

Land Use Conflict Risk Assessment Guide

Resource Planning & Development Unit

This factsheet provides guidance on the practical measures to use when conducting a Land Use Conflict Risk Assessment (LUCRA). It may assist landholders, developers and regulators with improved knowledge to avoid and manage land use conflicts.

Its primary focus is on conflicts affecting existing or proposed agricultural developments, but the process may also be useful for assessing land use conflicts associated with other primary industries, such as mining or forestry.



Rural landscapes may have a range of land uses. Photo: NSW DPI

What are Land Use Conflict Issues?

Land use conflicts occur when one land user is perceived to infringe upon the rights, values or amenity of another. In rural areas land use conflicts commonly occur between agricultural and residential uses. However, land use conflicts can also occur between different agricultural enterprises and other primary industries including mining, forestry, aquaculture and fishing enterprises.

Rural amenity issues are the most common land use conflict issues, followed by environmental protection issues. Rural amenity issues include impacts to:

- air quality due to agricultural and rural industry (odour, pesticides, dust, smoke and particulates)
- use and enjoyment of neighbouring land e.g. noise from machinery, and
- visual amenity associated with rural industry e.g. the use of netting, planting of monocultures and impacts on views.

Environmental protection issues include:

- soil erosion leading to land and water pollution
- clearing of native vegetation, and
- stock access to waterways.

Direct impacts from neighbouring land uses on farming operations can also cause conflict, such as:

- harassment of livestock from straying domestic animals
- trespass
- changes to storm water flows or water availability, and
- poor management of pest animals and weeds

Communication and Dispute Resolution

New rural residents, existing residents and rural producers all have a right to live in and enjoy the rural environment. Sharing lifestyles in rural areas comes down to having informed and reasonable expectations of how the land in your area is used, applying a little bit of give and take, and understanding the rules governing land use. It is important that all people interested in the future of rural areas understand what life is like in a rural environment and appreciate each other's needs. Information and communication are two of

the greatest allies to avoiding disputes and in resolving disputes when they arise.

Avoiding a dispute and conflict in the first instance should be a priority. Take what actions you can on your own property to minimise any impacts on the environment and your neighbours. Talk to your neighbours about any concerns you may have if an issue or misunderstanding arises. Aiming to reach agreement about how to address issues that arise in a cooperative and positive manner is by far the best solution.

What is LUCRA?

Land Use Conflict Risk Assessment (LUCRA) is a system to identify and assess the potential for land use conflict to occur between neighbouring land uses. It helps land managers and consent authorities assess the possibility for and potential level of future land use conflict.

LUCRA aims to:

- accurately identify and address potential land use conflict issues and risk of occurrence before a new land use proceeds or a dispute arises
- objectively assess the effect of a proposed land use on neighbouring land uses
- increase the understanding of potential land use conflict to inform and complement development control and buffer requirements, and
- highlight or recommend strategies to help minimise the potential for land use conflicts to occur and contribute to the negotiation, proposal, implementation and evaluation of separation strategies.

A LUCRA is a valuable tool. It enables a systematic, consistent and site-specific conflict assessment approach to land use planning and development assessment.

How does LUCRA Work?

A LUCRA prompts land use managers to identify the effects of a proposed land use on neighbouring land uses, it then causes them to evaluate the type and level of management strategies required to minimise such effects.

Applying LUCRA

The LUCRA process is not an instant formula, but a broader approach to evidence based planning! It is a tool to help make the identification and management of potential sources of conflict

between neighbouring land uses as explicit and objective as possible.

While a simple ranking system is used to identify the level of risk associated with a potential source of conflict it must be set in the planning context to which it will be applied. The process can be adapted according to each situation and the planning outcomes may vary between authorities depending on their Local Environmental Plan or Development Control Plans etc.

LUCRA should be used to guide the assessment of the potential for conflict between land uses and the potential implications of that conflict.

Keys Steps in LUCRA

There are four key steps in undertaking a LUCRA. These are:

1. gather information about proposed land use change and associated activities
2. evaluate the risk level of each activity
3. identify risk reduction management strategies
4. record LUCRA results.

These steps are described in more detail below.

Step 1: Gather information

LUCRA requires collection and consideration of site specific factors. To do this, the proponent will need to:

- describe the nature of the proposed land use change and proposed development
- describe and record the major activities associated with the land use change and their frequency. Include periodic and seasonal activities that have the potential to be a source of a complaint or conflict
- appraise the topography, climate and natural features of the site and broader locality
- undertake a site history search, review the previous environmental assessments and approvals for the site
- inspect the site and interview relevant owners/operators of adjacent properties
- describe and record the main activities of the adjacent properties and their frequency. Include water based activities that may be adversely impacted, such as oyster farming, and
- compare and contrast the proposed and adjoining/surrounding land uses and activities for incompatibility and conflict issues.

After gathering information, record each activity and potential conflicts in a table similar to that shown in **Table 1**, Initial Risk Evaluation.

Table 1: Initial Risk Evaluation

Activity	Identified Potential Conflict	Risk Ranking

Step 2: Evaluate the risk level of each activity

A Risk Ranking Matrix, (Table 2) is used to rank the identified potential land use conflicts. The risk ranking matrix assesses the environmental, public health and amenity impacts according to the:

- probability of occurrence, and
- consequence of the impact.

Table 2: Risk Ranking Matrix –

PROBABILITY	A	B	C	D	E
Consequence					
1	25	24	22	19	15
2	23	21	18	14	10
3	20	17	13	9	6
4	16	12	8	5	3
5	11	7	4	2	1

The risk ranking matrix yields a risk ranking from 25 to 1. It covers each combination of five levels of ‘probability’ (a letter A to E as defined in Table 3) and 5 levels of ‘consequence’, (a number 1 to 5 as defined in Table 4) to identify the risk ranking of each impact. For example an activity with a ‘probability’ of D and a ‘consequence’ of 3 yields a risk rank of 9.

Table 3: Probability Table – to score the likelihood of the consequence occurring

Level	Descriptor	Description
A	Almost certain	Common or repeating occurrence
B	Likely	Known to occur, or ‘it has happened’
C	Possible	Could occur, or ‘I’ve heard of it happening’
D	Unlikely	Could occur in some circumstances, but not likely to occur
E	Rare	Practically impossible

A rank of 25 is the highest magnitude of risk; a highly likely, very serious event. A rank of 1 represents the lowest magnitude or risk an almost impossible, very low consequence event.

Priority is given to those activities listed as high risk. This will help rank multiple effects and provide a priority list when developing management strategies.



In Table 1 record the risk ranking score for each potential land use conflict issue identified in Step 1.



Other land uses near bananas may result in conflicts over the use of pesticides, Coffs Harbour NSW. Photo: R Whitehead

Step 3: Risk Reduction Management strategies

The process of risk reduction aims to identify management strategies that affect the probability of an event occurring, such as the implementation of certain procedures; new technology or scientific controls that might lower the risk probability values.

It is also appropriate to look at management strategies which affect consequences e.g. supply staff with a mechanism to change impacts or establish better communication procedures. Such matters can sometimes lower negative consequences.

Table 4: Measure of Consequence

Level: 1	Descriptor: Severe
Description	<ul style="list-style-type: none"> • Severe and/or permanent damage to the environment • Irreversible • Severe impact on the community • Neighbours are in prolonged dispute and legal action involved
Example/ Implication	<ul style="list-style-type: none"> • Harm or death to animals, fish, birds or plants • Long term damage to soil or water • Odours so offensive some people are evacuated or leave voluntarily • Many public complaints and serious damage to Council's reputation • Contravenes Protection of the Environment & Operations Act and the conditions of Council's licences and permits. Almost certain prosecution under the POEO Act
Level: 2	Descriptor: Major
Description	<ul style="list-style-type: none"> • Serious and/or long-term impact to the environment • Long-term management implications • Serious impact on the community • Neighbours are in serious dispute
Example/ Implication	<ul style="list-style-type: none"> • Water, soil or air impacted, possibly in the long term • Harm to animals, fish or birds or plants • Public complaints. Neighbour disputes occur. Impacts pass quickly • Contravenes the conditions of Council's licences, permits and the POEO Act • Likely prosecution
Level:3	Descriptor: Moderate
Description	<ul style="list-style-type: none"> • Moderate and/or medium-term impact to the environment and community • Some ongoing management implications • Neighbour disputes occur
Example/ Implication	<ul style="list-style-type: none"> • Water, soil or air known to be affected, probably in the short term • No serious harm to animals, fish, birds or plants • Public largely unaware and few complaints to Council • May contravene the conditions of Council's Licences and the POEO Act • Unlikely to result in prosecution
Level: 4	Descriptor: Minor
Description	<ul style="list-style-type: none"> • Minor and/or short-term impact to the environment and community • Can be effectively managed as part of normal operations • Infrequent disputes between neighbours
Example/ Implication	<ul style="list-style-type: none"> • Theoretically could affect the environment or people but no impacts noticed • No complaints to Council • Does not affect the legal compliance status of Council
Level: 5	Descriptor: Negligible
Description	<ul style="list-style-type: none"> • Very minor impact to the environment and community • Can be effectively managed as part of normal operations • Neighbour disputes unlikely
Example/ Implication	<ul style="list-style-type: none"> • No measurable or identifiable impact on the environment • No measurable impact on the community or impact is generally acceptable

Table 5: Management Strategy

Identified Potential Conflict	Management Strategy (Method of Control)	Revised Risk Ranking	Performance Target

The objective is to identify and define controls that lower the risk ranking score to 10 or below.

Risk Reduction Controls

Record in a table, such as that shown in Table 5:

- management strategies for each identified potential conflict that could help lower the risk level
- re-asses the risk level on the basis of these management strategies being implemented
- for each of these strategies identify performance targets and details of how the effectiveness of the strategy will be monitored.

The exact solutions will depend on local circumstances; planning rules and guidelines; and industry expectations. You may find that many, if not most, solutions are relatively simple, and will improve the proposed land use. A buffer zone, for example, may be a good tool, but don't forget that it is not the only planning and management tool available.



Well managed enterprises minimise the occurrence of land use conflicts. Photo: Tim Fitzroy and Associates

Step 4: Record LUCRA results

A record of the key issues, their risk level, and the recommended management strategies provides a

valuable planning document for managers and planners. This information should be included in any relevant management plan.

The results of a LUCRA can also be included in a development or planning proposal to show how it has informed the location, design and operation of a change in land use and/or development. Any key limitations, unknowns or assumptions in the LUCRA should be documented. Existing codes, policies or guidelines that have been used to develop conflict minimisation strategies should be referenced.

Recommended Structure of a LUCRA Report

Undertaking a LUCRA requires insight and experience of land use and resource management issues, and skills in investigation, research and inquiry, objectivity, and impartiality. The capacity to effectively assess the potential risk, given changing circumstances, the dynamics of rural areas and industries, the vagaries of climate and the varying expectations of individuals and rural communities can also help.

Possessing knowledge and understanding of land use conflict policy and specific codes and guidelines is an advantage when undertaking a LUCRA.

Once the LUCRA has been completed, the background information and the results of the LUCRA need to be compiled into a report that can accompany the planning proposal. A suggested outline of a LUCRA is given below, though to ensure that the LUCRA provides relevance to a planning proposal, the relevant consent authorities should be consulted to determine the level and type of detail required to accompany a development application or proposal, and to ensure that the LUCRA will align with the authorities' requirements.

- 1 Introduction
 - 1.1 Scope of Works
2. Gather Information
 - 2.1 Nature of the land use change and development proposed
 - 2.2 Nature of the precinct where the land use change and development is proposed
 - 2.3 Topography, Climate and Natural Features
 - 2.4 Site History
 - 2.5 Site Inspection Outcomes
 - 2.6 Consultation
3. Land Use Conflict Risk Assessment
 - 3.1 Introduction
 - 3.1 Initial risk identification and Risk Ranking
 - 3.2 Risk Reduction Controls
 - 3.3 performance monitoring
 - 3.4 limitations/assumptions
 - 3.5 key documents
4. Conclusions and Recommendations



Scenic amenity is an important value of the agricultural landscape. Photo: R Whitehead

Additional Information

Trade and Investment NSW's website (<http://www.dtiris.nsw.gov.au/>) has information on a range of relevant topics. This includes:

Living and Working in Rural Areas: A handbook for managing land use conflict issues on the North Coast

http://www.dpi.nsw.gov.au/research/alliances/centre_for_coastal_agricultural_landscapes/living-and-working-in-rural-areas

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