COOPERATIVE VENTURE FOR CAPACITY BUILDING

An Australian Government Initiative

CV·CB

Researching Capacity Building in Rural Australia

THE ROLE OF EXTENSION IN BUILDING CAPACITY–

What works, and why

A review of extension in Australia in 2001-2003 and its implications for developing capacity into the future

A report for the Cooperative Venture For Capacity Building

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Foreword

The Cooperative Venture for Capacity Building for Innovation in Rural Industries (CVCB) aims to build capacity in rural industries to enable more sustainable and competitive industries. This project looks at extension's role in capacity building and lessons that can be learnt, and it answers the fundamental question of 'what works and why?' An ultimate aim is to improve the rates of adoption of R&D outcomes for rural industries.

In our efforts at capacity building within rural industries and communities, we have too often limited ourselves by working within our defined areas (silos). Our project designs and activities have been based on what has gone before in our immediate industry or area of activity. Sometimes this has been affected by exposure to new theories and learning from within our industries or discipline areas. What is happening in other industries, other disciplines and other regions is often closed to us.

The members of the Cooperative Venture for Capacity Building for Innovation in Rural Industries (CVCB) reasoned that if they pooled some of their resources to look at capacity building they would make inroads into better understanding generic issues and all would gain from research undertaken.

The project investigates a range of extension and education projects directed mainly at the rural sector. The project looked to go across industry, issue and community barriers, as well as across different regions and states.

The researchers also sought to capture an overview of the Australian context that might have influenced the nature of projects and their funding and looked at the capacity building literature.

This report only tells part of the story. The real story is in the detail of the projects operating in Australia. This detail has been included in a database so that those who are motivated by the summaries and analyses in this report can study projects that interest them in greater detail.

This report is a result of a flagship project funded by the Cooperative Venture for Capacity Building for Innovation in Rural Industries. The Rural Industries Research and Development Corporation manages the CVCB on behalf of The Federal Department of Agriculture, Fisheries and Forestry; Australian Wool Innovation; Meat & Livestock Australia; Dairy Australia; Land & Water Australia; Murray-Darling Basin Commission; Grains Research and Development Corporation; Sugar Research and Development Corporation; and Grape and Wine Research and Development Corporation.

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A large number of individuals responded to the call for projects to be included in the review, provided extra information and contacts to interview and reviewed the final project descriptions. We thank you for your contribution and assistance.

A project team was involved at different stages of the project. Members included Jim Roberts, who administered the project; John Roberts, Ben Coutts and Chi Nguyen, who worked on the database; and Robyn Coutts, who undertook much of the early collation of responses to our calls for projects.

Dr Roslyn Prinsley and John McKenzie from Rural Industries Research and Development Corporation (RIRDC) provided invaluable guidance and assistance and the Steering Committee of the CVCB also provided feedback at our many interim presentations of progress.

Abbreviations

APEN	Australasian Pacific Extension Network
VET	Vocational and Educational Training
NHT	Natural Heritage Trust
NAP	National Action Plan
RDC	Rural Development Corporation
CRRI-Q	Centre for Rural and Regional Innovation - Queensland (CRRI-Q) formerly the Rural Extension Centre (REC)
AFFA	Department of Agriculture Fisheries and Forestry - Australia
DNRM	Department of Natural Resources and Mines (Qld)
DPI	Department of Primary Industries (Qld)
EPA	Environmental Protection Agency (Qld)
MLA	Meat and Livestock Australia
AACM	Australian Association of Agricultural Consultants.
RTO	Rural Training Organisation
FTE	Full Time Equivalent
BSES	Bureau of Sugar Experiment Stations
CPPB	Cane Protection and Productivity Boards
ILC	Indigenous Land Council
ATSIC	Aboriginal and Torres Strait Islanders Commission
SARDI	South Australian Research and Development Institute
PIRSA	Primary Industries South Australia
NRE	Natural Resources and Environment (Vic)
TIAR	Tasmanian Institute of Agricultural Research
ITAB	Industry Training Advisory Body
ANTA	Australian National Training Authority
RCC	Recognition of Current Competencies
PAR	Participative Action Research
MLA	Meat & Livestock Australia
GRDC	Grains Research and Development Corporation
BMP	Best Management Practice
CMA	Catchment Management Authority

Contents

Executive Summary

This report is a result of the national extension/education review which was a flagship project of the Cooperative Venture for Capacity Building for Innovation in Rural Industries (CVCB). The review sought a range of extension and education projects across industries and issues in rural and regional Australia to learn 'what works and why'.

Extension is described in terms of its outcome, i.e. capacity building. It is defined as the process of engaging with individuals, groups and communities so that people are more able to deal with issues affecting them and opportunities open to them.

There are more than 4000 extension positions across Australia (2748 in the public and public-community sectors). Because figures are based on full-time equivalents, then perhaps half that number again of people is actually involved in extension work. Most public sector extension work and much of that done by the private sector is based on developing and delivering projects. These projects are funded by rural research and development corporations, government and other funding bodies charged with making a difference to economic, environmental or social conditions within rural and regional Australia. Rather than look at extension through the eyes of past theory, this review looked at what was actually being funded and how it was being carried out.

The overall picture, then, is that a large number of people and programs are involved in extension in its many forms. State governments have remained significant players and the Federal Government is a major funder of extension activities across Australia. There has undoubtedly been a shift in public extension from one-on-one to group approaches and from a production/economic focus to a broader platform involving environmental and social concerns. The private sector continues to expand and, as well as undertaking individual technical advice, operates in the same sphere as public extension.

The projects that were included in the review fell within four clearly defined extension models: group facilitation/empowerment; programmed learning; technology development; and information access. An important fifth model was acknowledged as the individual consultant/mentor model. These models were argued to form the supports and rungs of a **capacity building ladder** and all were seen to be complementary and necessary for the capacity building process. It was pointed out that stronger collaboration and cooperation between funding bodies could help ensure that the range of effective learning platforms were in place.

Each of the models is introduced and short summaries and learnings from relevant projects are provided. Overall lessons are captured and practical considerations are provided in relation to developing projects under each of the models. A **guide** has been developed, based on the analysis, to help develop and manage similar projects falling under each generic model.

The **group facilitation-empowerment** model has the key underlying philosophy that rural industry participants are best served by providing them with a facilitative framework to allow them to define their own problems and opportunities and seek their own avenues to address them. This is about ownership and responsibility, but it is also based on a pragmatic understanding that it is the people in a specific situation that are best able to understand and act on issues directly concerning them. It is assumed that by encouraging people to work together in this way, more lasting and sustainable solutions will result. This is because participants develop problem-solving, planning and reflection skills which they can apply to new situations that emerge. This can be described as stronger **human capital**. Likewise, the increased networking, stronger relationships and group skills further develop **social capital**.

The rationale for developing projects under the **programmed learning** model is that workshops and courses, which can be taken across regions and states and be applicable to a large number of diverse participants, can be developed and packaged. Most extension projects developed for this purpose

also incorporate an adult learning philosophy that acknowledges the knowledge already held by participants and encourages experiential learning as they engage with new information brought to them through the learning event. Significant projects developed under this model for primary producers and community members can and should be effectively linked into the National Training Framework. Developers, deliverers and participants need guidance in ensuring that accreditation issues are understood and pathways are clear. Many participants do not understand accreditation pathways and how a particular training course may contribute to accreditation, hence the need to make this clear.

A key underlying philosophy of the **technology development** model is that specific technological (including managerial, landscape and environmental) change requires a focused effort and should involve all stakeholders in the process. The technologies or practices that can be effectively developed in isolation and handed down to a waiting industry or community are rare. Participation and multiple approaches appear to be fundamental to projects in this model. The analysis has indicated that extension and facilitation skills and activities are critical in addressing technological development issues in a region or industry. Another aspect is that addressing people issues in terms of understanding, motivation and confidence is an important element in facilitating technological changes. Regional issues were found to require safe forums for people from different industries and community situations to discuss and work through contentious issues. Facilitating information sharing between participants is seen to be a critical element of the acceptance and adoption of new approaches and technologies.

The **information access** model recognises that people need different information at different stages of their decision-making processes in a form that suits their individual needs. The analysis has indicated that despite the variation in size, type and clientele of information access projects, there are some common practical considerations that contribute to their success. These include developing clarity on objectives and clientele, providing pathways for individuals to search for their own specific information needs, and continuously monitoring and responding to needs and feedback from those who seek and access information provided. The limited cross-analysis of projects has also shown that projects under this model do not need to be resource demanding or complex and that there are creative ways to link people with information relevant to their needs.

Although the **individual consultant/mentor** model was not covered in this review, there was evidence that working with individuals was a key component of some of the technology development projects and that there is a strong one-on-one component of extension occurring in the private sector. This component was viewed in this review as a key 'rung' in the capacity building ladder. There is much to learn in terms of 'what works and why' in the relationship between client and consultant or mentor. This may be critical in the way learnings are integrated and used on a farm.

The take-home messages from this work are summarised as:

- **Extension is a significant activity across rural and regional Australia** in both the public and private sectors involving thousands of extension workers and facilitators and tens of thousands of landholders and community members. Ongoing research and training in extension and education should be a high priority.

- **Extension and education projects can't be considered in isolation** to other extension and education projects that are occurring in a community, industry or issue context.

- **Funders should take into account the whole capacity building ladder** when they are considering their portfolio of extension and education projects. Cooperation and collaboration should be sought with other funding bodies to maximise synergies in projects and across models to strengthen the 'ladder' in specific contexts.

- **Generally, extension and education projects fit into one of the four models** outlined in this report. This work has captured a number of them and a **guide** has been developed for project developers, funders, evaluators and participants. The guide can provide a common point of reference during the development and assessment process of extension and education projects. The accompanying database (www.couttsjr.com.au\pd) provides details about projects of interest.

- **There are underlying philosophies and practices that provide the rigour** for projects under the different models, similar to the rigour of quantitative research work.

A number of areas are suggested for further research:

- **Benchmarking and measuring 'empowerment'.** Although there has been some work measuring the level of human and social capacity in a community, the less tangible concept of empowerment requires further work.

- **Better linking people undertaking programmed learning model projects to accreditation.** Despite many workshop programs now being linked into the VET system, the system appears to be poorly understood by many facilitators and participants and there is a poor uptake of the accreditation advantages. There is much (action) research needed into improving this and making the link and benefits better.

- **Understanding and supporting mentoring approaches.** Consultants use a wide range of approaches with their clients from an 'expert' approach to a 'coach' approach. These relationships need to be studied to open the way for better training of consultants and those who use consultants. Processes to better link consultants and mentors with group learning processes also need to be explored.

- **Cooperative and collaborative approaches between funders of extension and education projects.** Rural and regional people come under a number of funding bodies and relate to them each individually. There is much scope for collaboration and cooperation to help minimise duplication, maximise complementarity and have consistent messages. There are some good examples of this occurring, and scope for others to learn from it. This is an important research area.

A complete, interactive database (www.couttsjr.com.au\pd) of all projects analysed is also available to complement this report. It allows for more in-depth reading about specific projects that may be of interest and is based on a common analytical framework.

In an afterword, the national extension-education review is compared and contrasted with the two other flagship projects of the CVCB.

Introduction

In our efforts at capacity building within rural industries and communities, we have too often limited ourselves by working within our defined areas (silos). Our project designs and activities have been based on what has gone before in our immediate industry or area of activity. Sometimes this has been affected by exposure to new theories and learning from within our industries or discipline areas. What is happening in other industries, other disciplines and other regions is often closed to us.

The CVCB had a vision. Made up of a number of industry research and development corporations, the Federal Government and Murray-Darling Basin Commission, the members of the CVCB reasoned that if they pooled some of their resources to look at human capacity building they would make inroads into better understanding generic issues and all would gain from research undertaken.

This project emerged from an initial flag-ship project of the CVCB. This was called a *National Extension/Education Review* and was commissioned and run over the first two years of the CVCB's life. The review was deliberately positioned to permit representatives from different rural industries or issues to 'look over the back fence' and sometimes to walk through the front door of other industries and rural initiatives to see what was happening in extension and education projects and approaches.

A subtitle of the project was 'What works and why?'. Implicit in this subtitle was looking at the relevance of successful education and extension projects to other situations, industries and settings.

It provides an opportunity to look over the fence, to see what is happening somewhere else that may have some direct benefits or applicability or both to another's situation. Have you ever heard of some great initiative or project and wondered what made it effective and whether you could use the same approach in your situation?

This is what this report is about.

Let's take a look over the beef fence for example. There is a project called **BeefPlan**. This project is a little unusual; it is based in Northern Australia and has an initial 40 beef properties represented (and a goal of 160 properties in the post-pilot 2002-2005 phase). It is, however, an extremely innovative and cutting edge project funded by a research and development corporation, Meat & Livestock Australia (MLA). An evaluation of the pilot in 2001 concluded that BeefPlan 'is a bold investment...the dividends can be immense and go beyond production systems to embrace the social, economic and environmental fabric of the industry' (URS 2001).

Interesting, but what triggered it and on what was it based?

> The pilot project started in 1998 in the context of better integrating economic, environmental and social aspects of on–property beef production. Market research showed that many producers were focusing on short-term issues. At the same time, a number of northern beef producers were seeking a greater say about what was appropriate for them to learn about. They wanted a focus on the process of situated learning rather than centrally-determined learning packages.
>
> The approach has been described as 'improving beef production systems across the economic, environmental and social dimensions by giving responsibility for this improvement to the producers themselves'. It is based on a model of producer-driven research development and extension – an alternative to top-down scientific research. It is about supporting self-initiated groups of producers to develop improved and sustainable property management systems in whatever way they see fit, and to disseminate this to the wider industry. There is no requirement to specifically consider any particular research findings.

This sounds like a fine concept, but how does it actually operate?

Expressions of interest were called from producer groups. A coordinator supports but does not direct the groups and provides the link to MLA. The post-pilot BeefPlan incorporates a facilitator (with a group dynamics focus) to help new groups in the first six months to get started. The facilitator also helps groups to develop skills to measure change (business, social, environment etc.).

A nominated group coordinator liaises with the project coordinator appointed by MLA. Groups can use their funds to pay for a group coordinator-administrator or a secretary. Each group in the pilot started off with each business paying $1000 a year (potentially reducing to $250 in the third year). The post-pilot phase envisaged a yearly allocation of $10 000 a group with up to twenty groups. Each group started with a strategic planning exercise and a followup planning exercise to develop an action plan. Some groups participated in a *Working in Groups* workshop which gave them skills in managing group dynamics, dealing with conflict and understanding their own differences in learning and personality. Groups seek, and participate in, training activities and develop decision making aids to meet their collective needs.

Activities undertaken by groups in the pilot included production, economics, environmental and social activities. Groups organise activities that are open to the local community. There were some collective group activities (representatives at combined workshops) and forums.

A wide range of specific activities was recorded in the 2001 evaluation as having been undertaken by BeefPlan groups such as: *Walk on the Wild Side* (recording anecdotal evidence); *Keeping in Touch* day; meetings and group discussion; *Strategic Review* workshop; development of property management plans; Rural Resource Consulting Services *Grazing for Profit* Schools; benchmarking (*Profit Probe*); industry workshops (*GrassCheck*; *Hotcross*); succession planning workshop; *Bizcheck*; spreadsheeting workshop (cattle record keeping via an Excel program); tree-pasture relationships day; soils workshop*; Beef Options Analysis* (BOA); *Working in Groups*; *Environmental Management Systems* workshop; vaccination workshop; natural resource audit-survey; pregnancy testing school; water exploration; marketing seminars; website development; lobbying for better infrastructure; review of *Bestprac* manual; herd recording software package workshop; information technology workshop; pasture renovation field day; beef options analysis; stock handling school; and a leadership course.

This is a staggering range of activities. The point is that the individual groups determined what was important to their members and then sought opportunities to progress learning. Opportunities were also made for group representatives to meet and learn from other groups. What you can see is that some of the activities were courses brought in from outside and others (such as meetings and discussions) were members getting together to keep each other up to date.

How effective has it been?

Most of the recorded benefits relate to increased understanding or knowledge about pastures, resources, benchmarking, recording and setting plans in place. It was also about increased confidence and motivation. The URS evaluation summarised this as: ‘Groups have developed much of the capability and many of the components to wholeheartedly develop and implement integrated property management systems and are conscious about the need to do so’.

The evaluation of the pilot, the producer comments recorded on a promotional CD and discussions with the coordinator and producers involved all reflect that involvement in BeefPlan groups have caused profound impacts on many producer members. This has come about through the motivation and support to help them stand back and think about their businesses and learning needs and then have the resources and a framework to pursue these. The empowerment has resulted in increased confidence, capacity and belief that things can be

done differently. The power of networking within groups and between groups has also been evident. The range of activities reported above demonstrates that motivation has translated to action to seek out new skills and learning according to individual group priorities. This has the potential to maximise existing packaged learning opportunities with the involvement of motivated and interested people with peer support. It appears to be a matter of value adding. A key producer informant described their involvement in BeefPlan as having 'altered my own philosophical approach…about how to approach learning and managing the business'.

Based on the perceived and measured success of the pilot, MLA committed resources to support 160 properties (twenty groups of 8 properties).

What needs to be considered by others in developing such a project?

A social scientist perspective in the evaluation (Plowman in Andrew & Miller, 2001) concluded that 'the strength of the BeefPlan groups is largely attributable to the freedom they were granted. One of the weaknesses was that limits were not clear or negotiable. Further, the standards that were expected were largely unknown as was the tolerance that MLA might grant.'

Plowman considered that the BeefPlan groups would benefit from knowledge and skills in capacity building. With the outputs being less 'tangible' (i.e. not packages which can be 'sold to other parts of the industry'), measuring change on individual properties as a result of the process working and people learning differently was seen as critical for ongoing justification and institutional support of the project.

Broad lessons from the project were that: grower groups could make excellent reasoned decisions about learning activities that would benefit their members and their industry – and external facilitation helped this process; initial training in planning processes and capacity building has been seen as beneficial; group activities can involve the broader local population; it is good for group members to contribute to the resources; and there is great benefit in having opportunities to share across groups.

This approach of a research and development corporation supporting grower learning has been bold. All the indicators show that the underlying philosophy, format and process are working effectively towards integrating economic, environmental and social issues.

How would that translate to, say, the grain industry? Or tackling salinity? The project is demonstrating something of real value; something complementing other approaches. Note in the list of group activities how often undertaking a 'packaged learning' product was listed. Is this something that can, or should, be used in other industries, in other places, for other issues? Are there other similar approaches being used elsewhere that might provide further insights into these questions?

We cast our net wide in looking for a spread of projects across industries, issues and geographical locations and invited people to send in details of their projects, or others that they had heard about that warranted a closer look. We ended up reviewing about fifty projects in detail, providing an excellent cross-section of projects seen as producing good outcomes. We used a number of techniques to tease out the elements of each project and to learn from their successes and failures. This included interviewing key players, analysing project documents and drawing from evaluations of these projects that had been undertaken by us and others.

This report starts by considering the concepts of capacity building, human and social capital and extension which will provide the basic building blocks for the remaining chapters. A review of the Australian context is then provided to give the backdrop to the analysis of individual projects and models. A brief description of the five models of extension and education precedes individual chapters dealing with projects in each model in some depth. Finally, an afterword is included to put the project that this report was based on in the context of the other flagship projects initiated by the CVCB.

Extension and Capacity Building

This report does not go into the history or different paradigms of extension. Rather it focuses on the purpose or the outcome of extension. In today's parlance, we would describe this as:

> The outcome of extension is capacity building in individuals and communities.
> (Coutts & Roberts 2003)

It is in our understanding of capacity building, then, that we begin to understand the nature of extension and how best to apply it. After a discussion on capacity building and the related concepts of human and social capital, we will revisit the nature of extension, its role and definition.

The National Extension/Education Review visited a range of extension projects that were actually being undertaken in Australia, and how they were operating. The understanding of extension, therefore, was derived from what was actually happening in practice, rather than from the great body of literature that has been written on extension, its definition and role.

Capacity

The CVCB has a shorthand definition of capacity building as being about 'increasing the abilities and resources of individuals, organisations and communities to manage change' (Newsletter No. 1 March 2003). Thomson & Pepperdine (2003) identified capacity in practical terms and how it might be assessed. They defined capacity as 'an ability to act', recognising that a number of interrelated elements were needed to enable such action. Capacity building was broadly viewed as some form of intervention aimed at enhancing the ability of individuals or communities to act. They saw 'capacity development' as taking this further, recognising existing capacity as well.

A workshop held on capacity building by Land & Water Australia in April 2003 focused on the preliminary findings from a project, *Community Capacity for Riparian Restoration* (Thompson D & Pepperdine S 2003) and brought together other people (including project leaders from the CVCB) to discuss the emerging concepts. The project focused on developing an evaluation tool (capacity evaluation tool). The tool was initially based around five themes each with a number of dimensions. The themes were: Context; Values and Perceptions; Communications and Empowerment; Program Design and Program Delivery. The paper concluded that 'capacity is very much about skills and knowledge of individuals and their perceptions and values, the social networks and relations, including feelings of trust and reciprocity and support and cooperation within and between institutions and individuals' (p. 11). There was general support for this concept and themes with minor alterations and suggestions offered. There was a belief that the evaluation framework should be used as a community learning tool rather than as an external measuring device.

Human and social capital

The Bureau of Rural Sciences (2003) developed a framework to be used to characterise the capacity of regional communities to adopt more sustainable NRM practices. This framework is relevant beyond the NRM arena. Four types of 'capital', described as the resources that individuals and communities draw upon in building their capacity and achieving their objectives, were highlighted as being considered important to NRM:

1. Natural capital, i.e. renewable and non-renewable resources found in nature; useful and required for human existence.
2. Human capital, i.e. knowledge, health, skills and general ability of individuals to contribute to their own and others' satisfaction.
3. Produced economic capital, i.e. goods and services produced through human effort including both physical and financial knowledge.

4. Social capital, i.e. the glue holding communities together, a product of interactions and can be characterised in terms of structure (e.g. formal, informal) and its qualities (e.g. norms of trust and reciprocity).

The idea was that the characterisation of a region's capital can lead to a broader understanding of the region's population.

Thomson & Pepperdine (2003) cite a fifth capital; physical capital or capital works (infrastructure).

Capacity building is generally seen as the process of building up human and social capital. Definitions taken from the National Natural Resource Management Capacity Building framework described human capital as 'the capability of individuals' and social capital as 'the level to which social networks, relationships and processes within a community support individuals to exercise their capabilities' *(*http://www.deh.gov.au/nrm/monitoring/evaluation*/)*. These definitions mirror the more expanded definitions used by Organisation for Economic Cooperation and Development (OECD) which are:

> **Human capital:** the knowledge, skills, competencies and attributes embodied in individuals that facilitate the creation of personal, social and economic well-being (OECD 2001 p. 18).
>
> **Social capital:** networks together with shared norms, values and understandings that facilitate cooperation within or among groups (OECD p. 41)

The OECD (2001 p. 13) distinguished between key elements of capacity as:

- human capital resides in individuals
- social capital resides in social relations
- political, institutional and legal arrangements describe the rules and institutions in which human and social capital work.

They make a key observation that 'social cohesion can mobilise the energy of a population to get things done' (p. 14), and that 'human and social capital can play an important role in facilitating the effective use of skills, the sharing of information and the mediation of conflicts'.

Pretty and Ward (1999) had an expanded definition of human and social capital. Their definitions are given below:

> **Human capital** is the status of individuals and comprises the stock of knowledge, health, skills and nutrition of individuals; their access to services to provide these, such as schools, medical services, adult training; the ways individuals and their knowledge interact with productive technologies; and the leadership quality of individuals.
>
> **Social capital** is the cohesiveness of people in their societies, and comprises relations of trust, reciprocity and exchanges between individuals that lubricate cooperation; the bundles of common rules, norms and sanctions mutually-agreed or handed-down; and the connectedness, networks and groups.

Aitken (2001) considered that there were major divergences in definitions of social capital and looked to the theoretical origins to untangle the web within an NRM context. Based on her analysis and discussion, she saw the need for research into social capital as residing 'both in social relationships and the resources available through those networks – resources that will differ in quality through underlying contexts (that are not solely economic)' (p. 5).

In all of these definitions, the link between human capital and social capital is evident. As individuals become more 'self-reliant', confident and skilled, they are more able to contribute to the social infrastructure of a community or industry.

Impact on capacity

Out of two of the CVCB's flagship projects came a healthy divergence of opinion as to the definitions of projects that impacted on capacity within industries and communities. Drinan *et al* (2003), in their report called *Growing the Capital of Rural Australia – the Task of Capacity Building*, provide a checklist to see whether a project is in fact a capacity building project. This checklist includes such criteria as: co-learning as the base; varying action-taking to meet different goals of stakeholders; tailored incentives to meet initial goals of different stakeholders; joint stakeholder involvement in problem solving; and a facilitative leadership style (see Afterword for more detail).

In contrast, this report, which emerges from a review of extension and education projects across Australia, presents capacity building projects as those that contribute to: providing a facilitative framework for groups seeking their own learning (group facilitation/empowerment model); providing specific packaged training when it is desired or required (programmed learning model); providing on-going, easy information access to support individuals and groups in informing decisions (information access model); using a range of processes to tackle a specific technological or management need (technological development model); and the use of consultants and mentors to help in decision-making (individual consultant/mentor model). These are explained fully in later chapters using examples from the review. The underlying point is that capacity building is seen as the application of the full range of learning platforms available.

Adaptive management approaches have been raised as being necessary for dealing with complex environmental and ecological issues. Ewing (2003) focuses on the range of activities by which individuals, groups or organisations can improve their capacity to manage the riparian zone. The merits of an adaptive approach to capacity building are raised and room for more adaptive capacity in those institutions and organisations who work within the riparian zone is seen as desirable. Adaptive management (AM) is defined as an integrated, multi-disciplinary method for natural resource management acknowledging that understanding of the natural resource being managed will change over time, and that management approaches need to respond to these changes. Ewing also discusses whether there is a mandate for organisations and institutions to try different approaches, to experiment, monitor, adapt and learn. Capacity building for this task requires the ability to be open, flexible and able to move beyond the simple adoption of a 'right' solution.

This report sees the range of extension models as providing the needed flexibility and complementarity to help with an adaptive management approach.

Kilpatrick *et al* (1998) describe social capital, in itself as 'the oil which lubricates the process of learning through interaction'. They suggest that social capital 'plays an important role in influencing change and sustaining an environment which is ready to adapt and change'. They assert that 'learning can (and frequently does) occur when individuals and groups interact...within organisations, and within groups (or networks of organisations). Learning occurs through interactions between individuals, between individuals and groups and between groups of groups. Processes that contribute to developing capacity by this definition then, contribute to on-going learning and change.'

A report to the Federal Department of Agriculture, Fisheries and Forestry, *FarmBis Participative Technologies* (2002), identified actions to help establish a continuous learning and improvement paradigm (ongoing capacity development), or culture, at a farm and industry level. These comprised actions that: provide direction, context and reference point for initiating continuous learning; establish and maintain the 'soft infrastructure' needed to encourage and support continuous learning; and that promote the investment value of continuous learning at an institutional level.

Based on the review, extension-education in all of its forms is seen as providing support and input into the ongoing learning, adaptive management or continuous learning process needed to build human and social capital.

Extension

If extension is framed by its contribution to capacity building in individuals and communities, what then do we make of extension?

First of all, extension can be seen to contribute to both human capital (that is, at the individual level) and social capital (at the group and broader community level). It is more than helping people to be self-sufficient; in fact, the definitions of human and social capital imply that industry and community members are better able to interact with bodies outside of themselves to progress their information and learning needs (that is, interdependence rather than independence). It is about having a stronger understanding of situations, more knowledge and skills to tackle issues and take up opportunities and the ability to access resources and support. It is more than just 'resilience'; it is about ongoing learning and finding new ways of tackling issues and taking on opportunities. It is about gaining new personal and technical skills and confidence.

Extension, then, could be defined as below:

> *Extension is the process of engaging with individuals, groups and communities so that people are more able to deal with issues affecting them and opportunities open to them.*

The word 'people' is used deliberately. Terms such as human and social capital can have a sub-conscious effect of dehumanising people. It conveys an image of blocks of resources to be used to gain particular outcomes. With capacity building, however, and by this definition of extension, there is recognition that it is **people** who exert the energy and creativity to tackle technological, social and management issues that have an impact on factors affecting their own lives and the lives of others.

The meaning of engagement is another element that needs to be addressed. Based on the national review of extension and education in Australia, this report asserts that active engagement occurs on a number of fronts. Facilitative frameworks to help groups identify problems and their own learning needs are seen as only one method of engagement. Providing well-delivered packaged learning workshops or courses has emerged as another opportunity for positive engagement. Working participatively with individuals and groups to develop or improve specific technological outcomes is another type of engagement, as is contact with individual consultants or mentors. We also found that providing ongoing information access to individuals and groups in projects was a critical element in ongoing learning and capacity building.

Extension for capacity building is, therefore, occurring on many fronts and there is no one particular definition or model that captures what extension is. In a later chapter, we introduce the capacity building ladder, which shows how these different types of engagement complement each other to support capacity building. Therefore, we propose that:

Extension comprises activities that may provide: a facilitative framework for group learning, a specific learning event; a process for developing or modifying specific management practices or technologies; individual mentoring; and ongoing access to needed knowledge and information. Each of these different activities complements the others in the overall process of capacity building.

The Australian Context

Extension approaches do not develop in a vacuum. The structural, social, political, economic and philosophical contexts of the time all contribute to the types of projects that are developed, proposed and funded.

This chapter reviews the Australian context at the start of the new century at the time when the extension projects examined were being implemented. It provides a background which will help you understand the reasons why these projects may have been developed and implemented in the way in which they have been.

Overall trends

Coutts *et al* (2001) argued that there are two converging trends in the Australian environment affecting Australia's extension environment:

- severe environmental and global problems facing rural landholders
- an increasing focus in extension on holistic development, human capacity building and facilitating interdependent relationships.

In looking at the problems facing rural and regional Australia, CapitalAg and Synapse Consulting (2000) stated that 'governments of all levels, and industries, have sought new ways to address economic, social and environmental issues through a range of regional planning processes and/or regional development strategies' (p. 6). As well as favouring integrated approaches and whole-of-community participation, the authors point out that 'planning processes are also recognising and incorporating the need to support economic development through development of regional social capital and leadership, as well as focusing on the need for long term ecological sustainability through responsible management of the resource base'.

Drinan *et al* (2002) refer to the rural turmoil that has occurred over the past ten years and the growing concern about resource exploitation. They refer to a 'plethora of programs' that have emerged which have led to improvements in such things as 'growing community involvement in environmental protection and remediation, and facilitating greater involvement of women in rural affairs'(p. 26). In developing a rich picture of rural institutions, organisations and learning, Drinan *et al* (2002) concluded that 'Australia possesses very large numbers of national organisations involved in rural learning', however, despite the number, they proposed that they reflected 'a belief on the part of Australians that governments carry the responsibility for rural development' (p. 25).

In stepping back to take a big picture view, Toscano (2001) reported on the analysis by Queensland DPI concerning global trends and extension. The five key areas discussed were: population change; modern biotechnology; globalisation; (increasing impact of) international law; ethics and the environment. It is concluded that government, politics and businesses will increasingly adopt a triple bottom line approach, taking into account the economic, social and environmental bottom line of their policies and activities. Sapin (2001) drew from the DPI's Corporate Plan to highlight the latest institutional shifts. These were from:

- industry development to food and fibre chain development
- a supply chain orientation to a market demand orientation
- a production focus to a consumer focus
- enterprise development to community development.

She concluded from the stated directions that 'extension officers are thus challenging farmers to think beyond the farm gate and to shed their 'producer only' identity to take on the dual responsibilities of being 'producers of food and fibre products' and 'natural resource managers''.

The increasing emphasis on rural and regional communities and capacity building means that projects are also being directed at across industry issues and involving people in rural and regional communities who may not be primary producers.

In terms of extension and indigenous Australians, Drinan *et al* (2002) point out that 'indigenous people, despite being the largest landholders in Australia and needing particular support, seem not to figure in the rural learning canvas except, perhaps, through ATSIC' (p. 26). Some support is given by the Aboriginal Land Council facilitators who have also received some extension training through the Centre for Rural and Regional Innovation - Queensland (formerly the Rural Extension Centre).

In a case study exploring extension, communication and information supporting the needs of indigenous land managers in the rangelands, Andrew (2002) concluded that 'Extension providers need to think about how organisational arrangements can be established within government and industry to support Indigenous land managers' (p. 26). She suggested that a good starting point was to build relationships with organisations such as the ILC (Indigenous Land Council) and ATSIC (Aboriginal and Torres Strait Islanders Commission) and also establish direct relationships with indigenous people who are involved in different enterprises.

Extension numbers

It is hard to calculate the number of people working in extension in Australia now (2004). One of the reasons for this is that different names are used for people in these positions, such as agronomist, facilitator, development officer and education officer. Government departments were contacted, websites searched and informal knowledge was sought to come with the following estimates of people in extension positions. This table is an estimate and can be updated as better information is received. Note that full-time equivalents (FTEs) are used, which means that more people may be actually involved in extension as part of their job than the numbers may suggest.

Geographical coverage	Organisation/grouping	Number FTE (est.)
National/ACT	NHT, Landcare, Catchment Coordinators, Waterwatch, Bushcare and other facilitators funded by NHT, Federal Government, federal, State and regional groups	760
	R&D Corporation funded industry development officers	50*
	Large agribusiness	500*
	AACM consultants	4
Queensland	Department of Primary Industries	200
	Department of Natural Resources and Mines	120*
	Environmental Protection Agency	36
	BSES (sugar)	40
	CPPB (sugar)	15
	AACM consultants	30
	Other consultants and advisers	40
New South Wales	Agriculture NSW	354
	Other government departments	150*
	AACM consultants	83
	Other consultants and advisers	40*
Victoria	DPI	200
	Other government departments	250
	AACM consultants	49
	Other consultants and advisers	60*
Tasmania	DPIWE	100
	AACM consultants	16
	Other consultants and advisers	85*
South Australia	State Government	250
	AACM consultants	50
	Other consultants/trainers	50

Western Australia	Department of Agriculture	200
	Conservation and Land Management	50
	Department of Environment	20
	Forestry	6
	Fisheries	6
	AACM consultants and advisers	83
	Other consultants	100
Northern Territory	Department of Business Industry Resource Development	40
	Department of Infrastructure, Planning and Environment	6
	AACM consultants	2
Total public funded		**2748**
Total privates		**1297**
Total public and private		**4045**

[Thanks to David Hartley; Chris Wicks; Greg Cock; Basil Doonan; Bea Duffield; Warren Straw; Gordon Stone; Greg Leach; for assistance – errors ours]
* indicates 'educated estimate' only.

The number of publicly funded extension workers (under various titles) in the above table could be expected to be reasonably close to the actual number as some states were able to give precise figures. As noted, because FTEs were used, there may be half this number again of individuals with extension as a significant part of their work. The number of private extension workers is probably understated as figures are hard to confirm.

Federal Government

In April 2002 the Commonwealth Department of Education, Science and Training published an issues paper called *Developing National Research Priorities*. The objectives of developing a national framework for priorities were to 'target research areas of particular importance to Australia's economy and society, where a whole of government focus has the potential to improve research and broader policy outcomes'.

The Federal Government directly affects extension in two key areas: in its dollar-for-dollar funding of research and development corporations or industry equivalents (dealt with in a later section) and through its funding of natural resource management facilitation. The latter includes Landcare and Catchment Management facilitators and other facilitators under the National Heritage Trust (NHT) funding. This is a large commitment to extension-type positions across Australia.

A large number of facilitators and coordinators (extension workers) are funded through the National Heritage Trust funds and in partnerships with State governments and regional community groups. The National Heritage Trust states that 'engaging community groups in a partnership with government and other corporate investors to achieve nature conservation and natural resource management objectives is fundamental – community leaders, facilitators and coordinators play a crucial role in helping to build the social capital needed at a regional scale to address local issues and develop effective regional strategies'. To this end, more than 750 NHT funded facilitators and coordinators have been employed to work with communities on NHT funded projects and activities. The $1.4 billion National Action Plan for Salinity and Water Quality over seven years includes provision for 'fine tuning' the national network of facilitators and coordinators working at community level.

The Commonwealth therefore provides large funding grants for major extension and education programs previously delivered by State agencies. The 2001-02 Federal budget committed a further $1 billion for programs under the National Heritage Trust (Coutts *et al* 2001). Programs with strong extension, information, education, facilitation or human capacity development components funded from NHT in 2001-02 included: Bushcare ($83.8m est.); FarmBis ($5.7m); Landcare ($33.4m); National Weeds Program ($4.8m) Waste Management Awareness Program ($1.1m); Waterwatch Australia ($2.6m); and Farm Forestry Program ($9.2m).

A joint media release from the Federal Minister for the Environment and Heritage, Dr David Kemp, and the Federal Minister for Agriculture, Fisheries and Forests, Warren Truss (10 April 2003) pledged continuing support for a 'network of government funded community based environmental care and sustainable farming practice workers'. Under the new funding arrangements, it was announced that the existing 650 facilitators and coordinators would be employed by the communities with Commonwealth support rather than directly by the Federal Government. New positions at regional and national level would also be created. They referred to greater flexibility in the way that local level facilitators and coordinators could help implement regional activities and support community engagement.

The revised NHT funding arrangement was described as focusing on regional priorities using an 'investment' strategy rather than that of a 'grants' approach based on funding proposals from local groups. It was stated that priorities would be determined at a higher level of aggregation and funds provided to undertake priority activities. There is also a suggestion that existing facilitators funded by NHT will work across more groups at a regional level.

As part of this package, national positions with a statewide focus would be funded to promote the objectives of the National Action Plan for Salinity and Water Quality. Funding was also allocated to support Indigenous Land Management facilitators.

Most NHT funding is now delivered on the basis of accredited and approved local catchment plans being prepared by the community and its people. It has been noted that the NHT Capacity Building Framework is currently undertaking a project that is addressing issues of regional organisation and adult learning within the sixty NHT regions, with ten regions being the subject of in-depth study (*Scoping Paper on VET Salinity and Water Quality Education*, 2003). The Victorian Department of Sustainability and Environment demonstrated its interest in the potential for capacity building from its and the CMAs (Catchment Management Authority) community engagement activities by funding the development of an evaluation strategy that specifically looked at what was being done in this area of capacity building and what were the outcomes. This funding was made available through the National Action Plan for Salinity.

The Federal Government also runs a number of national extension and human capacity building programs through the *Agriculture – Advancing Australia* package. This includes FarmBis, a Farm Innovation pilot program, and Women in Rural Industries.

State departments

The Australian Federal system has sovereign powers on matters affecting their rural industries. Despite ministerial forums (ARMCANZ) and the supporting Standing Committee comprising chief executive officers from across the Commonwealth, States and Territories (SCARM), very different approaches are taken in terms of extension and education and there is little sharing of information and outcomes at the project level. State governments have their own extension programs lodged within departments of agriculture, natural resources and environment (Coutts *et al* 2001).

One overriding trend at State government level is a whole-of-government emphasis as shown by individual department logos being replaced by an overriding State government identification. There has been much change in terms of revised departmental structures and realigning of State departments.

The following information on each of the states provides 'picture windows' into these trends. It picks up mainly on the traditional agricultural extension providers in each state and highlights some of the changes and approaches that impact on extension services. Further structural changes were being made even as this report was being completed.

Queensland. In scoping the key challenges for R&D in the Queensland Government's *R&D Strategy Paper* (2002), is was noted that 'the growing cost of, and demand for, government services will place limits on the capacity of governments to fund R&D and pressure will grow for R&D institutions to source increasing amounts of revenue from the private sector and other sources' (p. 3). It further noted

that ‘interdisciplinary approaches incorporating the social, physical and life sciences will be fundamental in addressing many R&D problems in the years ahead’ (p. 4).

Criteria for State government funding were provided (as reflecting the ‘smart state’ objectives) and included:

- scientific and academic excellence
- clear and demonstrable benefit
- competitive advantage
- ability to lever funding
- critical mass
- collaboration
- commercialisation potential and management capacity
- contestability
- value adding.

The issue of contestability was raised as a key issue to resolve. Two of the key principles (that appear to most closely link with extension) are ‘facilitating productivity improvements and transformations of the State’s existing industries through the application of R&D, including the development of new high value, sustainable industries’ and ‘ensuring R&D is applied in ways that benefit as many Queenslanders as possible’ (p. 7).

Social and environmental challenges were raised as central targets of R&D ‘R&D will be crucial in giving Queensland an edge both in developing human capital to build the smart state and in addressing social issues faced by Queensland communities and communities in other parts of the world where Queensland expertise can be utilised for mutual benefit’ (p. 11).

Extension as such was not obvious in the paper, although the term ‘innovation’ was used in some contexts. Vocational education and training was highlighted as needing to continue because it contributes to the development of a skilled workforce by providing generic training in the adoption of improved technology (p. 18). When this report was being written, policy as it related to government’s role in extension was being reviewed across a number of government departments.

The Department of Natural Resources & Mines in Queensland recently introduced its new extension strategy. The Environmental Protection Agency also just released an extension strategy for its Community Nature Conservation. The Department of Primary Industries is revisiting its formal extension strategy as part of the joint departmental review.

Describing why the Department of Natural Resources and Mines in Queensland was introducing a new extension strategy, Leach (2001) stated that ‘the challenge of negotiation in natural resource management extension is enormous…to enable chosen and unchosen change in how all members of global society interact with our environment as we strive for a sustainable environment and future’.

The Extension Strategy of the Environmental Protection Agency’s Community Nature Conservation (2002-2004) points out that ‘once the domain of departments of agriculture or primary industries throughout Australia, extension services are now delivered by natural resource management agencies, conservation organisations, community organisations, local government and adult education institutions as an effective means of reaching and working with rural communities’ (p. 8). EPA employs sixteen regional extension officers, seven Bushcare facilitators, eight wildlife coordinators and five NatureSearch coordinators. The extension framework developed incorporates the principles of ‘building relationships with landholders, incorporating best practice nature conservation into existing extension and planning programs, focusing on outcomes and monitoring and evaluation’ (p. 10).

Western Australia. The Western Australia Department of Agriculture continues to operate on a program project structure, which has been modified to strengthen regional service delivery.

Research and development operate mainly in a program-project structure with strong linkages into the regional service delivery strategy based on farming systems projects. Each farming systems project is regionally based and responsible for delivering research outcomes and development with growers into its application in the farming system. These farming systems projects are responsible for analysing existing farming systems to determine future research requirements and growers' needs. They also provide local intelligence and financial information through farm business reviews.

The department has moved away from the role of providing reactive technical information direct to growers. Its focus is on developing options and solutions to farming systems issues that deal specifically with biosecurity, productivity improvements and protecting the natural resource base. The focus is on developing options and solutions that can be implemented into the farming system over a two- to five-year timeframe. Examples of these include:

- the development of integrated weed management practices to manage herbicide resistance
- options to get the most from saline areas
- water harvesting and moisture conservation options
- high water use cropping systems
- developing models to help growers in the transition from the current system to the new
- salinity risk assessment and information dissemination of options to manage these through a Rapid Catchment Appraisal framework.

New South Wales. In its 2001-2004 Corporate Plan, NSW Agriculture highlighted that their clients 'include(s) but also extend(s) beyond the farmers and pastoralists who produce food and fibre products on-farm, to the processors and distributors of those products, to the agribusiness sector and to members of the States rural and wider communities' (p. 5). It outlines four corporate goals: innovative and internationally competitive agricultural industries; sustainable management of natural resources for agriculture and the community; animal and plant protection; and serving the broader community. Extension is included as a key part of its strategic directions to achieve these objectives to 'strengthen the Department's unique research, regulatory, extension and education and ability to integrate protection of the resource base…expand collaboration in agricultural research, and extension and education….develop farmers' skills to understand and manage their business risks through information and extension programs'(p. 7).

One stated direction is to 'further integrate extension with vocational education and training in meeting' clients' needs. The 2001-2002 annual report reported that the department had endorsed the provision of education and training as a role of extension services, and that extension officers who had completed units from the Certificate IV in Assessment and Workplace Training will conduct short courses linked to the department's agricultural colleges which are registered training organisations (p. 27).

South Australia. South Australia appears to have moved further along the purchaser-provider model for government services than other states. At the last election, natural resources were transferred from Primary Industries South Australia (PIRSA) to the State Environment Agency. The remaining agricultural functions are divided up between Agriculture, Food and Fisheries (the purchaser) the South Australian Research and Development Institute (SARDI), where a chief scientist drives the R&D program for the different industries and Rural Solutions South Australia (the extension provider) run by a board under the chief executive officer of PIRSA.

In deciding what to purchase, the agency works with industry, e.g. through an industry board, and goes through a number of 'screens', as follows:

- focus activities where there is significant opportunity to make something happen, where there is a competitive advantage

- tackle identified roadblocks in the development of the different industries, e.g. skills
- base intervention on what is appropriate for government intervention, e.g. market failure, and public compared with private good etc.

The latter point puts traditional government extension under pressure with funding being hard to justify for extension projects that have a high proportion of private good. It was noted that there are many agricultural consultants operating in South Australia. Rural Solutions, whose members act like private consultants, currently earns about 60% of its income by undertaking 80% of relevant government projects (which they also have a role in developing). There is a 'growing awareness' that government requires an extension capacity, hence full privatisation is not planned at this stage.

Many projects are developed and funded in conjunction with State and Federal funds, R&D corporations, and sometimes through private agencies. The purchaser plays a significant role in bringing these programs together, with many projects being managed by an industry or regional group. FarmBis is managed by a different group under PIRSA.

There are a number of large agricultural consultant businesses in the major regions of South Australia covering such things as irrigation management and crop monitoring. With fewer public funds going into extension there is a flow from the public to the private sector (Philip, B. 2003 pers. comm.).

Victoria. Although Victoria is not as strong as it was on the purchaser-provider model of service delivery, it does appear to be entrenched in the practice of government programs determining the outcomes that providers must deliver. The government has moved beyond an emphasis on the triple bottom line and refers to five related objectives: **sustainable growth** with a **smaller footprint** achieved through **capable communities** applying **knowledge of ecosystems** supported by **excellent business management** (Straw 2003 pers. comm.).

Public primary industries extension in Victoria is delivered through large industry-based programs in Natural Resources and Environment (NRE). For example, there are seven key programs in the meat industry, each with a budget between one and three million dollars. All have extension components with one key program being exclusively extension. One estimate is that about $10 million is spent on extension within primary industry extension in the State, and there are another nine divisions with NRE with some kind of 'extension' component, e.g. the Catchment and Water Division. FarmBis provides $4 million from the Federal Government and a matching dollar-for-dollar from the State each year. There is a trend for more issue-based programs going across industries (for example, greenhouse gases) to be introduced (matrix management). NRE has recently undertaken an internal review of extension to 'redefine extension within NRE to achieve change and build community capacity'.

Many extension programs receive FarmBis support or are delivered free of charge. Fee for service does not appear to be an issue.

Community development and community capacity building are increasingly capturing government attention and are a focus of the Premier's Department and the Department of Rural and Regional Development. NRE has recently appointed a director of social programs with an initial task of developing a policy statement on community capacity building and what it means for NRE (Warren Straw pers. comm.).

In 2003, the Victorian Department of Natural Resources and Environment was divided into two departments: the Department of Primary Industries and the Department of Sustainability and Environment.

The Department of Primary Industries incorporates Customer Services, Agriculture and Food, Fishing and Aquaculture, Minerals and Petroleum, Science and Research and Trade and Investment. The Department of Sustainability and Environment incorporates Coasts and Marine, Conservation and Environment, Customer Services, Fire Management, Forestry, Heritage, Land and Water, Parks and Reserves, Planning, Plants and Animals, Property, Titles and Maps and Recreation and Tourism.

Functions previously part of the former Department of Natural Resources and Environment, such as Aboriginal Affairs, now rest with the Department for Victorian Communities. Information on energy is also now part of the Department of Infrastructure.

The effects of this splitting of extension are not yet being felt because, in most cases, personnel are still co-located and functioning as before. The comment has already been made, however, that where resources are being shared, e.g., with training, deliverers may now be asked to present to clients of their own department first. It is likely that this will gradually move to a position where each of the departments will have its own trainers and training programs, therefore creating a need for an increased extension budget or decreasing extension activities.

Tasmania. The Tasmanian Government has an overriding 'Tasmania Together' policy with fifteen goals covering community, culture and democracy. A component of this policy is recognition that 'our environment surrounds and sustains us, and our industries are developed within environmentally sustainable parameters – we fully intend them to prosper into the future as well as provide a competitive return on investment' (Tasmanian Government 2002 p. 14). This underpins a strategy to help 'industry leaders gain the management and technical skills to successfully adapt their businesses to changing market conditions and technologies'.

The Tasmanian Institute of Agricultural Research (TIAR) has been established to coordinate and integrate (public) rural research and development in the State and operates out of four centres, including the University of Tasmania. Its focus is industry-based research for primary production, processing or supporting industries.

Although user-pays is still 'on the books' in public extension (for individual consultation), most extension work is undertaken within projects.

Universities

Universities provide direct formal education, including distance education, to students across the rural sector. Some tertiary institutions are also accredited as registered training providers under the VET system. VET awards can also be articulated towards university degrees.

There are examples where universities work closely with industry to provide specialised training. The University of New England, for example, runs a graduate certificate in cotton production which is targeted at consultants, government advisors and producers. The Centre for Rural and Regional Innovation - Queensland (formerly the Rural Extension Centre), a joint DPI Queensland and University of Queensland centre, was established to provide specialist extension skills training to people involved in extension and facilitation.

Private sector

The private sector includes seed and chemical companies which provide technical support for clients as well as specific consultants providing individual technical, strategic and business advice for landholders.

The private sector is rapidly expanding in the provision of extension and education in the rural sector. Marsh & Parnell (1997) are quoted noting that 'the growing number of extension providers working in a wide range of very different employment situations raised issues of both training and professional development'. It would appear that the private sector providers are evolving alongside the government employed providers. This is supported by a complementary study by Roberts *et al* (2004) which 'mapped' service providers, who they were and where they were.

More consultants are working in the field of community consultation. In this role, they are developing group processes and encouraging group activity and performance, leading to self-determination and a capacity to address complex issues. Additionally, a number of consultants are employed to work with grower groups, which are determining and developing their own research and development

programmes. These consultants also work in a private capacity and very much require additional skill and training in capacity building and group development.

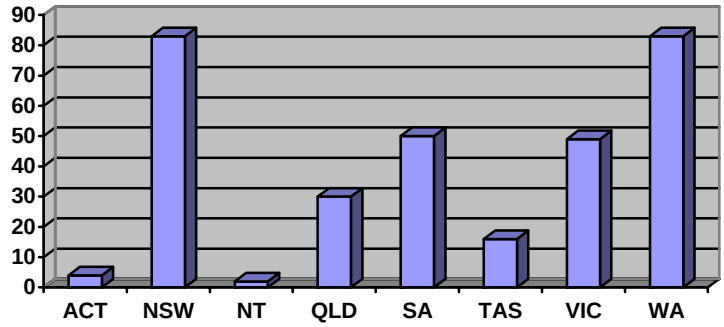
Much of the extension and education support being provided by agricultural companies is linked to purchases of products. Individual technical advice as well as coordination and facilitation of grower groups are undertaken by supply companies. On-farm demonstrations are key approaches to promoting products and practices.

Private consultants are also being engaged to: undertake training developed by research and development corporations; provide technical support to projects (for example, the Western Flower Thrip Management Project); and run groups with growers who they service.

As an indication of the strength of private consultants in the different states, the number of consultants registered through the Australian Association of Agricultural Consultants (AAAC) and is shown below.

Registered consultants by State:

ACT	NSW	NT	QLD	SA	TAS	VIC	WA
4	83	2	30	50	16	49	83



(source: http://www.aaacwa.com.au/)

Rural research and development corporations

The rural research and development corporations (RDCs), funded by industry levies plus public funding, each have a charter to facilitate research and the dissemination, adoption and commercialisation of results of research and development. They develop their own industry specific priorities and approaches.

Meat & Livestock Australia (2001), for example, in their Strategic Plan for the Northern Beef Program, described a key to their previous program (NAP3: 1996-2001) as 'the positioning of the outputs from the production and resource management research within whole of enterprise management systems, with the aim of better integrating economic, environmental & social aspects of property beef production' (p. 5). Their vision for the new phase of this program was described as 'generating an empowered industry in which leaders, producers, researchers, extension officers, financial organisations and other resource user groups participate and contribute to a sustainable industry' (p. 9).

In considering the environment in which RDCs operate, Clark and Kowitz (2001) concluded that 'in recent years rural extension services have come under increasing pressure from reductions in staff and resources…at a time where there is also a great need for solutions to social and environmental problems facing rural Australia'. In reviewing the delivery mechanisms within the water programs of

the Land and Water Resources R&D Corporation, Dempster (2000) reported that program coordinators considered that they were constrained because 'state extension services have been severely run down; everybody is turning their back on individual resource managers'. They reported that dissemination-adoption programs that worked well for several years 'collapsed when LWRRDC funding was withdrawn' (p. 9). Coutts *et al* (2001) conclude that the extension environment in Australia is fragmenting as the public infrastructure has deteriorated:

> Extension infrastructure and networks in the States and Territories are now largely unplanned and ad hoc, cobbled together around transient programs, often project – rather than program – based, rapidly established and then abandoned with each passing initiative. (Coutts *et al* 2001).

For these reasons, as well as a need to demonstrate that industry levies are being translated to changes on the ground, RDCs have been showing an increasing interest in funding significant extension projects.

Vocational education and training (VET)

An important development in extension and education is the growing linkage between the vocational and education training (VET) sector and the traditional 'informal' extension training area.

Increasingly, extension programs and training of extension officers and facilitators are being linked with competencies under approved training packages under the Australian Recognition Framework. The Rural Training Council of Australia administers the rural-oriented packages as the Industry Training Advisory Body (ITAB) under ANTA (Australian National Training Authority).

Courses are accredited and delivered through RTOs, which can be government agencies, universities, colleges or private organisations. There are six levels of qualifications under three recognised training packages in the rural industries, i.e. agriculture, horticulture, and conservation and land management.

Individuals can be awarded certificates or diplomas through a combination of recognition of current competencies (RCC) and registered training. To gain such a qualification, a specified number of units must be completed with a number of core competencies designated for each unit for each level. There is a lot of flexibility and units can be drawn across the range of training packages.

Extension and education programs (training products) can be designed to target specific competencies relating to units within the training package. An RTO is required to prove that the training product is of the required standard and designed to meet the competency need. It also reviews the granting of credit for competencies to ensure that the process meets the required standard. The State rural training council audits the RTOs to ensure quality is maintained. A lead member of the delivery team must be registered as a deliverer of workplace training.

The 'training product' can be designed to complete all of the necessary units to have a qualification awarded or can focus on specific competencies or units or both, which will allow the participant to build on it towards their desired qualification.

Dempster (2000) noted that GRDC (Grains Research and Development Corporation) 'has arranged for Australian National Training Authority (ANTA) accreditation of its training workshops and the recognition of these sessions as formal qualifications' (p. 10). Penton (2002 pers. comm.) advised that training being developed for landholders to trial an Australian Landcare Management System (ALMS) was being developed with Dalby Agricultural College (a registered RTO) to ensure that participants received formal recognition for their skills gained.

In examining the role of VET in regional Australia, Kilpatrick (2001) stated that case studies undertaken 'demonstrated unambiguously that where providers collaborated with each other, with their community and with external partners, VET was found to be more effective'.

Recent experiences with extension and facilitator training, however, demonstrate that making the practical link between training offered in extension and training programs and the VET system is not easy. The process of linking extension and training outputs to competencies associated with the VET units necessary to achieve a formal award, having these assessed and making a case for RCC to complete a qualification, appears to be a difficult road that lacks clarity and is full of confusing paperwork.

Extension training

Overall, there has been a decrease in extension training at universities in Australia and a decrease in numbers of academic staff engaged in extension teaching and research.

The Centre for Rural and Regional Innovation - Queensland (CRRI-Q), formerly the Rural Extension Centre, is an exception. It continues to provide extension process training through post-graduate courses in Rural Systems Management at University of Queensland. This training is largely work-place based and draws participants from across all other states and is delivered *in situ* in Victoria, Western Australia and Northern Territory. The focus is on adult learning in terms of delivery and content and it includes subjects such as project management, evaluation and extension research. The University of Melbourne has a post-graduate coursework program (distance mode) in extension.

In Victoria, the Department of Primary Industries and Department of Sustainability and Environment have a strong graduate program with an intake of about fourteen new graduates a year. Graduates are allocated extra funds for training, including training in extension (Straw 2001 pers. comm.). An evaluation has demonstrated the value of the program and it has been expanded. Other states have programs for trainees.

Extension research

This CVCB is a major new national initiative in researching extension, education and communication in the rural sector. Its four program areas of: what works and why?; fostering involvement; optimising institutional arrangements; and professional support for rural educators resulted from a comprehensive study of existing research, gaps and priorities.

Rangelands Australia is also undertaking research into human capacity and social factors to guide its activities and maximise its effectiveness. This has included analysing existing data to profile learning attributes of rural and regional Australia, and undertaking extensive consultations and focus groups. Research is targeting attributes of individuals and gaps in producers' capacity.

The Department of Agriculture, Fisheries and Forests, through FarmBis, also commissioned significant research into extension and education to support its training initiatives.

Some research into extension and rural education is also being undertaken through post-graduate research.

Overall

The overall picture, then, is that there is a large number of people and programs involved in extension in its many forms. State governments have remained significant players and the Federal Government is a major funder of extension activities across Australia. There has undoubtedly been a shift in public extension from one-on-one to group approaches and from a production/economic focus to a broader platform involving environmental and social concerns. The private sector continues to expand and, as well as undertaking individual technical advice, operates in the same sphere as public extension.

Extension Models in Practice

When we examined the projects, their underlying philosophies and the way they operated, we confirmed that extension projects fell easily under a number of models proposed earlier by Coutts (1997). These models operated across industries and communities, with each playing key and complementary roles within a capacity building framework. They are outlined as follows:

The Group Facilitation/Empowerment Model

This model focuses on increasing the capacity of participants in planning and decision-making and in seeking their own education and training needs based on their situation. The project will often provide or fund a facilitator to help groups to define their own goals and learning needs and to help them realise these.

The Programmed Learning Model

This model is about delivering specifically designed training programs or workshops or both to targeted groups of landholders or community members to increase understanding or skills in defined areas. These can be delivered in a variety of modes and learning approaches.

The Technology Development Model

This model is about working with individuals and groups to develop specific technologies, management practices or decision support systems which will then be available to the rest of the industry or community. It often involves local trials, demonstrations, field days and on-site visits.

The Information Access Model

This model is about providing a range of information that individuals and groups can access at a time that suits them. It can be based in a library, information centre, on a website, or other centralised location.

The Individual Consultant/Mentor Model:

This model is about individualised one-on-one support. It may be a technical expert visiting and providing advice, diagnosis and recommendations. It may be an ongoing facilitating mentor relationship which provides a sounding board for decision-makers.

The analysis has shown that these different extension-education models work in well together as a suite of complementary capacity building avenues. We discovered that projects that came under the **group facilitation/empowerment model**, for example, relied on **programmed learning model** projects to provide training when it was appropriate to the individuals or group involved. Likewise, many of the participants in programmed learning model projects were people involved in projects under the **group facilitation/empowerment model** and the **technology development model**. Each of these models depended on initiatives following the **information access model** for information support and follow-up. Individuals involved in group extension processes often need to work with **mentors or consultants** to see how to appropriate learnings to their own situation.

This means that a project initiated under the programmed learning model needs to consider how it will provide ongoing access to **information support** for participants attending the course or link into an initiative that does. Projects under the group facilitation/empowerment model need to consider how they, or others, will support appropriate **technological development** when groups and communities see a need to focus in a certain way.

For example, in the cotton industry, insect control and hence Integrated Pest Management is a big issue. Area wide management groups provide a platform based on the facilitation/empowerment model for growers and others to explore the issues. The extension teams run local trials and demonstrations with consultants, growers and researchers to look at actual field situations over the seasons, providing the technological development element. The Technology Resource Centre provides information support, which individuals and groups can access as they need it and planned specific workshops, e.g. SPRAYpak, are run as required. Growers in the cotton industry make extensive use of private consultants to help with individual property initiatives. In these examples, the projects themselves need to diversify to include the other elements or link with projects ord initiatives that can. The following matrix is one way of analysing the capacity building approaches to see where a project is positioned and where links are possible.

The capacity building matrix for pest control in the cotton industry

Model	Contribution to capacity building	AWM groups	Local Trials	Techn Res Centre	SPRAY pak	Private Consult
Facilitation & empowerment	Platform for ongoing learning	XXXX				
Programmed learning	Specific topics and learning events				XXXX	
Technological development	Development or integration of new approaches		XXXX			
Information access	Ongoing access to support information			XXXX		
Consultant/ mentor	Individual iterative support to make decisions about changes					XXXX

This thinking is supported by Roberts *et al* (2004) in their report on mapping service providers in Australia:

> A shift towards thinking of service providers as capacity-builders is attractive given the noted decline in rural community health, but should not be overstated as the be-all of extension activity. Other forms of extension, as outlined above by Coutts (1997), should not be completely discarded at the expense of a capacity building discourse, as to a large extent, capacity building could not occur without a diversity of approaches. A facilitative/empowerment extension method is important in this, but programmed learning, technological development and the transfer of science and research for clients to initiate change is still significant even if their local, embedded knowledge is not explicitly drawn upon. More recent views of service provision as a learning relationship between advisor and client need to be included in our mapping of service provider practice (LEARN, 2000). A mapping exercise, therefore, provides an opportunity to listen to service providers as they talk about their needs in a way that better identifies what they actually do (their practice). (Roberts *et al*, p. 31)

Another way of visualising this complementarity is the capacity building ladder:

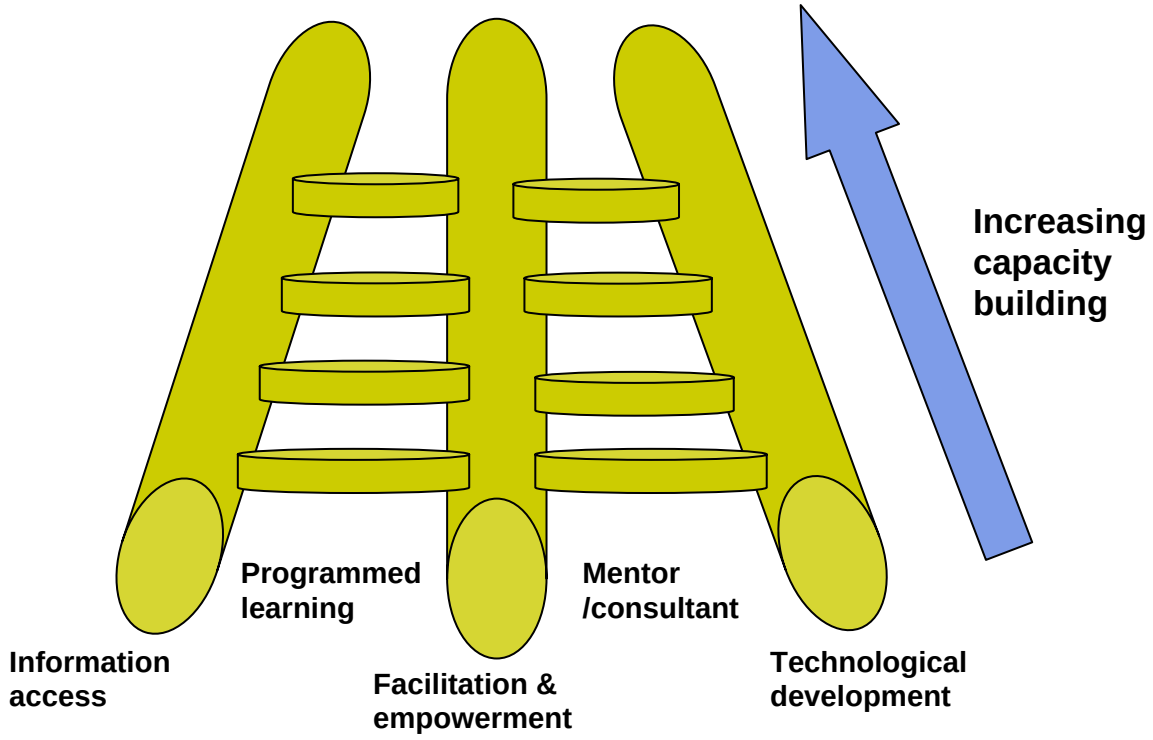


Figure. The capacity building ladder.

A central leg of the ladder is the facilitation/empowerment model, an ongoing process to maintain motivation and a framework for development and change management. Information access is critical so that individuals and groups can access the type of information in the form that they require when **they** need it. Mirroring the ongoing facilitation and information access is the third leg - projects that deal with specific technology development - incorporating learning and information into changes in new technology and practice. The left rungs show the need for ongoing specific training and education products (programmed learning) to allow individuals and groups to move to the next level. The right rungs indicate the value in individual enterprises having iterative consultant/mentoring support for incorporating changes at an enterprise level.

The group facilitation/empowerment model provides an alternative extension demand creating a delivery platform (institutional arrangement) to government departments. The emphasis of projects under the group facilitation/empowerment model is on facilitating a platform for participants to arrive at their own information, learning and skill needs. Projects under the programmed learning model and groups involved in technology development model projects provide a ready source of training access for participants who see the need for it when it best suits them as a group.

It is critical that all types of models should be developed and supported within an industry, community or issue context. They cannot work in isolation from each other. While they do not all operate concurrently all the time, their influence is ever present.

Link with VET

Another key element to emerge from this analysis is that workshops, courses and training packages developed by research and development corporations should be designed to fit within the national training framework (VET sector) to permit accreditation and for participants to build towards (further) formal qualifications over time if desired. This will help foster ongoing involvement in learning as well as supporting an existing national institutional arrangement for recognition and accreditation of learning.

There is enough flexibility for most training courses to link with competencies in the training packages within the national framework. Younger rural producers in particular are interested in accreditation and building towards further qualifications. This also has the benefit of ensuring that all available training becomes listed on a common database, that quality control processes are in place, and that portability of training accreditation is possible.

There are, however, gaps and glitches in the linkage process mainly due to a lack of understanding and lack of providing clear pathways for people to understand. This needs to be addressed. Institutions will need to support each other's offerings so that credit for work done elsewhere can be given to students.

FarmBis

FarmBis has been a major Federal Government mechanism for encouraging training in rural industries. It has provided a major role in subsidising and encouraging participation of producers in formal training opportunities. This has been a significant institutional arrangement working across industries, issues and geographical boundaries. Facilitators and coordinators play a major role in undertaking the process to access funds on behalf of producers. The implications of changes or a loss of the FarmBis program need to be considered now because its role has become so central in supporting extension-education programs.

Generic capacity building programs (for example, Building Rural Leaders) and programs dealing with regional issues involve primary producers as well as non-primary producers. Non-primary producers in this case are at a disadvantage as they cannot access FarmBis funds. Arrangements to include non-landholder rural community participants need to be considered.

On-farm

On-farm and one-on-one extension activities are still critical in bringing about management and technological change. Examples in all models show the importance of grounding new knowledge and skills in local and individual situations to engender ownership, relevance and interest. There are a number of barriers, particularly for small to medium businesses, to making changes, and individual support at some level is critical. The use of local commercial consultants in supporting broader projects has merit and could be further explored as a way of maximising impact and sustainability of changes.

The germinator model developed by Paine & Kenny (2002) focuses on the learning partnership between land manager and adviser and this model fits well into the personalised consultant model.

Self-directed learning

Self-directed learning opportunities and support are also needed for isolated producers to complement the other forms of extension-education support through these three models. There is a significant need to foster involvement in these communities. Just as universities have developed existing courses to be delivered in distance mode, some effort needs to be spent on providing opportunities for isolated producers and indigenous communities to tap into learning opportunities available through all of these three models. The **farmscape on-line** approach has shown what is possible to be accomplished on-line. As communication technology capacity is increased in remote locations, more opportunities should become available to involve individuals in virtual groups, remote learning and participative technological development.

Top-down and bottom-up

An important point to note is that we have focused on projects that are currently running or have been completed recently. We see the project in action and catch only a glimpse of the groundwork that went into its development.

Some projects have clearly resulted from demand from the community and growers. **BeefPlan** is an example of a group facilitation/empowerment model that resulted from grower demand and vision. In this model, self-formed grower groups are provided with planning and facilitation support to help them pursue their interests and needs in a difficult environment. It is incredibly interactive, flexible and robust. **BestWool 2010**, another group facilitation/empowerment model, is an example where industry organisations joined with government to develop a strong facilitation network to support self-driven industry groups. In both cases, funding bodies have entered into partnerships to bring about the vision and meet the needs.

Other projects have started out as top-down and evolved as a result of interaction and relationships between funders, researchers and the broader community. For example, **Research to Practice® Viticulture** was initially designed to facilitate practical training for grape growers and associated industry personnel in Integrated Pest Management (IPM) with a view to improving levels of adoption and assisting with informed decision making. Over the past seven years (1996–2003), it has evolved to become 'a national 'flagship' program for the Grape and Wine Industry covering a broad series of topics focussed primarily on sustainable economic growth along with natural resource management. It involves researchers and experts from numerous agencies and organisations across the nation' (Coutts, Roberts *et al* – Joint venture database). The National Heritage Trust ran a pilot capacity **training** project for facilitators which resulted in ongoing networking and 'empowerment' of this group (Roberts & Coutts 2002).

The point is that extension-education projects and initiatives can be initiated from any part of the capacity building system. The critical element is to involve all of those parties who wish to contribute to its outworking.

Models

Specific learnings about key factors to consider when operating projects within the different models are included in subsequent chapters as each model is considered separately. Individual projects are summarised to provide an insight as to what the projects falling into these models entail and what types of learning have emerged through their analysis.

An important factor to remember is that models are just that, i.e. they are an artificial mechanisms to help us gain insights and to have discussions within common frameworks. Some projects may not fit neatly into any of these models, others may have components which relate to more than one model. All of these observations are accepted. Allocating projects to the models that we feel they best illustrate is just a way we have used to bring out the richness and develop a greater understanding of developing and undertaking extension and education projects in Australia.

One model missing from the following chapters is the personalised consultant/mentor model. This does not reflect the lower importance that we place on this model: we see this as providing important rungs on the capacity building ladder. It does reflect that we focused on funded projects, and most one-on-one activity occurred as specific contracts between extension, advisory and consultant personnel and individuals, companies or groups.

It was noted in a number of technological development model projects that one-on-one farm visits were a key activity used to promote more rapid changes in the use of new technology and management approaches. The personalised consultant/mentor model, however, is more about meeting the individual's agenda. It may be to see how certain new approaches can best be integrated at an individual business level, or it may be to help look at a suite of possibilities to grow or better manage a business. The individual consultant may be an expert in one particular field, or a generalist – the point

is the individual is contracting and working with him or her to improve their economic, environmental or social situation.

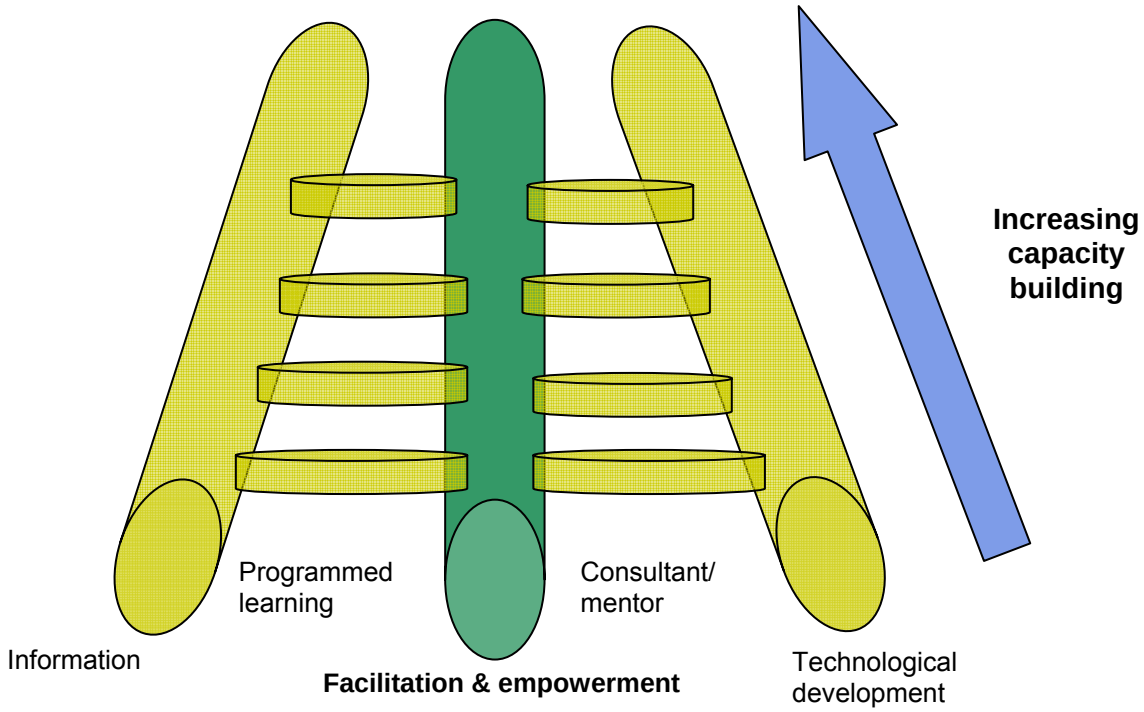
We think there is scope to undertake more research on this model. There are many indications that extension/advisor/consultant skills and approaches make significant differences in the success and impact of this individual support. Issues such as facilitation *versus* directive are just as important at this level. Likewise, individual users of extension agents, advisors and consultants have different skills and attitudes in how they work with them, which affects the value of the relationship.

The personalised consultant/mentor model examples and learnings are then for another time. The following chapters focus on projects under the other models: group facilitation/empowerment; programmed learning; technology development; and information access. Following the analysis and discussion on projects in these models, there is a guide is provided to help people developing projects under these models, as well as those funding the projects. The guides are to help focus discussion and negotiation rather than as mechanistic tick-the-box exercise.

Group Facilitation/Empowerment Model

Value to capacity building:

- Develops improved information seeking skills, decision-making skills, management skills of individuals and groups of people.
- Builds individual and group confidence (in doing something).
- Builds community (increased communication and set up support network).
- Helps people finding resources or acting as resources or both to improve their situation.
- Empowers group members.
- Increases people's involvement in the industry, community and create new industry.



In the introduction, while looking over the beef fence, BeefPlan was introduced. It had all of the core elements that describe the **group facilitation/empowerment** model: it did not dictate specific learning activities; and a process of facilitation was used to help groups of motivated participants to work through their own learning needs and help them access these.

In the 1980s and early 1990s, much was written in extension literature about empowering rural people and using bottom-up processes to achieve change. Bloome (1991) described one facet of extension being what he described as 'human development'. Coutts (1994 p. 5) described extension as a means 'to facilitate and stimulate individuals and communities to take the initiative in problem definition and seeking solutions to individual and societal concerns/opportunities. The assumption is that given the opportunity and interactive framework, individuals and communities will, and can, best improve their situation.'

Jules Pretty (1997) developed a 'Typology of Participation'. Denoting the strongest participation, he had a type he called 'self-mobilisation', describing this as where people participate by taking initiatives independently of external institutions to change systems. It was noted that self-mobilisation can spread if governments and NGOs provide an enabling framework. Clark developed the best

practice model (Clark & Timms 2001) to help people move through a process of continuous improvement and so determine their own needs.

Although being heavily involved in extension training, research and theory, we had not been aware of the extent to which this thinking had emerged in practice across Australia. In the late 1980s and 1990s, landcare had certainly provided a model which demonstrated that group facilitation could be an effective framework for involving people in natural resource management activities at a local level. Projects working in a similar mode beyond landcare, however, were not highly visible. The National Extension/Education review unearthed a remarkable number of projects that reflected the philosophy and practice of the group facilitation/ empowerment model!

In the introduction the question was posed as to whether the BeefPlan approach was something that can or should be used in other industries, in other places, for other issues? Are there other similar approaches being used elsewhere that might provide further insights into these questions?

The review has shown that there are other similar types of projects that may offer clues to the application of the principles in other rural industries and contexts. As we look at these, we can begin to draw out general and context-specific principles for employing a project under the group facilitation/ empowerment model.

If we now look over the wool industry fence at the **BestWool 2010** project, further application of the principles of the group facilitation/empowerment model can be seen. This project was started in 1998 against the backdrop of the collapse of the Reserve Price Scheme and stockpile issues, low farm productivity, a backlog of structural adjustment and concerns about wool promotion. It is very similar in its nature to BeefPlan, but perhaps a little more structured and has been designed to increase the uptake of new technologies – advanced wool marketing and risk management – by wool producers. An evaluation of the project found that BestWool 2010 appears to be a 'genuine grower-driven project which is producing excellent results for the individuals concerned and for the broader industry'.

What then were these excellent results?

There is strong evidence that involvement in **BestWool 2010** has had a significant impact on the participants' levels of knowledge attitude, skills and aspirations with respect to enterprise productivity, marketing and profitability. They viewed their involvement more strongly as a business, and improved information seeking and decision-making skills were attributed to involvement in the project. In some cases, improvements were also seen in the increased involvement of women partners.

Overall, about a thousand growers (20% women) in 57 groups with twenty-seven coordinators (seven being government staff) were involved. Grower participation is 12 to 15% of Victorian woolgrowers, representing 25% of the Victorian wool clip (5% of Australian wool clip).

Major changes in 55% of participant's farming practice were also identified as a result of involvement in the project. It was judged that BestWool 2010 had a significant impact on business management and enterprise productivity and profitability. There has been an increase in the level of benchmarking amongst participants. ABARE statistics show big differences in practices and productivity between **BestWool 2010** producers and the rest of the woolgrowers.

So how were these results facilitated?

Over five years, about $700 000 a year was invested in the project, which had more than a thousand active woolgrower participants. There are more than fifty groups with 27 coordinators (some cover more than one group), as well as a half-time coordinator and full-time administrative officer. The project is overseen by a management committee made up of growers, government and industry representatives.

The process basically follows the self-formation of grower groups who then apply for funds to contract a facilitator. Five thousand dollars a year is made available for this purpose (another $5000 is earmarked for coordinator conferences and other administrative costs). A list of potential facilitators, both government and private, is provided but the group is not restricted in its choice to this list.

The facilitator takes the group through a needs assessment process (annually) and then has the mandate to look for the best training or learning opportunity to meet the group's needs. Funding applications are made to FarmBiz where appropriate. Topics selected to date include business management, wool marketing, risk management, and sheep productivity (pasture management, sheep breeding, fleece management, benchmarking). Regional meetings are held which involve a number of groups coming together for an activity (annually).

A newsletter, *Information Exchange*, is produced and distributed and a website is being established to help information sharing between groups and with growers not in groups. A communication plan has also been developed to take the groups to the next level. Coordinators have conferences (twice a year) to share information and maintain learning relevant to the groups.

It appears to be a very cost-effective approach to providing a robust extension framework for delivering education and extension to an industry.

It's all very well having great results, but how effective has the project been for the growers?

It has been concluded that the project has been highly effective. The following points summarise key outcomes.

- **Moderate coverage:** 15% of Victorian woolgrowers (providing 25% of wool clip) over the five-year life of the project to date at a cost of about $700/participant/year.
- **Very effective process to create change:** 55% of grower contacts can attribute a major change to their practice. The project has developed a new grower-driven extension framework to support structured learning among woolgrowers.
- **Strong learning communities developed:** there is strong evidence that individuals and groups are motivated to seek learning opportunities and are increasing their skills and capacity to do so.
- **Strong peer support:** groups provide learning opportunities according to group needs. Individuals can make choices about opportunities they participate in. New growers are being attracted to existing and new groups.

This approach shows a strong value-adding component in that it provides the motivating and structural base for growers to identify and seek their own education and training needs. It is an effective way of accessing existing extension and educational opportunities and programs and providing the critical mass for success of these programs.

The following table shows the range of projects that we felt illustrated components of the group facilitation/empowerment model. They cover a wide range of industries, issues and locations across Australia.

Projects	Industry	Issue	Location
BestWool 2010	Wool	Productivity	Victoria
Bestprac	Wool	Productivity	Qld, NSW, WA,SA
BeefPlan	Beef	Productivity Sustainability	Qld, NT
Area Wide Management Groups	Cotton Grains	Pest management	NSW, Qld
Central Highlands Regional Resource Use Planning Project Pilot	Rural and regional communities.	Natural resource management	Qld
Producer Initiated Research and Development	Beef, Wool, Lamb	Productivity	National
Progress Rural Western Australia	Rural and regional communities	Leadership and community development	Western Australia
Rural Remote and Regional Women's Network	Rural and regional communities	Leadership and community development	Western Australia
NSW Far South Coast River Bank Management Demonstration	Dairy and Beef	Protection of river banks	NSW
National Dairy Farming Systems (NDFS)	Dairy	Farming systems	National
The Casuarina Project: Building Community Spirit*	Surf Coast Shire community	Community capacity building	Victoria
Women in Dairying Program	Dairy	Women leadership roles	National
Building Community Capacity: The Contribution of the Community Public Health Planning in Rural and Remote Areas Project*	Health	Community capacity building	Qld
Collaborative Marketing Program	Stonefruit	Exploring new markets	Northern NSW
Peel Olives Feasibility Study	Olive	Productivity	WA
Increasing Adoption of Best Management Practices in the Fitzroy Basin Region.	Rural and regional communities	Natural resource management	Qld
BeefCheque® – A 'dirty boots' approach to achieve profitable beef production in Gippsland	Beef	Producer skill development	Vic
Developing Social Capability Project	Agriculture, environment	Industry capacity building	Vic

By looking at these projects in more detail we can begin to understand how the principles can be applied to other situations and what can be learnt so that the wheel is not reinvented and mistakes are not repeated. Full analysis of each of these projects is included in the accompanying database (www.couttsjr.com.au\pd).

Let's start by looking at more of the production based projects, starting with a short summary of BeefPlan, and take BestWool as already having been dealt with.

Production-based projects

BeefPlan, as discussed earlier**,** is based on a model of producer driven RD&E and described as being about supporting self-initiating groups of producers to develop improved and sustainable property management systems in whatever way they see fit and to disseminate this to the wider industry. Groups are provided with funds, which they can use to pay a group coordinator-administrator. External facilitators help new groups get started. As well as group learning activities, groups organise activities that are open to the local community.

The BeefPlan experience demonstrated that such approaches can increase the confidence and motivation of group participants and that reflection on personal development over time was an important element to include. Group and planning skills were also important to the outcome. A key element which emerged in all of the projects discussed to date was the need to benchmark, not just for operational and economic aspects, but also for skills, confidence and motivation. As pointed out in the introduction, there was one opinion expressed that such groups may need to have some defined boundaries and be transparent in the way they use industry or public funds or both. An important element was that this type of funding and activity provided participating producers with an overt control and ownership of levy funds, which they had been paying over many years.

Area Wide Management groups in the cotton industry provide a forum and framework for cotton, grain and other commodity producers and consultants to meet and work together to coordinate the management of pests on a regional or catchment basis. Groups are largely grower driven with input from consultants or industry development officers. Discussion meetings, farm walks and benchmarking are used.

Although these groups are focused on more specific outcomes than those discussed above, the common element is the grower-driven nature of the groups and the broad scope on how they might deal with common issues. Part of the problem is that growers outside the group can undermine group decisions because they may be using conflicting management options. The analysis of these groups showed that grower ownership is a very important facet and having suitable leaders within the grower community is critical to success. Small groups were also shown to be more effective in an empowered group than larger groups. Involving consultants in group meetings (not as drivers) helped gain a common understanding of issues and how to deal with them.

The **Producer Initiated Research and Development (**PIRD) approach is to make funds available to groups of producers so that they can carry out their own research on their own properties. Funded activities must be practical, technically sound, provide value to group members, and be completed within a two-year period. Groups are supported by a funded coordinator and can draw on available technical expertise.

This project demonstrated that small groups of producers could determine and manage research and learning activities that would benefit each of them. Like Bestprac, a major benefit for participants was in the increased networking and strengthened relationships that went beyond the actual project activities themselves. As for BeefPlan, benchmarking and evaluation of progress and change was critical to maintain funding support.

The **National Dairy Farming Systems (NDFS)** arose because there were a number of regionally-based farming systems projects operating in the dairy industry, and a need for a national approach to integrate this work was identified. This led to the appointment of a farming systems extension leader (Anne Crawford) in February 2001, and the development of the National Dairy Farming Systems project. Project development started as soon as Crawford was appointed. Funding by the Dairy Australia (formerly Dairy Research and Development Corporation) was finalised in April 2002.

The biggest challenge, and also opportunity, is that the suite of regional farming systems projects are at different stages of the project life cycle, with some finishing, some in mid-course, and others in development. This is where the NDFS project differs to others with similar approaches, e.g. MLA's

Sustainable Grazing Systems project. This has added complexity because there has never been the opportunity to align objectives or approaches across the farming systems projects. It has added depth, however, because it allows projects to build on the success and learning of other projects.

Leading up to the deregulation of the dairy industry the **Women in Dairying Program,** a national pilot program funded by Dairy Australia, was developed. It was designed in 1996 to research women's needs in the dairy industry and explore ways to effectively fulfil those needs. That pilot program was co-ordinated by Cathy McGowan and Cheryl Phillips, and aimed to support and encourage women to take a leadership role within the industry. It was conducted at a regional, State and national level with many of the initial and ongoing activities being regionally based. Leadership courses encouraged women to be proactive and motivated, targeting women who could positively influence the industry.

It was clear that the program had a substantial and positive effect on many women at a variety of levels. In that sense the judgement to design a project focussing on motivation and confidence was seen as correct. Responses give some credence to the point that the one-size-fits-all approach of the Leadership Course may need tailoring more to the specific needs of participants. More radically, it suggests that the whole program could gain more leverage by influencing the development of other courses outside the existing program. This approach was successful when there were individuals who were strongly committed to change within their own organisations, and in a position to do something about it, i.e. the effort required was feasible and acceptable. In some cases these individuals were the women themselves, in some cases it was the partners of the women, and in some cases these were people in key positions in dairying organisations. Consultants are now transferring the lessons learned in Women in Dairying Program to a leadership program with the seafood industry and with women in horticulture.

The **Peel Olives project** emerged as a result of growing enquiries to Agriculture Western Australia (AWA, and now the Department of Agriculture) for information relating to the growing of olives in the Peel Region, south of Perth. At the start of this project, there were no regional olive associations operating within Western Australia, and although scientific research into the industry was occurring, extension was relatively broad. For the agencies involved, the aim of the project was to bring together interested community members to facilitate the investigation of the industry. For the group members, who were involved for a range of personal reasons and interests, the Peel Olives study aimed to identify the 'ideal' growing requirements for olives and to compare those with the features of the Peel Region, to help with decision-making at the individual or farm level.

This project was similar to BeefPlan and BestWool in that it provided a strong facilitation framework at the start of the project to help participants to identify and access their own learning. External facilitation then eased back to enable the grower group to go forward on its own merits and skills. Motivation and participant enthusiasm were found to be key elements for group success. In a new industry such as this one, the boundaries included the whole of the marketing chain and this proved to be a good decision.

The **BeefCheque** pilot program operated in Gippsland (in Australia's southeast) from 1995 to 2000 using fifteen beef producer groups, each centred on a focus farm and consisting of monthly farm walks. It focused on equipping producers with the skills to grow and use more pasture, produce more beef and make more money. It was a group-based participatory learning program that facilitated learning through a heavy use of adult and action learning techniques. Approaches included practical, on-farm demonstrations, farm walks and vigorous discussions leading to adoption of grazing management practices.

This approach was seen as necessary because the process of complex change needed to significantly alter a producer's financial situation requires more than a single technology transfer event or events. Complex change was seen to require ongoing dialogue and experimentation between the producer, their peers, experts, family and others over a period of time in a supportive environment and a 'dirty boots' approach to program delivery, that is, practical and on-farm. One criticism **BeefCheque** has

faced is that it was repetitive, i.e. groups meet regularly on the same farm and did the same thing each month. This practice has been seen to be beneficial in adult learning terms, however, by 'building on and using the learner's experience', allowing learners to 'see that their learning has been successful' and being 'involved in effective two-way communication'.

The **Collaborative Marketing Program** project addresses barriers to high-return domestic markets and export participation by Australian horticulturalists. It explores the potential for collaborative marketing in light of real market and business opportunities rather than theoretically. In doing so it relates learning to the real demands of business, specifically linking business development and learning as integrated activities. Counselling techniques were used with growers to support thinking and decision-making.

It was judged that the change management approach used in the project proved effective and that the use of techniques derived from counselling and other non-traditional contexts worked in supporting growers to deal with change in a business context. It was determined that a flexible and participant-driven process was effective in meeting real business needs and providing relevant and timely learning.

Although all these projects were production based, different negotiated boundaries were in place. Industry boundaries were clear, with some restricting themselves to a segment of the industry participants, e.g. women, and others overtly addressing the whole marketing chain or marketing or both, as well as production issues. Facilitation was a strong factor in helping participants to work through their issues and seek opportunities.

This model has been used beyond agriculture, production and marketing. The following projects directly tackle resource management issues.

The **Central Highlands Regional Resource Use Planning Project Pilot** in Queensland aimed to set up a more integrated, regionally-driven approach to development by directly supporting regional stakeholder groups in their own regional NRM planning and supporting regional stakeholders to get together in a structured way to negotiate regional solutions to common problems. A project had a facilitator. Three regional coordinating committee meetings were held each year with representatives from identified stakeholder groups. This committee became a cooperative under the *Queensland Cooperative Act* in August 2001.

This project was more complex than those based in specific industries and involved interaction between different stakeholder groups. In this case more formalised stakeholder forums – from committees to cooperatives – provided a strong basis for sustainable inter-group interaction and consensus building. It was found that focusing on developing human and social capacity was critical to enable cooperative action on technical solutions.

The **NSW Far South Coast River Bank Management Demonstration** arose out of an identified need to explore management options and develop demonstrations as a first step in farm management culture change. This was due to declining river health, and the poor condition of river corridors. Problems were exacerbated by cattle grazing leading to faecal contamination, vegetation decline, river bank and bed erosion and sedimentation. A social division had arisen between the new settler (lifestyle) landholders who embraced the landcare approach and old settler commercial farmers who saw landcare as a 'greenie plot'. This division, aggravated by the South East Forest protest movement, is still evident and has polarised the community and largely worked against commercial farmers adopting the landcare approach. There has been a history of significant resistance to the uptake of environmental programs on farms.

Demonstrated management options have been seen to have been effective at delivering desirable river health improvements while maintaining farm productivity. The project appears to have found the 'win-win' recipe for riparian management: the path of least resistance is yielding good river health results. The fundamental values of participating farmers in relation to the place of rivers in the scheme

of farm management and their ecological functions were not perceptibly shifted. This was not judged as important, given that there were good river health outcomes arising from working within these value frameworks in any case.

This **Increasing Adoption of Best Management Practices in the Fitzroy Basin Region** strategic regional project implements the Central Queensland Strategy for Sustainability (CQSS) through targeted activities at the property and neighbourhood catchment scale. First, landholders are engaged to develop and implement neighbourhood catchment management plans that integrate land, water and vegetation management across adjoining properties. Second, a Fitzroy Basin Best Management Practices Devolved Grant supports onground action to better manage land, water and vegetation resources at the property scale. Public benefits are intended to include biodiversity conservation, habitat enhancement, soil conservation, weed control, water quality protection, coordination of natural resource service providers, a more sustainable farming and grazing industry, and increased adoption and awareness of best management practices (BMPs).

This project involved approaching all landholders within a neighbourhood catchment with the opportunity to be involved. The result was a much higher interest and involvement than leaving group formation up to motivated participants only.

The boundaries of all the above projects are explicitly different to those in the production-based projects. It highlights that projects under the facilitation/empowerment model can focus on different generic issues and does not mean that anything goes. Funders can be confident that their issues will be tackled in creative ways. Broad and high levels of participation were viewed as important and basic values needed to be addressed within the project's frameworks.

Other projects under this model deal with broader community development and human and social capacity. Examples of these follow:

Progress Rural Western Australia is a program designed to provide people with skills in community development, leadership and working with people. In so doing, it intends to provide confidence and capacity to rural economies to establish new industries, value add or improve existing industries and reinvigorate rural communities who are beginning to show signs of waning or stagnation. Two key components are Community Builders and Rural Leadership training programs.

The project demonstrated that the objectives of capacity building programs can also effectively incorporate such 'intangibles' as sense of community and place apart from more traditional socio-economic goals. It also showed that there is value in providing capacity building opportunities specific to women, and specifically targeting different age groupings. The project analysis further reinforced that networking is a valuable by-product of projects and social interaction opportunities are important to build into programs.

The charter of the Rural Remote and Regional Women's Network (RRR) is to bring together women from rural, remote and regional Western Australia to recognise, promote and expand the contribution they can make to their communities. The project has a coordinator and management committee and uses a newsletter and interactive website.

This was a good example of where remote communication media has been able to establish community and provide a group process. Constant feedback opportunities were needed for capacity building programs to ensure ongoing relevance and interest to members. It highlighted the need raised earlier for clear and measurable objectives to be established even where there are no direct targeted productivity or economic outcomes to ensure ongoing political and economic support. Again, the value in providing projects specific to certain societal clusters – in this case, women – was demonstrated.

The **Casuarina Project: Building Community Spirit** developed by the Rural Development Committee located in Surf Coast Shire in Victoria, aims to help local people develop skills that enable

them to start, or continue to be involved in, community activities. The outcome is an active network of committed community members who can tackle local issues, find solutions and be creative project coordinators. Each participant's capacity to plan, resource and deliver effective community activities has been enhanced by the program of training and skills. The project is strengthening links between individuals, community groups, businesses and local government across the shire as well as encouraging community creativity and inspiration.

The most common unexpected outcome from the project was the depth of friendships made between the participants and the strong bond and networks that have resulted. These will, no doubt continue into the future. One of the issues that became clear was the advantages of having a diversity of people within the Casuarina Project and the need to continue to encourage community-minded people to take part. In particular, it was found to be important to encourage people who would not normally have an opportunity to take part in such a program to participate. The project built on feedback from previous participants in the project and changes, including timing, format, and content, were made to the workshops each year.

In June 1998, what was then known as the Commonwealth Department of Health and Family Services funded Queensland Health, through the Health Systems Strategy Branch and Public Health Services, to undertake the **Community Public Health Planning in Rural and Remote Areas Project (CPHPRRAP)**. The project was designed to work with a number of communities in rural and remote Queensland to develop and implement local public health initiatives. It was based on the recognition that a wide range of social, environmental, economic and biological factors determine the health of people, and that effective public health service delivery requires a regional response that addresses these determinants. The amount of funding for the local communities was determined by the size and demographic qualities of the specific community. Through enabling communities to take an active approach in addressing their own public health planning, it was hoped that health inequalities in rural and remote Queensland would be addressed.

The effectiveness of the CPHPRRAP to date within local communities was seen to include increased local ownership of project processes and increased engagement levels, although local network expansion has stagnated. Organisational knowledge transfer mechanisms have been strengthened, although there was mention that information exchange between some network members remained undeveloped or unextended. Problem solving is also an underdeveloped component of capacity building which means that, although communities tend to be relatively strong at identifying problems, they are more reliant on their coordinator for producing solutions. Communities are seen to be exhibiting an enhanced infrastructure capacity, in particular in the areas of human, intellectual and social capacity.

The **Developing Social Capability (DSC)** Project is a research project assessing participative action research (PAR) as an approach to improving the efficiency of the extension practices of the Victorian departments of Primary Industries and Sustainability and Environment. The project team employed a PAR itself to undertake the research, which means it is a hands-on, participative process, rather than an academic exercise. It aims to involve people in analysing problems that affect them and in designing potential solutions. This project was developed in response to the difficulty in finding solutions to complex issues such as sustainable development, natural resource management and rural conflict resolution by using traditional approaches to problem solving and extension.

It was found that this is a positive step toward more effective pathways for development and innovation and has contributed to social capability. The project has also provided an opportunity for extension projects to explore the possibility for using these approaches within their projects, and a strong base of skills, knowledge and learning within the departments of Primary Industries and Sustainability and Environment to support and further develop these approaches.

These broader projects had a strong focus and outcome on developing networks – strengthening relationships within communities. It was in that process that mutual issues were discussed, decisions made, expertise drawn on and community effort apparent. The boundaries with these latter projects

were broad with the development of 'people skills' being as important as short-term defined community outcomes.

As can be seen, projects reflecting the group facilitation/empowerment model differ in the way they have been used and adapted depending on the particular situation. People involved in these projects, however, have rarely had the benefit of looking over the fence and seeing how others are doing it. The above gives a glimpse of the range of projects analysed and full details are available in the associated database.

What can be taken away from this analysis?
There are two aspects to consider in learning from these projects: firstly, grasping the underlying philosophy which will guide the way a project is developed and implemented; and secondly, picking up on some of the practical considerations when implementing a project with this underlying philosophy.

Underlying philosophy. A key underlying philosophy is that rural industry participants are best served by providing a facilitative framework to allow them to define their own problems and opportunities and to seek their own avenues to address these issues. This is about ownership and responsibility, but it is also a pragmatic understanding that it is the people in a specific situation who are best able to understand and act on issues directly concerning them. It is assumed that by encouraging people to work together in this way, more lasting and sustainable solutions will result. This is because participants develop problem-solving, planning and reflection skills which they can apply to new situations that emerge. This can be described as stronger **human capital**. Likewise, the increased networking, stronger relationships and group skills further develop **social capital**.

Practical considerations. This is a model that requires serious understanding and support consistent with the philosophy. There is no room to be half-hearted. A supporting framework that allows it to be participant-driven and not a platform to fulfil a specific technology adoption agenda is needed. Long-term facilitation support is needed while encouraging an increasing contribution from group members to cover facilitation costs in time as well as other group learning and on-farm activities. Facilitators could include contributions to their own costs when putting in funding applications for projects for the group. Facilitators need to be selected (preferably by the group) based largely on their facilitation strengths and require strong support, both in terms of training in industry issues and in methods of supporting the empowerment process.

There is a need to be clear about the (broad) boundaries and requirements for ongoing funding and to let the groups decide if they can live with them and how they will deal with funders' needs. Appropriate monitoring and evaluation criteria consistent with the self-empowerment philosophy need to be built into the project, e.g. the process used, the decisions made and reasons for them, changes against group developed benchmarks, and extent of networking, confidence and enthusiasm. Early training may be needed for group participants in group processes (including conflict management), planning and evaluation.

Decision to develop a project under this model
Why would you develop a project under this model? If we go back to the capacity building ladder and matrix, a key reason for developing a project under this model within an industry, issue, locality or community is **because there is not one there already**. The argument for this is that projects under this model provide a framework for individuals to work through their specific learning needs and provide a mechanism for them to seek out activities and programmed learning opportunities to meet these needs.

Funders of such projects provide the (loose) boundaries to which resources for the project are applied. For example, BeefPlan is specifically about the economic, environmental and social aspects relating to beef production. This allows a scope for activities as shown in the introduction, but it is not about better ways to grow sugar cane (for example).

Other reasons to develop projects under this model include:

- issues being dealt with are complex with no easy solution
- there are a number of relevant workshops and courses available but there is a lack of motivation and organisation to access these as needed
- there are not the institutional frameworks to involve people in problem solving and taking up opportunities
- it is clear that people on the ground will have the best knowledge of issues, opportunities and needs.

A guide to assess projects under this model is below.

Element	Comments	Ranking/Comments (1-5 where 1 is fully covered and 5 is not covered)
Potential participants express or endorse a need for facilitation assistance.	Impetus could come from either a project team or potential participants themselves. The key point is that it is not imposed.	
Groups are self selected.	There are various approaches to self-selection.	
There are participant champions within groups.	Groups work best when there are participant champions who provide leadership and enthusiasm rather than reliance on the facilitator.	
Facilitators are selected or endorsed by the group participants.	These could be public or private or community people.	
A planning cycle is incorporated into the process, including reflection on progress.	A planning cycle provides some confidence that issues will be dealt with in a systematic way.	
Group members have opportunity to receive training in group process and planning.	An assumption cannot be made that people know how to work and plan together and some allowance should be made for this.	
Groups meet regularly.	This would be affected by localities and types of issues facing the groups.	
Boundaries for use of funder resources and reporting needs are negotiated and agreed to by funders, project team and group members.	Funders need some boundaries and broad objectives for monitoring and accountability purposes. These need to be clear as well as the type and level of reporting against these.	
Opportunities are made for professional development of facilitators and to develop facilitator networks.	Facilitators need to be connected between each other and further develop their facilitation and 'technical' knowledge to ensure they are of maximum benefit to the groups.	
Opportunities are made for groups (representatives) to meet and share experiences.	Actions and learning of other groups can provide a significant stimulus to like-groups in other localities.	
Group members are encouraged to benchmark their knowledge, attitudes and practices.	Benchmarking is a way of measuring and reinforcing individual and group progress and growth.	
Group members contribute an increasing level of their own resources to group activities.	This assists with ownership and sustainability beyond the life of a project.	
Courses and workshop opportunities need to be made available to facilitators and groups as part of the smorgasbord of opportunities available to them.	Assurance that groups will hear of potential training opportunities is important so they can make appropriate choices for their needs.	

These elements may well be changed for good reasons. The aim is not to have a mechanistic and mindless checklist, rather prompts to help with dialogue and refinement of projects.

There is growing evidence that this model works and can be trusted and may be a more cost-effective extension infrastructure than a fully government department-driven structure. The issue of being transparent and accountable to funders within the agreed broad boundaries set is critical and will require effort and good process.

Another aspect is that **empowered** groups are not **insular** groups. It would be expected that empowered groups would develop relationships and partnerships with government, industry, community and other groups to maximise the benefits to group members in ways that allow participants to effectively manage such relationships.

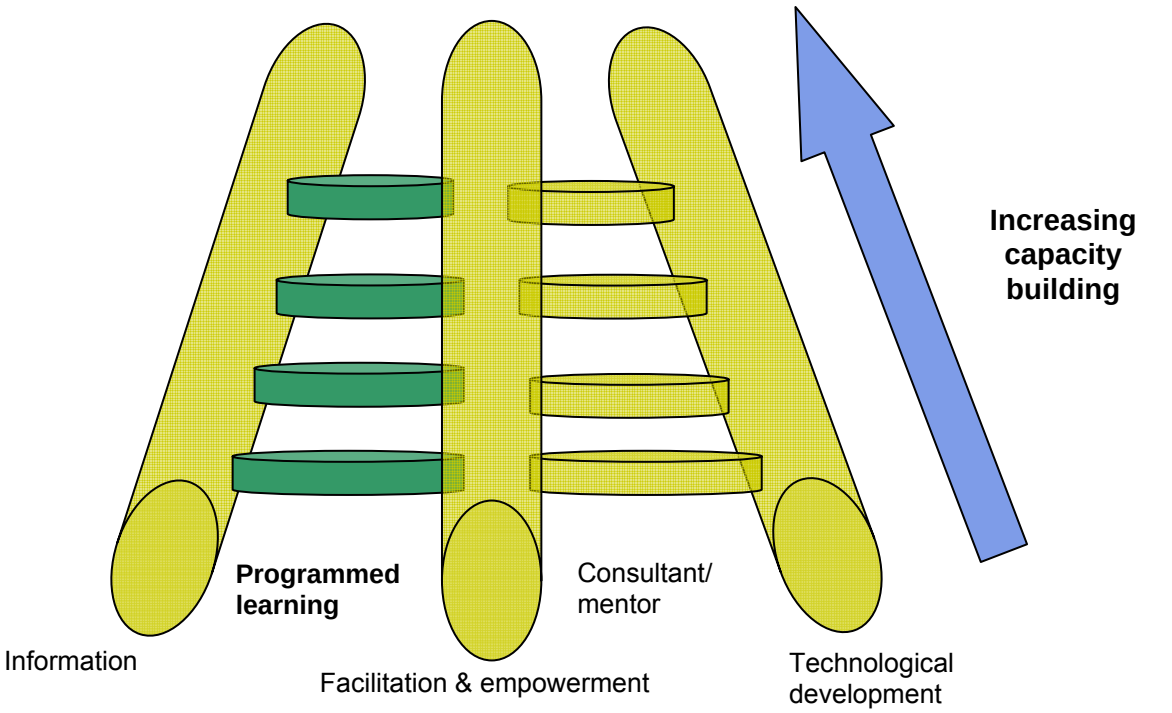
As we saw in the previous chapter, and as was alluded to in the introduction, projects under the group facilitation/empowerment model complement the other models to be discussed in the subsequent chapters. They provide a platform for action and motivation that is critical to the success of other projects. Likewise, projects under this model often depend on initiatives under the other models to allow them to access extension, training and development activities that groups have determined are needed for their own development.

The next chapter considers the programmed learning model and what can be learnt from the analysis of the projects under that framework.

Programmed Learning Model

Value to capacity building:

- Delivers specific knowledge and skills to individuals and groups.
- Advances personal development with updated information, technology and skills.
- Creates a learning community about specific areas.
- Creates change to perceptions of the individual.



Bloome (1991) defined another role of extension as that of **education**. Coutts (1994 p. 5) described this as 'extension as a means of pro-active informal education which seeks to assist individuals to better understand their situation and take action to improve it'.

One of the limitations of group-based extension is that those outside the groups do not directly learn what the participants are gaining. Also, groups themselves are often looking for packaged learning opportunities to further their own learning beyond their existing knowledge and experiences. This packaged information can come from the learnings from other groups or relevant research done on research stations, on-farm or community sites or from other places.

We have referred to projects developing and running such packages as coming under the programmed learning model. 'Programmed' refers to the fact that the learning event (seminar, workshop or course) has a specific set curriculum and learning objectives, unlike the open objectives of the group facilitation/empowerment model.

In contrast to the 1994 definition by Coutts of an aspect of extension as **informal** education, this review demonstrated that programmed learning projects in Australia were increasingly coming under the formal VET system, where participants can seek accreditation for learning undertaken and build towards awards of certificates and diplomas.

This is where the issue of top-down extension is raised. Few of the participants have had direct input into the need for such learning events, the content and the process. Their participation reflects, however, that they need to gain knowledge in the topic areas. As pointed out in the previous chapter, participants of groups under the group facilitation/empowerment model also seek out suitable learning opportunities as determined by the groups. Such programmed learning projects are often based on extensive market research and a response to industry or community demand.

The Meat & Livestock Australia (MLA) EDGEnetwork has provided significant leadership in Australia in terms of managing a suite of projects to develop and deliver programmed learning workshops and courses across Australia. These events are based on extensive market research, involve pilot testing and evaluation, and cover a range of topics from production to environmental management and marketing. A key feature has been alignment of courses to the VET accreditation system. An example from EDGEnetwork is included later in this chapter.

Programmed learning projects such as these can be delivered with good adult learning principles and be based on experiential learning.

One such project is the Building Rural Leaders Foundation Program based in rural Queensland. It addresses three factors seen as necessary to move each region forward: effective leadership at all levels; strategic and creative thinking; and business management. It has been very effective in creating new industries. This has been attributed in part to the personal development of the participants, which has led to increased self-confidence and involvement in the community. Those attending the program have also indicated that their networks and relationships have been further enhanced.

What was it about the program that boosted the confidence and caused the resulting change in attendees?

The project was set in a context of declining economic return in central and southwest Queensland. Within the region, however, there were rural producers who wanted to rebuild and change activity in the region to be more profitable and more suitable.

While the program initially focused on primary producers, it has attracted people from small business, community sectors, and State and local government. At present primary producers make up to half of the total participants.

The Building Rural Leaders Foundation Program is designed for individuals who are seeking skills to enable them to work with others and advance themselves and their business, industry or community. This means those individuals:

- currently in leadership roles and who are committed to improving their leadership capacity…
- …who would like to move into leadership roles…
- …who need leadership qualities in their business, industry and community…
- …who contribute towards leadership through other roles.

The program was built on the principles of action learning and adult learning with Kolb's experiential learning cycle (1984) used to structure the workshops. The point was made that 'producers relate well to learning by doing'.

A key principle is of **transformation not just information**. Participants are encouraged and supported to apply the information and learning to their situations to bring about positive and planned change. All participants are allocated into action learning sets and groups, which meet regularly to support and challenge each other. The action learning sets are a key factor in helping people put plans into action.

The material is delivered using a workshop approach. Six modules are presented over a nine-month period. There is a gap of six weeks between each module.

How effective has the program been?

An evaluation of the project was done in 1998 and some key results were:

- 64% of respondents reported increased involvement in industry. One had created a new industry in her area by diversifying from growing lucerne to growing herbs.
- 57% had increased their involvement in the community. Some increased their effectiveness even if they did not increase their involvement.
- There was a network and bond created among the participants at the time of the workshop.

With regard to personal development:

- 95% increased their self confidence
- 91% improved their relationships with other people
- 77% increased their interest in ongoing learning.

This approach has been seen to have changed the lives of many of the participants. They changed their enterprises, took on new and different roles or changed their mindsets. It seemed to create a confidence in many participants to go out and look for opportunities or make much of those that presented themselves. Using the principles of the programmed learning model, this program used adult learning principles and experiential learning in response to a community-market demand.

The following table includes some of the projects analysed in the national extension and education review that also aligned to this model.

Projects	Industry	Issue	Location
Building Rural Leaders	Community	Capacity building	Qld
Grazing Land Management and Northern Nutrition	Beef	Productivity Resource management	National
Quality Management Training for Vegetable, Melon, Stone Fruit and Mango Industry	Horticulture	Product quality	Queensland
Food Safety and Quality Assurance Program - NQF	Dairy	Product quality	NSW
Master TreeGrower Program	Forestry	Productivity	National
Research to Practice in the Grape and Wine Industry	Grape and Wine	Adoption rate of scientific research	Australia
Marron Roadshow	Aquaculture	Productivity	WA

Apart from the Building Rural Leaders Project described earlier in this chapter, all of the other projects are based in production issues of some type. These are summarised below.

The **Grazing Land Management and Northern Nutrition** package is an example from the EDGEnetwork that is addressing a perceived deficiency in packaging and transferring the results of research and development. It prepares training and information packages for livestock producers covering all aspects of managing the farm business. Extensive market research was involved in looking at producer needs and requirements. Tenders were awarded for the development of the workshop material using the same core criteria and development framework. Separate deliverers to those who developed the package are used. The courses are linked with the National Training Framework (VET) and registered training organisations so that formal accreditation is possible for participants. Adult learning and benchmarking against other properties and industry standards are features of the training. Workshops are normally from 1 to 3 days long.

Although the workshops are transportable around Australia, it is still hard to cater for people in isolated areas although some producers showed that they were prepared to travel long distances if they saw such training as relevant. It was critical to deal with intellectual property issues which could be managed through contractual arrangements. The development process highlighted that there are

effective frameworks for developing training packages; in this case the Quality Function Deployment technique was used. The process demonstrated the value of pilot studies in ironing out process, content and delivery issues. Not having the packages delivered by the developers enabled the adequacy of material and trainer explanations to be checked. A key element was using local case studies to increase the relevance of the training to participants. Having exercises that applied directly to individuals' situations was also seen to increase the relevance.

The **Quality Management (QM) Training for Vegetable, Melon, Stone Fruit and Mango Industry** projects were developed specifically to provide growers with clear, practical knowledge and skills to improve business and guide them through the maze of quality management standards and requirements. A series of ten 4-hour workshops were held in regional centres over an 18-month period. The concept was to present a parcel of QM information to participants at each workshop and then allow one month for them to implement these practices. As part of the delivery, a VET accredited Hazard and Critical Control Point training course was delivered. Adult learning and action learning approaches were used.

These projects demonstrated the need to be sensitive to the participants. For example, it was pointless presenting complex quality management systems to small to medium businesses whose owners had limited resources to apply to this function. They also showed that local case studies, farm visits and videos provided good grounding of learning practice. **Short** inputs from visiting experts in specific areas were appreciated. Mechanisms to support participants between workshops were needed as well as some individual follow-up after the workshops to help individuals overcome barriers that might prevent them from implementing their learning.

The **Food Safety and Quality Assurance Program** project was aimed at making dairy farmers within the Norco Cooperative more competitive in the post-deregulation environment by being the first dairy company in Australia to be fully Quality Assured between paddock and plate. The program was based on the Hazard Analysis at Critical Points framework and developed into a generic workbook and workshop series. Adult learning approaches were used in workshops. Farmers who could not attend workshops were visited on-farm and taken though the same process.

The project highlighted the need for follow up and reinforcing activities and incentives to overcome barriers to changes in thinking and practice. It also pointed to the need to sensitively consider issues to do with numeracy and literacy when providing complex ideas and handouts.

The **Master TreeGrower Program** has been designed to improve the capacity of people who wish to become involved in farm forestry and need to improve their skills, knowledge and confidence to do so. It is based on a flexible course reflecting the needs of the region in which they are run and uses an action learning approach to involve people in their learning.

This project highlighted the value of having individual learning projects associated with a group-learning situation to better personalise the learning. Having a review and reflection opportunity between workshops also helped to maintain continuity in learning and embed lessons. Again, the value of mixing hands-on sessions with classroom learning was highlighted. The key competencies linked to course sessions help provide a focus as well as a linkage to VET accreditation. Providing opportunities to acknowledge and celebrate successful completion of courses adds value to participation and learning. It was also found that participation in locally relevant courses can also short-cut acceptance and development of important networks to newcomers to a locality or industry.

The **Marron Roadshow** reflected that the size of the marron (freshwater crustaceans) farming industry in Western Australia has grown in recent years. Good market prospects and relatively well-known production technologies are believed to have contributed to an increase in the number of aquaculture license holders over the last decade. As well, most aquaculture enquiries to departmental officers relate to marron farming. Given this, the Department of Fisheries in Western Australia has invested heavily in research and extension programs related to marron production since the 1970s. The extension officers involved in the project adopted an approach which aimed to minimise the

investment of limited extension resources in non-performers or under-performers. The decision to focus on potential new entrants to the industry was based upon the perception that encouraging best practice enterprise establishment before starting an enterprise provided significant opportunities for industry growth.

The level of effectiveness of the workshops was seen as potentially very high, largely because of the extensive thought and conceptual analysis put into the development of the program. Much consideration given to target audiences, appropriate extension and methods for evaluating participation and effectiveness provided a basis upon which good outcomes could be achieved. The number of participants making an informed choice not to enter the industry also was seen to indicate sound extension processes. By providing relevant and useful decision-making advice and tools to the full suite of potential growers, the Department of Fisheries has enabled those who may not be able to, or willing to, invest the required time, energy and resources, to make a considered decision not to become further involved.

Although located mainly in the Australian Grape and Wine industry, the **Research to Practice** project has wider applications to other parts of Australian horticulture. The main focus of this project was to increase the adoption rate of scientific research in the industry which in turn led to the development of a process to achieve this objective. The work of Kilpatrick (1997) was used as a guide to develop an interactive workshop for the main target group. To date workshops have been delivered in most viticultural areas of each State of Australia.

Despite the relative success of the program, it has been acknowledged that a proportion of the industry was not overly interested in this Research to Practice style of intensive training workshop and that other products or training processes might be more appropriate. Also, when looking at transferring this program to other horticultural industries, it must be remembered that many personnel are not in a position to make decisions for change to existing practices. This means that Research to Practice is not a suitable model for technology transfer for many of these personnel. Research to Practice has been applied very successfully in the Grape and Wine industry because of the industry's very high vertical integration.

The wine companies have been very supportive of the attendance of their growers at the Research to Practice Viticulture workshop series. This has not necessarily been the experience with other horticultural industries. The main lesson learned has been that there is no one single technology transfer or extension process that will suit all target groups. The challenge was seen as finding a robust model that suited a large proportion of both the defined target group and also providers of the training and then working on that model to continually adapt it to suit a range of new situations.

These projects had many things in common. Most were based on interactive, adult learning and experiential learning. In some it was evident that extensive market research and testing had occurred in tailoring it to participants' needs. A number raised the benefits of building in more support for participants between and after workshops. While some projects were based on a one-off training event, most were based on a series of workshops designed to embed learning over time. All of the projects are clearly meeting a training need for participant, i.e. helping to develop needed skills. These provided participants with 'rungs' on the capacity building ladder to make a jump in understanding about specific issues important to their individual or community capacity needs.

What can be taken away from this analysis?
Again there is an underlying philosophy that accompanies projects developed under this model, as well as some practical and pragmatic learnings that will help others developing such projects.

Underlying philosophies. The rationale for developing such projects is a belief that workshops and courses can be developed and packaged so that they can be taken across regions and states and be applicable to a large number of diverse participants. Most extension projects developed for this purpose also incorporate an adult learning philosophy which acknowledges the knowledge already

held by participants and encourages experiential learning as they engage with new information brought to them through the learning event.

Practical considerations. Significant projects developed under this model for primary producers and community members can and should be effectively linked into the National Training Framework. Developers, deliverers and participants need guidance in ensuring that accreditation issues are understood and pathways are clear. Many participants do not understand the accreditation pathways and how a particular training course may contribute to accreditation, hence the need to make this clear.

It is clear that FarmBis is providing a significant role in subsidising and encouraging producers to attend formalised training opportunities. Efforts need to be made to lobby government to broaden the guidelines to allow subsidies to non-producers and planning needs to be in place for a post-FarmBis scenario by funders.

It is also clear that training to build leadership, problem solving and capacity skills is important to facilitate change, as well as strong specific technical training. Adult learning and action learning approaches need to be overtly incorporated and tested into courses and workshops. Alternatives, such as distance or self-directed training packages need to be developed and promoted to provide opportunities for people in isolated areas who are unable to attend group training. Also, numeracy and literacy cannot be assumed and lack of these skills needs to be taken into account when designing, delivering and encouraging participation in training.

The use of pilots to test packages is a critical step to the development process and is part of the effective framework for undertaking market research, and developing and delivering training products. It is evident that small to medium business may require support to overcome time and resource limitations in implementing learning from training.

Finally, grounding learning in real cases and local examples has been shown to be an important part of helping with understanding, relevance and motivation to change. Followup support between and after workshops or workshop series is important to maximise learning and uptake.

Deciding whether to develop projects under this model

There has always been an issue with groups – what about the people who aren't in the groups? This can be within a locality or in other regions or states. If efforts are to be made to provide learning opportunities, then 'programmed learning' projects are needed. The other issue, as brought out earlier in this report, is that groups under the facilitation/empowerment model develop a demand for training and actively seek out education and training opportunities for their members at a time when they have decided that they are needed and it is appropriate. For these reasons, having well developed workshops and courses available is needed to complement the capacity building ladder. These provide rungs for people to make some big jumps in knowledge and understanding in specific areas.

Other reasons to consider developing projects under this model include:

- research projects have been completed which have direct application to a range of practical situations
- information and knowledge about a specific area have been accumulated from a range of sources that lend themselves to be packages for others to benefit from
- there has been demand from industry and community, individuals and groups for training in a certain area
- there is a perceived need to have an impact on awareness and knowledge across a wide geographical area.

A guide to assess projects under this model is below.

Element	Comments	Ranking/Comments (1-5 where 1 is fully covered and 5 is not covered)
The project is based on extensive market research or demand or both.	Projects should result from identified or expressed need and supported by representatives of potential participants.	
Up-to-date information is accessed from the full range of potential sources and integrated into a cohesive package.	Some effort needs to be made to ensure that information is balanced and incorporates the most up-to date- information.	
A transparent and defendable quality control mechanism is in place in the development and implementation of the project.	There are some off-the-shelf QA mechanisms that work for training or those used need to be obvious and defended.	
A facilitators' guide is developed that can easily be used by qualified presenters who have not developed the course itself.	Having developers separated from deliverers assists in testing this aspect.	
The course material is aligned with competencies under training packages in the VET system.	This should be a given for new projects under this model.	
There is a clear explanation of the VET pathways to allow presenters and participants to understand how the package can contribute to formal qualifications.	There is a lot of misunderstanding about VET accreditation. Including an explanation in course materials will help in dealing with it.	
There are participant booklets that allow participants to easily follow the activities and learnings and will serve as refreshers after the course.	Booklets should be professionally developed with appropriate spaces for writing and illustrations.	
The training is gender sensitive in terms of timing, content and recommended facilities.	Gender also includes cultural sensitivity and should be assessed.	
A range of media inputs are available to break up presentations.	Consideration also needs to be given to remote locations with lack of equipment.	
Pilots are undertaken and rigorously assessed.	Before launching a project training product, pilots can refine their potential usefulness.	
Adult and experiential learning is incorporated into the delivery.	These are about recognising participant experience and engaging people in the process of learning.	
Participant feedback is provided for and made available to funders.	Feedback sheets should be developed as part of the process. It is also good to seek feedback six months after an event.	
Provision is made to support participants between workshops/and or at completion.	Approaches may include email contact, local mentors, phone hook-ups etc.	
Local examples and field trips are incorporated into content.	Local case studies help people identify with the learning.	
Direct opportunities to relate learnings to own businesses and situations are included.	This is a crucial component and exercises can be designed to this purpose.	

Programmed extension projects and associated training packages, properly developed and run can make a significant contribution to capacity building across industries and communities. Their value is recognised by participants in facilitation/empowerment groups as they seek out opportunities to develop specific skills and knowledge that they see will help them develop as individuals and communities.

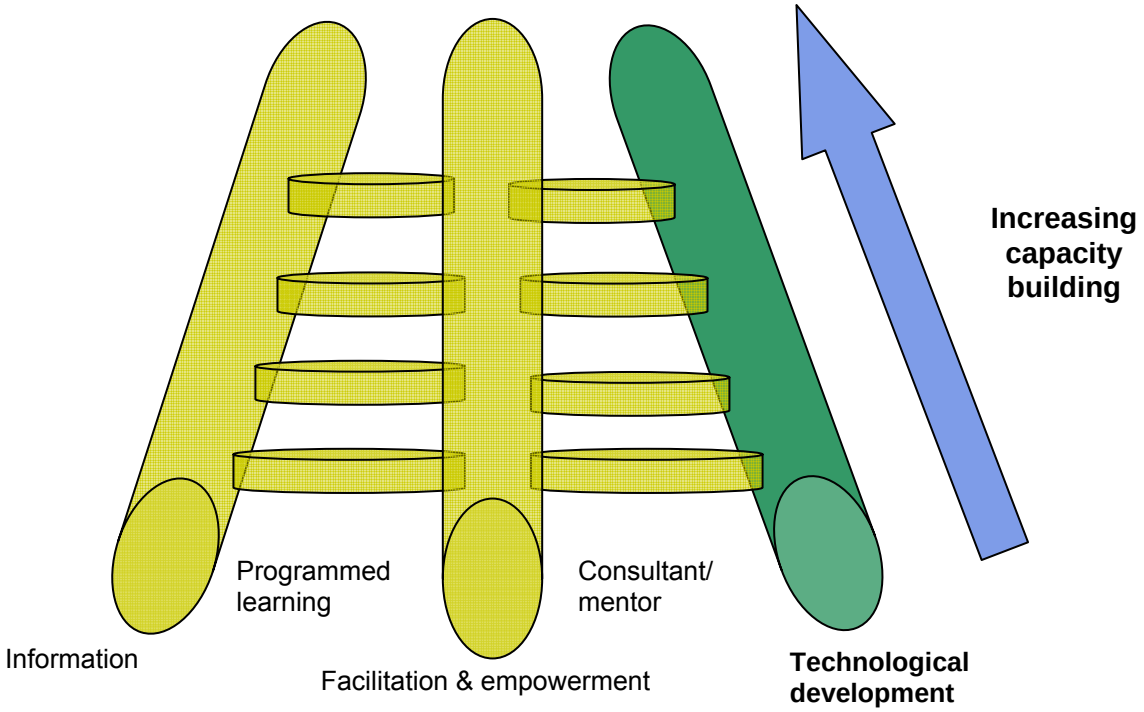
Linking training packages into the National Training Framework is important as it has the potential to make them more visible, accessible and valuable to participants, and this should be a basic requirement.

The next chapter takes a look at the technology development model, and explores why the two models addressed so far need another to complement their role in capacity building.

Technological Development Model

Value to capacity building:

- Uses technological knowledge to improve various management strategies in practice.
- Increases knowledge about a technology or system by experimenting with it in practice.
- Develops technology and new management practices.
- Uses technology with a group.



The technological development model has emerged out of the strong participative development approaches that were developed through the broadening of farming systems research in the 1980s and 1990s. In his book *Learning to Learn with Farmers*, Hamilton (1995) concludes that (projects) 'by being participatory....allow participants to direct what is being learnt based on their own need to know'. He goes on to say that 'all participants' knowledge is valued and accorded similar status....Collectively, the total amount of knowledge brought to bear on a problem is increased. As past experiences are deemed important, the approach utilises experiences in the process and utilises the process to generate experiences. By generating an activity, participants are learning and teaching each other'. This describes the technology development model.

Where this model differs from the group facilitation/empowerment model is that a specific management or technological outcome is envisaged. There are smaller boundaries and an outcome – or improvement – in a specific area. For example, this may be to have improved water use efficiency in the irrigation industry, to have a cleaner river catchment, or to have improved management of greenhouses for horticulture production.

This model is about working with individuals and groups to develop specific technologies, management practices or decision support systems which will then be available to the rest of the industry through programmed learning projects or ongoing information access. It can generally be classified into two broad categories: management or research models. The former is designed to use knowledge about a system to test the outcomes of various management strategies while the latter is used for increasing knowledge and understanding about a system.

Let's look in detail at a project within this model over the 'irrigation fence'. The Rural Water Use Efficiency Project in Queensland (RWUEI) is a good example of a project geared towards a specific technological development; in this case, as the name suggests, improved water use efficiency.

What stimulated the development of this project?

Queensland has thirty major dams delivering 1.8 million megalitres to irrigators across the State. This amounts to up to 70% of the State's water supply. Fewer dams are being built in the face of demand that is expected to increase. Legislative initiatives aimed at monitoring and managing water allocation is one approach being used for rural water use management. It does not, however, directly affect the efficiency of available water at the farm level. The key irrigation industries have not had well resourced programs to promote and help improve rural water use efficiency.

The RWUEI was developed to improve water use efficiency and management of available irrigation water on-farm to improve the competitiveness, profitability and sustainability of Queensland's rural industries. The goal of the four-year initiative was to increase agricultural production by $280 million without using extra water.

How did they go about it?

The project, or initiative, was mainly based on field officers working with farmers who irrigate and researchers who develop and implement the most efficient irrigation approaches for specific industries in specific locations. Different approaches were tested on-farm and modifications made. On-farm measurements were made to highlight potential gains and to measure improvements. Another key element was that of partnerships between industry and government. Most of the funding goes through industry organisations and RWUEI field officers work within, or are linked closely to, industry or grower organisations.

The Adoption Program funded trained irrigation field officers to work closely with the farmers themselves to: develop an awareness of the need for improved water efficiency; understand and monitor their own irrigation systems better; become aware of alternatives and their cost-efficiency implications; and to help move to improved systems.

Specific activities undertaken across the nominated industries included: demonstration sites; on-farm trials; field days, workshops and grower meetings; newsletters and fliers; discussion groups; benchmarking surveys; testing farmer equipment on-farm; assessing irrigation equipment; providing equipment for growers to share; developing regional best management practice criteria; developing regional and crop plans; providing technical specialist services to growers and field officers; developing WUE (Water Use Efficiency) benchmarks and promoting them in information sheets and modules; providing self-evaluation workbooks; providing and promoting recording systems; establishing regional management or reference groups; on-farm water storage consultancy; development of crop models; developing industry policy on minimum standards; and providing training in farm planning. Field staff all received training in extension and irrigation at the start of the project.

How successful was it?

The picture that emerged from the data collected and analysed for the final evaluation was judged to reflect a well targeted, very integrated intervention program that was highly successful despite the pressures of drought, deregulation and initial low interest. The initiative achieved an improvement in water use availability of more than 150 000 ML a year across Queensland irrigation industries (and indicatively well above the 180 000 ML target). If the full potential of extra production was realised from this improved water efficiency, an extra $197 million would conservatively be generated in industry productivity.

What lessons could learned from the project?

This project highlighted the importance of measurement and benchmarking as useful tools in motivating producers to make changes and in evaluating the benefits of that change. Pro-active, on-farm support was viewed as critical to bringing about significant change in a short timeframe with dedicated extension staff needed to deal with significant issues rather than overlaying extra demands on already committed staff. The downside was the lack of continuity of employment which was a limitation in engaging and keeping project staff to the end. Training of staff in specific technologies and extension processes related to a project was identified as important. Cross-industry projects were found to need effective coordination and opportunities for information and resource sharing.

The final evaluation report highlighted the factors that contributed to the success of the project as: the integrated nature of the initiative – extension, research and incentives in an environment of increasing regulation; the scope of the initiative in terms of funds and human resources; the clear goals and contracts given to industry coordinators to focus their efforts; the effective mix of extension approaches, including a strong on-farm presence, training, groups, demonstrations and visits; and the effective industry-government partnerships with a high level of regional industry involvement and ownership.

Factors identified in the final report as limiting the impact of the program included: the delay in starting and uncertainty of continuation; insufficient time to fully complete research and consolidate gains; insufficient attention to developing the private sector in the service sector; and the narrowness of the focus on irrigators and irrigation.

The Rural Water Use Efficiency Project was very interesting in the way it approached its 'narrow boundary' in terms of an issue (increasing water use efficiency) but wide boundary in terms of industries (grains, cotton, dairy, sugar and horticulture). By testing the approach simultaneously across these industries, the value of the approach was reinforced and it was demonstrated that this may have application far beyond irrigation, the industries and Queensland.

The national extension/education review found a wide range of projects that were identified with the technological development model. These are included in the following table.

Projects	Industry	Issue	Location
Farmscape on-line	Grains	Productivity	Qld, Vic, WA, NSW
Heliothis Regional Management Strategy Pilot	Cotton	Pest management	Qld
Living Landscapes	Community	Resource management	WA
Profitable Pastures Project	Dairy	Productivity	NSW
Rural Water Use Efficiency Initiative Adoption Program	Grains, cotton, horticulture, dairy	Productivity	Qld, NSW
On-farm testing and extension of sustainable pasture/wheat production in the northern and eastern wheat belt of WA	Grains	Productivity, resource management	WA

Projects	Industry	Issue	Location
Western Flower Thrip Management Strategy-Pilot Project	Horticulture	Pest management	SA
Coastwest Coastcare	Community	Resource management	WA
Swan-Canning Clean up Program	Community	Resource management	WA
Citrus Information and Technology Transfer Groups (CITTgroups)	Citrus industry	Productivity	NSW, Qld, WA, NT, Vic
Ribbons of Blue/Waterwatch WA	All	Water quality	WA
Vasse Milk Farmlets	Dairy	Productivity	WA
Harvey Water Sunflower Project	Grain; sunflower	Productivity	WA
Yarwun Targinnie Sustainability Project	Horticulture	Developing Best Practice	Qld
Grower Group Alliance	Grain	Productivity	WA
Aussie GRASS Extension sub-project	Agriculture	Technology transfer	National
Cane Productivity Initiative/Prosper	Sugar	Productivity	Qld

Again, these projects are summarised with their chief learnings to provide an insight into each of them in their different contexts and settings.

The projects either fell into agricultural industry technology issues or broader community concerns related to landscapes and the environment. The summaries will be presented in these two categories to look for common features. The RWUEI project is not repeated.

Agricultural technology based projects

Farmscape on-line uses internet-based interactions between farmers and professionals to facilitate learning programs for farmers. Video conferencing between scientists, farmer groups and consultants with the use of simulation models and data from participating farms provides the basis for interaction and learning. Producers set the agenda for what they want modelled and discussed. Action research underpins this, where different scenarios are modelled and compared to farmer experience and decisions.

The project has shown that distance need not be a barrier for researchers to have fruitful interaction with people working on a specific area of interest. It also demonstrated the value of 'what-if' scenarios in helping participants to consider and discuss alternatives and to stimulate trials and learning. Use of each producer's own experience and farm data was seen to encourage others trying new approaches or in adopting specific technologies.

The **Heliothis Regional Management Strategy Pilot** project was designed to support and implement a regional management strategy for controlling insect pests in cotton and grain in southern Queensland. The project team worked specifically with grower groups to encourage the adoption of key strategies, monitor the impact of changes and make formal research more relevant to growers. The team worked through existing landcare groups as well as specifically established groups. Project staff took on the role as group leader-facilitator initially and later put the onus onto groups to organise meetings and drive their own learning.

The regional approach increased communication among growers and permitted a constructive discussion dealing with 'contentious' issues. Extension-facilitator support was seen as critical to tackling strongly technical and research based regional problems. One key learning, however, was that withdrawing facilitators from groups working on the issues too early resulted in the demise of a number of groups. Monitoring results was shown to provide important feedback and motivation to tackling the problems.

The **Profitable Pastures Project** was based on a proposition that research on the feedbase was of prime importance to dairy farmers. The project worked with learning groups and used on-farm trials and discussion sessions as a way of involving individuals. An action learning approach was used to support a farmer-driven approach. In some cases, host monitor farms were used and in other cases farmers tried different methods of pasture management on their own farms.

The use of action learning as an approach was seen as developing supporting processes for activities but was not necessarily described as such to those participating. It was found to be important to put processes in place where farmers had ownership and felt 'in control' of the project as it affects their farms. Providing environments for them to share their own experiences was seen as valuable in the learning and change process. On-farm and local trials were also shown to be important for participants to gain confidence in the technology and its value.

The **on-farm testing and extension of sustainable pasture/wheat production in the northern and eastern wheat belt of WA** project was targeted at grain growers who used pasture in rotations. Pasture production was seen as being poorly managed compared to the cropping phase of rotations, thus limiting the value of rotations. The aim was to improve available nitrogen, decrease weed seed burdens, and using pastures as a management tool for herbicide resistance. The project liaised with Top Crop Groups in the region. Large paddocks were sown to legume pastures as a focal point for demonstrating on-farm pasture technology, with farmers trialling different length rotations. Paddocks were managed by farmers with advice from extension officers and researchers.

Opportunities for farmer-to-farmer learning were viewed as critical elements of the project's success. It was found that support was needed for self-directed learning to allow farmers to adapt technologies to their own unique situation. Having farmers design, manage, monitor and adapt the on-farm trials was argued to have been an important element in farmer ownership and acceptance of results.

The **Western Flower Thrip Management Strategy Pilot Project** aimed at promoting awareness, understanding and adoption of specific pest management technologies. This resulted in better yields because more account was taken of the total farming system. Participants included growers, resellers, consultants, extension workers and others and all were seen to be learning from the project. Technology was adapted and trialled under local conditions to generate local content, relevance and build grower interest. Training workshops directed at growers were also used. A local consultant was contracted to work with growers in the project. A Vietnamese liaison person was also contracted to help with liaison and translation for the large Vietnamese population.

This project emphasised that strong extension teams with complementary skills were seen as important to success and that linking in with existing commercial expertise helped involve growers and worked effectively. The cross-cultural nature of the project emphasised that cultural and language factors need to be taken strongly into account when working with grower groups to bring about change. Local trials and adaptation of technologies to local needs was a critical aspect of acceptance and interest in this project. Involving all stakeholders in the learning process was seen as necessary to effectively bring about systemic change in a region and industry. On-farm visits were seen as central to learning by both the extension team and growers as were opportunities for group discussion and reflection on progress and issues. In this case, a technology starter package provided a base on which technological development was built.

The **Yarwun Targinnie Sustainability Project** was undertaken to trial model farm practices to demonstrate to other property owners' best practice land and horticultural management while

maintaining economic viability. Five key sustainability issues were addressed: long term profitability; good financial and agronomic skills; viable rural communities; minimal off-site impacts; conservation and enhancement of natural resources. Links between the local industries that may have actively had an impact on the ecology and heritage values of the region and the fruit growers were also established. The information gained from this project contributed to recommendations for trialling modified farms.

The response of the farming community initially and throughout the project was high and constant proactive attitudes were demonstrated. This can be attributed to the fact that the Yarwun Targinnie Fruit and Vegetable Growers Association Inc. initiated the project and the applied for funding. The project also showed that field-related activities promoted education, training and increased knowledge in best practices. The environmental technical monitoring group that was established early in the project provided feedback on skills and practices acquired. Outcomes identified that most of the on-farm best practices were already in place and farmers had a proactive attitude for economically viable changes in their farming to promote best practice. A *Manual of Sustainable Horticultural Practices* (DPI) also received enthusiastic and widespread positive feedback.

The development of the **Grower Group Alliance** began in 2001 when a number of growers recognised the existence of a significant amount of research but poor extension and adoption of that research in the grain farming community. An initiative emerged whereby the growers wrote to the Grains Research and Development Corporation (GRDC) with a proposal to form a network between grower groups, research providers and agribusiness companies throughout Western Australia. The Grower Group Alliance was funded by GRDC for two years, commencing 2002-03, in response to this request. The project aims to 'enable growers to access the latest information and research, which will allow them to make the best possible decisions for their farming businesses'. It proposes to do this by 'establishing formal communications pathways between growers, researchers and industry, and developing collaborative projects with industry, based on key research issues identified by Alliance members'. The vision of the alliance is to 'enhance the value of agricultural research, development and extension through the alliance of grower groups and industry'.

The Grower Group Alliance has only been operational since the employment of its coordinator in October 2002. During this time most of the activities have involved establishing the project and relationships and networks within it and raising awareness. It has been found that a significant component of the alliance is an annual gathering of growers and researchers. The first of these was held in October 2003. Collaborative training courses which will build communications between the grower groups are also being considered. The emergence of the project in response to limited effectiveness of some existing research extension programs indicates that there is a demand which will contribute to the outcomes fostered by the alliance.

The **Harvey Water Sunflower Project** identified an opportunity with sunflower oil production that would potentially provide an answer to future water demands and support the cooperative-based water seller. Harvey Water, formerly known as South West Irrigation, operates irrigation supply in the South West Irrigation Area (SWIA) of Western Australia. The waterlogging of extensive clay soils (due partly to high rainfall) and relatively saline water from Wellington Dam necessitates agricultural options capable of withstanding hostile growing environments. Commercial sunflower growing was trialled over the summer of 2000-01 in heavy clay soils, one of the most inhospitable soil media in the irrigation area. The intention was that success on these, the worst of the soils, would indicate very real chances of success on the sandier loams within the region. Further, the byproduct (meal) produced from the oil extraction process could be fed to dairy cows. At the time, sunflower was only being grown commercially in Western Australia in the Kimberley Region, hence the opportunity to trial the crop was taken.

While the sunflower trial proved successful, adoption of this research within SWIA has been poor. Despite wide awareness of the research and the potential income offered by sunflower cropping is wide, a low level of willingness by farmers from across the region to take risks is evident. This has largely been attributed to the demographics of those in the industry. It has emerged that it is important

to build the confidence of interested farmers to invest and participate in new industries and farming ventures. It is thought that tapping into a small niche market would enable capacity building with those who are interested, with the result being improved confidence in abilities and a progressive move towards larger markets and exports.

CITTgroups (Citrus Information and Technology Transfer Groups) are local grower groups that meet to facilitate information exchange in an informal environment. Initiated in 1987, CITTgroups are small, self-help groups of citrus producers, which reach a multicultural audience. They meet regularly, or as needed, in non-threatening surroundings that allow free discussion on problems or successes in the production of citrus. CITTgroup coordinators, funded through the Horticultural Research & Development Corporation (HRDC), collect and collate information and research results, and translate the results for growers. They also coordinate group meetings and guest speakers and set up new CITTgroups where required.

From this project it appears that the informality of the CITTgroups seems to be what is attractive to growers who do not usually attend organised extension events. Another factor in its success is that the CITTgroups are not seen to be government sponsored and target issues that growers are interested in learning more about. It highlights the need for face-to-face communication, particularly as this is the essence of CITTgroup activity and works well. This approach reinforced the generally anecdotal evidence that a lot of information flows across the fence and 'over the back of the ute'.

The **Vasse Milk Farmlets** are small enterprises of 20 cows each that investigate different farm and herd management practices and compare the outcomes with those from each of the other farmlets. The results are used by the dairy industry to determine productivity, profitability and sustainability options for dairy farms in Western Australia. Each of the farmlets combines varying stocking rates and supplementary feeding levels to explore profitable farming systems leading to a positive future for the WA dairy industry. The aim of the farmlets is to reduce the risk dairy farmers would ordinarily manage when introducing adjustments or substantial change to their farming system.

The interest in the outcomes of this project shows that there is the potential for improved overall industry approaches to the development of useable and useful research at the farmlets. It also reinforces that the passion shown by the extension officer (or any staff member) working with the Vasse Milk Farmlets project is a very positive factor in the success of extension activities. The results highlighted the importance of people, such as vets, who provided one-to-one and typically expertise-style information. They complement similar farmlet projects: the Mutdapilly farmlets in Queensland and the Flaxley farmlets in South Australia.

The **Aussie GRASS Extension sub-project** uses advanced computer simulation techniques and a Cray supercomputer to build on 50 years of agronomic research conducted throughout the State. This enables the condition of Queensland's grasslands to be assessed and monitored. Grazing lands cover greater than 80% of the State and the Climate Applications and Natural Resource Systems group has been conducting research in this field since 1991. The Aussie GRASS Extension sub-project has involved extensive national collaboration between seven State agencies to achieve the objectives set out in the original Aussie GRASS project proposal. Within the project it was considered essential that there was a significant extension thrust to create an awareness of the research and to encourage adoption of the use of the products by a range of clients.

The project team's experiences in this project indicate that the following factors should be considered when operating as an extension officer attached to a research project to promote technology transfer:

- patience
- funding bodies
- commitment
- timing
- client feedback
- context

- linkages and networking
- marketing.

The **Cane Productivity Initiative (CPI)/Prosper** resulted from a cross-industry workshop in June 2001 addressing concerns about the steady decline of productivity and profitability in the sugar industry. A key outcome is to increase the district's productivity. The CPI approach included the adoption of Best Management Practice (BMP) in cane growing and harvesting operations. Farmer-driven grower productivity groups were seen as a core component. The CPI/Prosper has an underlying philosophy that grower groups can provide a core means of sharing information in the industry, motivating and supporting growers towards change. These meetings are strongly backed up by cross-industry research and development committees and on-farm trials.

A significant result was the evidence of strong cross-organisational cooperation and (re)alignment of objectives. Most growers surveyed could point to change in practice in one or more management or technology areas over the last two years which they attributed to group influences. Quantitative analysis is a critical component of the evaluation to provide evidence to investors that the RD&E activities are providing returns on capital. The qualitative evaluation provides strong indication of change and also highlights ways to strengthen the initiatives. Indications are that there is a high rate of change being facilitated through the activities of the initiatives and it has focused the industry on the changes needed to meet the current challenges. The excellent records in some districts allow significant and accurate quantitative analysis to be undertaken on impacts. The grower groups appear to provide a good mix of RDE/grower-driven approaches to activities. It also provides a good mix of group meetings, on-farm trials, and information provision.

These projects either focused on developing a specific technology or providing a process to trial and test a suite of new technologies and approaches as they became available. A key concept was participation and the involvement of both producers and researchers in the technological development process, although farmer-farmer learning was a key component. A related theme was the value of field trials and on-farm work.

The remaining projects were more community based, dealing with common landscape and environmental concerns. These are summarised in the group below.

Projects dealing with landscapes and environmental issues

Living Landscapes aims to develop landscape management practices which protect biological diversity within an economically viable and sustainable land use system. This involves developing workable nature conservation plans, researching attitudes and values, identifying guiding principles and identifying skills and knowledge needed to bring about the changes. The project targets families and activities include photo elicitation exercise, campouts with ecologists and neighbourhood planning sessions. Farmer trails are also encouraged and a bird monitoring book is an example of a supporting tool. Campouts are an interesting approach used to gain insights into ecological issues. Funding also comes from mining sources.

This project, like the Heliothis management project, tackled problems at a regional level. It was found that regional issues need to have safe forums for neighbours to work through common approaches. Projects dealing with landscape issues are also by definition long term – and short term projects must build in longer term sustainability processes. Family participation was seen as important to bringing about sustained change in attitude and approach.

The **Coastwest Coastcare** project covered the Western Australian coastline and recognised that it is beyond one organisation or government department to manage and care for this utility. It works with many local coastal management groups and aims to raise awareness of coastal issues of concern, areas that may be improved and how to tell if there is a difference.

Similar to some other projects, it was reinforced in this project that facilitators need to ensure that they facilitate, rather than taking the lead role in doing on-the-ground work. Skill development areas such as program planning, management and monitoring and evaluation were considered important to develop in people involved in bringing about change. The project approach emphasised that project participants need to have pathways to access required technical expertise as required. Interesting events were shown to help involve the broader community in understanding the issues and becoming involved in projects and their activities.

Recognising the importance of establishing an integrated catchment management program, the **Swan-Canning Clean up Program** is an opportunity for the urban community to become involved with the management and health of the Swan and Canning Rivers in Western Australia. The aim of the project is to fund and support other projects under each part of a four-point action plan designed to: reduce nutrient inputs; improve land-use management; reduce algal blooms; and monitor river health.

It was reinforced during this project that opportunities are needed to enable the sharing of outputs of group endeavours to the broader community, especially if they are affected by the issues being addressed. The project also reinforced that key measurable indicators can provide a way of tracking and focusing the efforts of multiple projects aimed at the same issues or opportunity. The need for a multi-pronged approach to achieving outcomes was also highlighted when approaching complex problems involving many different stakeholders. One approach that was seen to work during this program was using common forums to help with communication between related projects.

The **Ribbons of Blue/Waterwatch WA** project was initiated as a schools environmental water quality monitoring program in 1989. Since becoming part of the Australia-wide Waterwatch network in 1994, its strong association with schools has been retained while the program has expanded to include greater community involvement. Water quality monitoring and catchment management activities are used as tools on which to focus learning and develop understanding, while involvement in on-ground action projects builds a sense of environmental and social and civic responsibility for shared management of local environments.

This approach reinforces the successes of project staff supporting and training teachers and community groups to become actively involved in learning about and protecting environmental water quality, and encouraging shared responsibility for the protection, restoration and management of their local water bodies. It also encourages local ownership and care for environmental resources, and fosters a community environmental management ethic amongst Western Australia's young, as well as encouraging wider community involvement and participation.

A contrast with the production-based projects was the need to involve the broader community in these projects. Schools groups as well as community groups featured as participants in dealing with specific landscape or environmental issues. In common with the group facilitation/empowerment model, these projects reinforced the need for facilitators not to be the leaders and drivers: that was the role of participant champions and the wider group involved.

What are the underlying philosophies?
A key underlying philosophy is that specific technological (including managerial, landscape and environmental) change requires a focused effort and should involve all stakeholders in the process. The technologies or practices that can be effectively developed in isolation and handed down to a waiting industry or community are rare. Participation and multiple approaches appear to be fundamental to projects in this model.

Practical considerations
The analysis has indicated that skills in extension and facilitation and activities based on these skills are critical in addressing technological development issues in a region or industry. Another aspect is that addressing people issues in terms of understanding, motivation and confidence are important elements in facilitating technological changes. Regional issues were found to require safe forums for people from different industries and community situations to discuss and work through contentious

issues. Facilitating information sharing between participants is seen to be a critical element of acceptance and adoption of new approaches and technologies.

It was clear that producer leadership and ownership of projects aimed at technological development and implementation are critical in obtaining broad support and acceptance. On-farm and local trials emerged as important in aiding understanding and acceptance of new approaches and benchmarking was important in documenting change and providing on-going encouragement and motivation. Proactive on-farm support was found to be necessary to bring about change in a relatively short time period and this assisted learning in both the extension staff and participants. Another element suggests that linking in with local commercial expertise is important in terms of bringing about sustainable change processes.

Deciding whether to develop projects under this model?
The main reason to develop projects under this model is to mobilise effort in dealing with a specific technological, managerial, community or environmental issue that needs to be addressed. It may be that some good research is being undertaken, but it needs to be tested, adapted and integrated into practice. Alternatively, it may be an issue identified by people involved in group facilitation/empowerment groups or the broader industry or community that needs addressing so a project is developed which may or may not involve formal research.

Other reasons to consider developing projects under this model include:

- using technological knowledge to develop new management strategies in practice
- wanting to increase knowledge about a technological model or system by experimenting with it in practice
- developing specific technology
- using technology with groups.

A guide to assess projects under this model follows on the next page.

Element	Comments	Ranking (1-5 where 1 is fully covered and 5 is not covered)
Issue or need identified by industry or community or endorsed by representatives.	The perceived need may arise for any group, but all key stakeholders need to be convinced of the need.	
Facilitation provided to mobilise and help in process.	Facilitative extension skills are critical in gaining broad involvement and providing a mobilisation framework.	
Process to inform and involve stakeholders in problem definition and determining approaches to tackling it.	Steps need to be explicit as to how the stakeholders will become engaged.	
Committees or forums or both to provide ongoing local input and feedback apart from hands-on participants in process.	These formal mechanisms have been shown to have real benefit in providing 'safe' places for inputs and needed feedback.	
The process is designed to allow researchers/experts and producers/ community participants to work together.	This should be a participative process recognising the strengths of all.	
There is a strong on-farm/on-site trial and demonstration and assistance component.	In some cases, on-farm trials may mirror, or extend, formal research sites.	
Benchmarking is a key feature of tracking benefits and progress.	Change and impact needs to be measurable for stakeholders to gauge benefits and progress.	
Other supporting mechanisms are available to help development and integration, such as incentives and policy.	It is in the context of the mix that assists in motivation and action on desirable changes.	
Training in relevant areas is made available.	Training can help participants catch up with pre-existing knowledge about the technology or management issue.	

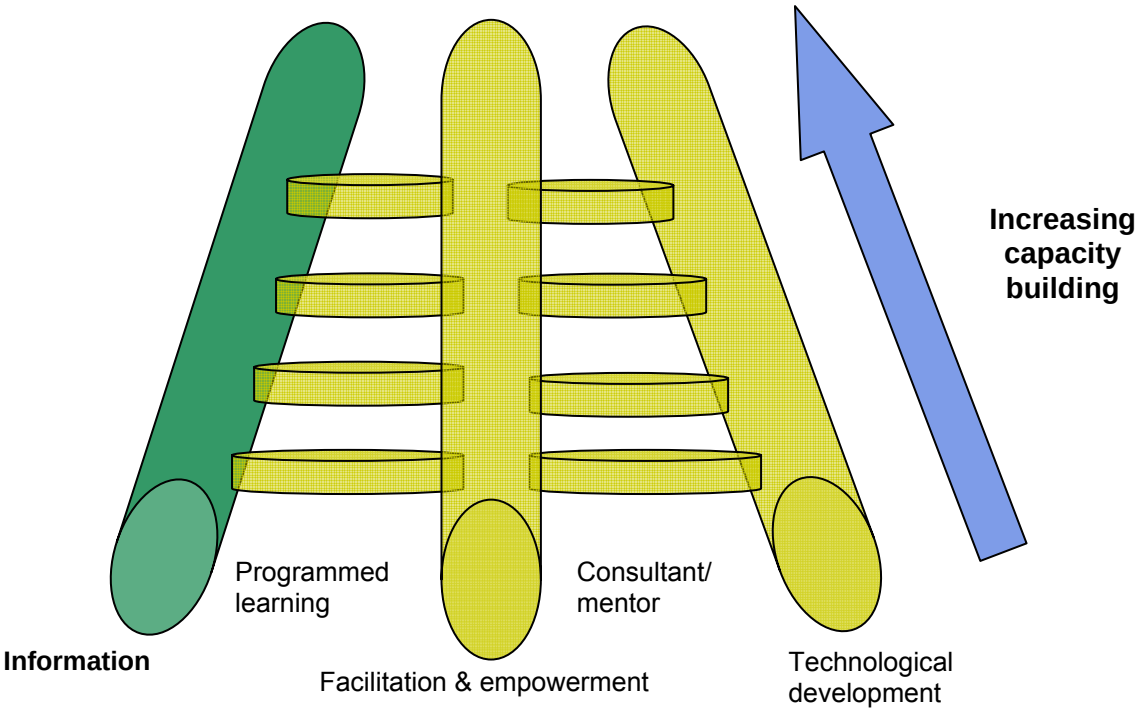
Processes to develop technology and management approaches have been developed and refined over many years through trial and error, and by looking over the fence to see what has been done elsewhere. Although contexts are different, these projects demonstrate that there are some common elements that contribute to greater effectiveness of these processes.

Common to all models examined so far is that they need information in a form that is useful to them, and at times that are appropriate to their defined issues and stages of addressing these. The next model addressed is the information access model which is another key support leg in the capacity building ladder.

Information Access Model

Value to capacity building:

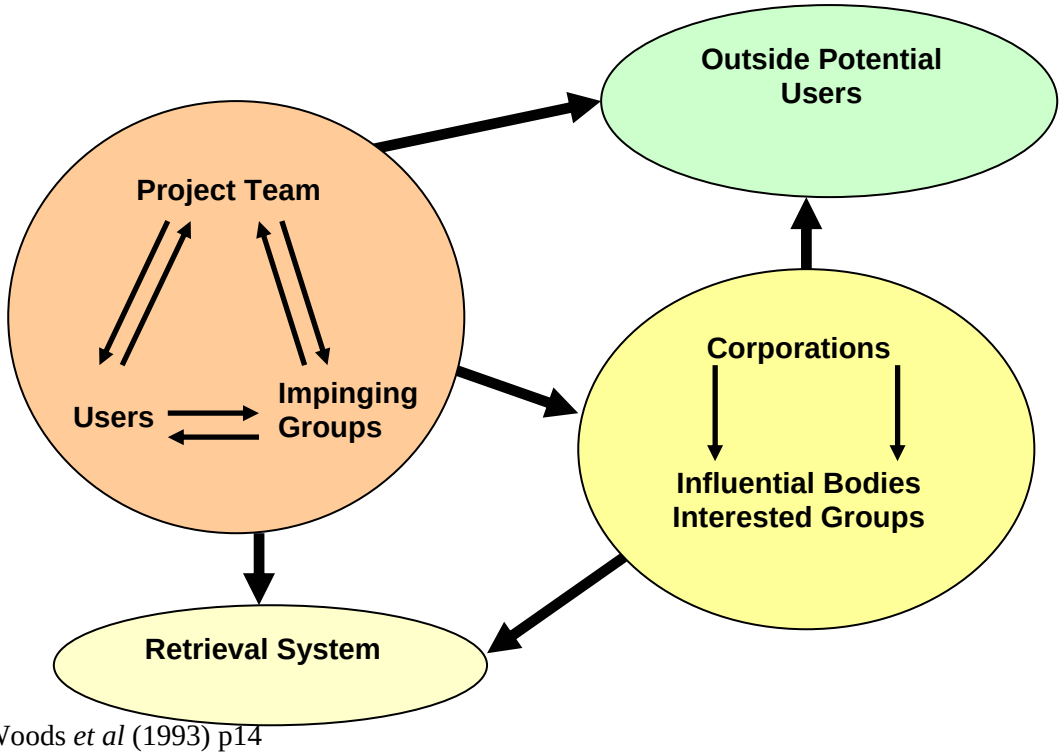
- Focuses on the growing role of the internet, information CDs and distance learning.
- Covers approaches to establish databases, websites and call centres to deal with individual information seeking needs from a distance.
- Includes information centres and community learning centres.



This leg of the capacity building ladder is often implicit and assumed, however, its role is vital to supporting the capacity building process. The passive supply of information has often been considered a weak and ineffective instrument, but as these projects will demonstrate, an incredibly rigorous and effective process is behind making critical information available to individuals and groups. Information has to be accessible, and in a useful format to multiple users at times when it is most needed in the capacity building process.

A review of information exchange mechanisms by Woods *et al* (1993) identified the need to have an information 'repository' for project results to be captured for use by others in different places and at different places. Projects in the information access model to some extent mirror this concept and need. This concept was expressed in the following diagram.

Communication pathways for project outputs



From Woods *et al* (1993) p14

The diagram made the point that projects come and go. Without some retrieval mechanism, the information would get lost and not provide its potential broader value.

There was a belief that the internet would provide a quick solution to this information access need. As these examples show, it is not as simple as providing on-line information that was previously paper based.

Let's first look over the Queensland virtual fence and focus on the Department of Primary Industries website project.

How has this project come about?

> The project's primary target group is Queensland's rural communities and all the links in the supply chain from farm to plate including farmers, wholesalers, marketers, retailers and consumers both domestic and international. Other target audiences include community groups and tertiary education institutions that are major users of DPI research output. The website is focused on the issue of rural community and industry development and on providing the necessary information services.
>
> Developed from a pilot project running from 1994-1996, the DPI website was upgraded in 2001 to better handle an increasing amount of often-overlapping information provided by different business groups. Information is accessed either within sections of the website managed by different business groups and built around their web projects or collated using a search of the whole site. The DPI website is part of a wide range of information and communication services provided to its clients with other services, including a call centre, electronic discussion groups, book sales centres, library system and extension officer network.

It is concerned with addressing the issue of providing services for rural community development and to the entire value chain from paddock to plate. It represents a shift within the focus of the DPI information services from dealing with mainly Queensland farmers to dealing with the whole rural value chain.

How has this project been approached?

The project was established in 1996 with an initial large budget (about $1 million), which has decreased over time. This has demanded increased efficiency in the use of staff and other resources.

Information is published on the website in a decentralised fashion. The Web Services Group provides the publishing and technological framework while individual business groups provide content. These business groups or units are located across Queensland and have an interest in using the web to reach their clients. Since 2001 each has been responsible for developing its own content for the website.

Information is published via 'Web projects'. This means that a designated staff member from each business group is part of the project and works with other authors in their group who want to put content on the web. All editing and authorisation of content takes place within the discrete business units. This content is then sent to a manager at the Web Services Group who publishes the information and ensures that a consistent quality of content is maintained across the DPI. The web services staff are responsible for helping authors and project owners with structure, navigation, editing and design.

How effective is it seen to be?

A recent study found that the website had played an important awareness and linkage role for users. Through the website's existence, agricultural, educational and community clients who were surveyed generally felt they were more empowered through an increased ability to seek information relevant to their own needs.

The review also found that the role of the website emerged as a reference point for clients. Staff and information providers weren't very aware about the users of their information so they are not able to target specific client groups or ensure that information is accessed by specific clients. For clients the potential role of this site is to point them towards key research, relevant issues and contacts. The review identified that the site provided an information role across the community, including the agriculture, education, government and the general community. A degree of change was not quantified but identified in terms of a more informed and empowered agricultural, community and educational sector through the availability of this information resource.

According to the 2002 review, users are generally happy with the content and structure of the website; more so than the DPI staff. It was also found that although the website offered a number of interactive services including bulletin boards, email discussion lists and events calendar, they were poorly used by clients and staff. Web services are aiming to address this through increased promotion and development of training modules to demonstrate how best to use these features.

What can we take from the analysis?

The role of this website and its information is not clear and there is no clear targeting of clients or mechanisms through which to become aware of clients' information needs. Clients indicated that information was too general with respect to their individual needs. They also identified that an emerging potential of this website is to provide additional support to

declining extension services and to provide them with extra information beyond what is available through other means.

It was noted that, in support of current extension services, web technology offers potential to target specific groups of clients through the development of specific websites related to the learning needs of these clients. In this sense, client-specific information can be developed and provided to play a more significant role towards learning and knowledge development.

The use of the website as another way of publishing the **same** information and the volumes of new information creates an information system that is hard to maintain and define. Clear goals for this website need to be developed within each industry group and department. Clients are looking to the website for new information and pointers to new information resources and contacts. By clearly targeting specific client groups and developing key topic areas (rather than trying to publish everything), this technology could be better applied and used as a knowledge management tool.

This project is an enormous undertaking and complex in terms of the industries and clientele that it services. The in-depth evaluation of the project has shown clear learnings to benefit both the ongoing development of this project as well as ideas to assist other similar projects. Other projects that fell into the information access model are listed and summarised below.

Projects	Industry	Issue	Location
DPI Website	Primary Industries	Information dissemination	Qld
Scienceworks Museum	Community	Information repository	Vic
Information Sites of the Week	Primary Industries	Information dissemination	Qld
Information and Library Service, NSW Agriculture	Extension	Information dissemination and repository	NSW

Three of these projects relate directly to agriculture with the remaining one looking to a Melbourne Museum for lessons in another sector.

Agricultural related projects

The Information and Library Service, NSW Agriculture project provides appropriate library and information services to extension officers. A client survey in 2000 (McCallum & Quinn 2000) showed that extension officers have information needs. Library and Information Services felt that they needed to address the issue of how to provide appropriate services to a group of clients that represent nearly one third of the professional staff of the Department (New South Wales Agriculture, 2002). Extension staff do not spend a significant amount of time in their office, yet they need to keep up with developments in their field and read widely. *Extension Alert* was developed to save their time in doing this. Extension staff are also becoming more involved in research projects. The development of an extension portal or gateway on the Library Intranet pages is another initiative designed to help extension staff.

This appears to be an effective way to distribute information as evidenced by the increasing number of requests for articles and loans that are generated by the database, both the printed format and the electronic database. Up to sixty articles or more are requested from each issue. A formal evaluation is yet to be conducted on this project.

Information Sites of the Week is a weekly email newsletter that is an annotated list of websites, all with clickable links, which was developed and initiated in response to an identified need. After beginning in 1999, the e-newsletter has been accepted by DPI Queensland and its subscribers as a long-term, regular, quality-assured source of high value information. It aims to embrace and build on traditional extension concepts of communication and adult education, identify potential improvement and provides ready access to information, the key to better ways of doing things.

In contrast to standalone websites, this approach is very inexpensive! There are no printing and negligible distribution costs. The information is freely available so there are no costs in acquiring it. Unlike the delay with printed publications, the weekly newsletter delivers information and news from that week. The newsletter resolves the search engine dilemma by selecting useful and valuable information. It is seen to be in keeping with the WORM (write once, read many) information philosophy of the WWW. Subscribers can contact the project team any time they choose. This is seen to benefit primary producers who do not learn well in groups or who are remote from group opportunities. The informal and friendly nature of the newsletter has been found to encourage feedback and other responses. The newsletter has also helped develop professional and personal networks in the agricultural community: researchers, extension and information workers (Australia wide and overseas) and primary producers and their organisations.

These projects are diverse in their scope. Some are directly aimed at supporting extension officers while others are aimed at a wide range of topics and clientele. A key message emerging is that information access projects require clear goals and tailored information for specified client groups. Interactivity has been shown to lift such projects out of repositories of neutral information.

The final project comes from a Melbourne museum. The intention was to provide new insights and a contrast to rural based projects.

The **Melbourne Scienceworks Museum** is located in the city's west on a riverside site that makes use of historic and heritage-listed technology (the Sewage Pumping Station for Melbourne). The advantage of having an outdoor space is to provide opportunity for children to run around and also to provide space for technology and science experiments and demonstrations. Also, being located on the river, people can come to the museum by ferry. The vision of the museum is to help people appreciate and understand science and technology in ways that are meaningful to them. The staff at Scienceworks try to make sure that visitors are able to involve themselves with the exhibitions, interact with them to improve their science knowledge to live and work more safely, and make more informed decisions. It also aims to inspire more students to take on science education and careers. The staff also point out different types of careers that science can lead to through different disciplines.

A key point is the difficulty and complexity of running an information organisation that operates every day of the year. It is seen to be particularly important to keep up with community expectations. To do this it is recognised that the museum must continuously find out what the audience is thinking, what they want, and what their expectations are. Also, looking after the paid and volunteer staff is a high priority because, without them, the organisation could not function. It is also seen as very important for the organisation to continuously listen and learn, and be open to new ideas and changes. Taking risks and trying different things is also viewed to be important.

This is a complex information initiative that is geared to multiple audiences, not unlike a physical embodiment of the DPI website covered earlier. In this case the participants can be seen and factors such as space for children need to be catered for. This is the mental view that could be transferred to thinking about virtual information projects; concepts such as 'taking risks' and looking after staff,

continuously ‘listening to and learning’ from information clients and being open to ‘new ideas and changes’ can be translated to other types of information projects.

What are the underlying philosophies?
A key underlying philosophy is that people need different information at different stages of their decision-making processes in a form that suits their individual needs.

Practical considerations
The analysis has indicated that, despite the variation in size, type and clientele of information access projects, there are some common practical considerations that contribute to success. These include: being clear on objectives and clientele, providing pathways for individuals to search for their own specific information needs and continuously monitoring and responding to needs and feedback from those who seek and access information provided.

This limited cross-analysis of projects has also shown that projects under this model do not need to be resource demanding or complex and that there are creative ways to link people with information relevant to their needs.

Deciding whether to develop projects under this model?
The main reason to develop projects under this model is because there is a lack of potentially useful information accessible to individuals, groups and communities to support them as they tackle their issues and opportunities.

There is an interesting dichotomy of information overload and information scarcity for people engaged in decision-making and change. The challenge is to provide information pathways that facilitate people’s search for the information they require, when they want it, and in a format appropriate to their situation.

Other reasons to consider developing projects under this model include:

- Information from individual projects in specific topic areas is being ‘lost’ and there is no central repository of new knowledge
- available information in key areas is too fragmented and hence inaccessible or of limited use to people engaged in learning in these areas
- there is a recognition that many people who do not attend groups or who are too remote to participate in other extension approaches also need help in accessing information relevant to them.

A checklist to assess projects under this model is below.

Element	Comments	Ranking (1-5 where 1 is fully covered and 5 is not covered)
There are clear objectives and clear identification of information client groupings.	The default option of providing information 'because it is there' should be avoided.	
There is opportunity to monitor usage, and obtain on-going feedback and client needs.	This is a critical element that is central to this model. It may include external evaluation.	
There is opportunity to link to 'real people' and peers who may be searching for similar information, or have relevant information.	There are a number of mechanisms, both virtual and physical, to link people in with other 'searchers' and staff.	
Information pathways are clearly provided to meet individual needs.	One size doesn't fit all. It is the facilitation and guidance of people accessing information so that they don't feel 'overwhelmed or lost' that is critical.	
QA systems are in place to ensure currency, relevance and quality of information.	There are a range of QA approaches – the transparency and rigour is important.	
Creativity and 'risk-taking' is encouraged and provided for.	This is an area that is still in its infancy and action research would appear to be a needed component.	
Staff and information providers are well supported and training is available where needed.	The assumption can't be made that staff managing and providing information know how to do this best.	
There is 'space' for people to 'play' and experiment with their information seeking.	The Museum example reflects a greater principle that information access projects should be fun and allow user experimentation.	

The project analysis reflects that information provision is part of professional extension. It is not about bombarding people with information that they may not want or understand or have use for at the time. It is also not about providing a 'coldly catalogued', old style library. It is about negotiating with people about their issues and needs and taking on the role of facilitator in helping them to make the most of information available. It is about providing pathways to allow people to best understand information in the context of their own situation and needs.

In the next chapter, the notion of extension is revisited in its capacity building role, key messages are highlighted and future research needs are suggested.

Where to from here?

In an earlier chapter of this report, based on the literature about capacity building, it was proposed that:

> *Extension is the process of engaging with individuals, groups and communities so that people are more able to deal with issues affecting them and opportunities open to them.*

The analysis of projects in the latter chapters reinforced this definition. Engagement was shown to occur in a number of ways between models of extension as well as within these models. The engagement, however, all had the purpose of 'increasing the abilities and resources of individuals, organisations and communities to manage change' (Cooperative Venture News No. 1 March 2003), that is, to increase **capacity**. This reinforces the original purpose of extension as was proposed:

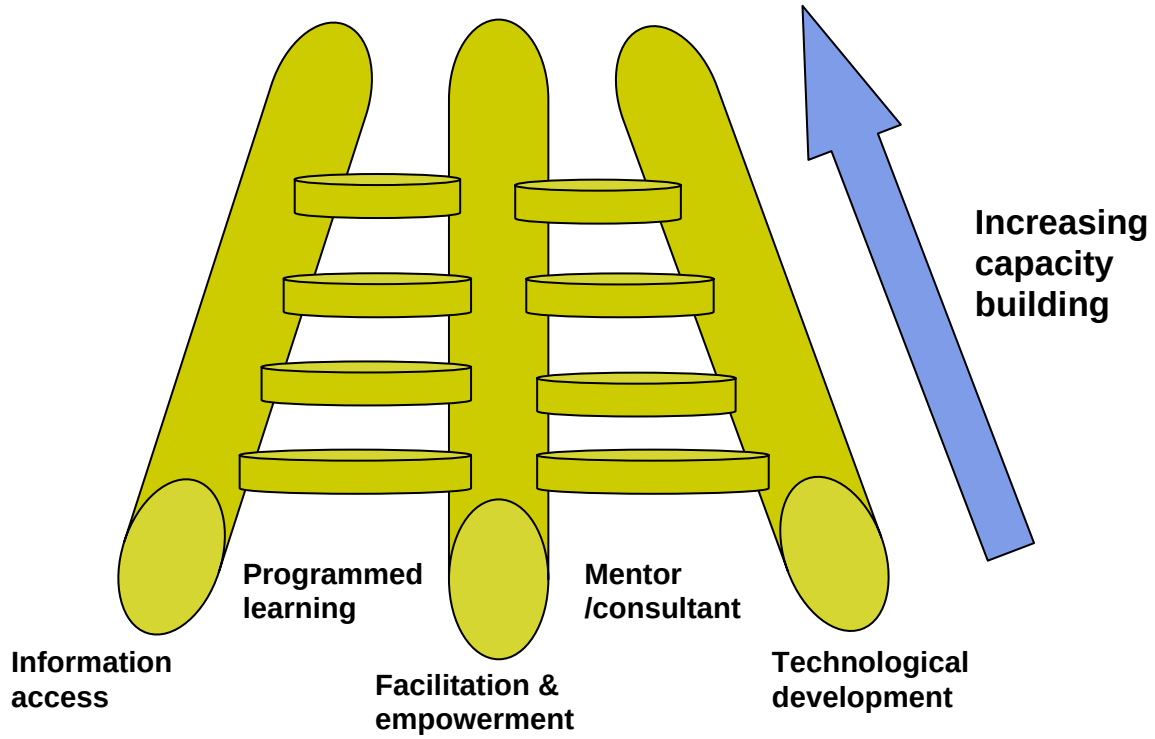
> The outcome of extension is capacity building in individuals and communities. (Coutts & Roberts 2003)

Definitions of extension, capacity building, human and social capital etc., which take up much energy and space, become moot points when dealing with the real situations, real needs and real people. This report has been about real on-the-ground projects involved with extension and education and with people struggling to make a difference in their industries, communities and personal lives.

The models tested were also shown to be helpful constructs in thinking about different and complementary approaches to extension to complete a strong capacity building ladder. These different approaches were described as:

> Extension comprises activities that may provide: a facilitative framework for group learning, a specific learning event; a process for developing or modifying specific management practices or technologies; individual mentoring; and on-going access to needed knowledge and information. Each of these different activities complements the others in the overall process of capacity building.

The capacity building ladder captures these different models and approaches and highlights the way that they, together, help groups and individuals to progress in their dealing with issues and taking up opportunities. Although the **group facilitation/empowerment** model was seen as the central 'leg', on its own the ladder would be very unstable and it would lack rungs to enable people to make progress in their learning and development. As was also pointed out, because of disposition or location, some people are unable to participate in the group processes inherent in some of the models and need to rely on information access projects and personalised consultants and mentors.



This report and the project analysis have shown that each part of the ladder makes its contribution to capacity building in industries, individuals, and communities. Projects under each of the models are critical to ongoing capacity building. Extension, as the process of engagement with individuals, groups and communities, plays a critical role in capacity building in Australia and beyond.

An outcome is not to have every funding body run projects across all models in each geographical or industry area. It is to provide a framework for thinking about the mix and need for different types of projects in different geographical areas tackling different needs and issues. A better outcome is for stronger cooperation **between** funding organisations and providers to develop synergies.

Price (2004 pers. comm.), for example, reported that MLA (Meat & Livestock Australia) was working with AWI (Australia Wool Innovation) to look at joint funding of the BestWool 2010 project and BestPrac to develop those synergies. He pointed out that some landholders pay levies to more than one R&D Corporation and could also be clients of other bodies, e.g. Land & Water Australia (LWA) and Murray Darling Basin Commission. In this case the need for common learning platforms and consistent messages make cooperation and collaboration a necessity.

The framework for developing and delivering VET accredited courses, e.g. those used by the EDGEnetwork, could also be adapted or subcontracted to develop courses for other industry and issue needs.

The analysis of the projects within the models helped to understand the underlying philosophy of the approaches and practical considerations in implementing such projects. It also led to the rationale for developing projects under each of the different models.

A key output of this report has been the guides for each model. These guides embody the lessons learned in the review, ‘what works and why?’. They provide a basis for thinking about elements to incorporate when developing projects under each model and managing them. They also provide a basis for those funding organisations to better understand the rationale and place for projects in the total extension and education environment and elements to consider when assessing the rigour of projects submitted. It was pointed out earlier, and is again emphasised, that the guide is not intended

as a mindless tick-the-box exercise, but to provide a basis for consideration and dialogue about potentially funded projects.

Innovation is happening in extension and education projects and model guidelines based on past projects should inform, rather than constrain, this innovation.

The guides also provide a framework for formative evaluation about projects whether internal or external. The logic is that if these elements are effectively in place, then projects are more likely to impact on those capacity building areas the projects are aiming at.

It was noted earlier that the **individual consultant/mentor** model was not covered in this review as the focus had been on defined and funded projects. There was evidence, however, that working with individuals was a key component of some **technology development** model projects and that there is a strong one-on-one component of extension occurring in the private sector. This component was viewed in this review as a key rung in the capacity building ladder. There is much to learn about what works and why in the relationship between client and consultant/mentor. This may be critical in the way learnings are integrated and used in a farm, community or issue context.

In summary, there are a number of take-home messages from this work:

- **Extension is a significant activity across rural and regional Australia** in both the public and private sectors involving thousands of extension workers and facilitators and tens of thousands of landholders and community members. It is an activity that is critical to bringing about change on the ground and a professional understanding about its rigour and processes is needed by extension workers, funders and participants. Ongoing research and training in extension and education should be a high priority.

- **Individual extension and education projects can't be considered in isolation** from other extension and education projects that are occurring in a community, industry or issue context. A key consideration is how a project complements other initiatives that are already operating. On the flip side, certain types of projects or initiatives may need to be developed or commissioned to fill gaps in the capacity building ladder for a specific need or context.

- **Funders should take into account the whole capacity building ladder** when they are considering their portfolio of extension and education projects. Cooperation and collaboration should be sought with other funding bodies to maximise synergies in projects and across models to strengthen the ladder in specific contexts.

- **Generally, extension/education projects fit into one of the four models** outlined in this report. This takes the mystery out of project processes and allows them to be viewed in terms of the appropriate model. There are many other projects that have been developed in a range of industries, issues and communities that can provide ideas and templates for developing new projects. This work has captured a number of them and developed a guide for project developers, funders, evaluators and participants. The guide can provide a common point of reference during this development and assessment process of extension and education projects. The accompanying database (www.couttsjr.com.au\pd) can provide details about projects of interest.

- **There are underlying philosophies and practices that provide the rigour** for projects under the different models, similar to the rigour of quantitative research work. For example, the **group facilitation/empowerment** model projects require facilitation of participant driven processes within broad negotiated boundaries. The **programmed learning** model projects require market research, testing and quality assurance procedures and should be linked into the Australian National Training Authority framework. The **technology development** model projects require facilitation, benchmarking and on-ground trials and demonstrations. The

information access model projects require information to be available in a form that is useful to people, when they need it.

In looking at the information coming out of this work, a number of areas are suggested for further research:

- **Benchmarking and measurement of empowerment**. Although there has been some work measuring the level of human and social capacity in a community, the less tangible concept of empowerment requires further work. Many projects are being run with reasonably broad boundaries with the object of improving people's motivation, conceptual thinking and planning and decision-making ability. The assumption is that this will make individuals and communities more resilient and adaptable to challenges and opportunities. Focusing on physical changes as the result of a group facilitation/empowerment project is one thing, but understanding and benchmarking this empowerment dimension is another. A related aspect is whether the assumption holds that people who have developed in this area are in fact more resilient. This will require some longitudinal studies with some appropriate frameworks.

- **Better linking people undertaking programmed learning model projects to accreditation**. Despite many workshop programs and courses now being linked into the VET system, it appears to be poorly understood by many facilitators and participants alike and there is a poor uptake of the accreditation advantages. There is much (action) research needed into improving this and making the link and benefits better.

- **Understanding and supporting mentoring approaches.** Individual, mostly private, consultant support was raised in this work as being critical to integrating group learning into people's specific situations. Consultants use a wide range of approaches with their clients from an expert approach to a coach approach. The latter helps individual landholders to take more responsibility for decisions made. These relationships need to be studied to open the way for better training of consultants and those who use consultants. Processes aimed at better linking consultants and mentors with group learning processes also need to be explored.

- **Cooperative and collaborative approaches between funders of extension and education projects**. This work has demonstrated that there is a lot to be learnt from the different extension and education projects being funded in different industries, communities and issues. It has also demonstrated the need to be mindful of the capacity building ladder and the need to have projects from the different models complementing each other. Many rural and regional people come under a number of funding bodies and relate to them each individually. There is much scope for more collaboration and cooperation to help minimise duplication, maximise complementarity and have consistent messages. There are some good examples of this occurring – and scope for others to learn from it. This is an important research area.

Extension **is** the process of capacity building. This report has shown that extension and education projects need to be considered at the overview level to ensure that complementary approaches are in place. Likewise, to maximise the effectiveness at the project level, there are some clear guiding steps that can be put in place depending on the type of extension model the project falls into.

Afterword – the relationship between the three flagship projects

As pointed out in the preface, three flagship projects were initially commissioned by the CVCB. These were:

Project A: *A national extension/education review – what works and why*?
Project B: *Fostering involvement in rural industry and government extension.*
Project C*: Improving institutional support arrangements for rural capacity building.*

The scope of Project A, as described by the Business Plan for this CVCB program, was to identify what learning programs worked well for rural audiences and what was not appropriate. The project's scope was to stretch beyond rural and agricultural industries to also explore successful education programs in other industries for other audiences. The focus was on improvements that can be made to current practice and for these improvements or best practice not to be seen as static.

Even though this is a retrospective study, emerging trends that could influence the education and extension programs in the future were also considered. We were asked to review some of the theoretical assumptions underpinning learning and change such as:

- processes of learning
- generation of knowledge
- the relationship between theory and practice
- influences on individual and group learning.

To address the expectations, we concentrated on collecting as many extension activities as we had time to and categorised and compared them. We agree with Fulton (2000) that, while evaluations of individual projects or programs provide some understanding of processes for facilitating change on-farm, there is little comparative analysis of different approaches. To go some way to addressing this gap, we have concentrated on a comparison between specific projects and then a comparison between the categories of projects.

The main objective for Project B, *Fostering involvement in rural industry and government extension*, was to develop a greater understanding of the audience and advance strategies to foster and widen involvement. The intention was to gain an understanding of non-participation in learning activities and what is needed to involve current non-participants and to increase accessibility of learning activities and involvement of the farming community. This objective focused on rural producers who do not access learning opportunities. Understanding how to overcome the barriers to participation was crucial to this strategy.

The approach taken by Jenny Andrew, the researcher in this project, was to undertake detailed examinations of the extension environment from several perspectives. The first was to examine the comments and responses of extension staff through three world-views. The second was to look at three communities and describe their economic, social and environmental make up. She made an attempt to give us a complete picture of these agricultural communities. The third was to do something similar for an industry, in this case the sugar industry. Finally, the fourth was to take a detailed look at a social group and she chose the traditional owners.

The value of the approach taken by Jenny Andrew for our project was the cross-sectional examination of the environment into which extension is being delivered. She undertook an economic, social and environmental analysis of the communities that made up a geographical area, industry or cultural group. In our project, the examination was based on activities with only a brief look at their context and surrounding structures such as culture, who was involved and where they operated.

The cross-sectional study has the potential to identify the causes of change and the parameters of the capacity building required to make the necessary improvements to achieve the outcomes. At this stage there is little questioning about whether the changes demanded by the market place are appropriate or negotiable.

Her method of research provided insights about the value of this type of research for extension as well as valuable information about the practice of extension to complete our project. For example, when some of the methods described by the extension activities in our projects are compared with methods suitable for an indigenous audience, their shortfalls or value are different to the way they would normally be described.

Also her presentation of the three world-views was a good reminder that our extension models are human constructions, therefore, a combination of all models is going to be necessary to cope with the range of world-views.

The main objective of Project C, *Improving institutional support arrangements for rural capacity building,* was to promote and rethink rural extension and education arrangements of government, industry, and community groups so that they respond to new and changing environments and promote enhanced learning and practice. Macadam *et al* (2003) went beyond the usual description of institutions, the way they are constituted and the relationships they have with each other, their audience and the outside environment. These researchers also looked at the social structures within communities that promoted or discouraged capacity building. They developed indicators whereby extension activities can be measured for the ability to develop capacity.

The value for our project of the approach taken by Macadam *et al* is the depth of inquiry into the theoretical concepts that underpin the development of human capacity and what are 'institutional arrangements'. There was neither time nor resources for us (Project A) to have gone anywhere near as far as the researchers in Project C to delve into the meaning of institutional arrangements beyond a brief analysis of the organisations that provide and support education and extension.

These three projects together provided a detailed examination of extension, its environment, areas of influence and effects. Our project, Project A, *A national review extension/education review – what works and why?* examined specific extension activities in detail, and categorised and compared them. Andrew in Project B, *Fostering Involvement in rural industry and government extension,* looked in detail at the environment into which extension is delivered. Against that we can have another look at some of our projects to assess if they would be successful with the cultural group that Andrew researched or to see if they would benefit by having some of the support structures she identified in her assessment of the sugar industry. Macadam *et al* in Project C *Improving institutional support arrangements for rural capacity building* looked beyond institutions as organisations; they also looked at social boundaries. Out of this they developed criteria against which extension activities can be measured for the ability to build capacity according to their definition. They made an attempt to compare our categories against these criteria and we can take this further and make additional comments about each of the categories and how they contribute to capacity building. With the three projects complementing each other, a detailed picture of what works and why can be painted.

We will now look at each of the other projects in more detail, what the researchers found and their influence on our work.

Fostering involvement in rural industry and government extension

As already stated, the objective for Project B, *Fostering involvement in rural industry and government extension*, was to develop a greater understanding of the audience and advance strategies to foster and widen involvement. Andrew's approach to this work has been to probe into the environment into which extension is delivered. She does not pretend to provide a comprehensive view of Australia, rather she provides a method for continued studies in extension. She approached research into the involvement of participants in extension from four perspectives. As stated above, these were to:

- examine extension in the light of three world views
- look at the geographical locations and communities into which extension is delivered
- research an industry with regard to its structure, membership, history and extension experience
- study a social group to assess their needs and expectations.

World-views

The world-views that Andrew examined were a positivist, a constructivist and a critical analytical world-view. She showed how different the outcomes for extension depended on the influence of the world-view of the extension person or the prevailing extension culture. For example, **positivists** feel that there are facts that can be conveyed to others. Extension staff or a culture supporting this world-view is comfortable with an information transfer model of extension. Andrew (2002) states that 'It is a process whereby information, derived through technical processes is 'packaged' and delivered to farmers. The information is not dependent upon specific contexts and is believed to be applicable across a range of circumstances'. This form of extension is immediately recognisable and while seen today as being outdated, we argue that it has a proper place. But more of that later.

A **constructivist** extension person or culture encourages others to look for the facts themselves and to experiment with those facts. Andrew states that 'This form of extension is concerned with 'practical reasoning' to do with individuals deciding on a 'wise and proper course of action to take when confronted with complex social situations''. Facilitated learning models of extension are comfortable within this category.

Finally with regard to a **critical analyst** extension person, Andrew makes the point that 'Extension of a critical kind is fundamentally change-oriented and driven by the people whose practice is most impacted' and is context dependent. We would assert that this type of extension person is at home with a continuous improvement model of extension where systems and actions are constantly critiqued and improved. Nothing is static. It is a world-view that accommodates both positivists and constructivists (interpretivists) whereas research supporting a positivist or constructivist viewpoint tends to be exclusive of each other. At this stage, the continuous improvement models of extension we covered are lodged with the empowerment model of extension and some texts allege that critical theory was firstly about uncovering democracy. Kincheloe and McClaren (1998) assert that 'Critical research is best understood in the context of empowerment of individuals…..Research in the critical tradition takes the form of self-conscious criticism'. Their paper combines the aspect of empowerment with a dialectic form of enquiry.

Therefore, if our projects were viewed through Andrew's screen, then the **programmed learning** and **information access** models would be part of the positivist paradigm, the **technology development** and **consultant** models part of the constructivist paradigm and the **empowerment** model part of critical theory.

Geographical locations and communities

Andrew's aggregation of the detail of geographical areas such as Bega, Shepparton and Carrathool provides good background information about the context of extension. While this approach is not new, for this series of projects (A, B and C) it provides the context in far greater detail than Project A could have accomplished on its own.

Cross-sectional studies have the potential to identify the causes of change and the parameters of the capacity building needed to make the necessary improvements to achieve the outcomes. At this stage there is little questioning in any of our studies (A, B or C) about whether the changes demanded by the environment are appropriate or negotiable. Those are issues for another study and another time. What Andrew's study shows in this part of her work, however, is the capacity of a community like Bega, for example, to deal with change and to participate given its profile. For example, some of the issues in Bega that cause change or are going to cause change identified by Andrew (2002 and 2003) are:

- deregulation of the dairy industry
- water use and water sharing
- soil acidity and salinity
- urbanisation and an ageing farmer population.

On one hand, Bega has a low income and low skilled population with 82.3% earning less that $600 per week and 58.1% with no post school qualifications. It has few new industries emerging. Its ability to cope with change seems to be limited.

On the other hand, the communities around Shepparton seem to have more opportunities. Industries such as wool, dairy and horticulture have major processing plants in Shepparton and, while the information available for Shepparton cannot be directly compared with the information from Bega, it seems to have a population that is better serviced than Bega to cope with change. It seems to have more opportunities for education than Bega.

Industry

Andrew investigated the sugar industry in Mackay. Participation rate in extension activities is high because:

- the structure of the industry around cooperative mills encourages growers to participate in decision making around such processes as harvesting schedules
- compliance requirements (chemical handling courses etc.)
- initiatives to combat threats (such as new varieties and responses to infestations and disease) have been developed, particularly by the BSES, and are well accepted by cane growers.

Although these initiatives are greatly supported by growers, changes to practice in terms of natural resource management initiatives are not supported to the same level. Extension activities undertaken by the Canegrowers Association were singled out for special mention because of their responsiveness to grower needs where the initiatives look beyond adjusting cane growing practices and encourage training and skills development in other pursuits.

Cultural group

Andrew spent time researching traditional owners as an appropriate group whose members are not using extension services to the same extent as other relevant cultural groups. She found that 'about 16 % of Australia's land area is owned and/or managed by Indigenous people' (Andrew 2002) and that the amount of land owned is increasing because of native title claims.

She maintained that the information and extension needs of Indigenous rangeland managers become part of the social, cultural and institutional arrangements that are often very localised but do involve State and territory and Commonwealth agencies as well as peak Indigenous organisations. She went

on to say that ‘even if goals and objectives for information needs were clearly identified, delivery would still be difficult given cultural differences and the logistics of involvement in remote areas’.

Andrew found that some of the frustrations of Indigenous land managers when it comes to extension were similar to those of the non Indigenous community. She provides the example where ‘Indigenous land managers have expressed frustration at the constant change of government representatives and programs, as well as frustration at a perceived lack of practical application of programs’.

Some of the issues Andrew found in the Indigenous community would also apply to any rural community from non English speaking backgrounds.

Discussion

The level of knowledge in these case studies revealed structures that are valuable to extension such as the centralised organisations for the sugar industry like the mills, the Bureau of Sugar Experiment Stations and the Canegrowers Association. These organisations are replicated by centralised processors for the dairy industry in Bega such as the Bega Co-operative, the many dairy processors around Shepparton. A comparative study about the value of these organisations may be useful.

The capacity and interest of the rural population to improve their own ability to negotiate change and cope with it can be measured in some way by the level of education and financial income. From Andrew’s study, it would seem that the Bega population would struggle to build its capacity until it has a greater interest in building its education level. Capacity and level of education seem to be linked.

Capacity to change can also be measured by the emergence of new industries and, while there were some in the Bega area, Andrew makes the point that none have established themselves over the last 30 years.

Too often, extension activities are seen just in the light of the industry or the group of individuals they service. Andrew tries to give us a view of what the whole community or industry looks like to give us a better understanding of the experience of extension in those areas and what is involved to achieve success.

Institutional arrangements

The main objective of this project was to:

> Promote and rethink rural extension/education arrangements of government, industry, and community groups so that they respond to new and changing environments and promote enhanced learning and practice.

The Terms of Reference (TOR) for Project C were:

1. Through a review of social, economic, political and technological trends that are likely to have an impact on a future learning environment, summarize these trends and discuss how they will impact on rural learning in the next 10-20 years.

2. Related to TOR 1, identify the current institutional arrangements supporting and constraining rural capacity building and learning, and possible improvements.

3. Related to TOR 2, engage key stakeholders in dialogue about improved institutional arrangements to support rural capacity building and learning – including inter-organisational structures, inter-relationships, roles, responsibilities, and possible barriers for change in institutional arrangements and the desirability and feasibility of those changes.

As already stated, the value for our project, Project A, of the approach taken in Project C, *Improving institutional support arrangements for rural capacity building*, was the depth of inquiry into the theoretical concepts that underpin the development of human capacity and what are **institutional arrangements**. Institutional arrangements were taken to mean social as well organisational structures. What is still needed is a study on the arrangements that organisations have with each other to deliver and support capacity building. As mentioned earlier in this report, working in 'silos' has meant that lessons learned in one industry are not transferred to another because of the lack of proper arrangements, relationships and networks.

Macadam *et al* identified five criteria or propositions by which extension activities can be measured to see if they are capable of building capacity. These criteria were:

1. Effective capacity building maintains a focus on outcomes. The outcomes are improvements in the stock of capital sought by stakeholders. Effective capacity building strives for consistency between the outcomes sought and the nature, design and conduct of interventions.

2. Effective capacity building defines and engages the relevant communities of practice. In doing so it encompasses a diversity of interests and world-views, and avoids the losses associated with marginalisation of potentially significant people.

3. Effective capacity building builds a common agenda and a willingness to collaborate among the members of the relevant communities of practice.

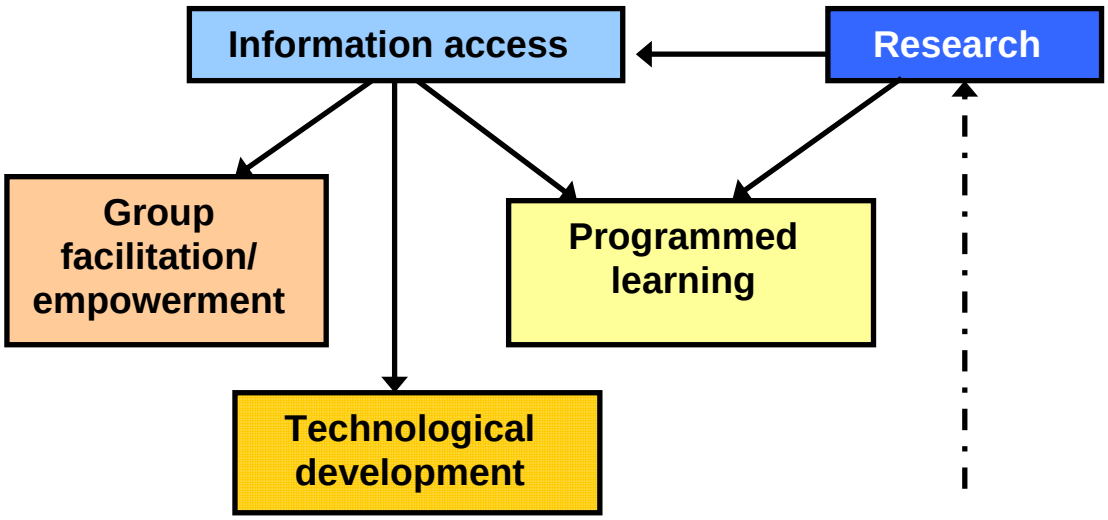
4. Effective capacity building depends on political and institutional commitment to the goal of capacity building programs, and the alignment with it of strategically important organisations.

5. Continuous enhancement of capacity building depends on availability of skilled practitioners, on their reflective practice, and on research into all its aspects.

The work carried out by our research team (Coutts, Roberts and Frost, 2003), however, showed that some extension activities support capacity building whereas others create it. We agree with this point but in our project, we indicate that there is a continuum of extension activities and that one supports the other and together they cannot do without each other. For example, as the diagram over page shows, research ideas that come out of groups involved in on-ground research feed into the research and this, in turn, provides information to extension staff who package it in various ways to make it accessible for use by individuals and groups. Sometimes the use of information is directly through interaction with extension staff. At other times it is accessed by individuals through some remote means such as the internet.

Our project looks at some institutions and how they interrelate (but we have not gone to the depth of Andrew) to explore the historical development of organisational functions and how they contribute to each other. For example, for a long time it was unusual for the VET and university sectors to work collaboratively. More recently, with funding for training being offered through the VET sector where universities could compete for these funds (provided staff were appropriately trained), the two sectors are working side by side with the same audience. However, full collaboration may still be some distance off.

The relationship of models with each other



The point that Macadam *et al* and Gleeson and Piper make is that 'rural Australia is moving into a post agricultural phase'. This is a critical emerging trend that will influence extension, how it is carried out in future and to what audience. This is one of the next major challenges for extension.

Where Macadam *et al* (2003, p. 27) contend that a division between providers and users is counterproductive, we state that it is still useful to create the division so that we can see where the flow is at what time.

Questions and propositions for further studies into extension

Andrew's work brought out many issues but the one that deserves further study is to determine what emerging trends we need to react to, what can be negotiated and what we can perhaps ignore? With regard to the future scene for agriculture, there are trends set by the market place that demand better products for less cost. Is this a trend that can be negotiated (such as better products reflecting the real cost of production)?

The work of Macadam *et al* went some way to analysing institutional arrangements but there are many that need to be explored further. These include such relationships as: that between the Vocational Education and Training sector and universities; and the relationship between private and public extension.

The haunting proposition by Macadam *et al* and Gleeson and Piper that rural Australia is moving into a post agricultural phase is one that needs to be studied with regard to extension and how best to react to it.

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Appendices

Project Analysis Framework

Funders: This includes major funders, minor funders as well as acknowledging when organisations and participants provide in-kind support.

Providers: Providers are those who actually manage and carry out the project activities. There is, of course, overlap where state departments can be both funders and providers. However providers can also be totally separate agencies, organisations or individuals to the funders of the program.

Key Contacts: These are people who are – or have been – actively involved in the program and who are in a position to provide first hand information about the details of the project.

Industry/Issue/Geography: This defines the project in terms of its primary target group, geographical spread (nations, state or regional) and the specific issues that it is tackling (for example, production, marketing, natural resource management, health, human capacity building etc.).

Project Context: This provides the background to the project – why was it proposed? What are the issues it is addressing? What else is happening around the project?

Project Niche (Specific Objectives): A lot of projects may state they are addressing 'production efficiency' or 'sustainability' in an industry or region – but the 'niche' specifically identifies what the project does to 'add value' or complement other initiatives, policies or projects that are contributing towards the same objective.

Philosophy/Approach: Specific extension or education models often form the basis of the way a project is developed and managed. (See note on models below*). The VET system, for example, is based on 'competency' attainment. Some projects are based on a belief that participation at all levels is critical to success. Others work on 'adult learning' approaches, action learning, or technology transfer. Understanding the underlying theories or philosophy on which a project is based assists in evaluating its effectiveness and consistency.

Resources, Management and Staffing Structures: The size of the budget, staffing and other resources also helps to put a project into perspective and, combined with other factors (eg. number of participants involved), can put its potential impact into perspective.

Process/Methods Used: To understand a project, a detailed understanding is needed on what processes, methods and techniques are used to achieve the desired outcomes. These should reflect the underlying theories or philosophies of the project and should be appropriate to achieving its specific niche.

Impacts to Date (and evaluation approaches used): A classic approach to looking at impacts is through Bennett's Hierarchy – looking at: Reactions and changes in Knowledge; Attitudes; Skills and Practice. Indicators for changes at the industry or community levels beyond the immediate participants are also included. The need to also note the evaluation methods used helps to put the impact data provided into perspective (eg. subjective opinion versus harder data).

Effectiveness: In the initial trials with this pro-forma, effectiveness focused on the learning support within the target community. Although this is a measure of the potential for sustainability and impact, the effectiveness criteria needs to be developed further. Consider – how many people/enterprises are involved or affected; the degree of change achieved; the return per dollar invested?

Project Documentation Available: It is important that people wanting to follow-up on specific projects can go to original project sources – eg. project reports, evaluation reports etc.

Issues: Issues will arise during the course of a project. Limitations, problems, new opportunities, concerns, unintended impacts etc. will show up. It is important that people considering 'duplicating' a project are given insights into these issues before embarking on the same course.

Comments/Conclusions: This is to provide scope for the person looking at the project to deliver a critique/reflection about the project. How did it appear to stack up against what it promised? What could have been done more effectively or differently? What applicability does this have elsewhere?

Review Methods: This assists to put the project summary (above) into perspective. What was it based on? Was it a summary of an evaluation document or did it include interviews with key players? Was it based on personal experience and internal documentation?