Department of
Primary Industries and
Regional Development
GOVERNMENT OF
WESTERN AUSTRALIA

Research Library

Miscellaneous Publications

Research Publications

8-2000

Identifying areas of agricultural significance

Ian Kininmonth

Follow this and additional works at: https://researchlibrary.agric.wa.gov.au/misc_pbns

 Part of the Agriculture Commons, and the Agronomy and Crop Sciences Commons

Recommended Citation

Kininmonth, I. (2000), *Identifying areas of agricultural significance*. Department of Agriculture and Food, Western Australia, Perth. Report 15/2000.

This report is brought to you for free and open access by the Research Publications at Research Library. It has been accepted for inclusion in Miscellaneous Publications by an authorized administrator of Research Library. For more information, please contact jennifer.heathcote@agric.wa.gov.au, sandra.papenfus@agric.wa.gov.au, paul.orange@dpird.wa.gov.au.

Miscellaneous Publication 15/2000
ISSN 1326-4168
An **AGPLAN™** product

IDENTIFYING AREAS OF AGRICULTURAL SIGNIFICANCE

Ian Kininmonth

August 2000

Agriculture
WESTERN AUSTRALIA

About this publication

This publication is a product of **AGPLAN™** which is a range of services and products provided by Agriculture Western Australia to assist government agencies and local governments undertaking land use planning for agriculture.

For more information about the **AGPLAN™** range of services and products contact Agriculture Western Australia on (08) 9368 3333 or view the agency's website at *www.agric.wa.gov.au*.

Acknowledgments

The original methodology for identifying areas of agricultural significance was developed by Ian Kininmonth with input and assistance from Ross George, Claire Kipling, Michael Rowe, Natalie Moore, Terry Laidler and Dennis van Gool of Agriculture Western Australia. Thanks also go to Eugene Ferraro, Phil Woodward, Kevin Martin and Judy Bell from the Ministry for Planning, Peter Driscoll from Landvision and Georgina Wilson from Agriculture Western Australia for reviewing and commenting on this publication.

Access to information

Copies of this publication are available from:

Publication Sales, Agriculture Western Australia, 3 Baron-Hay Court, South Perth, 6151.
Enquiries can be made on fax (08) 9474 2018 or telephone (08) 9368 3729.

© Chief Executive Officer, Department of Agriculture, Western Australia.

AGPLAN™ is a trademark of Agriculture Western Australia.

CONTENTS

Summary

The protection of productive agricultural land and the avoidance of land use conflicts in rural areas are important objectives of the Western Australian Government. They are reflected in the State Planning Strategy, Agriculture Western Australia's strategic plan, 'Focus on the Future' and draft Statement of Planning Policy (SPP) No. 11 – Agricultural and Rural Land Use Planning Policy.

However, agricultural land is required for a variety of purposes and so it is important that agriculture is able to identify those areas which are irreplaceable in terms of existing and future production and those areas which may be used for other beneficial uses.

Both the draft SPP and State Planning Strategy broadly delineate areas of potential State and regional agricultural significance and indicate that regional and local planning processes should be used to refine the boundaries of these areas and determine their relative significance for sustainable agricultural development. It is recommended that this be achieved using consultative processes in conjunction with published data and methods for processing and evaluating expert judgements, such as Comparative Agricultural Area Suitability Assessment Methodology (CAASAM).

CAASAM is a multi-criteria evaluation tool developed by Agriculture Western Australia to provide a framework for considering a wide range of factors relevant to an area's development by agriculture. It places this information in a regional context so that the comparative suitability of different areas can be determined.

CAASAM also highlights and communicates the main development issues for an area, which can then be used to assist detailed land use, environmental, and (re)development planning. However this method, like land capability assessment, has its limitations and a range of other factors also need to be considered in determining an area's agricultural significance. This includes assessing existing and future land and water use and availability and the current value of production.

Once the relative importance of an area is determined, decisions about its long-term protection for agriculture can be made on a rational basis. Protected areas can also provide a focus for more detailed planning to help ensure that future development can be sustainable.

Introduction

The identification and protection of areas of agricultural significance is an objective of the Western Australian Government which is reflected in the State Planning Strategy (Western Australian Planning Commission, 1997), Agriculture Western Australia's strategic plan, 'Focus on the Future' and draft Statement of Planning Policy (SPP) No. 11 – Agricultural and Rural Land Use Planning Policy (Western Australian Planning Commission and Agriculture Western Australia, 1999). Both the draft SPP and State Planning Strategy broadly delineate areas of potential State and regional agricultural significance and indicate that regional and local planning processes should be used to refine the boundaries of these areas. The draft SPP also indicates that areas of local significance should be identified and added as appropriate.

The purpose of this paper is to present a methodology that planners can use to identify areas of agricultural significance. It presents a methodology used by Agriculture Western Australia in 1995 to identify areas around the State containing prime agricultural land which could potentially be considered as areas of State or regional agricultural significance. The purpose of this was to identify areas which would need to receive priority consideration for protection in regional and local land use plans. These areas were identified and subsequently delineated as 'Agricultural Priority Management Areas' in the State Planning Strategy and draft SPP No. 11. The general methodology and principles developed can also be used in regional and local planning processes.

Identifying the key agricultural uses

The general process followed is outlined in Figure 1. Stage 1 of the project involved determining the study limits including defining the study area and sub-regions, defining the key agricultural uses and determining the needs of these uses.

The State was divided into seven regions which generally correlated with the regional boundaries of the agency's Sustainable Rural Development program. This was done because of the vast size of the State and to make the project manageable.

The key agricultural uses identified for assessment were:

- irrigated annual horticulture, e.g. vegetable and exotic floriculture crops;
- irrigated perennial horticulture, e.g. orcharding, viticultural and native floriculture crops;
- other irrigated crops and pastures, e.g. sugar cane, cotton, pasture for dairying.

These uses were chosen because they:

- form a high proportion of the State's gross value of agricultural production (GVAP) being about $500 million or 12% of the total GVAP;
- require a unique combination of physical resources (water, climate and soils) strategically located in relation to infrastructure, labour, services and markets;
- generate a higher GVAP per hectare of production than many other agricultural land uses;
- are particularly important for processing and value-adding industries.

At a regional or local level consideration may be given to a range of other agricultural uses which are of existing importance or which represent emerging or potential industries.

Delineating the areas

In Stage 2, soil experts in each region were asked to broadly delineate and name agro-ecological zones which contained or potentially contained combinations of water, land and climatic resources suitable for the key agricultural uses. Agro-ecological zones are readily identifiable areas containing common biophysical and socio-economic features. Figure 2

indicates the areas identified for the northern extent of the South West region which includes the Perth Metropolitan Region. The names of the areas are based on commonly used nomenclature.

At a regional or local level a similar approach could be used however a greater emphasis should be given to ensuring that the boundaries of the identified areas correspond with groundwater management areas or surface water catchments. This will help ensure compatibility between water and land allocation processes.

Another important principle to remember when delineating areas is the need to manage the interface between agricultural and urban uses to reduce the risk of land use conflict. This is achieved by using existing physical and cultural features to form the boundaries of the areas so that they provide a buffer to uses in adjacent areas. Natural features can include remnant vegetation, wetlands, rivers and streams and ridgelines. Cultural features include roads, railway lines, power line easements, industrial and recreational areas.

Assessing resource requirements

The third part of the assessment involved determining the extent to which land and water resources in each of the areas were being used by any of the key agricultural uses. Due to the lack of available land use information at the time, this was done by breaking the areas into categories of 'existing area', 'irrigation district', 'potential/developing area' and 'under investigation'. Statistics from the Australian Bureau of Statistics (ABS) were used to identify by local government area, how important each area was for producing different commodities. Extrapolation of this data provided an indication of future resource requirements. This is particularly important for irrigated agricultural uses such as horticulture which grew from 15,859 ha 1989/90 to about 25,492 ha in 1996/97 and which is expected to double in area again within 20 years.

Finding areas for horticulture expansion is becoming increasingly difficult as competition for resources increase. A recent study by van Gool and Runge (1999) indicates that in 1995 between Gingin and Augusta, there was only enough unallocated groundwater to irrigate an additional 28,000 hectares of high capability land. Horticulture will be competing with other land uses for access to these rapidly diminishing resources. As a guide, by 2029 an extra 50,000 hectares of land will be required for residential land use in Western Australia, most being in the South West region (Western Australian Planning Commission, 1997).

Determining and evaluating suitability

Once the agricultural areas were broadly identified and delineated, workshops were conducted in each of the regions with specialists from a wide variety of disciplines, e.g. soil experts, agronomists, hydrologists, development officers, environmental officers, regional development specialists. A 'Delphi' technique (McCallister, 1988) was used to get the specialists to corroborate and:

- refine the boundaries of the agro-ecological areas identified and provide agreement on the naming of the areas;
- identify regional strengths, weaknesses, opportunities and threats (SWOT) related to development by the key agricultural uses (refer to Appendix 2 for a list of factors considered);
- apply the SWOT assessment to each agro-ecological area;
- identify relevant gaps in existing knowledge about each of the areas.

The next step involved determining the comparative suitability of the different areas for the key agricultural uses. To date in Western Australia agricultural suitability assessment has over-emphasised land capability. Unlike land suitability, land capability focuses on the physical characteristics of specified land uses in relation to defined land units and does not

consider broader economic, social and environmental conditions necessary for the sustainable development of an agricultural land use in an area.

Comparative Agricultural Area Suitability Assessment Methodology (CAASAM) is a multi-criteria evaluation tool developed by Agriculture Western Australia to overcome many of the limitations associated with using land capability assessment for strategic land use planning. CAASAM considers a wider range of factors relevant to an area's development and management. It also encourages planners to focus on agro-ecological areas which;

- assists the protection of a critical mass of productive agricultural land;
- provides a focus for more detailed land use, environmental and (re)development planning.

CAASAM involved a consideration of 15 physical and non-physical criteria important for the use and development of each area by the key agricultural uses (Table 1). Many of these criteria were identified through a review of relevant literature and discussions with horticulture advisers. They were taken from a list of 27 factors considered in the SWOT assessment.

Figure 1. Comparative Agricultural Area Suitability Assessment Methodology (CAASAM).

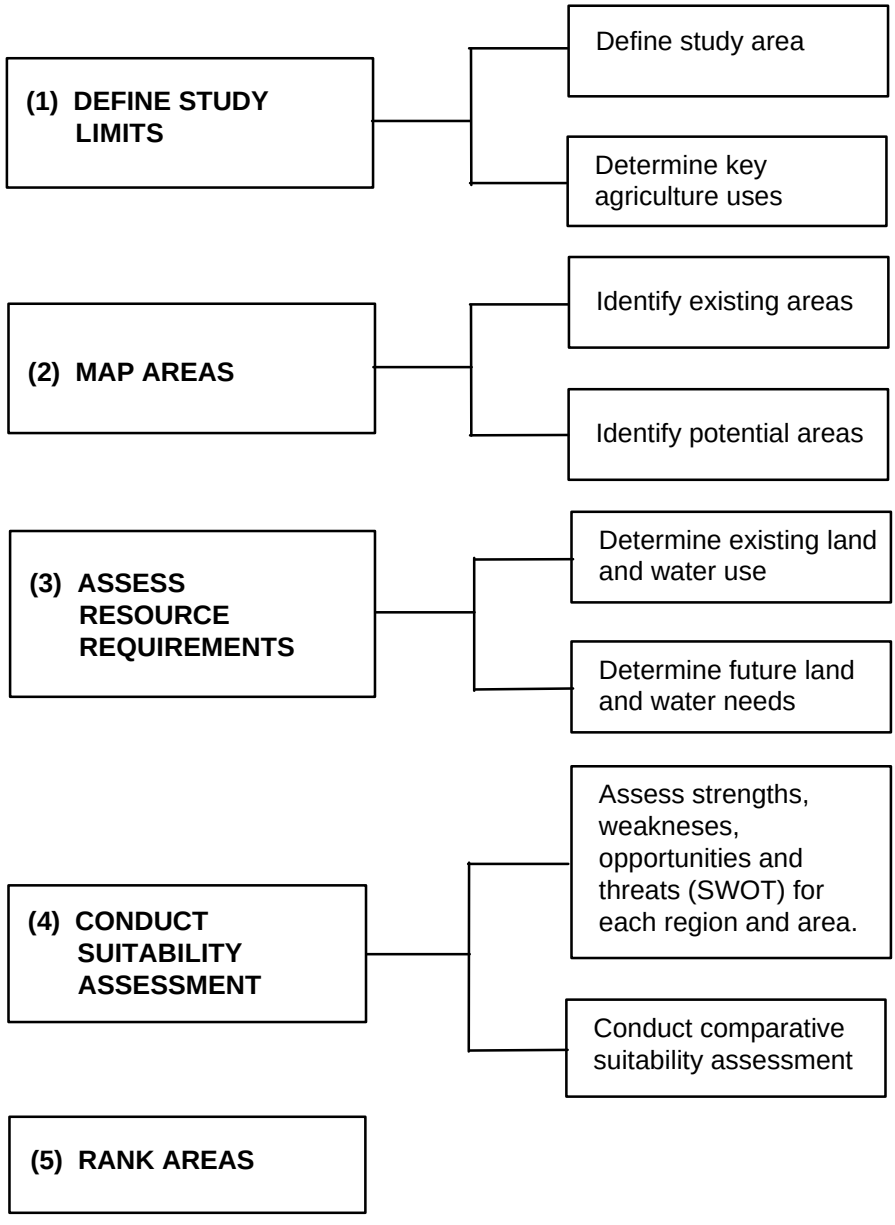
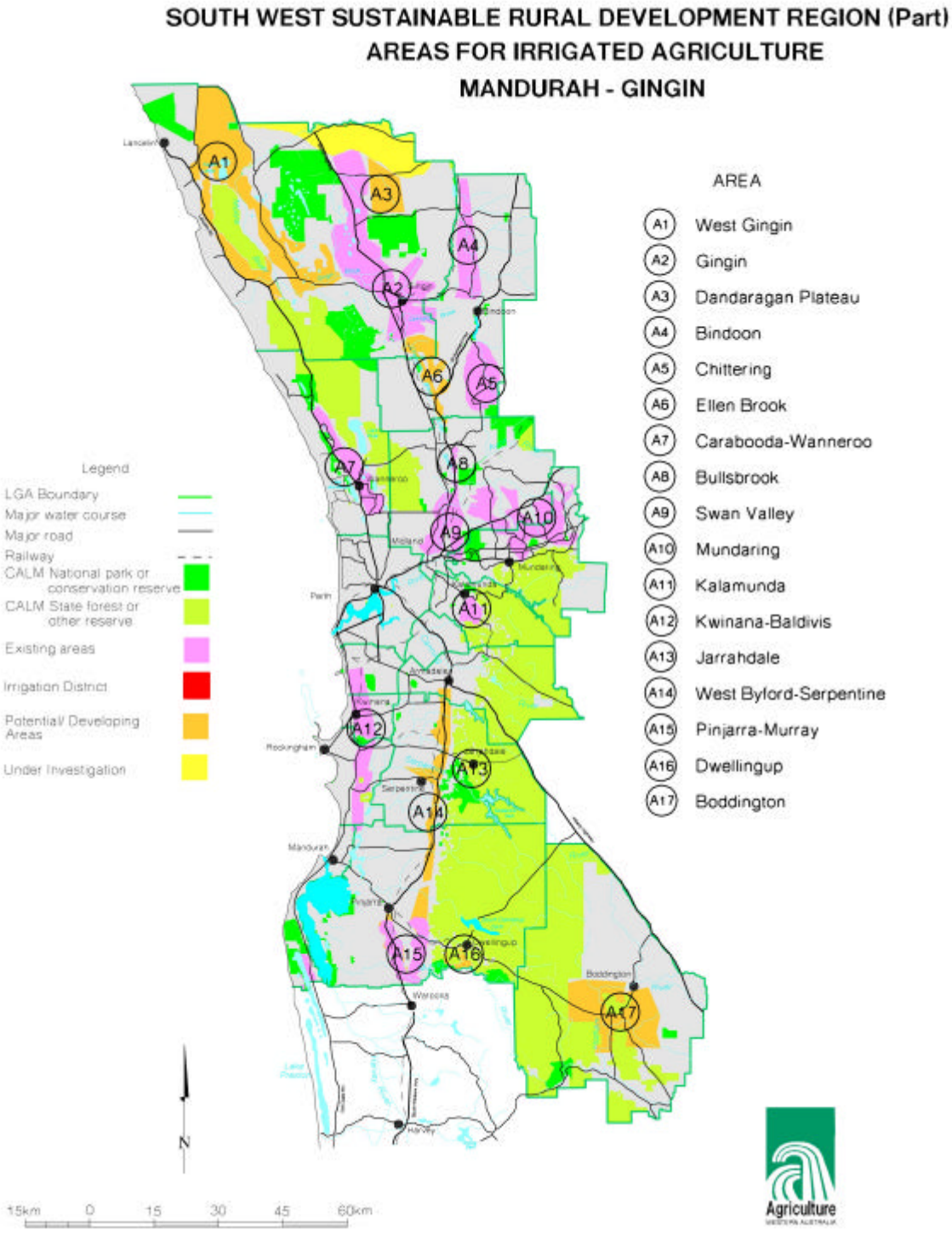


Figure 2. Areas of potential State/regional agricultural significance.



These criteria were grouped into three areas for assessment being:

- productivity factors which are physical factors essential for production;
- conservation factors which are environmental factors influencing management;
- development factors which are factors necessary for economic production.

The suitability assessment involved using the first area listed as a benchmark and comparing each area to this. For example, as Table 1 shows, in assessing comparative suitability of climatic conditions for irrigated annual horticulture, West Gingin was determined as meeting the assessment criteria to a moderate degree. In comparison, Bindoon was seen as having less suitable climatic conditions while Carabooda-Wanneroo was seen as having better climatic conditions. This comparison of the suitability criteria was done for each criteria and each area.

Table 1. Comparative Agricultural Area Suitability Assessment Matrix

South West Agricultural Region (North of Mandurah) - Suitability of Areas for Irrigated Annual Horticulture

	West Gingin	Gingin	Dandaragan Plateau	Bindoon	Chittering	Ellen Brook	Carabooda-Wanneroo	Bullsbrook	Swan Valley	Mundaring	Kalamunda	Kwinana-Baldivis	Jarrahdale	West Byford-Serpentine	Pinjarra-Murray	Dwellingup	Boddington
Productivity factors																	
Climatic conditions (1)	15	15	10	10	15	15	20	15	20	15	15	20	15	10	10	15	10
Water quantity (1)	20	20	10	10	15	15	15	15	15	10	10	15	10	10	15	10	10
Water quality (1)	20	20	10	15	10	15	20	15	15	20	20	15	20	10	15	20	10
Water accessibility (2)	10	10	5	5	5	5	7.5	7.5	7.5	5	5	10	5	5	7.5	5	5
Landform/soils (2)	10	7.5	5	5	7.5	5	10	5	10	5	7.5	10	7.5	5	7.5	7.5	7.5
(Sub total)	75.0	72.5	40.0	45.0	52.5	55.0	72.5	57.5	67.5	55.0	57.5	70.0	57.5	40.0	55.0	57.5	42.5
Conservation factors																	
Land degradation (2)	5	7.5	5	5	5	7.5	7.5	5	7.5	5	5	7.5	5	5	5	5	5
Off-site environmental impacts (2)	7.5	7.5	7.5	7.5	7.5	5	7.5	5	7.5	7.5	7.5	7.5	7.5	5	5	7.5	5
(Sub total)	12.5	15	12.5	12.5	12.5	12.5	15	10	15	12.5	12.5	15	12.5	10	10	12.5	10
Development factors																	
Range of crops (2)	7.5	10	5	5	7.5	7.5	10	7.5	7.5	5	7.5	10	7.5	5	7.5	7.5	5
Export significance (2)	10	10	5	5	5	5	10	5	5	5	5	10	7.5	5	5	5	5
Processing facilities (3)	1	1	1	1	1	1	1	1	1	1	1	3	1	1	1	1	1
Transport infrastructure (2)	7.5	7.5	5	5	5	7.5	10	7.5	10	7.5	7.5	10	7.5	10	7.5	5	5
Transport infrastructure (export) (3)	3	3	2	2	2	3	4	3	4	3	4	4	3	3	3	2	2
Services and facilities (3)	3	3	3	3	3	3	4	4	4	4	4	4	3	3	3	2	2
Land for expansion (3)	4	4	4	4	3	3	2	3	2	2	2	2	2	2	4	2	2
Labour requirements (3)	3	3	2	2	3	3	4	3	4	4	4	4	3	3	4	3	2
(Sub total)	39	41.5	27	27	29.5	33	45	34	37.5	31.5	35	47	34.5	32	35	27.5	24
TOTAL	126.5	129.0	79.5	84.5	94.5	100.5	132.5	101.5	120.0	99.0	105.0	132.0	104.5	82.0	100.0	97.5	76.5

Table 2. Values attributable to assessment criteria

		Weighting		
Degree to which assessment criteria are met	Shading	Essential (1)	Important (2)	Desirable (3)
High degree		20	10	4
Moderate degree		15	7.5	3
Low degree		10	5	2
Not currently		5	2.5	1
Not at all		0	0	0

As indicated in Table 2, the assessment criteria were categorised as either Essential (1), Important (2) or Desirable (3) to recognise that some criteria were more important than others. A weighted value was then provided against each area for each of the assessed criteria. Essential criteria were assessed out of 20 points, Important criteria out of 10 points and Desirable criteria out of 4 points.

Totals for each area were then generated to determine overall suitability and to enable a comparison to be made. From Table 1 it can be seen that Carabooda-Wanneroo is the most suitable area for the production of irrigated annual horticultural crops followed by Kwinana-Baldivis, Gingin and West Gingin. Sub totals were also generated for each grouping of factors to enable easy identification of issues. The table also allows an easy comparison of criteria. For example, Carabooda-Wanneroo is considered to have more favourable climatic conditions for annual horticulture than Gingin but has greater constraints in relation to water availability.

This approach to suitability assessment has a number of advantages:

- it enables factors other than land capability to be assessed and considered;
- it provides a regional perspective which aids a comparison of different areas and an assessment of their relative significance;
- it highlights and easily communicates the main issues relating to the development of an area by a key agricultural use;
- it provides a rationale for decision making.

A major difficulty with the approach relates to the assessment of water availability. In all cases, with the exception of irrigation districts, limited water in relation to the available land means that not all of an area can be irrigated. In some areas such as Carabooda the available water has been fully allocated. Ratings for water quantity were therefore based on a consideration of existing water use and available water.

A similar but simpler suitability assessment methodology was recently used to identify and evaluate areas of State/regional agricultural significance for protection in the Peel and Greater Bunbury Statutory Region Schemes (Landvision and Ministry for Planning, 1999). The two regions were divided into precincts which were then evaluated against suitability criteria and other information. This enabled decisions to be made about which areas merited inclusion in the Schemes' proposed 'Agricultural Resource Protection Policy' area.

Water availability was not considered an essential criteria in the CAASAM undertaken for the Peel and Greater Bunbury Schemes for a number of reasons including emerging changes in water legislation.

Other factors to consider

CAASAM is one tool able to be used to assess the relative importance of an area. Other factors which should also be considered include:

- existing and projected land and water usage and availability;
- gross value of agricultural production generated by an area and key uses within the area;
- amount of cleared land which has a high to moderate capability;
- suitability of each area for important specialised crops;
- strategic importance of the area for producing certain commodities.

As with land capability assessment therefore, CAASAM can help determine planning priorities for areas as part of an overall package of assessment.

Regional and local level planning

The methodology is easily applied to a regional or local planning context as exemplified in the case of the Peel and Greater Bunbury Region Schemes. In the first instance agricultural areas or precincts should be identified and delineated in partnership with experienced professionals working in the region. This can be assisted by GIS technology which makes it possible to overlay a number of information data-sets.

An important data-set for regional and local planning is the 'Agricultural Priority Management Areas' identified in the State Planning Strategy and draft SPP No. 11. As stated in SPP No. 11, these areas provide a 'focus for further detailed investigations to identify land which are areas of State and regional significance'. During this process, areas may be expanded or reduced, removed or added.

It is then preferable to undertake a study and compile as much data as possible on the region and the individual areas. CAASAM should then be undertaken, with the criteria for assessment worked out with relevant professionals. The assessment process itself should also involve experienced professionals and where possible, agricultural and rural groups.

Conclusions

The identification of agricultural areas for protection has in the past been treated more as a science than an art which has resulted in land capability assessment being over-emphasised and mis-used. The identification of these areas should be undertaken using a consultative process that uses published information and expert judgement methods. In this process, land resource and capability information is considered along with a wide range of other data-sets associated with the physical and socio-economic needs of the use being considered.

Land is required for a variety of purposes other than agriculture and so it is important that agriculture is able to determine those areas which are irreplaceable in terms of existing and future production and which can therefore provide a focus for more detailed planning. Evaluating the comparative significance of agricultural areas is important to enable informed decisions about alternative land uses to be made. Comparative Agricultural Area Suitability Assessment Methodology (CAASAM) provides this methodology and also enables the easy identification of issues relevant to an areas development and management. However this method, like land capability assessment, has its limitations and a range of other factors also need to be considered.

References

Agriculture Western Australia (1998). *Focus on the Future.*

Agriculture Western Australia (1999). *Agricultural Land Use Planning Policy and Procedures Manual.* Agriculture Western Australia, Miscellaneous Publication 63/99.

Food and Agriculture Organisation of the United Nations (1993). *Guidelines for Land Use Planning*, Food and Agriculture Organisation Development Series No. 1, Rome.

Landvision and Ministry for Planning (1999). *Peel Region Scheme - Strategic Resource Areas*, Western Australian Planning Commission.

McAllister, D. (1988). *Evaluation in Environmental Planning*, The MIT Press, Cambridge, Massachusetts, USA.

Read, V. (1988). *The Concept of Prime Agricultural Land: A Western Australian Perspective*, Department of Agriculture, Western Australia. Technical Report No. 72.

State Planning Commission (1989). *Rural Land Use Planning Policy DC 3.4*, State Planning Commission, Western Australia

Van Gool, D. and Runge, W. (1999). *Coastal Land and Groundwater for Horticulture from Gingin to Augusta*, Resource Management Technical Report 188, Agriculture Western Australia.

Western Australian Planning Commission and Agriculture Western Australia (November, 1997). *Discussion Paper – Planning for Agricultural and Rural Land Use Planning.*

Western Australian Planning Commission and Agriculture Western Australia (October, 1999). *Draft Statement of Planning Policy No. 11 - Agricultural and Rural Land Use Planning Policy.*

Western Australian Planning Commission (December, 1997). *State Planning Strategy.*

Western Australian Water Resources Council (1992). *Horticulture on the Swan Coastal Plain - A review of land and water needs and availability.* Western Australian Water Resources Council.

APPENDIX 1. Definitions

Area of agricultural significance: An identified area containing productive agricultural land that is suitable for the sustainable operation of a key or specialised agricultural use that is of significant economic or social value to the State, a particular region or local area.

Agricultural areas of State and regional significance: Key agricultural uses making use of supplementary irrigation and/or other investment in infrastructure and which are potentially suitable for uses such as annual and perennial horticulture, dairying and other crops and pastures that are or have the potential to be economically important to the State or region. They may require access to scarce physical and environmental resources and specific socio-economic conditions for which there is strong competition with other non-agricultural land uses.

Agricultural areas of local significance: Land which is considered by the local government and local community to contain physical or locational attributes to sustain current or future agricultural uses of importance to the local economy.

Key agricultural use: A grouping of agricultural land uses with similar physical characteristics, similar resource requirements and that are managed using similar farming systems e.g. market gardening, orchards and vineyards, irrigated crops and pastures.

Land: Physical resources, inclusive of soils, landform, geology, hydrology, vegetation, local climate and major modifications by man.

Land capability assessment: A documented assessment of land to determine its natural capability to sustain a specified land use without resulting in significant on-site or off-site degradation or damage to the land resources.

Land suitability: The fitness of a given area of land for a specified land use having regard to physical, social, economic and environmental factors. (Agriculture Western Australia, 1999)

Prime agricultural land: Land which:

- has the most utility for agricultural purposes;
- has soils with no physical and chemical limitations for agricultural use;
- has a reliable water supply for irrigation;
- is not subject to extremes of climate;
- has little potential for degradation, or has been/is subject to significant public investment for service facilities such as dams, irrigation schemes, drainage, factories, handling centres, or
- has physical or locational characteristics essential for a specific crop for the domestic or export market or to support a processing industry. In some circumstances land which has prime physical characteristics may have a higher community value for an alternative use and may, therefore be excluded from the prime agricultural land classification.

  (SPC, 1989 adapted from Read, V. 1988).

Productive agricultural land: Land which is currently in production or has the potential to be productive for agricultural purposes based on soil quality, water quality and availability, climatic factors and access to specific infrastructure or processing facilities.

Specialised agricultural use: A single agricultural land use that has particular physical characteristics and resource requirements and which utilises a particular management system that differentiates it from other agricultural land uses e.g. poultry farm, seed potato farm, table grape vineyard.

(Source: Western Australian Planning Commission and Agriculture Western Australia, 1999 unless otherwise indicated)

APPENDIX 2. Factors considered in the assessment of strengths, weaknesses, opportunities and threats (SWOT).

Crops produced

(aa) Can a **range of products** be produced in the area or can the area support the production of a **specialised agricultural product** that is of particular economic or social significance to the State or region?

Specify:

- *Existing and potential crops produced.*

(ab) Are the products produced of particular **economic significance** to the State or region?

Specify:

- *Existing and potential products.*
- *Level of economic importance (1-4 where 1 = very important, 2 = moderately important, 3 = marginally important, 4 = not economically important).*
- *Market destination (D = domestic, I = interstate, OS = overseas). Where possible specify country of OS market.*
- *Gross value of production ($).*

Climatic conditions

(ba) Are **climatic conditions** suitable for production of the key agricultural land use?

Specify:

- *Major environmental hazards.*
- *Main reasons for suitability.*

Consider:

- *Suitability for existing and potential crops.*
- *Estimate amount of energy (hours of sunlight in the growing season).*
- *Temperature regime.*
- *Number of crops produced per year.*
- *Annual rainfall.*
- *Estimated number of raindays.*

Soils, landform and vegetation

(ca) Does the area contain **landform/soils** that are capable of being used for the sustainable production of the key agricultural land use?

Specify:

- *Percent of the area that is high/moderate capability and cleared.*
- *Main management considerations, e.g. seasonal waterlogging, protection of remnant vegetation.*

(cb) Does the area have **land degradation hazards** that can be managed for sustainable agriculture (e.g. wind erosion, waterlogging)?

Specify:

- *Land degradation hazards.*
- *Current or required management projects/practices (e.g. tree planting programs).*

(cc) Does the area generate **offsite environmental impacts** that can be managed?

Specify:

- *Type of impact.*
- *Current or required management practices.*

Water resources

(da) Is there sufficient **quantity of water** available to meet the expected future requirements of the key agricultural land use?

Specify:

- *Major sources of water.*
- *Estimated total volume of water required per year (mg/L) if figures available.*
- *Threats to water supply (current, future).*

Consider:

- *Water supply requirements to the years 2010 and 2029 (if known).*
- *Potential water use efficiency.*
- *Potential to transfer water.*

(db) Is the **water quality** sufficient to meet current and future requirements of the key agricultural land use?

Specify:

- *Quality of major water sources.*
- *Threats to water quality.*

(dc) Is **infrastructure** suitable for ensuring water can be supplied to crops?

Consider:

- *Suitability of existing irrigation schemes.*
- *Infrastructure requirements.*
- *Availability of technology.*

Processing facilities

(ea) Does the area service a **processing facility**?

Specify:

- *Type of existing and future facilities.*
- *Location of existing and future facilities.*
- *Critical area of production required.*

Consider:

- *Future requirements.*

Infrastructure

(fa) Is the **existing transport infrastructure** able to effectively facilitate the movement of the product to market?

Specify:

- *Types of infrastructure (rail, seaport, airport) available.*
- *Location of infrastructure.*
- *Product.*
- *Market.*

(fb) Does the **infrastructure** servicing the area have the potential to support an **expansion** of the key agricultural land use?

Specify:

- *Type and location of infrastructure.*
- *Type of crop.*
- *Potential market or markets.*

(fc) Is an existing or proposed **transport facility** strategically located to service the area?

Specify:

- *Type of facility.*
- *Location of facility.*

Consider:

- *Opportunities for expansion of the area under cultivation.*
- *Potential new markets.*

(fd) Is the area located close to a **town** that by virtue of its population size and demographics provides a satisfactory support base for the key agricultural land use?

Specify:

- *Town or settlement.*

Resource competition and management

(ga) Are there sufficient **land resources** available to meet the expected requirements for **expansion** of key agricultural land use?

Specify:

- *Area (ha) required for expansion to the years 2010 and 2029.*

(gb) Is there a major threat to the supply of **physical resources** (soil, water, climate, infrastructure) to the key agricultural land use from **non** agricultural land uses?

Specify:

- *Competing **non** agricultural land uses (e.g. mining, urban, rural residential, tourism, conservation) and resource threatened.*

(gc) Is there a major threat to the supply of **physical resources** (soil, water, climate, infrastructure) to the key agricultural land use from other **agricultural** land uses?

Specify:

- *Competing **non**-agricultural land uses (e.g. plantation forestry, aquaculture) and resource threatened.*

(gd) Do existing **land use planning** mechanisms satisfactorily address the issues associated with resource use and management and land use conflict affecting development of the key agricultural land use?

*Specify**:***

- *Land use planning mechanisms (e.g. Town Planning Scheme, Rural Strategies, Regional Plans, Statement of Planning Policy).*

Consider:

- *Zoning, land use controls, subdivision controls.*

(ge) Does the area have a **comparative advantage** for the production of certain crops compared to other areas in the region?

*Specify**:***

- *Crops for which there is an obvious advantage.*
- *Reason for the advantage.*

(gf) Is the area important for ensuring the **continuity and consistency of supply** of product/s to a particular market?

*Specify**:***

- *Product and market.*

(gg) Is the area required to supply the demand from an **expanding domestic &/or export market?**

Specify :

- *Product and market.*

Other non physical considerations

(ha) Can **labour requirements** for the key agricultural land use be easily met?

(hb) Are **land tenure** conditions satisfactory for undertaking the key agricultural land use?

Consider:

- *Free hold/lease hold.*
- *Crown land.*
- *Land claims.*

(hc) Is there adequate **community and government support** for establishment or expansion of the key agricultural land use?

Specify:

- *Any negative or constraining policies of local or state government agencies.*

(hd) Is the **cost of land and ongoing costs of production** conducive to the development and expansion of the key agricultural land use?

*Consider**:***

- *Cost of land per hectare.*
- *Cost of servicing and infrastructure.*
- *Cost of production.*
- *Markets.*

(he) Does the development of the key agricultural land use generate **externalities** that are of value to the local or regional community?

Specify:

- *Main externalities.*

Consider:

- *Tourism.*
- *Visual amenity/interest.*
- *Buffers to industry/mining*
- *Economic diversity.*
- *Cultural identity.*
- *Flood plain management.*

(hf) Is there adequate **assistance** being provided to ensure that the ongoing development and expansion of the area can be achieved?

Specify:

- *Form of assistance.*

Consider:

- *Release of Crown land.*
- *Provision of infrastructure.*
- *Low cost loans.*
- *Tax incentives.*
- *Other arrangements.*