

# DEVELOPING THE NORTH - FACT SHEET

The north of Australia is not as ripe for agricultural development as it would first appear.

- It covers almost a quarter of the continent, around 120 million hectares.<sup>1</sup> At present only about 68,000 hectares of land are used for agricultural land development in the north and of that only 30,000 are irrigated<sup>i</sup>
- Yet it is remote from consumer markets, has poor and vulnerable soils, and a highly variable climate. Almost 90% of the rain falls in less than 50% of the year, so the north alternates between very wet and very dry.<sup>2</sup> Almost 200 separate cyclones touched or crossed the north between 1970 and 2007, an average of five per year.<sup>3</sup>
- The north of Australia is sparsely populated. It is around 17% of Australia's area yet has less than 1% of its population.<sup>4</sup>
- Inappropriate development could result in major degradation and loss of the region's limited but valuable soil and land resources.

In 2009, a comprehensive scientific study evaluated some 4 million to 17 million hectares that may be suitable for irrigated agriculture, based on very limited available data<sup>ii,5</sup> By comparison, around 1 million hectares of land is irrigated in the Murray Darling Basin. The actual area of suitable land may prove to be much smaller once more intensive surveys provide detailed data on soil condition, vulnerability (to erosion, salinity, acidity and flooding) and accessibility.

However, significant limits to agricultural expansion have already been identified:

- Approximately 20,000 – 40,000 hectares could be supported by potentially available groundwater.<sup>6</sup> This would increase Australia's total irrigated land area by 1 per cent to 2 per cent.<sup>iii</sup>
- The cost of expanding this through irrigation infrastructure is likely to be very high.
  - Irrigating all the potentially suitable land would require 10 to 20 times the water used in the Murray Darling Basin.
  - Many small, isolated pockets of better soils would be prohibitively expensive to irrigate. Larger areas of suitable soils are in far-flung areas in the western Cape York Peninsula, South-east Gulf, Roper (Sturt Plateau), Daly, Ord-Bonaparte and Fitzroy where dams may be shallow and prone to high rates of evaporation.
  - Flexibility to relocate irrigation infrastructure during flood, storm and fire events may be required.
- Poor and fragile soils could constrain long-term, sustainable production:
  - Most of the soils are low in nutrients and soil carbon. They may require significant inputs of fertiliser and intensive crop husbandry practices.
  - Most are shallow (< 0.5m) and 100 to 500 times more vulnerable to erosion than soils in the south of Australia (Figure 1).<sup>7</sup>
  - Many areas are known to be prone to acidity and sodicity. Salinity is known to be a potential issue, particularly in the lower lying and heavier clay soil environments often favoured for irrigated agriculture
- Many of the deeper and better soils are at significant risk from flooding and seasonal water logging, because they occur in lower landscape positions
- Many soils are sandy or gravelly, so added nutrients may leach off-site to pollute groundwater and river systems

Any development of the north for agriculture would need to be well planned and closely monitored, to ensure land, soil and water resources are managed for long-term production and environmental health:

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<sup>i</sup> Predominantly in the WA Ord and Queensland Mareeba Dimbulah irrigation areas and small areas in the NT Daly Basin.

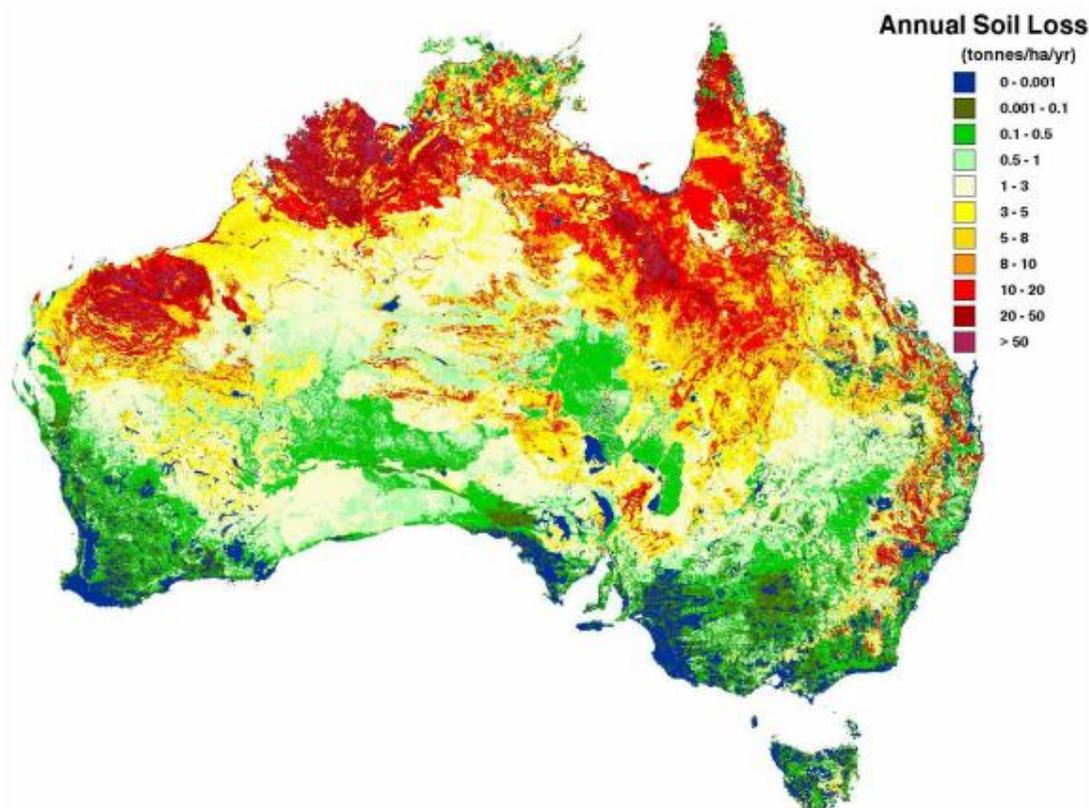
<sup>ii</sup> This combines the 'suitable' and 'highly suitable' categories from the 2009 scientific assessment.

<sup>iii</sup> CPD analysis based on data from ABS and Northern Land Taskforce.

- Knowledge gaps about soil types and conditions, as well as flood mapping need to be filled with detailed scientific assessments. For example, acid sulphate soils can have serious impacts on farm productivity and off-site pollution, so areas at risk would need to be identified before development and carefully managed.
- Suitable crop types and land management practices need to be developed. Very tightly controlled policies and guidelines for improved crop and land management practices are necessary to avoid extreme soil erosion and other degradation events. For example, many northern soils set hard when wet, so irrigation rates would need to be carefully monitored to avoid erosion
- Availability of water resources, infrastructure, markets and transport needs to be carefully considered. For example, much of the Ord River irrigation area grows high value sandalwood rather than food, due to the high cost of handling and transport from this remote area.

Until adequate policies, plans and controls are in place, agricultural development should be kept to a small scale. Individual farm based irrigation development with capacity to utilise smaller isolated pockets of better soils may be appropriate. Crops supporting the established grazing industry (i.e. fodder crops) may be appropriate as there is an accessible local market. This could stabilise beef production during drought periods.

**Figure 1: Hillslope erosion estimates**



Note: based on 1997 land use distributions, and 1990-1999 seasonal greenness and rainfall regimes

Source: Hua Lu et al., *Prediction of Sheet and Rill Erosion Over the Australian Continent, Incorporating Monthly Soil Loss Distribution, Technical Report 13/01* (Canberra, Australia, 2001).

## Sources

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<sup>1</sup> Peter L Wilson et al., *Land and soil resources in northern Australia, Chapter 2 of Northern Australia Land and Water Science Review full report* (Canberra, Australia, 2009).

<sup>2</sup> CSIRO, *Northern Australia Land and Water Science Review 2009: Executive Summary* (Canberra, Australia, 2009).

<sup>3</sup> Ibid.

<sup>4</sup> Ibid.

<sup>5</sup> Wilson et al., *Land and soil resources in northern Australia, Chapter 2 of Northern Australia Land and Water Science Review full report*.

<sup>6</sup> Northern Australia Land and Water Taskforce, *Sustainable development of northern Australia: A report to Government from the Northern Australia Land and Water Taskforce, Water* (Canberra, 2009), <http://www.nalwt.gov.au/files/NLAW.pdf>.

<sup>7</sup> Ann Hamblin, *Australia state of the environment report 2001: Land theme, 2001*, <http://www.environment.gov.au/soe/2001/publications/theme-reports/land/index.html>.