

## Appendix 4 Case Study C: Grazing Land Management - Attitudinal Change among Sustainable Agricultural Stakeholders

### Introduction

Grazing Land Management (GLM) is a workshop-based extension activity aimed at simultaneously improving the profitability and environmental sustainability of commercial grazing in Northern Australia. Offered to landholders through a collaborative effort between Meat and Livestock Australia (MLA), the Queensland Department of Primary Industries and Fisheries (DPI&F), various regional bodies and other agencies, GLM is a significant component of sustainable agriculture extension in the state. This significance stems from the importance of grazing in Queensland, with approximately 80% of the state available for grazing ([www.nrw.qld.gov.au/factsheets/pdf/land/191.pdf](http://www.nrw.qld.gov.au/factsheets/pdf/land/191.pdf)). Of the large number of graziers in the state, approximately 1000 have participated in GLM. Besides its extent, Northern Australia grazing is also contentious, with its lack of agreed Best Management Practices (BMPs) making GLM particularly influential. Moreover, the significance of GLM stems from specific features of the program.

It has been selected as a case study in this report because of how it represents:

- the use of partnerships between institutions to create a tool for truly integrated sustainable agriculture and to broaden its reach; and
- the attitudinal change among institutional personnel that can arise from such partnerships.

This case study report describes the context, structure, process, content and outcomes of GLM. It then reflects on some risks and opportunities for the program and suggests some lessons for other sustainable agriculture initiatives.

### Context

To understand GLM, it is important to understand the broad context out of which it has arisen. That is, it is important to understand the challenges facing sustainable agriculture that GLM has been constructed as a response to. These, in its current form, are:

- How to achieve on-ground change towards sustainability in a relatively unregulated and highly fragmented industry and in the context of large scale and pressing environmental problems;
- How to achieve long-lasting attitudinal change towards the need for sustainable agriculture;
- How to engage landholders with the often unfamiliar ideas and organisations associated with NRM;
- How to bridge the cultural and practical divide between NRM-based institutions and production-based institutions;
- How to integrate the diverse range of topics pertinent to sustainable grazing management to reflect the complex context in which grazing management decisions are made. In particular:

- How to integrate and balance NRM based knowledge about grazing ecosystems with a producer and DPI&F interest in profitability (how to achieve a truly Triple Bottom Line (TBL) product);
- How to integrate regionally-specific information and circumstances into a generic framework;
- How to integrate property-specific information and producers' unique goals and circumstances into a generic framework;
- How to effectively translate research and development into on-farm change via attractively packaged extension;
- How to generate both a desire to act on sustainable agriculture issues and the capacity to do so among landholders and institutions alike;
- How to translate the delivery of information about sustainable agriculture into practical experience of on-farm change;
- How to minimise the financial disincentives for involvement for landholders;
- How to build continuity in relationships, networks, institutional knowledge and action in the context of fragmented and short term funding opportunities; and
- How to develop a grazing management workshop that complements rather than competes with other commercial offerings.

Among the many facets that make up the context of GLM, two stand out as particularly influential: the institutional context; and the production context. These are now discussed in more detail.

### **Institutional context**

GLM first arose about seven years ago out of three specific features of the institutional context recognised by MLA and DPI&F:

- Research and development pertinent to sustainable grazing was centred in multiple, usually private sector organisations such as MLA;
- Extension capability and access to landholders was centred in public sector organisations, namely DPI&F; and
- Extension about sustainable agriculture was not leading to satisfactory levels of on-ground change.

The first of these factors is problematic because a wide range of research and development is needed to develop a comprehensive “solution” to sustainable grazing questions. This range of research findings was and perhaps still is fragmented between organisations and along the sub-sector and disciplinary lines on which such organisations are often based. Not only does this limit the kind of inter-disciplinary study that is needed to tackle a complex topic such as sustainable grazing management, but it makes it extremely difficult for landholders to access all of the knowledge they need. One of the key ideas behind the program was to create a “one stop shop” for landholders to readily access all of the basic information they need to understand sustainable grazing management. This idea was further prompted by market research by MLA into the training needs of meat producers, which found that the top

ranked priority outcomes reported by producers included better grazing management and the long term sustainability of their production.

The creation of GLM was a catalyst for bringing together a wide range of existing research. Many of the scientific principles underpinning GLM were developed through the CSIRO project 'EcoGraze'. Before GLM was developed, the results from this research were delivered to landholders, but although the information was important and useful, it was poorly received. This extension failure provided another incentive for developing the more appropriate extension vehicle that GLM became.

The success of GLM was reliant on being able to access landholders and engage them in the idea of attending training in sustainable grazing management. Through DPI&F's extension experience and MLA's extension expertise and marketing capacity the GLM workshop was constructed both as a vehicle for bringing together a core suite of information about sustainable grazing management in an appealing easy-to-understand framework and as an opportunity for landholders to work to put the learning into practice on their own properties. GLM is offered today as one of a suite of MLA *EDGENetwork* workshops. It is also closely associated with DPI&F's one day 'Stocktake' workshop – 'a paddock-scale land condition monitoring and management package' - which is seen to complement the content of GLM (<http://www2.dpi.qld.gov.au/stocktake/>).

One of the common complaints from landholders about traditional extension – and a major reason why they do not put more extension teaching into practice - is that the information presented is often difficult to relate to their own context. This was tackled in GLM by using participants' own properties as the basis for learning. Participants receive high quality satellite images of their properties as a tool for understanding the ecological communities they (knowingly or unknowingly) manage and as a basis for the property plans that they are strongly encouraged to complete through the workshop. Participants are also encouraged to conduct an on-farm project on a specific, selected aspect of sustainable grazing management in the months following the workshop.

The critical issue of being relevant to landholders has been also tackled in GLM by holding the workshop at the regional level. Firstly, this helps to overcome the travel disincentive to landholders. The travel, accommodation and lost work costs involved in attending a workshop can be inhibitive for landholders, although it is important to note that this has been significantly alleviated with the new FarmBis funding. Secondly, the 'regionalisation' of the GLM workshop is more profound than simply its location. It also involves customising the information presented in the workshop to the region in which each workshop is held. Because grazing covers such a large extent of Queensland, and the state is home to such a diversity of plant and animal communities, the detailed ecological and production information that is presented in each workshop needs to be tailored to each region's unique conditions for it to be of use to landholders. By tailoring the workshop in this way and using a property focus, 'the beauty of GLM is its relevance', as one interviewee put it. Such customisation also allows the program to act as a vehicle for extending the large amount of regionally-specific scientific research that is conducted by institutions such as DPI&F, giving this research output a useful framework and further contributing to the valuable integration of relevant information.

MLA recognised the synergy between the emerging regional identity of the GLM workshops and the regional bodies' aim of engaging private landholders on NRM issues. Regional bodies also provided an avenue for accessing government funding for the running of the

program. A significant number of regional bodies have since successfully accessed government investment to fund GLM in their area as part of achieving their Regional Investment Strategies (RISs). Still owned by MLA, the delivery of the program – pre-workshop work, the workshop(s), post-workshop meeting(s) and other follow-up - is sub-contracted to DPI&F, who ensure all presenters are accredited to deliver the course and who also contribute in-kind to the cost of the program. By funding the program in this way, the cost to participants has been kept down, helping to overcome the financial disincentive to landholders.

When the Sustainable Agriculture State-level Investment Program (AgSIP) was introduced in 2004 as part of the NAPSWQ program, a further synergy arose. One of the four themes of AgSIP was 'grazing lands management'. Some of the projects funded under this theme have since included the running of GLM workshops in some of the regions eligible for National Action Plan for Salinity and Water Quality (NAPSWQ) funding. GLM has been further funded within regions via cross-regional and regional-specific initiatives.

Significant investment from NHT2 of \$3.521m was allocated to the three-year strategic reserve project, **Sustainable Management and Conservation of Grazing Lands**, which aimed to facilitate the adoption of sustainable practices in the extensive grazing areas of Queensland by land managers, community groups and other natural resource managers by providing the networks, understanding, skills and technical support required, thereby contributing to natural resource management and biodiversity conservation outcomes.

Desert Channels Qld Inc was the lead proponent on behalf of the Northern Gulf, Southern Gulf and South West regions. The project aimed to develop customised Grazing Land Management and StockTake monitoring training packages for the landscapes in each of the five regions and deliver training to at least 300 properties.

It was notable that there was generally a high level of ambiguity among interviewees about their GLM project's exact funding arrangements, pointing to the complexity of the current multiple-source funding model. Others mentioned the challenge of working with short funding cycles and the particular challenge that the end of AgSIP poses to the continuity that GLM as a whole has managed to establish. Short funding cycles are associated with high staff turnover, which in turn is associated with loss of institutional capacity, knowledge and networks. Given the innovative thinking contained within GLM for the personnel involved, and the new-ness of many of the relationships it has led to, the program is especially vulnerable to the costs associated with staff turnover. The situation at South West NRM (SWNRM), where a previously strong involvement with DPI&F on GLM has paused following staff turnover at the regional body is a case in point.

It is interesting to note that GLM is funded primarily as an NRM project as opposed to a production project. MLA similarly list the course on their *EDGENetwork* website as an NRM rather than a 'Feedbase and Pastures' workshop or 'Livestock' workshop. This NRM flavour has been more recently enhanced by the involvement of the Environmental Protection Agency (EPA) as a contributor to the workshop content for the Rangelands regions (Desert Channels, South West, Southern Gulf, Northern Gulf). The Rangelands regions subsequently worked to address this issue in their area by releasing a competitive bid for the design and delivery of a stand-alone Biodiversity module. The EPA and DPI&F in Longreach were successful in securing the project and are currently working to create the 'GLM Bio' unit. DPI&F staff in the Burnett Mary and South West regions have similarly developed "add on" modules on native timber management and wetlands, respectively.

Despite the NRM focus of GLM funding, the program itself retains a strong production orientation in order to hold landholder interest. This production rationale also marries with DPI&F's and MLA's traditional area of interest and expertise. Indeed, as discussed further below, interviewees reported that working in as 'green' an area as sustainable grazing management has been a cultural challenge for some in DPI&F, just as working with producers on production matters has been a cultural challenge for some in the regional bodies and EPA.

The Department of Natural Resources and Water (NRW) also has a keen interest in GLM. One of the key areas of work of the department is the State Rural Leasehold Land Strategy, which when released will articulate the policy framework to enable renewal of the large number of term leases held over rural leasehold land in the State. It is expected that key to this renewal process will be an assessment of current land condition. An important topic in GLM is what is called the 'ABCD framework of land assessment', which is designed to help landholders better understand the condition of their land. It is probable that NRW will seek to utilise the basis of the GLM land assessment framework as part of the lease land condition assessment; hence their interest in the workshop. GLM is also of relevance to the leasehold renewal process as an example of professional development in good land management. It was suggested that completion of a GLM workshop would assist landholders negotiate management outcomes that could be required under a land management agreement as part of the lease renewal process.

GLM is also of relevance to the Queensland state government as one of the sustainable land management tools needed to reduce sediment flow into waterways and ultimately the Great Barrier Reef. This is especially pertinent given the Queensland government's recent pledge to the federal government to work to better protect the World Heritage Site. In coastal regions such as South East Queensland (SEQ), assisting private landholders to stabilise their pastures, reduce run off and erosion, and protect riparian zones is key to this enhanced protection of the Reef. GLM offers a valuable way of offering this assistance.

Queensland is not the only state interested in GLM. The Northern Territory is also keen to extend the program's reach to landholders. Such extension has been enabled by cross-state collaborations between the respective Departments of Primary Industries. Staff from DPI&F Queensland have delivered approximately seven GLM workshops in the Territory to date, helping to build the capacity of their colleagues in the Northern Territory Department of Primary Industries, Fisheries and Mines, as well as the capacity of the producers themselves. With indigenous landholders among the producers involved, the sharing of land management goals and experiences within GLM has added to the development of cross-cultural understanding.

AgForward is another body that has a growing interest in GLM. An arm of AgForce, AgForward was established in 2005 to assist AgForce's producer members reach their goals by accessing professional development opportunities. It does this by providing its own extension and pointing members towards other training opportunities, including GLM. The organisation's website explicitly states that 'AgForward will create linkages with regional natural resource management groups, Meat & Livestock Australia and DPI&F's Grazing Land Management (GLM) program' ([www.agforward.org.au/about%20agforward.htm](http://www.agforward.org.au/about%20agforward.htm)). As part of developing these links, AgForward currently endorses GLM in its own workshops, collecting expressions of interest in GLM from participants and notifying them of when GLM is on in their region. In this way, it helps to introduce AgForce's membership base to GLM, expanding GLM's profile with producers who may not otherwise engage with it. Conversely,

GLM presenters in at least some regions refer participants to relevant workshops held by AgForward if they want to follow up an aspect of GLM. For example, landholders can pursue the property mapping they are introduced to in GLM with more in-depth workshops on computer based mapping offered by AgForward. This cooperation between the organizations helps them both to achieve their shared goal of furthering the professional development and grazing management of the state's landholders.

### **Production context**

There are a number of features of the Northern Australia production context that are important to note to understand GLM. To begin with, anecdotally pastoralists in this environment have traditionally demonstrated a limited interest in both professional development and environmental sustainability. The latter is thought to have been exacerbated in Queensland by introduction of the *Vegetation Management Act 1999*, which some feel implicitly painted producers as environmental vandals and strengthened the divide between “the green” and “the brown”. Interviewees reported a mood of pessimism and suspicion about sustainable agriculture initiatives among some producers.

The paradox is that, being a low-tech enterprise based predominantly on unimproved pasture, grazing in Queensland necessitates that producers have a relatively sophisticated appreciation of natural processes and balances. The association between lost environmental quality and lost production is explicit in this environment. For this reason, ecological considerations are at least implicitly part of the complex management decisions that producers make every day. While often not conceived as ‘environmental’, the sustainability in production they are aiming to achieve is necessarily founded on some degree of environmental sustainability.

These two somewhat antagonistic situations – producers’ image as environmental vandals and their efforts to manage their grazing enterprises within what scientists call ecological limits – created an opportunity for an integrated triple bottom line training package like GLM. As expressed by producers in the market research conducted by MLA, producers want to know how to manage their land sustainably, even if their definition of sustainable contains a profitability element unfamiliar to many ecologists. What is required - and what GLM has tried to do – is that this information is presented in a non-judgemental, optimistic, motivating fashion.

The difficulty of achieving sustainable and profitable production has been heightened in recent years - and virtually throughout the life of GLM - by the severe drought that has impacted much of Queensland. Drought is likely to be affecting the success of GLM in a number of ways. On the one hand, it may be highlighting to producers the importance of understanding how to work within their natural systems and so increasing their potential interest in GLM. On the other hand, it may be confounding land condition assessments and the success of producers’ GLM projects. It may also be reducing producers’ interest in and ability to attend such workshops by exacting a financial and emotional toll and introducing an incessant need to water and/or supplement stock. Many interviewees expressed concern that the latter is the case.

## Structure

There are four main ingredients or inputs that make up GLM. These are listed below (Table 2) with an indication of which organisations are the primary provider in the context of GLM.

**Table 2: Main inputs and providers involved in GLM**

Input	Provider
Funding	Regional Bodies, DPI&F
R&D (knowledge and tools)	MLA, DPI&F, Regional Bodies, EPA
Extension capacity	DPI&F, (MLA)
Profile with (access to) local landholders	DPI&F, (MLA)

In both the Burnett Mary and Desert Channels regions, the regional body and DPI&F jointly fund one or more positions within DPI&F to run the GLM courses in the region. The regional bodies also importantly provide the satellite maps of participants' properties that form the basis of much of the workshop. As an interviewee commented, it is remarkable what a difference such a simple tool makes, allowing participants to see their properties in a new light.

In the Burnett Mary region, the DPI&F has also established partnerships with other regional bodies to deliver the program in their regions. This collaboration has occurred primarily with regional bodies that already had a relationship with department staff. It allows regions that are unable or unwilling to fund an actual GLM position to buy in the workshop and project follow-up on an as-needed basis.

In the South West, the regional body has less direct involvement in the program following the end of the AgSIP funding they previously provided to DPI&F directly and the loss of the staff with whom DPI&F had an intimate working relationship with. Nevertheless, as in other regions, the SWNRM still provides GLM participants with satellite maps and a SWNRM staff member gives a short presentation at the workshop on the activities of the regional body. DPI&F in the region is also engaged in collaborative research with EPA on bio-indicators to add value to the course content.

Some DPI&F staff also contribute to the success of GLM and sustainable agriculture more broadly by mentoring younger NRM staff in the regional bodies in extension practices. Instigated by the inter-personal links formed through GLM, this cross-organisational capacity building also extends across regions, with DPI&F staff from Roma, for example, mentoring NRM staff in the Queensland Murray Darling Committee (QMDC). Such mentoring may involve accompanying regional body staff to private properties and field days as well as GLM workshops to develop their skills in interacting with landholders.

Overall, it can be seen that GLM brings together the complementary expertise and resources of multiple organisations. The involvement of these organisations reflects their complementary interests or motivation for involvement (Table 3).

**Table 3: Organisations involved in GLM and their motivation for involvement**

Organisation	Motivation for involvement in GLM
MLA	<p>Interest in maximising the effective extension of multiple sources of R&amp;D</p> <p>Interest in maximising the profitability of graziers</p> <p>Interest in improving the environmental sustainability of graziers and their public standing</p> <p>Opportunity to identify and address gaps in research</p>
DPI&F	<p>Receive funding to continue extension work with landholders in the context of diminishing resources for such work in the department</p> <p>Engage with broader cross section of landholders, including in some cases those in other regions</p> <p>Engage with personnel from other agencies and form useful collaborations</p> <p>Develop depth of own understanding of sustainable grazing management</p> <p>Interest in long term economic sustainability of agriculture via integration with environmental sustainability efforts</p> <p>Opportunity to identify and address gaps in research</p>
Regional Bodies (in general)	<p>Access to landholders, enabling them to promote the activities of the organization, fulfil their Regional Investment Strategies and funnel public good funding to appropriate landholders</p> <p>Engage with personnel from other agencies and form useful collaborations</p> <p>Access to experienced GLM extension staff who can mentor younger NRM staff</p> <p>Develop staff's own understanding of sustainable land management</p> <p>Interest in long term environmental sustainability via integration with production</p> <p>Opportunity to identify and address gaps in research</p>
EPA	<p>Access to landholders, enabling them to promote the activities of the organization</p> <p>Interest in promoting long term environmental sustainability</p> <p>Develop staff's own understanding of sustainable land management</p> <p>Engage with personnel from other agencies and form useful collaborations</p> <p>Opportunity to identify and address gaps in research</p>
NRW	<p>Interest in the sustainable management of private land, especially leasehold</p>

From the perspective of landholders, the structure of GLM itself is: a preliminary meeting (to establish the precise direction of the workshop); a workshop generally held over three consecutive days; an individual project; and one or more follow-up group meetings. The pre- and post-workshop group meetings are sometimes replaced by one-on-one meetings or phone calls with the facilitator if time and cost preclude the possibility of getting the group together. As mentioned above, in some regions follow up workshops in specific topics such

as biodiversity are also available. These are also available prior to doing GLM and to non-GLM participants.

An alternative version of GLM called GLM Plus has been created to cater for the unique isolation and small number of producers in the Cape York Peninsula. A further example of the customisation of the program for regions, the entire program in Cape York is offered in a one-on-one format in recognition of the extreme difficulty of getting producers in the region together.

The deviation from the workshop and meeting structure used in Cape York raises the question of the benefit of using such a structure in the first place. The multiple advantages and disadvantages of such a group format are outlined in Table 4.

**Table 4: Advantages and disadvantages of the group format**

<b>Advantages</b>	<b>Disadvantages</b>
Efficiency of delivery – engages more producers at once than one-to-one interaction	Efficiency of delivery – engages less producers at once than large seminars
Effectiveness of delivery – may lead to more learning and on-ground change than less interactive forms of delivery like seminars	Effectiveness of delivery – may lead to less learning and on-ground change than one-to-one interaction
Peer-to-peer learning	Inflexible in time and location relative to one-to-one interaction – requires a significant commitment from participants
Peer role modelling, including a willingness to engage with sustainability ideas and to be self-critical	Not suited to some individuals' preferred learning style
Peer group accountability	Cost, including travel, accommodation and lost work time
Social interaction and support, which is particularly valuable for isolated and drought-stricken producers	

Besides offering GLM Plus in Cape York, GLM addresses some of the disadvantages of a workshop structure by couching the workshop in among the more interactive learning opportunities of the pre- and post-workshop meetings and the individual project. Having participants explore their own property management details during the workshop also allows for valuable individual learning time, which caters for this particular learning need. This practical work - which is also provided by the excursions that each workshop tends to include – also allows for more hands-on learning than is possible in the more theoretical sessions.

## Process

The process leading up to the establishment of GLM as a whole was described in brief in Section 3 above. The basic process involved in any one region is set out in Table 5 below.

**Table 5: Stages involved in GLM**

1. Institutional interest in GLM stimulated and necessary institutional collaborations formed
2. Content of GLM customised to the region
3. Interest in GLM stimulated among producers
4. Pre-workshop meeting with producers held <b>(optional)</b>
5. Workshop held (1 x 3 days or 2 x 2 days)
6. Further training opportunities are promoted to producers <b>(optional)</b>
7. Producer projects conducted
8. Producer projects submitted to regional group for assistance getting external funding <b>(optional)</b>
9. Follow up day to peer review projects held OR projects reviewed by delivery staff 1:1
10. General follow up with producers about their property management plans <b>(optional)</b>
11. Producers attend further training (e.g. GLM Bio, Stocktake, <i>NutritionEDGE</i> ) <b>(optional)</b>

In the Desert Channels region, regional body interest in GLM was stimulated by the comprehensive community consultation process the regional body engaged in when it started, which found that one of the top two landholder concerns was grazing land management. DCQ subsequently applied for a Strategic Reserve project on behalf of the Desert Channels Collaborative of Rangeland regional bodies for cross-regional funds to get involved with GLM.

Interest among regional bodies in GLM continues to be stimulated by:

- linkages between personnel in different regional bodies and in DPI&F; and
- promotion of GLM by AgForward in their emerging relationships with regional bodies.

Landholder interest in GLM is being stimulated by marketing it through:

- DPI&F's networks in the region;
- Organised groups in the region, including those run by regional bodies such as Landcare or Catchment Care groups;
- AgForward workshops;
- MLA's marketing of the *EDGENetwork*; and
- Farmer advocates.

Farmer advocates are used to stimulate interest one on one with other landholders. Such advocates tend to be 'innovators' who of their own volition attended an early GLM course in the region and are willing to talk about their experience of it with other landholders. A high level of satisfaction among participants apparently makes finding appropriate advocates and testimonials for promotion a relatively easy task. It is important to note that GLM does not aim to form an ongoing self-sustaining group such as a discussion group.

Like AgForward's marketing of the course, the endorsement of GLM by farmer advocates has the advantage of potentially broadening the reach of the course beyond the 'innovators' and 'green' landholders that the course may initially appeal to. Combined with MLA's marketing, these approaches reach a broader audience than a regional body is likely to be able to do on its own, helping them to reach their goal of widespread awareness of sustainable land management in their catchment.

Non-landholders also attend GLM. Besides corporate farm managers, local government staff and those from agencies such as NRW and EPA have done the course. As discussed in Section 2.7 below, significant positive outcomes have flowed from such agency staff's involvement.

## **Content**

### Pre-workshop meeting

The main purpose of the one or more pre-workshop meetings that are held by DPI&F staff is to discuss how the course can be angled to the group's particular interest areas, further enhancing the relevance of the course to them. This flexibility is enhanced by the modular format of GLM. Although there are core modules, some topics, such as on improved pastures or fire management may be of more or less importance to grazing management in some regions given their ecological conditions. Where groups indicate they are interested in particular or additional modules, the workshop structure is adjusted to fit. Where additional modules are involved, the workshop may be altered to consist of two two-day workshops in order to avoid extending it to four days and imposing a more difficult time commitment on participants.

### Workshop

A typical GLM workshop brings together up-to-date and locally relevant research on a diverse range of topics on sustainable grazing management and presents them in a framework based on ecosystem processes and the inherent carrying capacity of their land. Participants are taught to appreciate the physical properties of their land, to assess its condition under different management regimes and to value the pasture it produces. They are encouraged to adopt a whole of property view and an ecological lense as they learn about the effects of their management decisions on the long-term ecological and economic sustainability of their grazing enterprise, and the interconnectedness of these two factors. They are presented with the range of economic incentives that exist to manage their land well while being encouraged to identify themselves as ecosystem managers rather than simply graziers, achieving public good through their private good.

The workshop roughly progresses through the following steps:

- Map each property's land types
- Calculate the long term carrying capacity and current land condition of each land type, using the ABCD framework for assessing land condition, which is based on the condition of the soil, grass and woodland
- Map the infrastructure of the property
- Learn about the range of tools that influence the carrying capacity of the land and how much can be sustainably produced from it:
  - grazing;
  - fire;
  - improved pasture;
  - weed control; and
  - the tree-grass balance.
- Plan the grazing management of the property (construct a property management plan)
- Design a project on one component of the property management plan
- Learn how to monitor the condition of the different areas of the property under different management regimes.

The above is taught in terms of the Three Gateways Model, which is a framework for the course based on the 'three gateways' of land condition, evenness of grazing and diet quality. By relating all of the topics back to this framework, the course is given an important degree of cohesion and is related more closely to producers' decision making processes.

The sustainability emphasis of GLM has increased under the regional body model. While it has always been part of the sustainable agriculture message of the course, interviewees involved in delivering the course reflected that the emphasis on NRM has become more substantive and genuine since they have been working with the regional body.

Nevertheless, the production orientation of the course means that it remains best suited to commercial and relatively large scale graziers. Some regions or sub-regions are apparently not involved in GLM because they feel the content is not suited to the small scale producers that dominate their area.

Ongoing scientific research is used to keep the content of GLM up to date. DPI&F staff regularly appraise the course to identify gaps and areas for improvement. Further information is sought from their colleagues in DPI&F or those in other agencies. DPI&F Roma staff for example, invite a group of scientists together annually to present and discuss the key findings from their work and how they may be integrated into GLM. This peer learning and appraisal of GLM often leads to some kind of collaborative research, as is the case in Roma between DPI&F and EPA. Knowledge gaps in GLM identified by some interviewees more broadly include the details of some regions' fire ecology or biodiversity. Management of introduced and potentially weedy species such as Buffel Grass (*Cenchrus ciliaris*) also seems contentious and is an area for further applied research. Overall, the course is reliant on on-going and collaborative scientific research to keep it as up to date as possible and ensure it is continuously improving.

## Projects

On-farm practical management projects are a voluntary but encouraged part of the GLM experience. The proportion of participants in each workshop that take on projects varies but is high. The proportion of those projects that aim to achieve an explicit NRM outcome also varies, sitting at, for example, about 50-60% in the South West region.

Individuals choose projects in accordance with their plans for their property and feedback from their peers in the group on their idea. The aim of the project is to put into practice some of the theory taught in the workshop. Projects may be limited to a specific management tool and/or a specific location on participants' property, such as fencing off riparian vegetation along a section of creek or adding extra water holes to a paddock to reduce the intensity of grazing pressure in one area. One of the main advantages of doing these projects within the context of GLM is that the group environment offers not only valuable peer review, but accountability and expertise. This, in turn, helps to build valuable relationships between the participants, as well as increase the chances of the program achieving immediate on-ground change.

Another advantage of the projects is the more direct linkages it can create between the participants and the regional bodies. Some projects are constructed in consultation with the relevant regional body in order to optimise their NRM outcomes and their associated suitability for the NRM grants that the regional body disseminates or helps participants to apply for.

## Follow up

Six to twelve months after the workshop, participants are brought back together or are visited by the workshop facilitator to review the main points from the workshop and to discuss their experiences in putting the learnings from the workshop and their project into action. This step offers a valuable forum for peer review, accountability and learning, for consolidating participants' interest and abilities in sustainable grazing management and for strengthening participants relationship with the agencies involved. It often involves a visit to one or two landholders' properties to see the results of their projects, allowing for more practical learning.

Some participants may seek and receive additional input to their property management plans and projects from DPI&F or the regional body in the intervening period, particularly if they are interacting with the regional body about grant funding.

There is potential for the organisations involved in GLM to make more of the linkages that the program forms with landholders, using the initial contact with the landholders to lead into a wide range of other initiatives. An interviewee commented that some regional bodies have not exploited this opportunity because some of their personnel are uncomfortable with the production/private good angle of GLM or that they see GLM as a commercial product and consider that it is inappropriate for a non-partisan organisation like a regional body to align itself with such a thing.

## Additional modules

At least three additional modules have been designed for GLM: wetlands; native timber management; and biodiversity. These have been added on to as opposed to integrated into

the existing GLM course in order not to disrupt the successful design of the former. As with the development of the core GLM program, the development of these additional modules has entailed synthesising of information and attendant networking. Similarly, they also need to be customised to each region to be optimally useful.

At present, the GLM Bio module has been only written for the Rangelands regions. The EPA staff member involved reported that the writing of the module usefully involved him forming new links with personnel within and beyond his organisation. He is also writing a Presenters' Guide for the module to enhance the ease and effectiveness of delivery. The Guide will also allow a wide range of people to present the module, beyond those in EPA involved. This will be useful for the DPI&F staff that may present the module but who may be somewhat unfamiliar with the content. It will also help to circumvent the issue of a shortage of DPI&F extension capacity.

It is notable that the GLM Bio module will be offered as an 'add on' to GLM but also as a stand alone course open to non-GLM graduates. Its value has already been indicated by SWNRM's decision to adopt the new GLM Bio module wholesale into their PLANSCAPES program (a multi-property scale planning initiative targeting groups of land managers in priority landscapes).

Through AgSIP, GLM in the South West region was integrated with SWNRM's PLANSCAPES program, complementing the property level focus of GLM with the sub-catchment focus of the latter. An additional module on sub-catchment processes was added to the course and time was spent coordinating participants' projects at a sub-catchment level, based around a shared sub-catchment goal they identified together. This version of GLM has now ceased following the change in funding of the program in the region and the loss of the regional body staff previously involved.

### **Outcomes of GLM**

This report focuses on the outcomes rather than the outputs of GLM. Outcomes related to on-ground change are also beyond its scope, partly because of the difficulty of attributing changes in resource condition to GLM and the question of how such changes can best be monitored and evaluated. While GLM and the associated Stocktake Monitoring workshop address resource condition monitoring, the overall difficulties in measuring and understanding on-ground change arising from the program remain.

Important outcomes arise at each stage of the GLM process (seen in Table 5 above). The breadth of GLM's outcomes is indicated by the way that it contributes to multiple targets for regional bodies. It contributes directly to targets relating to empowerment and education and indirectly to targets relating to resource condition.

The main direct outcomes of GLM involve both landholders and the personnel involved in the program. They are to do with gains in knowledge, attitudes and relationships (Table 6).

**Table 6: Key knowledge, attitude and relationship based outcomes of GLM**

	<b>Knowledge</b>	<b>Attitude</b>	<b>Relationships</b>
<b>Landholders</b>	<p>Understanding of:</p> <ul style="list-style-type: none"> <li>▪ Need for sustainable agriculture</li> <li>▪ Synergies between economic and environmental sustainability</li> <li>▪ Ecological processes, land type and land condition</li> <li>▪ Grazing land management tools</li> <li>▪ Details of own property and what is possible</li> </ul>	<p>Course helps landholders adopt a positive attitude towards sustainable agriculture</p> <p>Course acts as a catalyst for further training and action in sustainable agriculture</p>	<p>Course puts landholders in touch with:</p> <ul style="list-style-type: none"> <li>▪ Each other</li> <li>▪ DPI&amp;F</li> <li>▪ Regional bodies</li> <li>▪ (EPA)</li> </ul>
<b>Personnel involved</b>	<p>Understanding of:</p> <ul style="list-style-type: none"> <li>▪ Need and potential for sustainable agriculture</li> <li>▪ The production perspective</li> <li>▪ The environmental perspective</li> <li>▪ Landholders' goals and concerns</li> <li>▪ Range of scientific and technical details available</li> <li>▪ Different tools available</li> </ul>	<p>Course opens personnel to greater appreciation of environmental/producti on perspectives they previously may not have been as familiar/comfortable with</p>	<p>Course puts personnel in organisations involved in GLM in touch with:</p> <ul style="list-style-type: none"> <li>▪ Others in their organisation</li> <li>▪ People in other organisations</li> <li>▪ Landholders</li> </ul> <p>Strategic and productive links form between organisations</p>

Interviews with personnel suggest that the knowledge and attitudinal changes among GLM participants are significant. It seems the program also catalyses further positive changes in these areas as past participants seek out further training and activities in sustainable agriculture. As one interviewee put it: 'GLM is a great base to build from'. This is where the relationships that landholders form during the program come into play, providing in some cases an ongoing legacy of GLM that is fostered through additional interactions. Numerous interviewees commented on feedback from participants about the value of the conversations the participants have with each other and the personnel involved as a result of the course; conversations that help them refine their thinking, feel less isolated, and move forward. For many, the course opens up to them a world with which they were previously unfamiliar, whether in terms of getting to know the regional body, talking about biodiversity or seeing what sustainable agriculture initiatives look like on others' properties. Those personnel who have been involved in the GLM Bio course noted that the ex-GLM participants who come to the module GLM often comment that prior to GLM they would never have imagined they

would dedicate a day to discussing biodiversity. Overall, these kinds of attitudinal and knowledge-based outcomes contribute to on-ground change.

For the personnel and organisations involved in GLM, involvement has a number of significant benefits. In addition to the motivations such as funding listed in Table 3 above, these benefits again centre on gains in knowledge, attitudes and relationships, all of which represent a useful breaching of the 'silos' that typically structure organisations externally and internally.

In terms of knowledge, interviewees in Burnett Mary mentioned two examples of the cross-fertilisation of ideas that can occur through the course. Having attended the GLM course, some EPA staff have used some of the Stocktake Monitoring tools they came across in their own work. Similarly, some local government Stock Route Supervisors have also enriched their work approach with aspects of the course content.

In terms of attitudes, a DPI&F staff member discussed the more genuine understanding of NRM issues that he has developed as a result of his involvement in the program. Others in regional bodies and the EPA mentioned the new appreciation they have developed of the need to intimately relate NRM teaching to production, after initial concern that a production orientation would unhelpfully distort the sustainability message.

The relationships that personnel form across agencies through their involvement in GLM can lead to more formal linkages, including the cross-promotion and establishment of more GLM courses. The movement of staff between DPI&F Queensland and Western Australia, for example, is likely to lead to the course being established in WA as well. Such personnel linkages can also lead to the improvement and marketing of GLM courses. For example, as a result of staff in each group learning what the other does, Burnett Mary DPI&F staff have incorporated some of Private Forests Queensland's (PFQ) materials into their GLM module on native timber management. In turn, these DPI&F staff present at a PFQ workshop on the interaction of timber and grazing management. Though to a lesser degree, a similar collaboration is also occurring between DPI&F and AgForward.

All in all, GLM has led to diverse examples of cross-fertilisation between the wide range of bodies interested in some element of sustainable agriculture, contributing to progress in making sustainable agriculture a reality.

## Risks, opportunities and lessons

The above discussion makes clear the overall success of GLM. It also suggests some risks and opportunities for the program, which are briefly summarised below in Table 7.

**Table 7. Risks and opportunities identified for GLM**

<b>Risks</b>
<p><i>The effectiveness of change:</i></p> <ul style="list-style-type: none"> <li>▪ the effectiveness of the program on the ground is limited by it attracting only 'the willing'</li> <li>▪ a lack of follow up with participants after the course reduces the potential amount of change it could achieve and the depth of relationships with landholders</li> <li>▪ the course's 'one off' nature means that saturation point is reached in some regions as all willing participants have participated</li> </ul>
<p><i>The adequacy and popularity of the environmental message:</i></p> <ul style="list-style-type: none"> <li>▪ the production orientation sometimes limits achievement of truly sustainable actions</li> <li>▪ positioning new sustainability information in 'add on' modules limits its integration with the rest of the course and implies it is relatively unimportant</li> <li>▪ a future association between GLM and the leasehold renewal process gives GLM an unpopular regulatory flavour</li> </ul>
<p><i>Institutional cooperation and capacity:</i></p> <ul style="list-style-type: none"> <li>▪ the participating institutions move away from the shared goal that GLM represents and reduce their involvement in the program</li> <li>▪ a lack of extension capacity among participating institutions limits the ability to deliver the course</li> <li>▪ important institutional knowledge and networks are lost through staff turnover</li> <li>▪ disputes over ownership of the course and its intellectual property</li> </ul>
<p><i>Regional identity of program:</i></p> <ul style="list-style-type: none"> <li>▪ some regions miss out on the program because of a lack of capacity, funding or interest within their regional body</li> </ul>
<b>Opportunities</b>
<p><i>Extension of the GLM experience:</i></p> <ul style="list-style-type: none"> <li>▪ instigate closer follow up with participants to increase on ground change</li> <li>▪ promote other professional development opportunities to participants</li> <li>▪ engage landholders more fully with their personal goals and financial and business management questions to make it even more pertinent to their decision making</li> <li>▪ develop more 'add on' modules in partnership with other organisations and sub-sectors</li> <li>▪ develop a version of GLM suitable for regions where there are mainly smaller landholdings</li> </ul>
<p><i>Using changes in the external environment:</i></p> <ul style="list-style-type: none"> <li>▪ use the shift to more conservative grazing levels necessitated by the drought as an inroad to stimulating interest in GLM</li> <li>▪ use GLM's potential links with the leaseholder agreement process to increase its relevance for producers</li> </ul>
<p><i>Further development of inter-organisational links:</i></p> <ul style="list-style-type: none"> <li>▪ use more cross regional linkages to share learnings, networks and efforts in running GLM, increasing the efficiency of the program overall</li> </ul>

- use the cross-institutional relationships that have developed through GLM to interrogate difficult sustainability/grazing issues from a multi-disciplinary perspective and shape the future research, development and extension agenda

- more actively use existing networks such as AgForce members to extend the reach of GLM

*Coordination of on-ground change:*

- complement the property focus of the course content with a stronger subcatchment focus

GLM holds significant lessons for other sustainable agriculture programs at a range of levels. As highlighted at the beginning, the focus in this case study is on what the program tells us about the inter-related roles of institutional partnerships and attitudinal change in achieving sustainable agriculture.

### **Institutional partnerships**

GLM is founded on institutional partnerships and such partnerships are also a key outcome of the program. Their importance is practical and symbolic, political and personal. Not only have organisations become linked through formal funding relationships, critically enabling the program to run, but they have become linked before and after by relationships between personnel, by their shared relationship with participants, and through the collaborative multi-disciplinary development of the course content and tools. That is, healthy working relationships between individuals in different agencies are fundamental to the existence and ongoing success of the program. Only by people working across the boundaries of their discipline or organisation has the integration of knowledge key to GLM and sustainable agriculture more generally been able to develop.

Each organisation involved in sustainable agriculture brings a partial perspective of landholders and the issues involved. The integration of these perspectives in programs such as GLM offers landholders – and thus sustainable agriculture efforts – the two key advantages of a more efficient and effective extension approach. It is more efficient because it combines the messages being delivered to landholders by multiple organizations into one message, reducing competition for landholders’ attention. It is more effective because tensions between organisations’ different perspectives are ironed out before delivery rather than leaving landholders to work out how to reconcile them. The decisions landholders make constantly demand them to integrate diverse factors. Thus, extension that aims to be as close to this integrated decision-making process as possible is more likely to be of use to landholders.

GLM represents a program where people from diverse corners of the sustainable agriculture world have come together to develop a shared vision of what sustainable agriculture on the ground looks like. Joined by the shared goal of extending sustainable agriculture to landholders, they have created a program that relies on the complementary contributions and goodwill of those involved. Not only does this demonstrate that such a collaborative approach to sustainable agriculture is possible, but it highlights the vulnerability of such programs to issues such as staff turnover, short funding cycles, or divergence in the direction of individual organizations.

Fostering strong working relationships and cooperation at the individual and organisational level is crucial to the development of the knowledge and actions that are needed to further sustainable agriculture.

### **Attitudinal change**

One of the most important outcomes of the kind of interaction that personnel from different perspectives have had through GLM is the attitudinal change that has resulted in them. Staff from different disciplinary backgrounds – and, most notably, from production and conservation perspectives – have been able to converge on a shared understanding of sustainable agriculture. By bringing their own knowledge, concerns and values to the table, production and conservation oriented individuals have been able to construct an integrated and effective sustainable agriculture product through a shared understanding. Such multi-disciplinary and inter-disciplinary interaction has proven to be the hurdle many prior sustainability initiatives have tripped on as a competition for dominance breaks out between paradigms. One of the most notable things about GLM is that it seems all involved – the 'green' and the 'brown' – have altered their attitude through involvement in the course, highlighting GLM as a real convergence of views.

Another of GLM's main achievements is that it has not only brought together diverse research, but it has packaged it together into a simple and practical product that reflects the holistic way in which landholders make complex decisions about their properties. It may be that the focus on one particular aspect of sustainable agriculture – grazing – and on producing something practical – an effective extension product – broke the massive institutional task of agreeing on sustainable agriculture protocols into an achievable and motivating project for the personnel involved.

The understanding of the production or conservation concerns of colleagues in other organisations that GLM has encouraged among the personnel involved is important for two reasons. The first is the role that such communication and respect has had in the success of GLM and, in turn, its attitudinal change and action among landholders. The second reason attitudinal change among personnel is significant goes beyond GLM to sustainable agriculture more generally. By seeing that sustainable agriculture is possible, personnel are motivated to continue working towards it. The ongoing improvement of GLM course content illustrates the motivation those involved have for this important task.

The design and delivery of a truly integrated sustainable agriculture extension product requires and encourages attitudinal change not only among participants but among the personnel involved as they seek a common understanding of what sustainable agriculture is.