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Deep Drainage in the Wheatbelt

Salinity context

The State of the Environment Report 2007 highlighted land and inland waters salinisation as a major issue with some 1.08m hectares of land in the South West salt affected. The State Salinity Strategy 2000 lists specific goals for managing the impact of land salinisation including:

- “Reduce the rate of degradation of agricultural and where practical, recover, rehabilitate or manage salt affected land.
- Protect and restore high value natural ecosystems and maintain natural diversity.
- Provide communities with the capacity to address salinity issues.”

A key finding in the State of the Environment Report was ‘*Deep drainage is a divisive issue amongst the community and requires urgent attention.*’

A range of responses to address land salinisation have and are being implemented to reduce, recover, rehabilitate or manage salt-affected land. Drainage is seen by many farmers as an effective option to address on-farm salinity and improve productivity. A number of proposals have been implemented at scales ranging from paddock to whole farm and to regional schemes. Some of these schemes have resulted in significant adverse downstream environmental impacts.

Environmental impact of drainage

Drainage involves the removal of water from an area of surplus water to a disposal location that can accommodate the extra water.

A drainage project can have direct adverse environmental impacts from the construction of drains or receival basins within areas of remnant vegetation thereby adversely impacting on biodiversity. On the other hand the lowering of the water table can also have favourable impacts on nearby remnant vegetation.

Indirect impacts include the impact of the chemicals in drainage water on downstream ecosystems such as streams, rivers, estuaries and lakes. Drainage water is variable in quality but salt, low or high pH, heavy metals, iron and other constituents can adversely impact plants, animals and micro organisms.

These impacts, direct and indirect, can vary in magnitude depending on the scale and location of the drainage system, current landuse and the mineral composition of subsoil.

Proponents as a matter of principle are expected to design the drainage system to AVOID or MINIMISE direct and indirect adverse environmental impacts.

Role of proponent

The project proponent has a number of responsibilities from referral of the project to the Commissioner for Soil Conservation and, if assessed by the EPA, providing the necessary scientific and technical information to enable the EPA to undertake its assessment as part of the environmental impact assessment process and in turn provide advice to the Minister for Environment.

In its advice to the Minister, the EPA may recommend a number of conditions to be implemented if the Minister approves the project.

Agreement and subsequent implementation of the conditions requires the proponent to be an entity that can commit and be held to account for the ongoing management of the project including, if required on-going monitoring of environmental impacts.

While a single farmer, joint venture partners, companies, Local Government and incorporated associations provide the necessary governance framework an informal group of farmers would not be considered an appropriate entity if ministerial conditions are required.

When will drainage proposals be assessed?

The EPA expects proponents to avoid or minimise adverse environmental impacts. Proposals are required to be forwarded to the Commissioner for Soil Conservation. Where a drainage proposal is likely to have an adverse environmental impact the Commissioner will refer the proposal to the EPA. The proponent is then required to provide sufficient supporting information to enable the EPA to form a view as to whether the proposal should be formally assessed or not. The EPA determines on a case-by case basis, how significant an impact is and this in turn influences the decision as to whether the project is assessed and if so the appropriate level of assessment through the environmental impact assessment process and its recommendations to the Minister including advice on conditions as well as adequacy of any proposed offsets. Further information of offsets is available in EPA Environmental Protection Bulletin No. 1, September 2008. Subject to appeal options open to the EPA are:

- Not assessed
- Not assessed and advice given

This advice to the proponents and other regulators is intended to provide guidance as to how environmental risks can be minimised.

- Assessed

This requires the proponent, depending on the level of assessment, to undertake major investigations as to environmental impacts, methods of minimising those impacts and proposed management (including governance) regimes.

- Proposal unlikely to be environmentally acceptable



In providing advice to the Minister for Environment the EPA adopts a presumption against recommending approval of proposed projects where significant adverse environmental impacts affects 'critical' assets.

Critical assets are the most important environmental assets and include, but not confined to, nature reserves and national parks, native vegetation of high conservation status, biodiversity and wetlands such as Ramsar Wetlands and Conservation Category Wetlands. Further details on Critical assets can be found in EPA Position Statement No.9 – Environmental Offsets. An updated and comprehensive Critical Asset schedule is currently in preparation.

In practice indicative levels of assessment for drainage schemes could be, (subject to decision by the EPA based on adequate/scientific and technical data):

- Single/group of wholly cleared farms with disposal on-farm in an evaporative basin – not assessed.
- Single/group of farms with discharge to degraded creek – not assessed, advice given
- Single/group of farms – significant adverse, direct impact and/or potential downstream impacts – assessed.
- Single/group of farms – significant adverse impacts on critical assets - proposal unlikely to be environmentally acceptable.
- Arterial drainage scheme impacting on remnant vegetation and significant potential down stream impacts – assessed.
- Arterial drainage scheme discharging or significantly adversely impacting on critical assets - proposal unlikely to be environmentally acceptable.

All proposals would also need to comply with other regulatory requirements.

In considering deep drainage proposals the policies, decisions and advice of the EPA will be guided by the following principles:

1. Proponents should identify the environmental values to be protected and affected. Where a project is likely to have adverse environmental impacts proponents should liaise with the relevant local and state government agencies to identify and seek agreement on the environmental values to be protected.
2. Project proposals should address the mitigation sequence

In planning the deep drainage project proponents should demonstrate that they have applied the mitigation sequence of avoidance, minimisation, rectification, reduction, and offset in that order, to direct and indirect environmental impacts.

3. Where there are adverse environmental impacts offsets should be identified



Although the project may cause specific adverse environmental impacts it is important that there be a net environmental benefit. Replanting of native vegetation, or a green corridor along the drainage line, may act as an offset.

4. Proponent needs to have capacity to manage the project and implement conditions

Larger deep drainage projects are physically, financially, technically and managerially significant. The proponents need to have the legal and management capacity to comply with any conditions imposed as part of the Environment Impact Assessment and Ministerial processes.

5. Proponents need to demonstrate adequate community consultation

The EPA envisages that land holders and the local community need to understand and have the opportunity to express their views on the acceptability or otherwise of any environmental impacts of the proposal.

If the project is formally assessed there is a requirement for community engagement, however the EPA's experience is that early engagement brings out issues of concern and enables them to be addressed during the assessment process.