



Queensland University of Technology
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AWARENESS AND PERCEPTION OF BROWNFIELD SITES AND REDEVELOPMENT

CONNIE SUSILAWATI and KELSEY THOMAS, Queensland University of Technology

The scarcity of large parcels of land in well-serviced areas is one motivator for redeveloping land that has previously been used for industrial or commercial purposes – so-called brownfield land. Poor industrial waste disposal practices caused by industrial activities including gas works, factories, railway land and waste tips have contributed to many instances of contaminated land identified as brownfield sites. It is estimated there are between 10,000 and 160,000 brownfield sites in Australia. Within Queensland there are approximately 4,000 such sites.

In this article we examine public opinion and perceptions of brownfield sites, including findings from a public survey. We also look at the problems, and the positive and negative impacts, of remediating brownfield sites.

The redevelopment of brownfield sites offers such economic, social and environmental benefits as the renewal of suburbs and centres, creation of new jobs, the introduction of new investment into the area in the form of new development, increased new and additional housing options, reduced commuting times, a reduction in public health issues, and improvement in the quality of life through additional services and infrastructure due to new development and renewal.

However, the historical connotations can mean that the public perceives brownfield sites as contaminated, which can be a major barrier for redevelopment – even when this is not necessarily the case. Perhaps this recognition of negative public perception of brownfields sites has had some impact on the composition of the current *South-East Queensland Regional Plan 2009-2031*, in which the words ‘sustainable development’, ‘urban renewal’, ‘infill development’, ‘contaminated land’ and ‘greenfields’ appear to have been used instead of the word ‘brownfields’. The most common definition of sustainable development, as used by the Queensland Department of Infrastructure and Planning in the current version of that regional plan, is ‘development that meets the needs of the present without compromising the ability of future generations to meet their own needs’.

Despite the range of definitions available for the concept of brownfield sites, there is a stigma attached to that term – meaning that the public perceives the site as risky. Further, the redevelopment of a brownfield site is perceived as more costly and higher in risk than working with a greenfield site (one that was previously undeveloped). Brownfield site redevelopment is often put in the too-hard basket by private developers who would prefer to develop greenfield sites, which are perceived to incur lower costs and risk levels. This stigma has been experienced at some brownfield sites where contamination issues are perceived by the public but don't actually exist.

It is important to note that ‘brownfield’ does not necessarily mean ‘contaminated’, and that contamination for some brownfield sites are issues of perception, not reality. As well as dampening the enthusiasm for redevelopment, this leads to the same negative connotations associated with a site that is actually contaminated.

Additionally, the communication about the existence of contaminated land sites and proposed remediation solutions are very complex, and has to be balanced between procedure and outcomes.

BOX

- Brownfields: *areas of land previously used for industrial or other purposes available to be redeveloped for alternative purposes* (Queensland Government)
- Contaminated land: *land so damaged by industrial or other development that it is incapable of beneficial use without treatment*
- Infill development: *new development that occurs within established urban areas where the site or area is either vacant or has previously been used for another urban purpose.* (Queensland Government)
- Urban renewal: *regeneration of disused industrial or government land which may be suitable for residential development*
- Greenfield sites (opposite of brownfield sites): *areas of undeveloped or ‘raw’ land free from contamination... that are suitable for urban development.* (Queensland Department of Infrastructure and Planning)

END BOX

BROWNFIELD REDEVELOPMENT

Queensland first legislatively addressed the issue of brownfield and contaminated land in 1991 with the *Contaminated Land Act*, which led to the *Queensland Environmental Protection Act 1994* with the aim to 'protect Queensland's environment while allowing for development that improves the total quality of life, both now and in the future, in a way that maintains the ecological processes on which life depends (ecologically sustainable development).' The *Queensland Environmental Protection Act 1994* places great emphasis on managing the environment and, in chapter 7 of the act, outlines the management of known contaminated sites and potentially contaminating activities in Queensland to prevent environmental and health risks. Management is led by the Department of Environment and Natural Resources (DERM). DERM provides advice on legislation and technical requirements, reviews contaminated site investigations and approves site management plans.

To reduce the level of risk for land buyers, potentially contaminated sites are registered with the Environmental Management Register (EMR) and Contaminated Land Register (CLR) by the Queensland government; DERM maintains this register. Registration on the EMR is required for land that is (or has been) used for notifiable activities (activities that are likely to cause contamination) or has been contaminated by a hazardous contaminant. DERM states that the "registered sites pose a low risk to human health and the environment under the current land use", and that "entry on the EMR does not mean the land must be cleaned up or that the current land use must stop". DERM states that registration on the CLR is for "proven contaminated land which is causing or may cause serious environmental harm... when scientific investigation shows it is contaminated and action needs to be taken to remediate or manage the land". Scientific investigations and site management plans are carried out by industry professionals, and reviewed by DERM.

When a site is located in a built-up urban area, constraints are placed on the type of development due to the site shape, access to the site, the greater town planning restrictions, and any restrictions due to existing infrastructure maximum allowances. Redevelopment can also place increased strain on existing infrastructure and public services, erode green space in the case of vacant sites and infill development, and negatively impact neighbours through noise and air pollution. The redevelopment of a brownfield site can negatively and positively change the amenity, and values of the suburb.

One such example is the Brisbane Urban Renewal Project, which was initiated in 1991 to renew urban areas in Brisbane. A combined area of approximately 730 hectares covering the suburbs of Fortitude Valley, New Farm, Teneriffe, Newstead and Bowen Hills was earmarked by the Brisbane City Council for renewal.

The areas have transformed from declining, outdated and unattractive precincts to vibrant, diverse inner urban areas of increasingly high amenity. The majority of works are complete, but not all areas are finished.

Negative impacts of brownfield sites

Vacant, unused brownfield sites (whether contaminated or only perceived as contaminated) contribute to a loss in property value, loss of jobs, loss of tax revenue, a threat to public health and the environment, and potential liability for the contamination.

During development, blow-outs in expected cost and time can be anticipated, due to the remediation of the contamination, and the potential for lawsuits and liability relating to the remediation of the site. A site located in a built-up urban area can constrain the type of development possible, due to the site shape, access to the site, greater town planning restrictions, and existing infrastructure maximum allowances. Brownfield redevelopment can also place increased strain on existing infrastructure and public services, can erode green space in the case of vacant sites and infill development, and negatively affect neighbours through noise and air pollution. The lack of redevelopment of a brownfield site can diminish a suburb's amenity and property values.

Positive impacts of the redevelopment of brownfield sites

The redevelopment of brownfield sites has positive impacts for both the surrounding society and the developer. Such a project can improve a suburb's amenity and property values. Renewing older suburbs and past industrial areas is high on government planning agendas. It is already happening in Brisbane and southeast Queensland, with exceptional results for society and developers alike. In the United States, redevelopment of brownfield sites is encouraged by state-led voluntary brownfield clean-up programs.

PUBLIC PERCEPTION

A survey of 47 respondents who work in the Brisbane central business district aimed to capture the general population's perception of brownfield sites and redevelopment in southeast Queensland. Definitions, (summarised from the literature critique, of 'brownfield' and 'contaminated land' were given to respondents to ensure they had a clear understanding of the terms.

The majority of the population were not aware of any brownfield sites near their residence, and those who were aware showed very little concern about their proximity to the site. The majority of respondents believed that petrol stations were the most likely source of brownfield status. Respondents' greatest concern was environmental damage, over and above degradation of character of the area and health risks (see Figure 1).

Participants who were aware of existing of brownfield sites near their home showed a lower level of concern, regardless of whether they live on a redeveloped brownfield site (contaminated or not). However, participants unaware of a nearby brownfield site were more concerned about living on a redeveloped brownfield site, particularly one that had been contaminated (see Table 1).

Table 2 illustrates the number of respondents who made purchasing or rental decisions based on an EMR or CLR search. Asked if they would conduct an EMR or CLR search if planning to purchase a property for use as a primary residence, most respondents (91%) said they would perform a such check. The 9% who responded 'no' were unaware of nearby brownfield sites. Around three-quarters (74%) of respondents indicated that they would not perform such a check on property they planned to rent. This discrepancy was expected, as renting is generally viewed as a short-term form of accommodation posing a shorter exposure period to the risks from contamination.

Contamination and remediation

Most (83%) respondents said that the type of contamination and remediation action would affect their decision to live on a redeveloped contaminated site (see Table 3).

Only around two-thirds (65%) of respondents were unaware of any contaminated land near where they live. There were slightly different attitudes between awareness related to decisions made for purchase and decisions made for renting. Those who were aware of any contaminated land indicated that any future decision to purchase their primary residence in future would include a check of the EMR or CLR. However, people were not overly concerned about such checks if they intended to rent.

Unfortunately, few people were aware of the existence of contaminated land, or knew how to minimise their risk by checking the EMR or CLR.

Redevelopment of brownfield sites is often drawn out when it comes to approving a remediation management plan and removal from the CLR. More realistic timelines may be achieved by gathering evidence of turnaround time and general fees through initial interviews with builders, developers and consultants, as well as a DERM official.

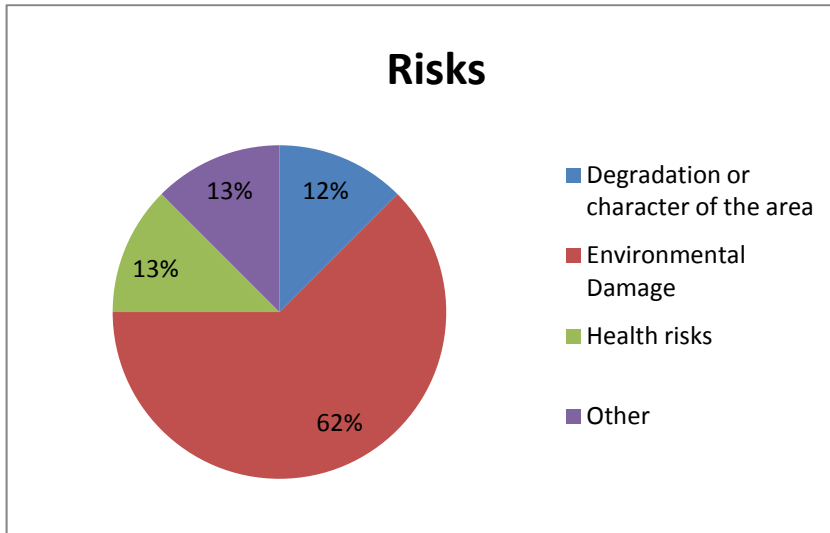


FIGURE 1 Risks causing concern

TABLE 1 Level of concern of people live in the redeveloped brownfield area.

	Respondents UNAWARE of nearby brownfields	Respondents AWARE of nearby brownfields
Redeveloped brownfield	4.33	3.65
Redeveloped contaminated	6.33	3.75

TABLE 2 Purchase and rent based on EMR/CLR check.

	Respondents UNAWARE of nearby brownfields		Respondents AWARE of nearby brownfields	
	Perform a Check YES	Perform a Check NO	Perform a Check YES	Perform a Check NO
PURCHASE	26	4	16	0
RENTING	5	25	7	9

TABLE 3 Contamination/remediation actions affect decision to live on redeveloped site

Respondents UNAWARE of nearby brownfields		Respondents AWARE of nearby brownfields	
Affect your decision YES	Affect your decision NO	Affect your decision YES	Affect your decision NO
24	6	14	2
52.17%	13.04%	30.43%	4.35%