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# A gap to close: Executive Summary. A literature review of waste management, health, and wellbeing in rural and remote Aboriginal and Torres Strait Islander communities

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# A gap to close

A literature review of waste management, health, and wellbeing in rural and remote Aboriginal and Torres Strait Islander communities

## Executive Summary

**Project:** WasteAid Review 2017  
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## Terms of Reference and Background

WasteAid and Swinburne University of Technology have partnered to undertake a review of available literature on the matter of “waste” and its relationship with health and wellbeing in rural and remote Aboriginal and Torres Strait Islander Communities. This review was conducted by a cross-discipline research team in public and environmental health, remote community health hardware innovation research, and policy design and development research in the Centre for Design Innovation. The review represents a national and international look at key ideas and articles relevant to the topic of waste management and the health and wellbeing of Remote Indigenous Australian communities. The review complements the work by Anne Prince, ‘The Rubbish Report’ that investigated the specific circumstances of waste management in the Anangu Pitjantjatjara Yankunytjatjara Lands of Central Australia, and the early benchmark work of Kurt Seemann and Bruce Walker, “Remote Controlled Waste” on the specific issues affecting Waste and ‘Rubbish” in the Western Desert Pintupi Lands of Central Australia.

The Terms of Reference for this literature review are provided below. The project aimed to form where possible, integrated insights published in the literature about the following:

- An appropriate definition from the literature to date (end 2016), for rural and remote Indigenous Australian localities/communities, and useful categories of waste management systems and their degree of efficacy
- Reported primary and secondary main health and wellbeing impacts from inorganic and organic waste in Indigenous Australian Localities, and where informative, in the broader general Australian literature, where service and technology systems used have failed, do not exist, or have struggled to be maintained
- Reported key causal relationships driving health and wellbeing impact between poor organic and inorganic waste systems in Australia, and in Indigenous Australian Localities specifically
- Regional climatic seasonality impact on health from ineffective waste management systems

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## Executive Summary

*A gap to close* captures the main ideas evident in the literature on the relationship between health, waste management, and Aboriginal and Torres Strait Islanders living in rural and remote Australia (hereafter Indigenous Australians). The report represents the most comprehensive account on the theme to date. Modest information on the relationship between waste- and health in remote communities was captured in the recent “Closing The Gap” Report. Our report offers a complementary account of waste and the gap of knowledge we have identified for guiding future policy and improvement to the quality of life in communities as it relates to place-based solutions, and policy development, for improving health and wellbeing.

Since European colonisation, the growth and development of sedentary human settlements across coastal, rural, and outback Australia has introduced extensive lifestyle and place-based challenges for Indigenous Australians. One of these challenges has been the concentrated accumulation of waste (in particular, domestic solid/physical waste that normally finds its way to landfill) and its impact on health, habitat, and wellbeing. While most Indigenous Australians now live in urban and inner/outer rural regions, about 98% of discrete Indigenous Australian communities, representing about 15,000 houses, and about 90,000 people, are located in outer regional, remote and very remote Australia. Typically, these communities are small in size, sparsely dispersed, away from major markets and central service economies, often in extreme climate locations, and have relatively low local cash flow to socially, economically, and technologically sustain “conventional” waste management technologies designed for and used in urban waste collection, processing or environmental-health public services. Indigenous Australian families living in urban areas normally have access to reliable and weekly council waste collection and processing services, in addition to waste separation, annual or biannual, hard-waste collection, and two to three bin waste re-processing services.

However, those living in outer rural and particularly remote Indigenous managed community service locations experience considerably different waste impact challenges in both relative and absolute terms. Our summative analysis of the literature suggests that most remote communities continue to struggle to reliably collect, and sustain, domestic waste management systems designed to operate in urban street kerb conditions, with very different economic, service, and climatic seasonal factors.

We found that while the literature suggests an understanding of the broad causal relationship between personal health and substantial degrees of accumulated waste – such as human contact with toxic and harmful materials, trauma due to sharp objects, vector based diseases, parasites, and with harmful bacteria that can harbour and establish themselves in ideal micro-climate conditions in waste – the literature has a noticeably ‘gap’ in any serious studies that map the type and extent of failed waste management services and the causal health impact in rural and remote Indigenous Australia of such failure. This is a research gap we recommend deserves closing in the literature to inform policy design for managing the public and environmental health of remote and very remote Indigenous Australian communities. This is a major area for further definitive research if public health policy and the development of locally, place-based sustainable waste management services and technologies are to be assured for such households.

Waste is acknowledged to be a complex phenomenon in rural and remote Indigenous Australian communities. It has several categorical manifestations of its form, each potentially responding differently to local and regional conditions in how waste affects the environmental health and

wellbeing of communities. This relationship between context and waste categories offers a basis for recommending place-based strategic public health priorities across Australia's diverse range of remote and rural communities. This targeted review of the literature offers categories of waste systems and services that WasteAid and similarly interested organisations may use to prioritise for developing locally and regionally sustainable waste management and innovation outcomes.

### **1.1. Problem statement**

Remote Indigenous communities experience poor health compared to non-Indigenous Australians. Remote Indigenous communities also experience greater deprivation across the social determinants of health compared to non-Indigenous Australians. Many essential services that are taken for granted in non-Indigenous communities are either absent or inadequate in remote Indigenous communities. Poor solid waste management may be one factor that contributes to this health gap. Reasons for this inequity are myriad and cannot be cogently reviewed in the literature without reference to the related challenging policy, or interpretation of policy landscape.

### **1.2. Health status of Indigenous Australians**

Indigenous Australians have significantly poorer health outcomes and a lower life expectancy compared with non-Indigenous Australians. It is estimated that Indigenous Australians suffer an almost two-and-a-half times greater burden of disease than non-Indigenous Australians. Chronic diseases, including cardiovascular disease (CVD), and mental and substance abuse disorders contribute significantly to the burden of disease experienced by Indigenous people. In addition, the incidence and severity of infectious diseases is much higher in the Indigenous population than in the non-Indigenous population. Hospitalisation rates for Indigenous Australians are also significantly higher than for non-Indigenous Australians, despite a greater proportion of Indigenous people living in remote areas which has been shown to disproportionately impact on access to health care services.

The reasons for these disparities are complex, and include a range of interrelated historical, social and environmental factors. While it is acknowledged that these factors impact on health concurrently and cumulatively, this review will focus on the environmental determinants of Indigenous health, with an emphasis on the impact of solid waste on Indigenous health and wellbeing in remote communities.

### **1.3. Environmental determinants of Indigenous health in remote communities**

A number of environmental factors may have a significant impact on health in remote Indigenous communities. The review highlights that while a causal relationship has not been established between the living environment and health there is extensive evidence consistently linking the two. The literature includes estimates where poor environmental health in regional Western Australia is responsible for approximately 20% of premature mortality amongst the Indigenous population.

This may be related to:

- Environmental factors unique to remote communities, including exposure to geogenic dust, biomass smoke and heavy-metal contaminated water
- Geographic isolation and inadequate transport and communications infrastructure, and

- Living conditions within communities, particularly housing and related infrastructure such as power, water and waste management, household overcrowding, personal and community hygiene and poor dog control

The impact of poor housing on Indigenous health in remote communities has received a great deal of attention in the academic literature and in Government policy. The importance of a safe water supply, and sewerage and liquid waste removal is also acknowledged in the effort to maintain hygiene and prevent gastrointestinal disease. While solid waste disposal is often mentioned in the same breath as water, sewerage and liquid waste disposal; its impact on health in remote Indigenous communities is not well understood and it is often considered a visual or aesthetic problem rather than a public health problem. The causal link between solid waste and human health is also lacking in the non-Indigenous specific literature. Despite this conclusion, waste collection is included in the Atlas of Health-Related Infrastructure in Discrete Indigenous Communities and emphasises the apparent lack of research and intervention in this area when compared with liquid waste.

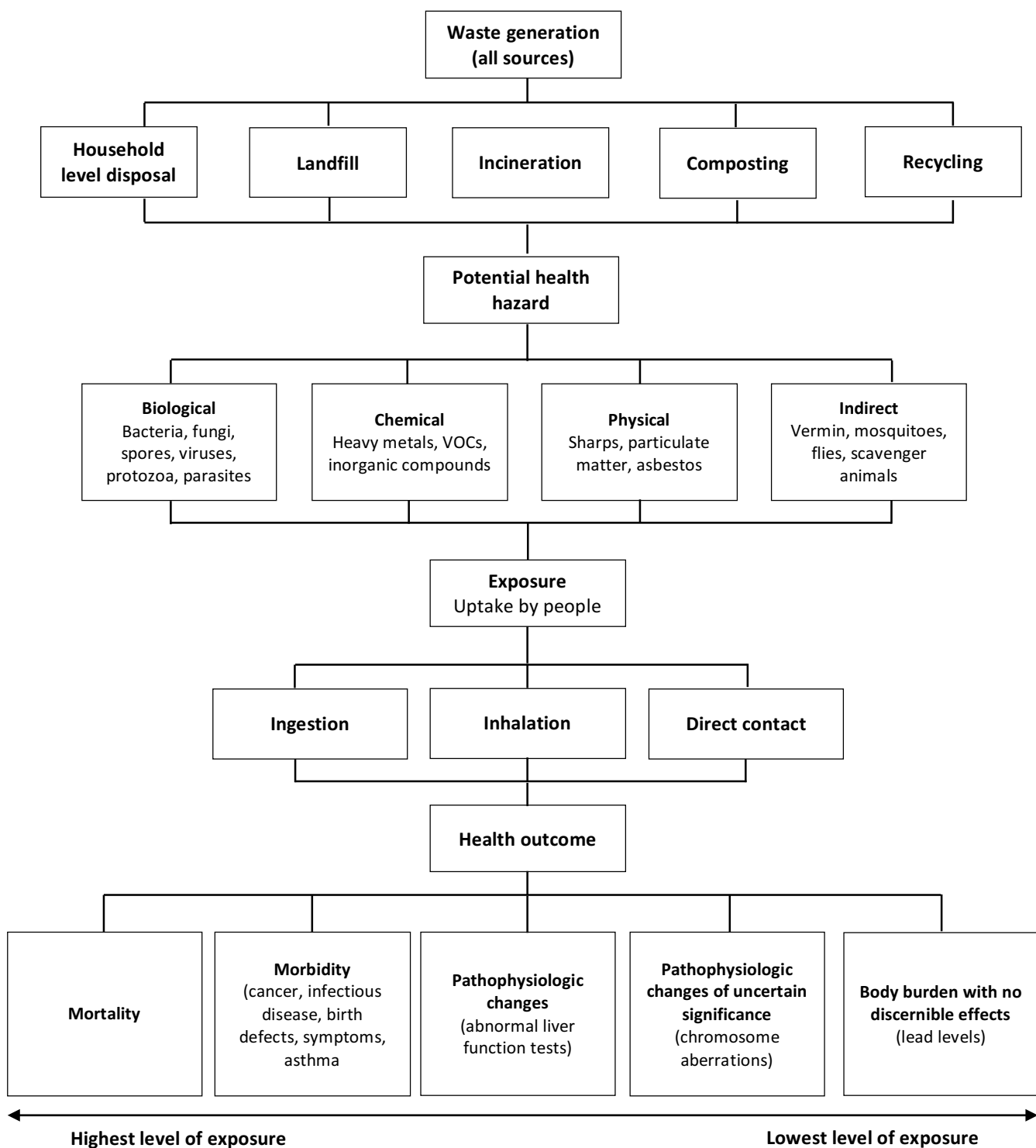
#### **1.4. How does solid waste contribute to poor health?**

Potential health issues are associated with every step of the handling, treatment and disposal of waste. Health impacts may occur following exposure to environmental hazards found in wastes. Waste is a complex mixture of different substances - only some of which are intrinsically hazardous to health. Figure 1 illustrates the process by which adverse health outcomes may occur following exposure to hazards in solid waste. The likelihood of hazards associated with household level disposal and landfills are deemed to be considerably greater in rural and remote Indigenous Australian communities than the broader population.

#### **1.5. The Gap to close**

We assert that there is *a significant gap to be closed* on this topic, especially in quantitative causal information in different locations, for different types of health impact found to be a direct relationship to existing poor or non-existing waste-management services. The potential for further research targeting incidents of causal relationships between waste and health in communities would significantly inform policy and fit-for-purpose place-based responses. The dearth of research to guide viable, maintainable, and effective outer-rural, remote, and very remote community waste management service innovations represents a research gap deserving dedicated attention.

A keystone strategy that could address the future gap in knowledge identified in this report and that would inform policy, would be to classify waste management in remote and regional areas as essential services alongside power and water.



**Figure 1** Adverse health outcomes may occur following exposure to hazards in solid waste