Appendix E: Community Engagement Processes and Results

E.1 Community engagement logic and methodology

Location: The initial questions asked of each asset manager were to establish whether they knew the location of threats posing risk to assets. These questions helped establish actions based on whether:

- research was needed to understand the location of risks to assets
- the location of risk to assets was already known, and the asset managers needed to be informed and given access to this information.

Results from the interviews found that most asset managers were quite capable of recognising where landslides, gully and tunnel erosion and secondary salinity were a risk in the landscape. However, many struggled to locate sheet and rill erosion and potential acid sulphate soil sites.

Asset managers did not commonly hold maps or other documentation locating threats to assets, despite many of these threats having been recently mapped. Asset managers do not appear to be aware of the availability or how to access these maps.

Technology: Questions were asked of asset managers on the broad topics of the technology used or known to address each soil threatening processes. These questions helped establish actions based on whether:

- research or trials were needed for new technologies to address the threats to assets
- asset managers needed to be informed and educated about known technologies that would effectively reduce the risk to assets.

Results show that local government and infrastructure asset managers predominantly used engineering-based treatment options to ameliorate landslides, erosion and salinity risks. Municipalities and other asset managers often followed mandatory practises during urban and infrastructure development activities to reduce the risk of certain soil-related threatening processes, particularly sheet/rill erosion. Some municipalities are developing, or are planning to develop, tools and policies to reduce the risks of landslides and erosion through their local planning scheme.

Landholders across all landscape zones used revegetation treatment options to ameliorate landslides, sheet/rill erosion, gully/tunnel erosion and secondary salinity. However, a secondary treatment was also used, which might include engineering, earthworks or drainage treatments. Acid sulphate soils were not treated. If recognised in the landscape, they are generally left undisturbed. The conclusion was that more cost-effective treatment options are needed to address the risks associated with landslides, erosion and potential acid sulphate soils.

Attitudes: The questioning surrounding attitudes helped establish the asset managers' views of the soil threats which they identified as high risk in their area and their perceptions on how effective and appropriate the treatments used in the past were. These questions helped develop actions based on:

- educating asset managers about the processes, condition, potential impacts and treatments and risks to assets caused by various threats identified in their areas
- developing new cost-effective technologies that will significantly reduce the risks and be accepted by relevant asset managers
- informing asset managers of known cost-effective technologies for addressing risks.

Most asset managers were aware of the risk to assets, and understood the importance and consequences of the recognised threats. However, many were not aware of the consequences of acid sulphate soils and farmers were not too familiar with addressing sheet and rill erosion. Their attitude to addressing the threatening processes was generally positive. Activity is being constrained by their capacity.

Asset managers were generally satisfied with the effectiveness of technologies used to address landslides, erosion and salinity problems. Most asset managers were not aware of the technologies for acid sulphate soils. The main concern amongst asset managers was the high cost of technologies, particularly engineering and earthwork technologies for treating landslides and gully/tunnel erosion.

Managers of Proclaimed Water Supply Areas and Parks Victoria managers all acknowledged the need to address soil-related threatening processes. They are positive about providing finances to fund the implementation of technologies, but rely on others to coordinate and carry out the implementation of on-ground works.

Capacity: Questions were asked around 'capacity' to determine asset managers' ability to adopt technologies for treating risks to assets. These questions identified the barriers that may inhibit technology adoption. Questions were based on:

- what forms of assistance asset managers felt were needed to help develop skills required to implement technologies for treating threats
- informing asset managers on where to access experts, who have the skills to effectively implement technologies to address the threat to assets
- seeking and coordinating incentive funds to help asset managers pay for technologies that will reduce the risk to assets.

Results show that the asset managers' capacity to treat the threats to assets is highly variable. Municipalities and infrastructure managers generally have in-house technical expertise, but often need technical assistance for more complicated matters. Most landholders feel the need for technical advice for technologies other than simple re-vegetation and fencing options. However, some individual landholders have excellent skills in ameliorating erosion. Asset managers generally do not have the capacity to manage acid sulphate soils, simply through ignorance of their location.

Most asset managers feel that they lack the financial understanding to decide about investment in treatment technologies, particularly engineering. Many believe that the cost of implementing treatments is more than the benefit of reducing the risk. In general, asset managers indicated that financial incentives would help them adopt treatments.

Results from the semi-structured interviews, and perceptions developed from interviews with asset managers from past workshops, forums and other dealings have all helped develop the results in *Table E1*. This table summarises asset managers' ability to:

- identify the location of risk to their assets
- recognise the technologies available to effectively treat threats
- understand the importance of threats to assets and judge the effectiveness of poor treatment technologies
- adopt technologies to treat risks.

Categories used for each asset manager in each priority area included 'Low', 'Moderate' or 'High'. Brief comments were also made under each category for each of the asset managers.

E.2 Community engagement results in priority areas

Asset Managers	Priority Areas	Locate Risk *(Ability to locate where the risk may occur and treatment is required in the landscape)*
1. Landslides		
LANDHOLDERS	Gellibrand	**Moderate** (new landholders do not understand risk)
	Curdies	**High** (recognise where risk lies)
	Otway Coast	**Moderate** (new landholders do not understand risk)
	Upper Barwon	**High** (identify highly susceptible areas)
	Aire	**Moderate** (some do not understand where to locate risk)
COLAC OTWAY SHIRE	Gellibrand, Aire, Otway Coast and Upper Barwon	**High** (1:25,000 scaled susceptibility maps will be used post 2006)
CORANGAMITE SHIRE	Curdies and Gellibrand	**Moderate** (staff know where high susceptibility areas are located)
SURF COAST SHIRE	Upper Barwon	**Low** (staff have limited idea where risk may occur)
VICROADS	Gellibrand, Aire, Otway Coast, Curdies and Upper Barwon	**Moderate** (inventory of landslides impacting VicRoads roads)
PARKS VICTORIA	Gellibrand, Aire, Otway Coast and Upper Barwon	**Moderate** (staff have good understanding where risks are located)
BARWON WATER	Upper Barwon & Gellibrand	**Low** (other agencies identify threats to their assets for them)

Table E1: Ability of asset managers in the Corangamite region to identify and address priorities in the Soil Health Strategy *(continued next page)*

Technology *(Evidence of technology used to treat the risk to asset)*	Attitude *(Asset managers' attitude to treatment options used and available to them)*	Capacity *(Existing capacity of the asset managers to adopt appropriate treatment options)*
Low (revegetation treatment options only used)	**Low** (not willing to give up pasture land for treatment options)	**Low** (technical advice and co-investment)
Moderate (revegetation, drainage and earthwork treatments used)	**Moderate** (effective treatments used, but too expensive)	**Low** (technical advice and incentive grants needed)
Low (revegetation treatment options only used)	**Low** (not willing to give up pasture land for treatment options)	**Low** (technical advice and co-investment)
Moderate (no earthworks or engineering used)	**Moderate** (revegetation has shown to be effective)	**Low** (need technical advice)
Low (limited revegetation treatment used)	**Low** (unconvinced of the return of investment)	**Low** (technical advice and incentives needed)
High (tools developed to reduce risk through planning scheme)	**Moderate** (treatment options effective, but new options need investigating)	**Moderate** (greater funds needed for treatments, some technical advice required)
Moderate (engineering treatment options used)	**Low** (need more long-term and cost-effective treatment options)	**Moderate** (some in-house technical people, but more technical support and funding needed)
Moderate (engineering treatments options used)	**Low** (treatments are expensive and not all landslides are treatable)	**Low** (little expertise in-house, funding needed)
High (range of engineering options used)	**High** (high-risk areas are treated immediately)	**High** (technical expertise available, funding is always found for treatment of high-risk areas)
Low (fence off tourists from high-risk areas)	**High** (priority to protect tourists from landslides)	**Low** (technical expertise and funding needed)
Low (other agencies develop and implement treatment)	**High** (co-invest with CCMA to reduce threat of risk to their assets)	**Moderate** (funding is available to support treatment, no technical advice available)

Asset Managers	Priority Areas	Locate Risk
2. Sheet and Rill Erosion		
LANDHOLDERS	Woady Yaloak	**Low** (unable to recognise risk)
	Thompsons	**Low** (risk needs to be mapped)
	Moorabool	**Low** (not always recognised as a risk)
	Upper Barwon	**Low** (bare soil identified as production loss, not erosion)
	Leigh	**Low** (not familiar with the nature of the risk)
GOLDEN PLAINS SHIRE	Woady Yaloak, Moorabool and Leigh	**Low** (risk not mapped)
MOORABOOL SHIRE	Moorabool and Leigh	**Low** (limited understanding on the location of risks)
BALLARAT CITY	Leigh	**Moderate** (locate general areas of high susceptibility)
SURF COAST SHIRE	Thompsons, Upper Barwon	**Low** (no maps available)
COLAC OTWAY SHIRE	Upper Barwon	**High** (1:25 000 susceptibility maps used post 2006)
VICROADS	Woady Yaloak, Moorabool, Thompsons, Leigh	**Moderate** (unsealed roads in Otways are at high risk)
PARKS VICTORIA	Woady Yaloak, Moorabool, Thompsons, Leigh	**Moderate** (unsealed roads highly susceptible)
DSE CROWN LAND	Woady Yaloak, Moorabool, Thompsons, Leigh	**Low** (limited understanding of where the threat is a risk)
BARWON WATER	Moorabool, Upper Barwon	**Low** (no idea where the risk is located)
CENTRAL HIGHLANDS WATER	Moorabool	**Low** (little understanding of where risk is located)

Table E1: (Cont.)

Technology	Attitude	Capacity
Moderate (re-sowing pastures and crops on bare soil)	**Moderate** (needs to impact productivity)	**Moderate** (incentives are available to help manage threat)
Moderate (fenced off and replanted with trees and pastures)	**Low** (other treatments need exploring)	**Low** (technical advice and extension needed)
Moderate (prevention is best, do not sow crops on steep slopes)	**Moderate** (other treatment options needed)	**Low** (technical advice and extension needed)
Moderate (re-sow bare soils into pasture)	**Moderate** (return bare soil back into productive pastures)	**Moderate** (knowledge to establish suitable pastures)
Low (limited treatment implemented)	**Moderate** (perennial pastures and deep ripping often works)	**Low** (new cost-effective treatments needed)
Moderate (mandatory practices to reduce threat used)	**Moderate** (practices used seem to be effective)	**Moderate** (technical skills available, but funding is limited)
Moderate (mandatory practices to reduce threat used)	**Moderate** (reduce the risk of the threat is in their policy)	**Moderate** (technical skills available, but funding is limited)
Moderate (tools to address the threat are in the planning scheme, but it needs reviewing)	**Moderate** (host soil erosion training days to investigate treatment options)	**Moderate** (coordinated approach is needed to address the threat properly)
Moderate (mandatory practices used during road works)	**Moderate** (practices used seem to be effective)	**Moderate** (engineers can implement treatments)
High (tools to be used to reduce development in high-risk areas)	**High** (costs to treat the threat is built into all road construction costs)	**Moderate** (new treatment options need exploring)
Moderate (often no room for silt traps)	**High** (treatments used seem to be effective)	**High** (technical expertise available)
Moderate (silt traps and correct road design used)	**Moderate** (mandatory treatments used)	**Moderate** (requires technical expertise)
Moderate (revegetation is used to stabilise soils)	**Moderate** (seen as a priority if there is a high risk to assets)	**Moderate** (investment to fix the risk is provided if seen as a priority)
Low (relies on CMA and others for technical skills)	**High** (invest in ameliorating risk to their assets)	**Low** (relies on others for technical skills)
Moderate (support winter cropping in potato areas to reduce threat)	**Moderate** (provides $10,000 to CCMA to manage erosion risk)	**Low** (relies on others to identify and treat sites)

Asset Managers	Priority Areas	Locate Risk
3. Gully and Tunnel Erosion		
LANDHOLDERS	Woady Yaloak	**High** (aware of threat locations on their properties)
	Leigh	**High** (aware of threats on their property)
	Moorabool	**High** (know where the risk is on the property)
	Upper Barwon	**High** (aware of threat locations)
GOLDEN PLAINS SHIRE	Woady Yaloak, Moorabool, Leigh	**Moderate** (a general idea, but nothing mapped)
MOORABOOL SHIRE	Moorabool, Leigh	**Moderate** (staff know where risk is generally located)
BALLARAT CITY	Leigh	**Moderate** (no recent mapping conducted)
SURF COAST SHIRE	Upper Barwon	**Low** (little understanding and no mapping conducted)
COLAC OTWAY SHIRE	Upper Barwon	**High** (1:25 000 susceptibility maps available)
VICROADS	Woady Yaloak, Moorabool, Leigh	**Moderate** (general understanding of where it occurs)
PARKS VICTORIA	Woady Yaloak, Moorabool, Leigh	**Moderate** (general understanding where threats are located)
DSE CROWN LAND	Woady Yaloak, Moorabool, Leigh	**Low** (limited understanding of where the threat is a risk)
BARWON WATER	Moorabool, Upper Barwon	**Low** (relies on others to locate risks)
CENTRAL HIGHLANDS WATER	Moorabool	**Low** (assumed it's mostly in the Ordovician Sedimentary soil)

Table E1: (Cont.)

Technology	Attitude	Capacity
Moderate (a range of treatment types used)	**Low** (treatment is too expensive)	**Low** (technical advice and incentives are needed)
Moderate (engineering, earthworks and revegetation treatment used)	**Low** (treatments are not cost effective)	**Low** (technical support needed)
Moderate (soil is sown down to pastures or fenced off for tree)	**Low** (earthworks and rock chutes are too expensive)	**Low** (incentives are needed to increase treatment adoptions)
Moderate (revegetation options used, CCMA uses rock chutes)	**Moderate** (treatments have worked, but are not cost-effective)	**Moderate** (CCMA pays for total costs of treatment for priority sites)
Moderate (some engineering treatments used)	**Low** (more cost effective treatments needed)	**Low** (greater funds needed)
Low (revegetation used only, through Grow west program)	**Low** (revegetation is effective and cheap)	**Low** (technical expertise available, but resourcing needed)
Moderate (battering, revegetation and engineering treatments used)	**Low** (follow-up maintenance of treatments required)	**Low** (resources needed to employ contractors)
Moderate (rock lining, revegetation and some drainage)	**Low** (cheaper treatment options are needed)	**Low** (funding is needed for treatments)
Moderate (engineering, earthworks and revegetation used)	**Moderate** (revegetation is cheap, but engineering is expensive)	**Moderate** (technical expertise needed)
Moderate (battering, new drains and beaching options used)	**Moderate** (treatments used have been effective, but are open to new treatment options)	**High** (resources made available for all high-risk areas)
Low (relies on outside resources for technical advice)	**High** (must treat the threat when impacting priority assets)	**Low** (limited funding and technical expertise available)
Low (little or no treatment used)	**Moderate** (seen as a priority if there is a high risk to asset)	**Moderate** (requires technical advice from outside)
Low (relies on others for treatment options)	**High** (co-invest with others to reduce risk to their assets)	**Moderate** (provides incentives, but requires technical skills)
Moderate (promotes treatment options such as buffer strips)	**High** (prevent sedimentation of reservoirs is more important)	**Moderate** (incentives used to treat risk to their assets)

Asset Managers	Priority Areas	Locate Risk
4. Acid Sulphate Soils		
LANDHOLDERS	Bellarine	**Low** (no idea of where it is located)
	Thompsons	**Low** (want it mapped)
CITY OF GREATER GEELONG	Bellarine	**Moderate** (mapped by CSIRO '04, but sites have been missed)
SURF COAST SHIRE	Thompsons	**Low** (threat identified in Anglesea, but not mapped anywhere)
VICROADS	Bellarine, Thompsons	**Low** (do not know where it is located)
PARKS VICTORIA	Bellarine, Thompsons	**Low** (do not know where the risk is located)
DSE CROWN LAND	Bellarine, Thompsons	**Low** (no regional knowledge of where the threat impacts on Crown Land)

Table E1: (Cont.)

	Technology	Attitude	Capacity
	Low (do not recognise the threat)	**Low** (not that interested in understanding risk)	**Low** (threat needs locating so they can treat it appropriately)
	Low (not aware of the threat or treatment options)	**Moderate** (huge gap in knowledge that urgently needs filling)	**Low** (technical experts required for treatment)
	Moderate (know not to disturb the potential threat)	**Moderate** (planners do not use the map to reduce risk)	**Moderate** (recent maps of the threat are available to identify risk)
	Low (no treatments explored)	**Low** (limited concern of the threat in the organisation)	**Low** (minimal understanding of the risk or treatment)
	Low (need to be informed of treatment options)	**Moderate** (resources will be made available for high risk areas)	**Low** (no knowledge of location of threat or treatment)
	Low (unaware of treatment options)	**Moderate** (protection of priority assets from the threat is vital)	**Low** (no technical skills or resources available)
	Low (treatment and knowledge of the threat by staff is limited)	**Moderate** (if proven to be impacting on their assets, the threat is seen as a priority)	**Moderate** (finances may be found if the threat is seen to be a high priority)

Asset Managers	Priority Areas	Locate Risk
5. Secondary Salinity		
LANDHOLDERS	Lismore	**High** (threat noticeable in the landscape)
	Woady Yaloak	**High** (threat is obvious in the landscape)
	Stony Rises	**High** (threat easily recognisable)
	Murdeduke	**High** (threat obvious in the landscape)
GOLDEN PLAINS SHIRE	Woady Yaloak, Murdeduke	**High** (threat has been recently mapped)
CORANGAMITE SHIRE	Lismore, Stony Rises	**High** (threat has been recently mapped)
COLAC OTWAY SHIRE	Stony Rises, Murdeduke	**High** (threat has been recently mapped)
VICROADS	Woady Yaloak, Murdeduke, Lismore, Stony Rises	**Moderate** (threat has recently been mapped)
PARKS VICTORIA	Woady Yaloak, Murdeduke, Lismore, Stony Rises	**Low** (additional mapping required)
DSE CROWN LAND	Woady Yaloak, Murdeduke, Lismore, Stony Rises	**Moderate** (update of public/Crown Land mapping required)
INFRASTRUCTURE MANAGERS (e.g. TELSTRA)	Woady Yaloak, Murdeduke, Lismore, Stony Rises	**Moderate** (latest maps on salinity discharge required)

Table E1: (Cont.)

Technology	Attitude	Capacity
Moderate (current treatments only marginally better than the status quo)	**Moderate** (unconvinced of the return for the investment)	**Moderate** (need technical advice and incentives)
Moderate (examples available on revegetation of discharge sites)	**Moderate** (keen to address the threat)	**Low** (technical advice and incentives needed)
Moderate (current treatments only marginally better than the status quo)	**Moderate** (unconvinced of the return of investment)	**Moderate** (need technical advice and incentives)
Moderate (wider range of treatments sought)	**Moderate** (some landholders are keen, others require encouraging)	**Moderate** (technical assistance and incentives required)
Low (risk to assets is not treated)	**Moderate** (treatment should be effective)	**Moderate** (greater resources are needed)
Low (risk to assets is currently not treated)	**Moderate** (Salinity Management Overlay will reduce the risk to future developments)	**Moderate** (additional resources are needed to implement SMO)
Moderate (theoretically possible to use engineering options)	**Low** (potentially too high costs)	**Low** (needs skills and financial support)
High	**High**	**High**
Low (additional research required on treatment options)	**High** (keen group with a management plan)	**Moderate** (limited resources to implement management plan)
Moderate (target treatment for reserve land only)	**High** (understand the importance of these reserves)	**Low** (under-resourced to effectively manage all areas)
High	**High**	**High**