people who live and work in northern Australia. Future growth of northern Australia will depend on the success of partnerships between governments, communities and entrepreneurs, working together to ‘give it a go’.

The north is not a vacant land. It needs to be actively managed for resilience and sustainability, based on a contemporary and informed understanding of the complexities of the landscape and its people. Contrary to popular belief, water resources in the north are neither unlimited, nor wasted. Equally, the potential for northern Australia to become a ‘food bowl’ is not supported by evidence.

Future development needs to be smart and build on the area’s special attributes. While there are opportunities for agriculture to grow, particularly the pastoral industry, there are also limits to available water and suitable agricultural soils. Building the adaptive capacity of landscapes and the resilience of communities to respond to climate change will be important. Developments that further disadvantage Indigenous people are also a concern and are contrary to national policy.

In the National Water Initiative we have an effective and robust framework for the planning and sustainable management of water resources, but implementation across northern Australia has been too slow.

Our vision for northern Australia is based on mutual respect. Respect for the rights and interests of the Indigenous Peoples of the north. Respect for the environment. Respect for the critical role that land holders have in caring for country. Respect for Indigenous and western knowledge. Respect for the communities of the north and the need to empower them to create opportunities for their own future.

In thinking about sustainability the Taskforce was mindful of the need to look beyond the horizon. The narrative that immediately follows is just one possible description of what northern Australia might look like in 2030 if the Taskforce principles are embraced and our recommendations taken up. There are many possible futures and, no doubt, there will be differences of opinion on the detail. This vision is offered to stimulate a conversation about the future of the north. Our genuine desire is that we move beyond repeating the mistakes of the past.

It has been an honour to chair the Northern Australia Land and Water Taskforce and share the passion of my fellow Taskforce members. In this report we offer recommendations that we believe will help navigate a path forward that balances the aspirations and needs of all people of the north. I commend them to you.

Joe Ross
Chair, Northern Australia Land and Water Taskforce
December 2009
Northern Australia in 2030

It is the year 2030 and the world’s population is approaching 9 billion. While Australia’s population has increased by only 8 million in the past 20 years, nearly 6 billion people live in neighbouring Asian and South Pacific nations.

In northern Australia the population has increased dramatically, principally as a result of growth in eastern Queensland. Nearly half a million people live along the coastal strip between Townsville and Mossman. Darwin is approaching 250 000 inhabitants in response to its position as a major service centre for the offshore petroleum, gas and mining industries; as a regional hub for Australia’s trade with Asia; and increasingly as the hub for Australia’s defence forces. Smaller towns such as Katherine, Kununurra and Broome have also expanded significantly.

While Indigenous people make up less than 3 per cent of Australia’s population in 2030, they comprise nearly 50 per cent of the population in northern Australia. In some areas, such as the Kimberley, Indigenous people represent nearly 60 per cent of the population.

In 2030 the people of the north no longer suffer from the same tyrannies of distance experienced by their forebears in the Twentieth Century. Telecommunications infrastructure has improved dramatically in the past twenty years, such that 90 per cent of the population has access to digital fibre optics facilities. Every resident of northern Australia has high-speed access to the Internet. These technological innovations have dramatically altered the way business is done in the north and overcome many of the economic, social and geographic barriers of the past.

The effects of climate change have made the north hotter and largely drier, although in some places, wetter. Overall, there is less water available than in 2000. The region is subject to more extremes of weather, with the intensity of severe floods, tropical storms and cyclones in 2030 exceeding Twentieth Century averages. The sea level has risen, on average, by 0.3 metres since the year 2000, inundating low-lying areas such as Kakadu’s World Heritage-listed wetlands, and increasing the vulnerability of infrastructure such as ports and processing facilities on Cape York and in the Kimberley.

While climate variability has increased significantly since the turn of the century, risk management practices based on new dynamic forecasting techniques and sophisticated adaptation technologies are employed by industries and communities to minimise negative economic, social and ecological impacts.

In the year 2030 the structure of the northern Australian economy has altered significantly when compared with that of the turn of the century. Two-thirds of the people in the north are employed in the oil and gas, mining, conservation and land and sea management, agriculture, fisheries and the tourism and recreation sectors. New oil and gas industries in the Kimberley and bauxite developments on Cape York are contributing to export income, as well as contributing materially to reducing Indigenous disadvantage through education, training and employment. Only 25 per cent of the population in northern Australia in 2030 is employed in the government, health and education sectors; a far cry from approximately 40 per cent in 2000.

In 2000, government administration and defence, health and community services and education accounted for nearly 65 per cent of Indigenous employment in northern Australia. In 2030 this has been reduced to 25 per cent. Joint venture business development activities initiated by Indigenous people utilising traditional knowledge and cultural assets are thriving. Increased diversity of business development opportunities and employment also contribute. More effective use is being made of resources for training and education and, most importantly, for new ventures on Aboriginal land. These ventures are based largely on the global trade in carbon and have contributed significantly to reducing Indigenous disadvantage and ‘Closing the Gap’.

In 2030, land use in northern Australia has changed significantly from that of the late Twentieth Century. While agriculture, cultural use, conservation, mining, tourism, fisheries and defence remain dominant, there has been a significant shift in their relative economic and social importance. The gross value of production (GVP) in 2030 in northern Australia is now approaching $35 billion; more than double the value recorded in 2000. Tourism, mining, marine-based and environmental service industries now account for 90 per cent of GVP compared with approximately 60 per cent in 2000.
Targeted and coordinated investments in road, airports and other essential infrastructure have enabled the tourism industry to broaden its attractiveness and to grow across a diverse range of market and ‘experience’ segments. This has also generated significant and sustainable Indigenous opportunity and employment.

The emergence of a global trade in carbon has enabled northern Australia to utilise the carbon storage capabilities of its extensive savannah landscapes. The carbon market has generated significant new revenue streams, thereby creating enduring employment for traditional owners and providing diversification opportunities for primary producers.

The north is also playing its role in the global greenhouse gas emissions reduction effort. Australian LNG exports are enabling countries to access lower emission gas fired electricity generation as they make the transition to cleaner technologies such as renewables or carbon capture and storage.

In the year 2030, GVP from agricultural production in the north has increased by 40 per cent from 2000 in response to increasing demands for plant and animal protein from both neighbouring Asian nations and domestic consumers. The northern pastoral industry has almost doubled in productivity (and up to four times in some areas) as improved technologies and flexible lease arrangements have allowed enterprises to diversify and intensify production. At the same time the industry is contributing to better environmental outcomes through improved management and stewardship partnerships. Owner/operator families continue to be an important part of the pastoral industry and the social landscape of the north more generally. The success of business development and management support programs focused on the pastoral industry has significantly improved the viability of a large number of Indigenous pastoral properties. Acquisitions initiated in the 1990s mean that half of all pastoral holdings in northern Australia are owned and managed by Indigenous Australians.

As well as making ongoing contributions to export earnings, northern Australia also plays a small but vital role in ensuring the ongoing food security of the nation. The growth in GVP has been enabled by significant public investment in transport infrastructure (including the targeted sealing of key roads to enable wet season access) and harmonisation of regulatory frameworks relating to transport and biosecurity in Queensland, Western Australia and the Northern Territory.

Agricultural production systems in 2030 look significantly different from those of the late Twentieth Century. Rapid advances in biotechnology and farm management practices have resulted in a 30 per cent decrease in water use and methane emissions from the northern cattle herd. While no new dams have been built in northern Australia since the completion of the Nathan Dam in Queensland’s Fitzroy basin in 2005, irrigation continues to play an important role in northern primary production. Water use efficiency on irrigation farms has on average increased by 300 per cent since 2000 through the adoption of advanced water delivery technologies and new crop varieties. All irrigation farms now use a ‘closed system’ approach, where excess water no longer drains into aquifers and rivers. Nutrient and pesticide use has also dramatically declined, reducing the impact of agriculture in the north while at the same time improving farmers’ terms of trade.

Large numbers of enterprises have implemented small scale irrigation systems that have carefully combined arable land with available water. These new ‘mosaic systems’ have allowed landholders to increase overall unit productivity and better manage risk. Intensification of pastoralism has enabled large areas of pastoral land to be taken out of production and managed for a range of other cultural, conservation and economic activities (such as carbon storage and land...
This intensification of pastoral land use has also enabled pastoralists to work with the wider community to agree on areas that will be destocked and on measures to ensure the ongoing sustainable management of land and water assets.

International and national recognition of the global significance of the natural and cultural landscapes of northern Australia has resulted in an expansion of the conservation estate and the conservation effort across all land tenures. Communities, landholders and governments now work together to conserve Indigenous protected areas, national parks, private wildlife sanctuaries, areas under conservation covenants, World Heritage sites and wetlands listed under the Ramsar Convention. Enhanced efforts in natural resource and biodiversity management have reversed the decline of small mammals and granivorous birds and avoided the wave of extinctions that seemed almost certain in 2009. An ecosystem services economy based on payments for ongoing management of biodiversity is now a mainstream part of the regional economy. As a result of these efforts on both public and private lands, in 2030 over a third of the north is now within the National Reserve System, thereby making a profound contribution to restoring the health of Australia’s unique biodiversity assets.

All of these transformations were enabled by a series of key reforms to land tenure in the north. Consistency has been achieved between leasehold and perpetual title lands across all three northern jurisdictions, thereby enabling greater flexibility of land use on leasehold land, including cropping, tourism, environmental stewardship and Indigenous cultural uses. Minimum requirements for stocking rates on leasehold land were also removed and assistance provided to enable the destocking of marginal pastoral land.

Private wildlife sanctuaries have been established in some locations in partnership with pastoralists and provide ranger jobs and income for Indigenous Traditional Owners. Subleasing arrangements on leasehold land are now also permitted and where intensification activities have occurred, they were preceded by robust environmental impact assessments and have taken account of native title rights. Water needs were determined within the context of National Water Initiative compliant water plans.

In 2030, northern Australia is demonstrating world best practice in the use and management of its tropical freshwater systems. Reflecting their social, cultural and economic values, these freshwater systems are declared assets of national significance. All river basins and their associated aquifers have implemented water management plans that comply with the objectives of the National Water Initiative. This would have not have been possible had it not been for the substantial investment by Australian governments in addressing critical knowledge gaps and building analytical and community capacity. Importantly, adequate provision was also made in these plans for environmental and Indigenous cultural water use and for review to be undertaken as new information came to hand.

In 2030, Indigenous people are central in land and water planning, management and decision making, reflecting the new demographic, economic and political reality in the north. Indigenous aspirations and rights are now fully recognised as a result of the integration of native title and non-Indigenous land use objectives, under a strengthened National Water Initiative which reflects the six principles enunciated at the landmark 2009 Mary River Indigenous Water Experts Forum.
A significant feature of these reforms was the change in emphasis from native title being seen in terms of real estate issues based on western notions of exclusive possession, to one of coexistence where Indigenous rights are an accepted part of all lands and their use in northern Australia. Contested native title recognition, which saw extensive litigation in the twenty years following Mabo around legal concepts such as extinguishment, gave way to values of mutual respect, dialogue and inclusion.

In 2030, Indigenous and non-Indigenous interests are also closer to effective integration in land and water planning and management practices through multiple-use strategies for Indigenous and non-Indigenous controlled land. These strategies not only deliver economic viability, but also parity between Indigenous tenure and management systems and non-Indigenous institutions. Indigenous social and community issues are now also explicitly included in land and water planning and management activities.

In reflecting on why the north has made such a stunning transition, a number of key improvements are evident:

1. Institutional and governance arrangements have been improved, ensuring security and certainty of entitlements relating to the use of land and water assets, and increasing transparency in decision making.

2. Institutional capacity has been improved and properly resourced, ensuring that stakeholders can now participate effectively and equitably in decision making processes.

3. Planning and management arrangements have been focused at a local level, empowering communities to participate in the planning process.

4. Indigenous values and aspirations have been recognised and effectively integrated into land and water planning and management.

5. Critical knowledge gaps evident at the turn of the century have been reduced through investment in essential data collection, applied and social science research and analytical capacity, supporting land and water planning.

In 2030, life for many in northern Australia is very different from what it was in the latter parts of the Twentieth Century. Northern Australia has grown both socially and economically. At the same time it has become a world leader in sustainable resource management. Rather than basing actions on the activities of their southern counterparts, northern Australians have learnt from the mistakes of the past — both theirs and others — and look increasingly east–west as well as north–south. Shared futures are being pursued by many different stakeholders in many different ways and all of them are working toward sustainable regional futures. Indigenous people have at last had their rights properly recognised and non-Indigenous Australians have come to see this as a strength.

The institutions that impact on the use and management of land and water resources bear little resemblance to those of the past. Institutional reform and targeted investment in human, physical and telecommunications infrastructure have addressed the major impediments to doing business in the north. Industry is managing resources responsibly and ethically and in so doing reaping economic, ecological and social benefits unexpected in decades past. Significantly, these changes have been brought about by the active, innovative and energetic contributions of northern Australians themselves. While much remains to be achieved, the land and waterscapes of northern Australia are genuinely on a path of long term sustainability.
## Contents

<table>
<thead>
<tr>
<th>Northern Australia in 2030</th>
<th>Chapter 5: Impacts of development opportunities</th>
</tr>
</thead>
<tbody>
<tr>
<td>Executive summary</td>
<td>Restoration</td>
</tr>
<tr>
<td>Coverage</td>
<td>25</td>
</tr>
<tr>
<td>Principles</td>
<td>Dealing with environmental impacts</td>
</tr>
<tr>
<td>Consultations</td>
<td>directly and indirectly</td>
</tr>
<tr>
<td>Supporting research</td>
<td>Mosaic developments and intensification</td>
</tr>
<tr>
<td>Key findings of the Taskforce</td>
<td>Larger scale developments on local communities</td>
</tr>
<tr>
<td>Recommendations</td>
<td>Drinking water quality</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Chapter 1: Establishing the Taskforce</strong></td>
<td><strong>Chapter 6: Planning instruments</strong></td>
</tr>
<tr>
<td>Geographic coverage</td>
<td>Infrastructure</td>
</tr>
<tr>
<td></td>
<td>Land tenure and pastoral lease arrangements</td>
</tr>
<tr>
<td></td>
<td>Red tape</td>
</tr>
<tr>
<td></td>
<td>Sustainable tourism</td>
</tr>
<tr>
<td>Chapter 2: Taskforce deliberations</td>
<td>Effective and robust water and land use planning</td>
</tr>
<tr>
<td>Principles</td>
<td>Recognising Indigenous rights and interests</td>
</tr>
<tr>
<td>Taskforce consultations</td>
<td>Incentives for sustainable development</td>
</tr>
<tr>
<td>Submissions</td>
<td></td>
</tr>
<tr>
<td>Additional commissioned work</td>
<td></td>
</tr>
<tr>
<td>Comprehensive assessment</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Chapter 3: Sustainable capacity of northern rivers</strong></td>
<td><strong>Chapter 7: Governance</strong></td>
</tr>
<tr>
<td>Sustainable capacity of the river systems in northern Australia</td>
<td>Institutional capacity to achieve NWI principles</td>
</tr>
<tr>
<td>Knowledge gaps for effective decision making</td>
<td>Interjurisdictional water resources</td>
</tr>
<tr>
<td></td>
<td>Freshwater systems of national significance</td>
</tr>
<tr>
<td></td>
<td>Indigenous rights and interests in land and water</td>
</tr>
<tr>
<td></td>
<td>Seamless governance and connected institutional capacity</td>
</tr>
<tr>
<td></td>
<td>Northern leadership</td>
</tr>
<tr>
<td></td>
<td>Incentives for sustainable development</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>Chapter 4: Development opportunities</td>
<td>attachment A: Taskforce members</td>
</tr>
<tr>
<td>Tourism</td>
<td></td>
</tr>
<tr>
<td>The conservation sector</td>
<td></td>
</tr>
<tr>
<td>Indigenous enterprise and conservation</td>
<td></td>
</tr>
<tr>
<td>Commercial fishing</td>
<td></td>
</tr>
<tr>
<td>Agriculture</td>
<td></td>
</tr>
<tr>
<td>Mining</td>
<td></td>
</tr>
</tbody>
</table>

| **Attachment A: Taskforce members** |
Executive summary

The Northern Australia Land and Water Taskforce (the Taskforce) was convened in June 2007 to establish a better understanding of opportunities for new sustainable economic developments in the north, based on water resource availability. In September 2008 the terms of reference and membership for the Taskforce were changed to broaden its inquiries and strengthen its independence.

Key priorities for the Taskforce were to find new opportunities for economic development in the north, based on water availability and sustainability, and to report on the potential impact of new developments on water balance and quality, the environment, existing water users and the broader community.

The Taskforce comprised fourteen members drawn from a diverse range of interests, including business, Indigenous, conservation, agriculture, minerals and resources and science. A list of the Taskforce members and their biographical details is provided in attachment A.

Coverage

The Taskforce was directed to address its enquiries to the key surface and groundwater systems within the Timor Sea and Gulf of Carpentaria drainage divisions, and that part of the North East Coast drainage division north of Cairns.

Principles

The Taskforce agreed to adopt a principles-based approach to addressing the terms of reference. The set of principles agreed by the Taskforce provided a lens through which the Taskforce considered the terms of reference. The eight agreed principles are:

1. Northern Australia is unique and needs to be viewed through a northern lens.
2. Indigenous people have rights and interests in northern Australia’s land and water.
3. Northern Australia is an integrated region for action, from Cairns in the east to Broome in the west.
4. Communities in northern Australia need to be empowered to achieve their aspirations.
5. Places of natural and cultural significance should be conserved.
6. Freshwater river systems in northern Australia need to be recognised as nationally significant and their hydrological connectivity maintained.
7. Both western and Indigenous knowledge of northern Australia is needed to inform our understanding of environmental sustainability.
8. Building climate change adaptive capacity is important.
Consultations

In addressing the terms of reference, the Taskforce consulted widely with stakeholders and communities across northern Australia. Over 80 public meetings and consultations were conducted and more than 100 public submissions received.

With the assistance of the North Australian Indigenous Land and Sea Management Alliance (NAILSMA), a meeting with over 80 Indigenous water experts from Western Australia, Queensland and the Northern Territory was also convened. The Northern Australian Indigenous Water Experts forum canvassed priority Indigenous interests and aspirations. A key message to come from the meeting was the need to recognise the fundamental principle that water, land and Indigenous people are intrinsically entwined.

Supporting research

A key research project that was delivered to assist the Taskforce address its first term of reference was the CSIRO’s Northern Australia Sustainable Yields (NASY) study. The NASY study, published in September 2009, assessed water resource availability under alternative development scenarios across each of the 64 river basins in northern Australia.

To build on and extend the NASY study, the Taskforce commissioned a comprehensive review of northern Australian land and water science. Referred to as the Northern Australia Land and Water Science Review 2009 (hereafter referred to simply as the Science Review), the project was coordinated by CSIRO in collaboration with over 80 of Australia’s leading scientists working on northern land and water issues. The Science Review represents the most comprehensive and thorough review ever undertaken of conventional science and knowledge of issues relevant to the sustainable development of northern Australian land and water.

Key findings of the Taskforce

The key findings of the Taskforce are summarised below.

Uniqueness

- Planning and management of land and water resources in northern Australia must account for Indigenous rights and interests.
- The north’s unique environments are of global significance.
- Conservation and management of land and water resources are critical to the economy of northern Australia.
- The northern cattle industry (including Indigenous pastoral land) involves around 90 per cent of the land area of northern Australia.

Opportunities

- The development of groundwater resources provides the best prospect to support new consumptive uses of water. The most prospective provinces are large and extend well beyond jurisdictional boundaries.
- There are approximately 600 gigalitres of groundwater potentially available across northern Australia that could support new consumptive uses.

Stuart Blanch
Mosaic agriculture has been identified as an appropriate model for new agriculture in northern Australia that warrants further consideration.

The potential for growth in groundwater irrigable land in northern Australia is estimated at between 100 and 200 per cent, or around 20,000 – 40,000 hectares.

A range of co-conditions are required to unlock the full potential of many opportunities in northern Australia.

Economic opportunities exist for Indigenous people to build on their comparative advantage in providing customary and commercial services on the vast Indigenous estate.

All land holders have a role to play in managing the landscape and providing environmental stewardship.

Constraints

- There are critical gaps in our knowledge and data sources, and in our understanding of Indigenous knowledge.
- Despite high rainfall, the north is seasonally water limited.
- The ability to capture and store surface water for consumptive use is constrained by climate and topography.
- The precautionary principle should apply to water management and planning.
- Surface and groundwater systems are highly connected.
- The complex interconnection between them is critical to the operation of the landscape but is poorly understood.

Risks

- Unmanaged land, either public or private, poses risks to the natural and cultural estate and future opportunities.
- Rapid large-scale development in northern Australia can significantly impact on communities. All potential impacts need to be rigorously assessed prior to development proceeding.
- Reducing red tape and harmonising policies and regulations across northern jurisdictions will continue to be important to maximise productivity and reduce inefficiencies.
- The National Water Initiative is an effective and robust policy framework for the planning and sustainable management of water resources. However, implementation has been too slow.
- A comprehensive cross-border governance framework is required to strengthen implementation of the National Water Initiative.
- Institutional and governance arrangements in northern Australia are not yet strategically focused, nor resourced to seamlessly manage land and water across the north.
- Achieving a sustainable future for northern Australia requires collaboration between governments, agencies and stakeholders working together.

Recommendations

Developing Northern Australia as an integrated, sustainable region is a new policy agenda and a complex policy challenge that requires strategic focus, national leadership and an appreciation of the north’s current and potential future contribution to national prosperity. ‘Closing the Gap’ for Indigenous Australians is also imperative.

The Taskforce offers the following recommendations for the consideration of Government:

**Recommendation 1:** Australian governments should significantly increase investment in climate, water, land and environment data collection and analysis to support land and water use planning, catchment level water planning and local decision making.

**Recommendation 2:** Australian governments should support a comprehensive geophysical survey program to quantify groundwater resources and salinity risks in priority groundwater provinces of northern Australia, particularly where new consumptive uses, such as for intensive agriculture, are most prospective.

**Recommendation 3:** Australian governments should significantly increase investment in social, cultural, and economic analysis to support the assessment of competing values and uses for land and water use planning, catchment level water planning and local decision making.
Recommendation 4: Australian governments should provide ongoing support for partnerships among landholders, communities and government to manage restoration and enhance sustainable production.

Recommendation 5: Australian governments should act to improve the condition and resilience of the natural estate of northern Australia through the provision of market based incentives to reward good stewardship on privately held and Indigenous owned lands.

Recommendation 6: Australian governments should continue to support the national reserve system to enhance conservation outcomes across northern Australia.

Recommendation 7: As an urgent priority, governments should ensure that all communities in northern Australia have access to drinking water that meets appropriate water quality standards, and that future water-based developments do not negatively impact the supply or quality of drinking water.

Recommendation 8: Australian governments should adapt and harmonise pastoral lease conditions (including on Indigenous land) across northern Australia to allow greater diversification and flexibility in land use, subject to compliance with the principles of ecologically sustainable development, the objectives of the National Water Initiative and the ongoing coexistence of native title rights.

Recommendation 9: Australian governments should review the variety of land tenure arrangements and water entitlements that exist across northern Australia, with a view to improving flexibility and harmonisation across jurisdictions and creating property rights that underpin their bankability (ability to be used as security for investment capital).

Recommendation 10: Australian governments, working collaboratively with the private sector, should develop sustainable tourism strategies for northern Australia.

Recommendation 11: Australian governments should strengthen implementation of the National Water Initiative to improve the management of land and water resources in northern Australia.

Recommendation 12: The allocation of water rights under statutory water plans should explicitly recognise Indigenous Peoples’ rights and interests in water.

Recommendation 13: Australian governments should invest in communication, social marketing, education and knowledge brokering to improve public understanding of Indigenous rights and interests and sustainable water resource management, and deepen commitment to the principles of ecologically sustainable development, as they apply in northern Australia.

Recommendation 14: The Commonwealth Government should, in conjunction with the governments of Western Australia, Queensland and Northern Territory, establish a Northern Australia Land and Water Authority (NALWA), headquartered in northern Australia, to build institutional capacity, improve compliance with the National Water Initiative and advocate for the needs and interests of northern Australia.

Recommendation 15: A Council of Northern Australia (CONA) should be established. Chaired by the Prime Minister and comprising first Ministers of the northern jurisdictions, it should develop an integrated vision for the sustainable development of northern Australia and provide leadership on key priorities.
Chapter 1: Establishing the Taskforce

In January 2007 the Australian Government announced a $10 billion reform program designed to place rural water use on a sustainable footing. The plan recognised that, along with a better understanding of water resource security in the south, there would be a need to consider opportunities for further development of water resources in the north. It was also recognised that ongoing development of northern Australia’s land and water resources needs to occur in a manner consistent with the principles of the National Water Initiative. To do so, development would need to take place within a strategic framework that balanced the principles of ecological, cultural and economic sustainability. This approach was seen as crucial to avoiding the widespread problems that have arisen from land and water resources development elsewhere, including in southern Australia. How decision makers might proceed wisely was recognised as a crucial question, particularly given the current knowledge gaps about northern Australia.

On 29 June 2007 the Northern Australia Land and Water Taskforce was convened to establish a better understanding of opportunities for new sustainable economic developments in the north, based on water resource availability. On 26 September 2008, Prime Minister Kevin Rudd announced changes to the Taskforce. The changes included revising the terms of reference to broaden the scope of inquiries and changing the membership to strengthen the independence of the Taskforce. Mr Joe Ross, a respected Indigenous leader from Fitzroy Crossing, Western Australia, was appointed to chair the new Taskforce. The terms of reference for the Taskforce are provided in the accompanying box.

As part of the overhaul of the Taskforce, the Government directed the Taskforce to focus on two main responsibilities:

- Finding new opportunities for economic development in the north based on water availability and sustainability and
- Reporting on the potential impact of new developments on water balance and quality, the environment, existing water users and the broader community.

Terms of Reference

Northern Australia Land and Water Taskforce

For each of the key surface and groundwater systems and basins within the Timor Sea and Gulf of Carpentaria drainage divisions, and that part of the North East Coast drainage division north of Cairns, the Taskforce will:

1. Identify, consistent with the provisions of the National Water Initiative, the sustainable capacity of the river systems and/or drainage basins to support increased consumptive water use
2. Identify, consistent with sustainable resource use principles and practices, economic development and diversification opportunities (including non-consumptive uses) which rely on access to locally or regionally significant water resources
3. Identify the potential impact of such development opportunities on the natural environment and other users and the broader community
4. Identify incentive, market, regulatory or planning instruments that could be used to facilitate, control or influence development, such that it proceeds in a manner consistent with the principles of the National Water Initiative and
5. Recommend governance arrangements for the effective management of surface and groundwater resources that cross jurisdictional boundaries.
Geographic coverage

The Taskforce was directed to address its enquiries to the key surface and groundwater systems within the Timor Sea and Gulf of Carpentaria drainage divisions, and that part of the North East Coast drainage division north of Cairns. It covers about 120 million hectares and excludes major centres such as Cairns, Townsville and the Pilbara, as well as major Queensland river basins such as the Tully, Herbert, Burdekin, Pioneer and Fitzroy. The geographic coverage of the Taskforce’s inquiries is illustrated in map 1.

Map 1: Coverage of Taskforce enquiries
Chapter 2: Taskforce deliberations

Principles

Early in its deliberations, the Taskforce agreed to adopt a principles-based approach to addressing the terms of reference. These principles elaborate the concept of sustainability and provide a lens through which the Taskforce considered the terms of reference. The eight agreed principles are set out in the boxed section on the following pages.

Taskforce consultations

In addressing the terms of reference, the Taskforce consulted widely with stakeholders and communities in northern Australia. Key issues raised during these consultations were captured in a series of communiqués released by the Taskforce. Copies of all Taskforce communiqués are available from the Taskforce website at www.nalwt.gov.au.

In over 80 face-to-face meetings, the Taskforce heard the views of individuals and organisations from numerous communities, including in: Weipa and on the Wenlock River on Cape York Peninsula; Normanton, Richmond, Georgetown and on the Gilbert River in the northern Gulf; Lakeland, Cooktown, Hopevale, Cairns and Townsville in far north east Queensland; Brisbane; Darwin; Katherine; Mataranka and Elsey Station south east of Katherine; Midway Station and the Naiuyu community on the Daly River; Palumpa Station near Wadeye; Perth; Broome; Kilto and Roebuck Plains stations east of Broome, and the Eco-beach resort south of Broome; Home Valley Station in East Kimberley; Kununurra; and Legune Station north east of Kununurra.

In an additional meeting convened by the North Australian Indigenous Land and Sea Management Alliance (NAILSMA), representatives from the Taskforce met with over 80 Indigenous water experts from Western Australia, Queensland and the Northern Territory. The facilitated meeting, which was held at Mary River Crossing in the Northern Territory, canvassed a range of priority Indigenous interests and aspirations. A key message from the meeting was the fundamental principle that water, land and Indigenous people are intrinsically entwined (Mary River Statement, www.nailsma.org.au).

Submissions

On two occasions the Taskforce invited individuals or organisations to provide written input for their consideration. More than 100 submissions were received. Copies of all public submissions provided to the Taskforce are available from the Taskforce website at www.nalwt.gov.au.

In July 2007 the Taskforce called for submissions from individuals or organisations to identify catchment areas in northern Australia that would be valuable for the Taskforce to examine more closely and to describe the nature of opportunities and constraints to growth. In August 2009 the Taskforce again invited submissions focusing on new opportunities for development in the north, impacts and new governance and institutional arrangements for the effective management of water resources.

In September 2009 the Taskforce also convened meetings in Darwin and Cairns with stakeholders from the resources, agriculture and conservation sectors. The Darwin and Cairns meetings were advertised in northern media and more than 40 people attended.
Principles adopted by the Taskforce

Northern Australia is unique and needs to be viewed through a northern lens

Northern Australia is unique. It is economically, ecologically, socially and culturally different from southern Australia. In order to plan for sustainable economic development in northern Australia, these differences need to be understood and respected.

Distinct from the more populated regions of southern Australia, the north has both a much larger Indigenous proportion of the population (over 30 per cent) and a much larger Indigenous owned estate (also around 30 per cent).

The north is strongly monsoonal with an almost rainless dry season followed by a shorter season of storms, cyclones and torrential rain. The harsh climate shapes the landscape and dictates the types of land use activities the north can sustain.

Northern Australia boasts a richness in biodiversity that is rare by world standards and is the only developed nation with a large tropical region. It supports the world’s largest remaining tropical savannah, one of the world’s largest networks of free-flowing tropical rivers, and the world’s largest healthy near-shore tropical marine ecosystem.

The north supports the world’s oldest living culture, with Indigenous people continuing to live on Country. However, all of the north is remote or very remote and many communities are significantly disadvantaged.

Indigenous people have rights and interests in northern Australia’s land and water

Any consideration of economic futures for northern Australia must recognise the region’s significance for Indigenous people and their intrinsic connectedness to land and water.

‘Indigenous Peoples have rights, responsibilities and obligations in accordance with their customary laws, traditions, protocols and customs to protect, conserve and maintain the environment and ecosystems in their natural state so as to ensure the sustainability of the whole environment … Indigenous Peoples have always been part of and are crucial to the maintenance of our ecosystems and therefore want to ensure minimal impact from settlement and unsustainable development across Northern Australia.’

Extract from the Mary River Statement, August 2009.

Northern Australia is an integrated region for action, from Cairns in the east to Broome in the west

Physical and social circumstances connect northern Australia from east to west. Citizens of the north share more in common with each other than they do with those in their state capitals, far to the south. Treating northern Australia as a single, integrated region maximises the relevance and application of policies and actions for those who live there.

Communities in northern Australia need to be empowered to achieve their aspirations

Stakeholders across the north are calling for an effective partnership with government that:

- allows adequate time for stakeholders to engage in the detail of proposals
- transparently engages stakeholders in planning and decision making (‘thrash it out in a catchment’) and
takes a whole of government approach to planning and management.

A review of the appropriateness of regulations across the jurisdictions will also be critical to facilitating sustainable outcomes.

Places of natural and cultural significance should be conserved

Northern Australia’s natural heritage is iconic. Indigenous culture and heritage across the north is diverse, strong and critically interconnected with the landscape.

In contrast to southern Australia, much of the natural landscape remains intact, supporting functioning, productive and healthy ecosystems. Less than one per cent has been cleared. The north’s free-flowing rivers provide valuable natural infrastructure for diverse environmental, cultural and economic uses.

The overlap of the Indigenous estate with the conservation estate in northern Australia is also a unique feature of northern Australia.

Freshwater river systems of northern Australia need to be recognised as nationally significant and their hydrological connectivity maintained

Very few rivers in northern Australia flow year-round and those that do are highly valued. They support complex and healthy ecosystems. The people who live in the north also have enduring historical, social and cultural connections to them. These are freshwater systems of national significance.

Perennial rivers in northern Australia are rainfall dependent in the wet season and sustained by localised groundwater discharge during the dry season. The seamless interconnection between surface water flows and groundwater discharge (and recharge) is critical to their integrity.

Both western and Indigenous knowledge of northern Australia is needed to inform our understanding of environmental sustainability

Sustainable development in northern Australia requires a strategic framework of coordinated action, founded on:

- robust planning addressing knowledge gaps through scientific research
- local knowledge of the environment through catchment level engagement and
- innovative partnerships with Indigenous Australians.

Understanding of northern landscapes will be deepened through an integration and application of both western and Indigenous knowledge.

Building climate change adaptive capacity is important

Climate change impacts present a range of risks and opportunities. Building the adaptive capacity of landscapes and the resilience of communities to respond to climate change in northern Australia is critical.
Additional commissioned work

In establishing the Taskforce in June 2007, the Government also established the Northern Australia Land and Water Futures Assessment. Due to run from 2007–08 to 2011–12, the Assessment is being coordinated by the Department of the Environment, Water, Heritage and the Arts and the National Water Commission, in collaboration with state and territory government agencies.

The purpose of the Assessment is to support and inform the Taskforce and to establish a comprehensive and enduring knowledge base, with which decision makers and the community ‘assess’ the capacity of river basins to sustain increased consumptive use of water — that is, to assess development proposals.

A key research output delivered through the Assessment program has been the CSIRO Northern Australia Sustainable Yields (NASY) study. The NASY study assessed water resource availability under alternative development and climate change scenarios across each of the 64 river basins in northern Australia. The study covered the Timor Sea and Gulf of Carpentaria Drainage Divisions and that part of the North East Coast Drainage Division that lies north of Cairns. A copy of the NASY study is available directly from the CSIRO website www.csiro.au/partnerships/NASY.

Comprehensive assessment

To build on and extend the NASY study, the Taskforce also commissioned an additional comprehensive assessment of northern science, referred to as the Northern Australia Land and Water Science Review 2009 (hereafter referred to simply as the Science Review).

The Science Review was coordinated by CSIRO Sustainable Ecosystems in collaboration with: Queensland Department of Environment and Resource Management; Northern Territory Department of Natural Resources, Environment, the Arts and Sport; Western Australia Department of Agriculture and Food; Tropical Rivers and Coastal Knowledge (TRA CK); Australian Rivers Institute, Griffith University; Julian Cribb and Associates; Centre for Aboriginal Economic Policy Research, Australian National University; Crawford School of Economics and Government, Australian National University; Kimberley Institute; Sustainable Minerals Institute, University of Queensland; EconSearch; Central Queensland University; Northern Gulf Resource Management Group; Mitchell River Watershed Management Group; Daly River Management Advisory Committee; and Sustainable Agriculture Flagship, CSIRO.
Chapter 3: Sustainable capacity of northern rivers

Terms of reference

Identify, consistent with the provisions of the National Water Initiative, the sustainable capacity of the river systems and/or drainage basins to support increased consumptive water use.

Key findings

- There are critical gaps in our knowledge and data sources, and in our understanding of Indigenous knowledge.
- Despite high rainfall, the north is seasonally water limited.
- The ability to capture and store surface water for consumptive use is constrained by climate and topography.
- The development of groundwater resources provides the best prospect to support new consumptive uses of water. The most prospective provinces are large and extend well beyond jurisdictional boundaries.
- There are approximately 600 gigalitres of groundwater potentially available across northern Australia that could support new consumptive uses.

Surface and groundwater systems are highly connected and must be treated as integrated systems in water resource planning and management.

The best available estimate of the amount and distribution of water in northern Australia is the CSIRO's Northern Australia Sustainable Yields (NASY) study. The study was released on 21 September 2009 by the Parliamentary Secretary for Water, the Hon Dr Mike Kelly AM MP.

Approximately 1 million gigalitres of rainfall is received each year across the north. This is equivalent to eight and a half times the annual runoff in the Murray-Darling Basin, or 2000 times the capacity of Sydney Harbour. Approximately 20 per cent of the total rainfall enters the rivers and streams (streamflow) and about 15 per cent recharges groundwater resources. The remaining 65 per cent is evaporated from the soil and transpired from plants (evapotranspiration).

Despite these huge volumes of water, the north can be described as being water limited. This paradox arises for several reasons.

- Despite high rainfall from November to April there is almost no rain for the remaining six months. Evaporation and plant transpiration is so high throughout the year that, on average, for 10 months of the year there is very little water to be seen.
- Most rainfall occurs near the coasts and on floodplains, so much of it runs quickly to the sea, making it hard to capture. Relatively little of the rainfall occurs in the upper reaches of rivers where the topography to allow dam construction might be more favourable.
• The very high rates of evaporation (up to 3 metres a year) make it hard to store surface water year round without large and deep storages, for which there are few good sites. The significant variability in rainfall from year to year, in addition to its highly seasonal nature, also means that water storages need to be very large.

For these reasons, the ability to conserve and access surface water for consumptive use is highly constrained. The Taskforce therefore considers that extensive use of surface water is unlikely, principally on the basis of water use efficiency and the likely very high cost of capture and storage options.

The Taskforce is agreed that the development of groundwater resources provides the best prospect to support new consumptive use of water in northern Australia. Available science and data, summarised in the Science Review, indicate that there is approximately 600 gigalitres of groundwater potentially available across northern Australia that could support new consumptive uses (without presupposing the financial viability or sustainability of any particular option).

The Daly, Wiso and Georgina groundwater provinces in the Northern Territory and north western Queensland have been assessed as having most prospectivity (map 2). The Science Review indicates that each province could be expected to deliver around 100 gigalitres a year, although the Taskforce notes that the Daly province may be almost fully allocated already. The Canning (east of Broome), Ord-Victoria (east of Kununurra), Pine Creek (south east of Darwin), McArthur and Great Artesian provinces have been assessed as having medium prospectivity and could be expected to deliver 10–100 gigalitres of groundwater a year.

Map 2: Groundwater resources and prospectivity
It is estimated that around 20,000 hectares are currently irrigated in northern Australia using groundwater resources. By overlaying the regional availability of groundwater with an assessment of the regional availability of suitable agricultural soils, it is estimated that an area of approximately 20,000–40,000 hectares of new intensive agriculture could be supported by potentially available groundwater. Of course, to be compliant with the National Water Initiative, it is recognised that this water would need to be assigned according to agreed statutory water plans that take into account diverse and competing water uses. Again this estimate does not presuppose the financial viability of any particular development option nor seek to make a commercial judgment about possible options.

Groundwater resources in northern Australia currently support a wide range of functional uses. These include: unique aquatic and terrestrial ecosystems; recreational and commercial fisheries and the tourism that is based on them; a range of largely non-consumptive Indigenous cultural uses; and consumptive uses supporting irrigated agriculture, stock and domestic, and mining and resources projects.

Water is critical to each of these uses, and because water is limited and fully used in supporting them, any increased consumptive use will necessarily involve a degree of tradeoff between new uses and the range of existing consumptive and non-consumptive uses.

Sustainable capacity of the river systems in northern Australia

It is not currently possible to specify, at a local scale, the amounts of water that may be available to support increased consumptive use.

First, as outlined below, the data required to fully quantify the water that is available for consumptive use, in most catchments, do not exist. Second, even if the data were available, there remain unanswered questions about the cost effectiveness of investments to capture and store surface water for consumptive uses. Lessons from the Murray-Darling Basin indicate that although many developments are technically feasible, they may not necessarily be cost effective, ecologically sustainable, or represent an equitable distribution of resources. Consistent with the National Water Initiative, the Taskforce assumed that the large scale capture and storage of surface water in northern Australia that would be required to support irrigation (or other water uses) throughout the dry season is unlikely to meet public cost-effectiveness criteria, and hence will not attract significant public funding. While private investment in water infrastructure is feasible, the returns required by private investors are likely to exceed those required by governments.

The Taskforce does recognise that there will be some community services needed to meet social public health obligations, such as supply of drinking water, for which strict economic criteria should not be applied.

Some small scale off-stream storage options may be viable when considered in the context of supplementary irrigation operations, for example, to finish or extend a wet season crop. As long as appropriate NWI-compliant water planning is undertaken, including the assessment of direct and cumulative environmental impacts, the Taskforce considers that investment in small scale infrastructure is largely a commercial issue.
Third, a number of key areas of water diversion, such as forestry, mining and resource projects and stock and domestic licences, are generally excluded from accounting for water planning purposes. In the case of the mining and resources sector, mine dewatering, extracting water for minerals processing or co-extracting water in oil and gas production does not generally require a licence for water extraction and is not recognised in water resource caps. The inability to account for surface or groundwater use by these users makes complete water accounting in northern Australia difficult.

Finally, even if data were available and the cost effectiveness of capturing and storing surface water was positive, there remains the challenge of reconciling community values, needs and aspirations with future water use at a local or catchment level, as well as the tradeoffs between consumptive and non-consumptive uses of water (dealt with in the following section).

Thorough geophysical groundwater survey programs and additional critical knowledge infrastructure are needed to support assessments at spatial and temporal resolutions appropriate for catchment and local decision making. Investment should be prioritised on the basis of the likelihood, nature and extent of resource development with the outcomes made widely and publicly available.

**Recommendation 1**

Australian governments should significantly increase investment in climate, water, land and environment data collection and analysis to support land and water use planning, catchment level water planning and local decision making.

**Recommendation 2**

Australian governments should support a comprehensive geophysical survey program to quantify groundwater resources and salinity risks in priority groundwater provinces of northern Australia, particularly where new consumptive uses, such as for intensive agriculture, are most prospective.

**Knowledge gaps for effective decision making**

The estimates of water availability in the Science Review are based on the best available information. As mentioned earlier, there are critical gaps in our knowledge and data sources and in our understanding of Indigenous knowledge. Local or catchment level planning and decision making will not be fully effective until these knowledge gaps are addressed.

In addition to this, it is not currently possible to accurately assess tradeoffs between different uses of water at the scale required to inform decisions that seek sustainable or equitable outcomes.

The water available for consumptive use is not well understood. While the amount of water in the landscape has been broadly quantified, detailed knowledge of how much water is available, where it could be taken from, and when it could be taken is currently very limited. The capacity to quantify sustainable yield (the amounts and rates at which water can be taken, and their impacts on other water uses and values) is even more limited.
Recommendation 3

Australian governments should significantly increase investment in social, cultural, and economic analysis to support the assessment of competing values and uses for land and water use planning, catchment level water planning and local decision making.
Chapter 4: Development opportunities

**Terms of reference 2**

Identify, consistent with sustainable resource use principles and practices, economic development and diversification opportunities (including non-consumptive uses) which rely on access to locally or regionally significant water resources.

**Key findings**

- The north’s unique environments are of global significance.
- Conservation and management of land and water resources are critical to the economy of northern Australia.
- The northern beef cattle industry (including Indigenous pastoral land) involves around 90 per cent of the land area of northern Australia.
- Economic opportunities exist for Indigenous people to build on their comparative advantage in providing customary and commercial services on the vast Indigenous estate.
- The potential for growth in groundwater-irrigable land in northern Australia is estimated at between 100 and 200 per cent, or around 20 000 – 40 000 hectares.
- Mosaic agriculture has been identified as an appropriate model for new agriculture in northern Australia that warrants further consideration.

All of northern Australia’s major economic development and diversification opportunities rely on access to water resources. This, along with their social and environmental importance, makes virtually all water resources locally or regionally significant. The Science Review indicates that water in the north is fully utilised supporting the existing range of uses. This includes consumptive use in mining and agriculture, as well as non-consumptive use in commercial and recreational fishing, tourism and in sustaining the natural and cultural environment.

Future water-based development need not be confined to deliberate modification of the landscape, or to the extractive use of water or soil. For example, the multibillion dollar northern Australian tourism and conservation sectors and the Indigenous culture economy depend on the north’s largely intact natural resources.

An opportunity exists for governments to avoid repeating the mistakes made in southern Australia and parts of northern Australia by providing governance and planning arrangements that ensure that the use of water (consumptive or non-consumptive) is assigned equitably to its highest economic, social and environmental value.

Entrepreneurial ideas should be assessed by governments using the principles of ecological sustainability. It is not the role of governments to ‘pick winners’. A number of economic development and diversification opportunities are highlighted below, along with cases where new opportunities are being limited. The contemporary history of development in northern Australia has been a mix of private entrepreneurship and government sponsorship, with mixed success. The Taskforce believes the future growth of northern Australia will depend on the success of partnerships between governments, communities and entrepreneurs, working together.
Tourism

Tourism currently makes an important contribution to the economy of northern Australia and offers development opportunities in conjunction with other major industry sectors in northern Australia, such as commercial and recreational fishing, beef cattle, Indigenous culture and conservation. There is also potential for growth in core tourism markets, such as scenic and experiential tours. As an indication of the potential economic influence of the tourism sector, it is estimated that the total expenditure of tourists on all goods and services in northern Australia, including goods and services not directly supplied by tourism operators, is around $2.8 billion a year.

The region’s national and international reputation has been built on its unique and largely intact natural landscape and remoteness that offer opportunities for a broad range of experiences. In contrast to many other places, including southern Australia, much of the natural landscape of northern Australia remains intact, supporting functioning, productive and healthy ecosystems.

Indigenous culture and heritage across the north is also diverse and strong and attracts national and international visitors to the region. This market segment has significant potential for growth. However, ensuring these tourism opportunities are sustainable is challenging. Not all opportunities are commercially viable and proposals must link to broader social development, infrastructure and economic planning.

Proposals also need to recognise that increasing the number of visitors to the region potentially has impacts on the environment, as well as the social and economic needs of local communities. Even designated heritage areas are not immune to pressure from increased visitor numbers and must have effective management strategies.

Careful water and resource allocation planning and the conservation of natural ecosystems are necessary foundations for tourism. Building effective water planning and biodiversity conservation institutions is important in this process. Over the longer term, success will ultimately hinge on both access and infrastructure. In the absence of either, development in the tourism sector will be limited to isolated projects providing few Indigenous opportunities and limited ongoing benefits.

The conservation sector

The Taskforce recognises conservation and natural resource management across northern Australia as a valuable and important contributor to the economy and communities of the north, as well as to the broader Australian economy and society. While not recognised statistically as a separate industry, the Taskforce acknowledges that conservation and management of the vast, healthy and largely intact natural and cultural estate in northern Australia represents a significant economic activity that intersects with almost all other major industries in the north (estimated to be worth approximately $200 million a year). In particular the interconnection between the tourism sector and conservation and natural resource management is considered important.

Across northern Australia a wide array of environmental services are provided, for which the monetary value of benefits (or forgone costs) are not accounted — for example, grasslands and savannahs provide carbon
storage, maintain biodiversity and supply bush foods for remote communities. Similarly, water across the northern landscape provides environmental and economic value. Freshwater flowing to the sea, particularly during seasonal flooding, reshapes river courses and supplies sand to replenish beaches; river flows carry food and habitat for aquatic plants and animals in the connected estuarine and marine ecosystems, essential to commercial and recreational fisheries; and flood events, and particularly less regular large floods, provide triggers for fish movements and spawning, critical to the long term sustainability of industries such as the wild barramundi and northern prawn fishery.

All these services are provided regardless of land tenure arrangements on public, private and Indigenous owned and managed estates. Increasing protected areas and improving land management across the range of land tenures in northern Australia has the potential to enhance the natural estate and to have a positive impact on the long term sustainability of a wide range of industries.

Extending and deepening the application of stewardship arrangements to facilitate the management and protection of highly valued conservation areas on private land is a preferred option. Ensuring sufficient resources are available so that the vast public and Indigenous owned estate across northern Australia can be managed to mitigate the risks associated with feral animals, weeds, invasive species or damaging wild fires is another important priority. Support for Indigenous ranger programs, as well as improving coordination between governments in the management and delivery of ranger programs, also warrants consideration. The Taskforce also supports continued efforts to expand the National Reserve System to protect globally significant ecosystems, through a network of protected areas across land tenures.

Indigenous enterprise and conservation

Across northern Australia a wide range of economic opportunities exist for Indigenous people to build on their comparative advantage in providing customary and commercial services on the vast Indigenous estate. Examples of this are: environmental and resource management services, such as the land and sea ranger programs, fresh water management and weed eradication; eco-tourism; and Indigenous knowledge of medicinal plants and bush foods. A range of new opportunities also exist for Indigenous people in the emerging carbon market. Carbon abatement through managed savannah burning and sequestration through land and forest management are two possible options.

Key initiatives that governments might consider in a northern Australian strategy for Indigenous enterprises include: northern business incubation and innovation hubs; business mentoring and training; the trial of market-based instruments in emerging economies, such as environmental services or carbon abatement or sequestration; and furthering development of the Indigenous pastoral industry.
For these opportunities to be developed by Indigenous people and for the businesses to succeed, it will be important for governments to assist in the development of individual and institutional capacity. Capacity building is needed across northern Australia. Australian governments, working with the network of researchers already focused on northern Australia, are encouraged to increase support for research and development focused on these industries.

It is also critical to understand that water dependent development need not imply only transactions in the market sector. Indigenous livelihoods and well-being are heavily reliant on water dependent natural resources. Changes to the natural resource base affect the value of the Indigenous culture economy upon which up to a third of the north’s population may depend.

**Commercial fishing**

The commercial (around $160 million) and wild fisheries in northern Australia are another significant regional industry whose viability is critically linked to the maintenance of natural water flows and the sustainable management of wild harvests. The Science Review indicates that their viability is sensitive to modification of land use, barriers to river flows and increased consumptive water use. In contrast to the major marine fisheries in southern Australia that are critically dependent on ocean currents, the northern Australian fisheries are critically dependent on river flows. As discussed earlier in this chapter, the connection of rivers to the estuarine and marine system affects breeding cycles, food supplies and growth rates.

**Agriculture**

Beef production ($1 billion) and intensive irrigated agriculture ($160 million) are significant contributors to the economy of northern Australia. Future growth in these industries is currently limited by a number of factors, including access to water.

The Taskforce was advised that estimating the quantity and quality of the potentially available land and water resources in northern Australia, as well as their coincidence, is a difficult task over such a large and diverse area because:

- current available mapping of land and soil resources in northern Australia falls well short of the 1:50 000 scale resolution required to identify prospective sites requiring more detailed examination for farm planning and
- the precise extent and location of available groundwater resources for use in the agriculture sector is unclear because groundwater data for most of northern Australia are sparse.

Notwithstanding these qualifications, and as discussed previously in chapter 3, the Science Review indicated that, based on the coincidence of groundwater...
availability and suitable agricultural soils, the total area of groundwater-irrigable land in northern Australia is approximately 40,000 – 60,000 hectares. Given that around 20,000 hectares are already currently irrigated using groundwater resources in northern Australia, the potential for growth is estimated to be between 100 and 200 per cent.

The Daly, Wiso and Georgina groundwater provinces in the Northern Territory and north western Queensland were assessed in the Science Review as having high prospectivity and together might be expected to sustain around half of the estimated total area of groundwater-irrigable land across the north — that is, around 20,000 – 30,000 hectares.

The Science Review also indicated that the Wiso and Georgina groundwater provinces are large, underlying multiple surface catchment boundaries. They extend from near Mataranka, south east of Katherine, well south and east across the Barkly Tablelands almost to Mt Isa, and south well beyond the northern boundary of the Tanami desert. Even the smaller Daly province, which is critical to perennial river flows in the Daly catchment, extends across the Timor Sea and Gulf of Carpentaria drainage divisions. The extensive area of these groundwater resources and their critically important interconnection with surface water flows need to be thoroughly assessed prior to any major extractions commencing.

Mosaic agriculture

Small-scale, widely distributed agriculture (‘mosaic’ agriculture) is a form of agricultural enterprise that has the potential to operate with a relatively small geographical and environmental footprint. This is not to imply that mosaic agriculture has no environmental risks (these are discussed further in chapter 5). Irrigation mosaics are small patches of irrigation dispersed throughout a region, rather than being concentrated in a smaller number of larger contiguous areas. As there has been little scientific study of the benefits and impacts of mosaic irrigation, further consideration is warranted.

The Taskforce considered this form of development could be particularly appropriate in northern Australia, given that sites where available water resources and suitable agricultural soils coincide are likely to be comparatively small and distributed widely.

Thoroughly assessing prospective water resources and salinity risks across northern Australia, as well as mapping land and soil resources at a fine scale to facilitate more detailed farm planning, are two critical areas where governments can assist. Access to markets is also critical and, for many of these opportunities to be fully realised, governments will need to invest in supporting transport infrastructure.

The northern beef cattle industry

The northern beef cattle industry involves around 60 per cent of the land area across northern Australia (90 per cent if Indigenous pastoral land is included) and accounts for around 5 per cent of jobs. It is a major part of the north’s contemporary history, economy, culture, and social and physical landscape. The pastoral industry has been and will continue to be critically important to the future of the north.

Currently the north carries about 30 per cent of the nation’s cattle and produces 80 per cent of Australia’s live cattle exports, worth about $300–400 million a year. Positive opportunities exist to expand production from the northern beef industry, including among Indigenous-owned properties, through changing enterprise structure and increasing intensification. Leading producers in the Northern Territory, Queensland and northern Western Australia advised the Taskforce there is scope to more than double production from Australia’s northern beef cattle herd, and possibly lift output as much as fourfold in value in some areas.
Facilitating access to water, as well as adapting pastoral lease conditions to allow greater diversification and flexibility would enable northern cattle producers to overcome seasonal feed shortages and intensify production. Removing these constraints would allow producers to broaden their enterprise base, restructure their businesses flexibly, and improve efficiency and long term economic viability. This in turn will increase the capacity of the industry, including the Indigenous beef cattle industry, to pursue sustainable environmental conservation or stewardship initiatives.

The establishment of small scale irrigated fodder production and fenced ‘stand and graze’ feeding systems could enable cattle raising year round and finished beef production in areas where stock are now mostly shipped out either in the northern live export trade or to southern feedlots as store (unfinished) stock. This issue and potential impacts are further discussed in chapters 5 and 6.

Expansion of the northern beef industry has two linked implications. The first is a significant addition to the transport task, particularly during the wet season, which will require significant additional investment in upgrading the northern road network. The second is the potential to aid further development of infrastructure for communities, businesses and services, as well as boost employment across the region.

The northern beef industry also provides potential for sustainable wealth creation for Indigenous communities through direct employment and business ventures. Improving the longer term economic and environmental sustainability of Indigenous-owned pastoral properties across northern Australia is of critical importance and an opportunity that governments are encouraged to examine.

A number of programs focused on further development of the Indigenous pastoral industry are being delivered in Queensland, Western Australia and the Northern Territory. The Indigenous Land Corporation is working closely with each of the northern jurisdictions, as well as other stakeholders, to deliver significant improvements to Indigenous pastoral properties across the north. Improving coordination and effectiveness in delivery across the range of programs that are provided in northern Australia, as well as leveraging success is one area where governments can assist. Developing and supporting targeted regional strategies, such as the previously proposed Kimberley Aboriginal Beef Strategy, is another option. In either case, continued investment in the long term development and success of Indigenous pastoral businesses is strongly supported by the Taskforce.
Mining

The minerals and energy resources sector has been an important driver in the contemporary social and economic development of northern Australia and will remain so into the future. It is a key part of the northern Australian economy ($9.1 billion), a major provider of both commercial and community infrastructure, and a major provider of employment opportunities for local people and businesses, including local Indigenous communities.

The industry is likely to continue to expand strongly in the future. The base metals deposits in the North West minerals province around Mt Isa and bauxite deposits on western Cape York Peninsula continue to attract strong interest. There is also an increased focus on the development of mineral resources in the Kimberley region, in parallel with the development of offshore gas fields and associated onshore infrastructure.

Mining should be considered as part of an integrated development approach in conjunction with other industries and regional priorities. Careful design of operations from exploration through to closure should include a focus on their contribution to the regional asset base, both through the legacy of physical infrastructure and the creation of human and social capital.

Major issues facing the minerals and energy industry into the future include access to land and skilled labour. A continuing challenge for the industry is to ensure there are enough workers with the right skills and qualifications to meet the demands of the sector.

Water is an important input to mining and resource based projects. It is acknowledged by the Taskforce that many mine water systems often reuse much of the water they extract. However, as mining and resource projects are generally excluded from water resource accounting, exact water use estimates for this industry are not readily available.

Given the significant growth anticipated in this industry, it will be important to monitor the impact of the mining and resources industry on the water balance in northern Australia. Opportunities for other water users, such as irrigators, to sustainably use secondary water should be assessed. As a matter of prudence, the Taskforce also considers it important that all water extractions or diversions should be subject to appropriate water planning processes. This issue is discussed further in chapter 6.

The identification and management of cumulative impacts and legacy effects are ongoing issues in the interaction between the mining sector and the northern landscape. Management of groundwater impacts will be a key focus in several areas, particularly with respect to monitoring and managing cumulative impacts.

The Taskforce was advised that several mines in the north are located on or near important groundwater resources. Rigorous ongoing monitoring of groundwater use and impacts is needed to manage this, as are processes for assessing the potential cumulative impacts on groundwater resources.

An opportunity exists for minerals and energy companies and governments to work more closely to ensure a greater proportion of the benefits generated by northern Australia, stays in the north. Indigenous communities are especially well placed to benefit through direct employment and business service provider arrangements.
Chapter 5: Impacts of development opportunities

Terms of reference 3
Identify the potential impact of such development opportunities on the natural environment and other users and the broader community.

Key findings
- The complex interconnection between surface water flows and groundwater are critical to the operation of the landscape but are poorly understood.
- The precautionary principle should apply to water management and planning.
- Unmanaged land, either public or private, poses risks to the natural and cultural estate and future opportunities.
- All land holders have a role to play in managing the landscape and providing environmental stewardship.
- Rapid large-scale development in northern Australia can significantly impact on communities. All potential impacts need to be rigorously assessed prior to development proceeding.

The impacts of development in northern Australia are potentially substantial, but are difficult to predict because of the unique and poorly understood characteristics of the northern Australian landscape. This is particularly the case in the use of groundwater resources.

Surface and groundwater systems are highly connected and natural groundwater and surface water levels are critical to sustaining the dry season ecology of northern aquatic ecosystems. For example, isolated waterholes are known to provide critical refuges for many fish, including barramundi and black bream, and are key watering points for many native animals during the dry season. During the mid to late dry season, many species of wildlife such as birds and wallabies rely entirely on surface water to survive. The areas where groundwater sustains healthy ecosystems through the dry also typically coincide with sites, such as billabongs, some rivers, wetlands or springs, that have significant cultural and social values.

Nevertheless, even though there are significant gaps in our knowledge, surface and groundwater systems must be treated as integrated systems in water resource planning and management.

The complex interconnection between surface water flows and groundwater recharge and discharge, both temporally and spatially, are poorly understood. Groundwater extractions from one location could have significant impacts some distance away, some time in the future. The nature and extent of many potential impacts are simply not known with accuracy or certainty and the precautionary principle should apply to water management and planning.

Restoration
Reflecting a legacy of the past, the northern Australian environment is affected by a range of pressures such as damage to soils and riparian corridors, erosion, feral pests and exotic weeds, pollution, and barriers to fish movement. Many populations of native wildlife, especially mammals and birds, seem to be undergoing substantial and pervasive decline.

Given this, the landscape needs to be actively managed to maintain ecological function. The Taskforce acknowledges that progress has been made in addressing many of the impacts of the past and recognises the ongoing challenges. To sustain this progress, partnerships between producers, communities and governments will be essential to manage restoration and enhance sustainable production.

Recommendation 4
Australian governments should provide ongoing support for partnerships among land holders, communities and government to manage restoration and enhance sustainable production.
Dealing with environmental impacts directly and indirectly

Looking more closely at northern Australia’s rivers, overall they are in good condition because flow regimes are largely unmodified and they drain relatively undisturbed catchments. Both consumptive and non-consumptive uses of water have benefits and costs and the Taskforce proposes that governments focus on minimising the negative impacts of development through a combination of direct and indirect strategies.

One direct approach includes strategic assessments of environmental impact as part of the water planning and native vegetation management process (this is further dealt with in chapter 6). Indirect strategies can target the condition and resilience of country. For example, market based incentives for land holders to meet resource condition targets could be agreed in consultation with pastoralists and Indigenous communities. This would account for approximately 90 per cent of all the land area in northern Australia. These strategies are likely to be more effective than regulation alone, and could also provide additional employment, social and cultural benefits to communities in the north.

The Taskforce recognises that the north is not a vacant landscape. Pastoralists and Indigenous land owners, together, have a role to play in actively managing the northern landscape sustainably, providing environmental stewardship based on scientific, local and Indigenous knowledge. Finding the right people with the right skills and experience to lead these stewardship initiatives across the north will be a challenge. It will also require much closer alignment and cooperation within and between governments.

**Recommendation 5**

Australian governments should act to improve the condition and resilience of the natural estate of northern Australia through the provision of market based incentives to reward good stewardship on privately held and Indigenous owned lands.

**Recommendation 6**

Australian governments should continue to support the national reserve system to enhance conservation outcomes across northern Australia.
Mosaic developments and intensification

Small-scale, widely distributed ‘mosaic’ agriculture is often proposed for northern Australia as a form of agricultural enterprise that has potential to operate with a relatively small environmental footprint. Compared with large-scale contiguous agricultural developments, mosaic agriculture may have reduced risks associated with soil erosion, salinity or the potential negative impacts of mistakes. Being smaller, mosaic developments may also be mobile, therefore avoiding problems associated with unsustainable but stranded assets.

On the other hand, mosaic style developments may still present specific environmental risks such as the fragmentation of habitat and impacts on groundwater balance, especially where the groundwater resource is small.

Changing the feeding regime for cattle also has the potential to reduce net greenhouse gas emissions from the agricultural sector. The Science Review indicated that methane emissions from cattle fed on native grasses can be reduced if better quality, higher protein fodder can be locally produced, such as through the development of ‘stand and graze’ production systems, as discussed earlier in chapter 4.

Larger scale developments on local communities

Some larger scale developments can cause rapid social change, which can have both positive and negative impacts for communities. On the plus side, there may be increased employment opportunities across a wide range of industry sectors, including for Indigenous people. However, decreased housing affordability, increased inequity, as well as negative impacts on traditional cultural uses of the natural environment can lead to a loss of livelihoods and well-being. All of these potential impacts need to be identified in comprehensive and rigorous social impact assessments prior to development proceeding.

Drinking water quality

Quality drinking water is unevenly supplied across the north, with many Indigenous communities and some regional towns not having access to potable water. This poses unacceptable risks to human health and well-being and should be addressed by all governments as an urgent priority.

Recommendation 7

As an urgent priority, governments should ensure that all communities in northern Australia have access to drinking water that meets appropriate water quality standards, and that future water-based developments do not negatively impact the supply or quality of drinking water.
Chapter 6: Planning instruments

Terms of reference 4
Identify incentive, market, regulatory or planning instruments that could be used to facilitate, control or influence development, such that it proceeds in a manner consistent with the principles of the National Water Initiative

Key findings

- A range of co-conditions are required to unlock the full potential of many opportunities in northern Australia.
- Reducing red tape and harmonising policies and regulations across northern jurisdictions will continue to be important to maximise productivity and reduce inefficiencies.
- The National Water Initiative is an effective and robust policy framework for the planning and sustainable management of water resources. However, implementation has been too slow.
- Planning and management of land and water resources in northern Australia must account for Indigenous rights and interests.

Infrastructure

Infrastructure facilitates development opportunities across a range of industries such as agriculture, minerals and resources and tourism. The Taskforce encourages governments to prioritise investment in infrastructure in northern Australia, such as:

- all-weather roads and bridges to facilitate freight and passenger movements, particularly during the wet season
- upgraded ports and airports that can open up market opportunities, both domestically and internationally
- reliable energy, particularly 3-phase power
- improved access to telecommunications, including mobile and broadband coverage
- access to potable water and
- knowledge infrastructure to better quantify the resource base across northern Australia and assess sustainable development opportunities and priorities.

Beyond commercial and essential infrastructure, community and social infrastructure is required. A sense of place and belonging as well as access to health and community services will help to attract and retain skilled workers and their families. So will affordable housing and access to education and training.
Land tenure and pastoral lease arrangements

Uncertainty of tenure and land use restrictions are frequently cited as major impediments to diversification and the development of new business opportunities. Many leases were designed over a century ago and should now be reviewed in the light of current practice, as well as to take account of sustainability issues and native title rights. Adapting tenure and pastoral lease arrangements to allow diversification into practices such as pasture improvement, cropping, feedlotting, horticulture and carbon storage will be important for the future growth of northern Australia, especially where major private investments in infrastructure are required. Governments should also take this opportunity to consider harmonising land use and tenure arrangements across northern jurisdictions to improve productivity and reduce inconsistencies between jurisdictions.

Red tape

Another common lament is the multiple and often conflicting layers of bureaucracy that must be dealt with in order to have even minor development plans approved. This is compounded by a lack of harmonisation across the northern jurisdictions on a wide range of policies and regulations. The Taskforce acknowledges that governments are working collaboratively under the auspices of the Council of Australian Governments (COAG) to remove inconsistencies in regulatory regimes between all jurisdictions. The Taskforce strongly supports governments continuing these efforts and encourages them to prioritise efforts in relation to the development of northern Australia and inconsistencies in policies and regulations between the three northern jurisdictions.

Sustainable tourism

In order to realise sustainable growth opportunities in the northern Australian tourism industry, as outlined in chapter 4, it will be important for governments to agree a northern Australian tourism strategy. Key elements of the strategy should include: destination management plans, including an evaluation and response to location specific issues such as access, environmental impacts and alignment with community interests and aspirations; a review of necessary transport and tourism infrastructure to support growth; and innovation in environmentally sustainable developments or eco-tourism.

Recommendation 8

Australian governments should adapt and harmonise pastoral lease conditions (including on Indigenous land) across northern Australia to allow greater diversification and flexibility in land use, subject to compliance with the principles of ecologically sustainable development, the objectives of the National Water Initiative and the ongoing coexistence of native title rights.

Recommendation 9

Australian governments should review the variety of land tenure arrangements and water entitlements that exist across northern Australia, with a view to improving flexibility and harmonisation across jurisdictions and creating property rights that underpin their bankability (ability to be used as security for investment capital).

Recommendation 10

Australian governments, working collaboratively with the private sector, should develop sustainable tourism strategies for northern Australia.
Effective and robust water and land use planning

Water and land use planning in northern Australia needs to account for the unique social and cultural settings of the north, including:

- the region’s significance for Indigenous people and their intrinsic connectedness to land and water
- the nation’s international conservation obligations
- climatic and hydrological differences
- remoteness and high levels of social disadvantage in many communities and
- differences in the stage of development of land and water resources.

The National Water Initiative has proved to be an effective and robust policy framework for the planning and sustainable management of water resources, as well as for addressing conflicts between competing and conflicting water interests. It sets out clear objectives, outcomes and timelines to sustainably manage water where differing imperatives (commercial, environmental, cultural) may coincide. However, in the National Water Commission’s 2009 Biennial Review of progress in implementation of the National Water Initiative, it was noted that the progress of water reform is too slow and implementation remains a challenge.

The National Water Commission will undertake a third biennial assessment in 2010–11 in the form of a comprehensive review.

The Taskforce supports industry, government and the broader community working together to ensure that the following objectives are fulfilled:

- Land and water management in northern Australia is undertaken consistent with the principles of ecologically sustainable development and the objectives of the National Water Initiative.
- Responsibility for land and water management is shared between government, community and industry in a transparent manner.
- Given limited available scientific knowledge of hydrological and ecological systems in the north and limited knowledge of cultural, social and economic needs and opportunities, the precautionary principle should apply.
- Appropriate incentives are put in place to ensure that land and water resources are used in ways that are ecologically sustainable.
- Adaptive management principles are applied.

Recommendation 11

Australian governments should strengthen implementation of the National Water Initiative to improve the management of land and water resources in northern Australia, ensuring that:

- All water extractions or diversions are subject to water planning processes
- Water licences and entitlements are only issued once NWI-compliant water plans have been established
- Water trades (permanent and temporary) only occur within the boundaries of a particular river catchment or groundwater aquifer; water trades should not involve intercatchment transfers
- Caps on water use for river and groundwater systems in northern Australia are set at conservative levels, reflecting limited knowledge and uncertainties; caps should be reviewed as the knowledge base improves
- Water plans include an assessment of all uses and values within a catchment, including the consumptive and non-consumptive use of water
- Water plans are developed with local stakeholders, matching local circumstances and incorporating adaptive management principles and practices
- Water plans include assessments of strategic environmental impact and take account of cumulative impacts
- Planning and management of northern water resources are based on hydrological boundaries, either river catchment or groundwater basin boundaries
- The capacity of local, regional, state and territory, and national institutions is improved.
Recognising Indigenous rights and interests

An integrated approach to planning and management of land and water resources in northern Australia must account for Indigenous rights and interests and meet fairness and efficiency criteria. Indigenous people of northern Australia have an inherent right to make decisions about cultural and natural resource management and must have a central role in the development, implementation and evaluation of policy and legislative or administrative measures that affect them.

**Recommendation 12**

The allocation of water rights under statutory water plans should explicitly recognise Indigenous Peoples’ rights and interests in water and ensure that:

- Cultural allocations are made from the non-consumptive pool as water entitlements that are legally and beneficially owned by Indigenous Peoples; these allocations should be sufficient and adequate in quantity and quality to maintain the spiritual, cultural and social livelihoods of Indigenous Peoples of northern Australia
- An equitable allocation from the consumptive pool is made available as an Indigenous reserve to the Indigenous Peoples of northern Australia
- An Indigenous Water Fund is established to underwrite Indigenous purchases of water allocations from existing (fully allocated) consumptive pools.

Water is a limited resource and the recognition of Indigenous interests requires that environmental and cultural flows be properly assessed and protected. It is also appropriate that Indigenous economic aspirations for the commercial use and development of water resources be acknowledged and accommodated.

Indigenous stakeholders across northern Australia have expressed critical concern at the legal separation of land and water rights in natural resource management and the potential for water to be moved between river systems or catchments.

The Taskforce also recognises the importance that access to water and the effective and equitable participation in land and water management have in improving Indigenous Peoples lives and livelihoods and ‘Closing the Gap’.

**Incentives for sustainable development**

Environmentally responsible behaviour is far more likely to result when people have a basic knowledge of the issues at stake, or a commitment to the principles of ecologically sustainable development. Motivational and voluntary incentives encourage all stakeholders to share information and contribute to improved management. For motivational and voluntary incentives to succeed it is crucial that both the content of the information presented and the method of transferring information are appropriate and well targeted.

Public education and communication programs, social research and marketing, and knowledge brokering are all suitable means for governments, working together, to improve public understanding of key environmental priorities and issues relevant to northern Australia. Creating a greater understanding of the need to recognise Indigenous rights and interests in land and water planning processes is also critically important.

**Recommendation 13**

Australian governments should invest in communication, social marketing, education and knowledge brokering to improve public understanding of Indigenous rights and interests and sustainable water resource management, and deepen commitment to the principles of ecologically sustainable development, as they apply in northern Australia.
Chapter 7: Governance

Terms of reference 5
Recommend governance arrangements for the effective management of surface and groundwater resources that cross jurisdictional boundaries.

Key findings

• Institutional and governance arrangements in northern Australia are not yet strategically focused, nor resourced to seamlessly manage land and water across the north.

• A comprehensive cross-border governance framework is required to strengthen implementation of the National Water Initiative.

• Achieving a sustainable future for northern Australia requires collaboration between governments, agencies and stakeholders working together.

Interjurisdictional water resources

Effective water governance as defined by the National Water Initiative covers the whole water system, both surface and groundwater, and links management of water with management of the land. It also manages water across geographical and political boundaries and takes into account the many environmental, social and economic values of water. The National Water Initiative provides a robust framework for better water management that has been agreed by all the governments of Australia. The slow rate of implementing this reform agenda in northern Australia has been observed by many and noted by the National Water Commission. This is an urgent challenge and the pace of water reform must increase.

Institutional capacity to achieve NWI principles

A high price has been paid in the Murray-Darling Basin for not having, at the outset, a robust, basin-wide decision making system. Northern Australia is characterised by a relative absence of the powerful historical legacy of institutions and patterns of behaviour that have worked against whole-of-system policy implementation in the Murray-Darling Basin. It will be much easier to create the conditions in northern Australia for water management that comply with the National Water Initiative. Creating these conditions should be given priority.
Freshwater systems of national significance

There are few tropical rivers that flow all year in northern Australia. Those that do are rainfall dependent in the wet season and groundwater dependent in the dry season. These tropical freshwater systems are highly valued for their social, cultural and economic values and because they support complex, largely intact ecosystems. The people who live in the north have enduring historical, social and cultural connections to them. These are freshwater systems of national significance and need to be managed accordingly.

Indigenous rights and interests in land and water

Indigenous societies are a defining feature of northern Australia’s cultural, demographic and social character and Indigenous people have rights and interests in northern Australia’s land and water that are currently not fully recognised. Indigenous Peoples of northern Australia have rights, responsibilities and obligations in accordance with their customary laws, traditions, protocols and customs to protect, conserve and maintain the environment and ecosystems in their natural state to ensure the sustainability of the whole environment. Indigenous water interests are the pillar of life, encompassing belief systems as well as cultural dimensions. The Taskforce-initiated Mary River Indigenous Water Experts Forum held in the Northern Territory in August 2009 highlighted to the Taskforce the critical importance of these rights and interests to Indigenous people across all of northern Australia.

The Taskforce recognises the importance of empowering all communities in northern Australia to achieve their aspirations. The Mary River Forum urged governments to ensure the participation of Indigenous Peoples in the development of policies, setting of allocations and management of the regulatory schemes that may evolve. A key finding of the National Water Commission’s biennial assessment was that water to meet Indigenous social, spiritual and customary objectives is rarely clearly specified in water plans. The Commission recommended that all jurisdictions develop and publish their processes for effective engagement of Indigenous people in water planning, including provision for Indigenous access to water resources (recommendation 1.4). The Commission also proposed to initiate a national study to further examine Indigenous needs in relation to water access and management, and mechanisms to meet those needs.

The Taskforce endorses these recommendations of the Commission.

Seamless governance and connected institutional capacity

Institutional and governance arrangements in northern Australia are not yet strategically focused, nor resourced to seamlessly manage land and water across the north. Regional governance and the planning of river catchments and aquifers will not always conform to state borders. A cooperative partnership with governments is needed — one that better engages local stakeholders in planning and decision making.

A prerequisite for achieving a sustainable future for northern Australia is the collaboration of governments, agencies and stakeholders working together to achieve a set of shared objectives. Coordinating the objectives and responsibilities of multiple governments and multiple government administrations is inherently challenging. The Taskforce considers there are a number of key areas that require strategic focus and improved coordination across governments in northern Australia to ensure that new developments are sustainable and that the aspirations of all Australians are achieved. These key areas include:

- Prioritising and coordinating effort and resources invested in research, development and demonstration (RD&D), particularly as they relate to sustainable development in northern Australian and new market-based commercial opportunities in natural resource management
• Identifying strategic issues and priorities for the future development of land and water resources and providing independent advice to government, reflecting best available data and knowledge

• Promoting best practice in government, market and participatory social learning and in land and water planning and management.

• Coordinating natural resource management programs and initiatives, to improve efficiency and productivity, cut red tape and improve the sustainability and longevity of outcomes

• Facilitating engagement with catchment-level and/or community-based land and water management groups, landholders and other direct water users to ensure local stakeholder interests are appropriately identified, acknowledged and effectively included in land and water management planning — recent successful examples that the Taskforce is aware of include: the Fitzroy Catchment Management Group in Western Australia and the Daly River Management Advisory Committee in the Northern Territory

• Appropriate engagement of Indigenous Peoples in decisions that affect their rights and interests in land and water

• Advocating for northern Australia, especially for the interests of people who live and work there.

Recommendation 14

The Commonwealth Government should, in conjunction with the governments of Western Australia, Queensland and Northern Territory, establish a Northern Australia Land and Water Authority (NALWA), headquartered in northern Australia, to build institutional capacity, improve compliance with the National Water Initiative and advocate for the needs and interests of northern Australia.

Such a multi-jurisdictional agency operating across northern Australia needs to reflect the social and cultural distinctiveness of the region and should include the following governance principles:

• Merit-based employment of staff and advisors from each of the three northern jurisdictions — Western Australia, the Northern Territory and Queensland

• Explicit recognition of Indigenous interests in governance arrangements for the Authority

• Leverage of experience and expertise from existing industry, scientific and community organisations in northern Australia and

• Evidence based policy, informed by independent scientific research.

Northern leadership

Developing Northern Australia as a sustainable region is a new policy agenda and a complex policy challenge that requires strategic focus, national leadership and an appreciation of the north’s contribution to national prosperity. ‘Closing the Gap’ for Indigenous Australian is also imperative.

The oversight and implementation of many of the Taskforce’s recommendations does not fall to a single government, nor a single department within a government.

For Australia as a whole, the Council of Australian Governments operates to increase cooperation among governments in the national interest, to pursue reforms that aim to achieve an integrated, efficient national economy and to consider other intergovernmental or whole-of-government issues. The Taskforce considers that a Council of Northern First Ministers, led by the Prime Minister, could provide the necessary strategic focus and leadership to address the contemporary development challenges in northern Australia. The role of the Council of Northern Australia (CONA) would include developing an integrated pan-northern vision for the sustainable development of northern Australia, providing leadership on key priorities and overseeing the implementation of the Taskforce recommendations.

Recommendation 15

A Council of Northern Australia (CONA) should be established. Chaired by the Prime Minister and comprising first Ministers of the northern jurisdictions it should develop an integrated vision for the sustainable development of northern Australia and provide leadership on key priorities.
Attachment A: Taskforce members

Mr Joe Ross – Chair

Mr Joe Ross is the Chair of the Indigenous Water Policy Group within the Northern Australia Indigenous Land and Sea Management Alliance and an advisory member of the Australian Government’s Indigenous Youth Leadership Programme. He is a member of the Bunuba people in the Kimberley region of Western Australian and lives in Fitzroy Crossing.

Mr Ross is a Graduate of the Australian Rural Leadership Program (Course 5) and was awarded a Centenary medal for his active role in creating innovative leadership for young Indigenous leaders. Mr Ross was a delegate to the Australia 2020 summit.

Mr Richard Ah Mat

Mr Richard Ah Mat is currently the Chair of the Northern Australia Indigenous Land and Sea Management Alliance and a Non-Executive Director of the Balkanu Cape York Development Corporation. Mr Ah Mat is also a board member of the Cape York Corporation and the Cape York Institute. Mr Ah Mat is a descendent of the Yupangathi group from the Pennefather River region on western Cape York Peninsula and from the Wuthathi, whose traditional lands cover the ‘white sand’ around Shelburne Bay on East Cape York.

Mr David Baffsky AO

Mr David Baffsky is the Honorary Chairman of Accor Asia Pacific, a Director of the Indigenous Land Corporation and a Director of Tourism Asset Holdings Limited. He is currently a member of the Business Government Advisory Group on National Security. He is a Trustee of the Art Gallery of NSW and has recently joined the boards of Ariadne Australia Limited and Singapore Airport Terminal Services. He is a founder and life member of the Tourism Taskforce. In 2001, Mr Baffsky was made an Officer in the General Division of the Order of Australia. In 2009 Mr Baffsky was appointed to the Board of Sydney Olympic Park Authority.

Dr Stuart Blanch

Dr Stuart Blanch is the Coordinator of the Environment Centre of the Northern Territory, a board member of the Natural Resource Management Board (NT) and was a Non-Executive Director of Land and Water Australia. Dr Blanch was formerly the Manager of Northern Landscapes for the World Wildlife Fund Australia and previously worked on national water policy and restoring the Murray-Darling Basin with the Inland Rivers Network and Australian Conservation Foundation. Dr Blanch was a delegate to the Australia 2020 Summit.

Mr David Crombie

Mr David Crombie is currently President of the National Farmers Federation; Director of GRM, FKP Property Group, Rosewood Station PL and the Export Finance and Insurance Corporation; and a Commissioner of the Australian Centre for International Agricultural Research. Mr Crombie was formerly Chairman of Meat and Livestock Australia; Managing Director of GRM Group and the Queensland and Northern Territory Pastoral Company; and Deputy Chairman of Grainco Australia. Mr Crombie was a delegate to the Australia 2020 Summit and he operates family properties in southern Queensland.
Mrs Elaine Gardiner

Mrs Elaine Gardiner is the Chair of the Ord Irrigation Cooperative, Chair of the Community Reference Group (Ord Expansion) and is a National Water Commissioner. Mrs Gardiner is active in the water reform process in Western Australia, and contributed to the development of the Ord River Water Management Plan. Mrs Gardiner has farmed in the Ord for the past 20 years.

Dr Rosemary Hill

Dr Rosemary Hill is the Vice-President of the Australian Conservation Foundation and a Senior Scientist at CSIRO Sustainable Ecosystems. Dr Hill has been an active conservationist for 25 years and has extensive experience in environmental science and management, particularly in relation to Indigenous people’s knowledge and planning systems. Dr Hill is a member of the board of Ecotrust Australia; the World Commission on Protected Areas; Commission on Economic, Environmental and Social Policy; Wet Tropics Scientific Advisory Commission; and International Association for Society and Natural Resources. Dr Hill has received the National CRC Association Award for Excellence in Innovation; the Cassowary Award; and the International Women’s Day Award for Excellence.

Dr Andrew Johnson

Dr Andrew Johnson is Group Executive – Environment at the CSIRO and leads CSIRO’s water, land, climate, marine, biodiversity, regional development and natural resource management research. Dr Johnson is a Director of the Rural Industries Research and Development Corporation, Planet Ark Environmental Foundation and Reef and Rainforest Research Ltd. Previously Dr Johnson held positions as Executive Director, CSIRO Strategic Change Programs and Chief of CSIRO Sustainable Ecosystems Division. Dr Johnson was a delegate to the Australia 2020 Summit.

Ms Shirley McPherson

Ms Shirley McPherson is the Chair of the Indigenous Land Corporation. Ms McPherson is also a board member of First Australians in Business and a member of the Australian delegation to the United Nations Permanent Forum on Indigenous Peoples. Ms McPherson has held senior positions in the private, government and university sectors and has a background in regional, national and international program delivery and business development.

Mr Michael Roche

Mr Michael Roche is the Chief Executive of the Queensland Resources Council (QRC). Before joining the QRC in 2005, Mr Roche spent nine years with the Australian Stock Exchange in Sydney, including more than three years as the Executive General Manager of ASX’s markets and market data businesses. He has served as a senior executive in the Australian Government in the Department of Prime Minister and Cabinet, almost five years as Chief of Staff to the Queensland Treasurer and two years as Deputy Director-General in the Queensland Cabinet Office. Mr Roche currently serves on several boards and advisory committees, including as Chair of the Queensland Minerals and Energy Academy Board, and board member of the Mining Industry Skills Centre and the Australian Coal Association. He is a member of the Premier’s Employment Taskforce, the Queensland Transport and Logistics Council and he was appointed in 2009 as a Queensland Resource Industry Ambassador.
Mrs Terry Underwood OAM

Mrs Terry Underwood is a director of Riveren Nominees Pty Ltd, her family company which owns and operates three Northern Territory pastoral properties supplying the Live Export Trade. Mrs Underwood has held positions on the Isolated Children’s and Parents’ Association, Katherine School of the Air Council, Northern Territory University Council and is a life member of the Northern Territory Cattlemen’s Association. Her best selling autobiography *In The Middle Of Nowhere*, is currently in its 19th reprint. Mrs Underwood was awarded the Medal of the Order of Australia in Queen’s Birthday 2005 Honours for services to community and the cattle industry and was a delegate to the Australia 2020 summit.

Prof Bob Wasson

Professor Bob Wasson is the Deputy Vice Chancellor, Research and International at Charles Darwin University. Professor Wasson was previously Director of the Centre for Resource and Environmental Studies in the Institute of Advance Studies at the Australian National University as well as the Dean of Science. He is recognised nationally and internationally for research that underpins the management of natural resources.

Mr Walynbuma Wunungmurra

Mr Wali Wunungmurra is a senior elder of the Dhalwangu Clan from North East Arnhem Land. Mr Wunungmurra is the sixth Chairman of the Northern Land Council and he lives in Yarrkala and on his Homeland. Born and educated at Yirrkala, Mr Wunungmurra studied in Brisbane before returning home to assist the Yolngu Clans during the historic Gove Land Rights case in 1971. Mr Wunungmurra has a long history in the struggle for land rights. He is a signatory of the Yirrkala bark petition, one of the earliest claims to land rights in Australia, presented to the Australian Parliament in 1963.

Due to illness Mr Wunungmurra was unable to participate in Taskforce activities after April 2009. To ensure Mr Wunungmurra’s knowledge, experience and Indigenous perspective were represented in Taskforce deliberations, Mr Kim Hill, CEO, Northern Land Council was invited to represent Mr Wunungmurra on the Taskforce.

Mr Kim Hill

Mr Kim Hill belongs to a number of language groups including the Ngarriman, Tiwi and Jingili peoples of the Northern Territory. Mr Hill is currently the CEO of the Northern Land Council. Educated in Darwin at St John’s College and Darwin High School, Mr Hill worked as an electorate officer for Mr Jack Ah Kit (former MLA) and as a senior government advisor to the Northern Territory Chief Minister, Deputy Chief Minister and Business Minister. Mr Hill has represented Aboriginal people at local, national and international forums.