The utility, application and viability of Collective Land Management as a tool for conservation

Literature & Case Study Review
for the Gamtoos Valley
Collective Land Management Project

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Preface

This review is part of the groundwork for the development of a conservation project in the Gamtoos Valley area. We wish to explore whether common property resource management principles can be applied to private land in this area and this review is intended to assess the viability of doing so in this area.

Introduction

Recent advances in conservation biology, landscape ecology, and ecosystem science have uncovered the need to consider biodiversity management at a spatial scale that is broader than that of the individual property. Ecological processes, and the ecosystem services they provide, are seldom restricted to ownership boundaries. Soil formation, erosion control, hydrologic function, biogeochemical cycles and faunal metapopulation migrations are just a few examples of ecosystem processes and functions that do not start and stop at property boundaries (Kittregde 2005). Similarly, the consequences of activities that degrade ecosystem functioning and their ability to provide services are also not restricted to individual properties. For example, land and water degradation leads to the loss of ecological function across whole regions. This not only affects the maintenance of biodiversity but also the ability of the landscape to support sustainable livelihoods (Kittredge & Rickenbach 2002). The ability to conserve and protect ecosystem processes is only possible when natural resources are considered and conserved at scales that are larger than the individual property (Kittredge 2005).

Breakdown of ecological and production systems in the western world is occurring at such a rate that some researchers call it an "emerging trend" (Coop & Brunckhorst 2000). Farmers are faced with balancing social demands and the biophysical capacity of their landscapes with the requirements to meet debt repayments from declining returns, increasing pressure from government regulations and policies, and global markets that ignore all these factors (Coop & Brunckhorst 2000).

Landholders have limited options to deal with these issues. Most often, they are compelled to try increase production from the same piece of land. The resultant increased demand on the system leads to a loss of ecosystem function and resilience as the natural capital base is undermined. This ultimately results in resource degradation. A decline in the productive resource base occurs through the loss of functional biodiversity, soil structure, organic material and moisture content. This is first manifested by lost resilience and extended recovery periods from events such as drought. In a relatively short time, production systems, even some traditionally considered secure and productively stable start collapsing and farms become non-viable. Eventually broader scale economic and social breakdown occurs across rural communities (Brunckhorst et al. 1997).

After examining this phenomenon, researchers from around the world are coming to a converging realisation – there is a need for a fundamental reorganisation of man's relationship with nature. Coop & Brunckhorst (2000) refer to this as a 'new agricultural paradigm' in which landholders balance production against conservation issues. They state that this will require a shift in the way farmers manage their land to include planning for the allocation of resources for

the maintenance of natural processes and the development of an enduring and restorative ecological capacity as an integral part of agricultural practices. We must start paying more attention to modifying institutions, especially those related to property rights, if we are to solve the environmental problems falling upon us and if we are to promote sustainable development (Naskali 2003).

The re-examination should also allow for the development of new models and we should nurture and encourage institutional innovation in this regard. He argues that researchers should become unlocked from current concepts surrounding private property and should consider the development institutions and property rights regimes that are compatible with ecosystem functions and the goods and services they offer. These institutions and regimes will all require some level of cross-boundary coordination or management (Rickenbach & Reed 2002, Klosowski *et al.* 2001), and mechanisms for this should be explored.

Proposals for institutional change through an ecosystem-based partnership approach have been made. This approach has been furthered by the development of prerequisites for successful partnerships (see Breckenridge 1995). The present is the time to begin to encourage landowners into voluntary co-operation by increasing the sense of responsibility divided among them. New forms of collective management or some kinds of coalitions need to be sought out, enabling the parties concerned to benefit at least in the very long term (Mackay & Jones 1997).

Some researchers have looked to common property resource management systems for a theoretical basis for this approach. Common property resource management has gained creditability as a *bona fide* and potentially sustainable system to manage resources. Some common property regimes have endured for centuries without a decline in productivity or ecological functioning (Ostrom 1990). Coop & Brunckhorst (2002) believe that in order to deliver sustainable rural futures, common property institutions need to be revisited and it should determined, through application, if these social organizational arrangements are socially and ecologically robust. They advocate strategic adoption of common property concepts, utilizing the experience gained by institutional and political theorists, and the application of these to on-ground scenarios in a variety of contexts. Once demonstrated through application, they further believe that the common property approach, with its unique qualities of flexibility, collaboration and scale, may evolve into a powerful tool capable of addressing critical issues that have to date evaded the institutional constraints of conventional paradigms (Coop & Brunckhorst 2002).

While a radical conversion from private control of land to collective control may not be desirable for a variety of reasons, researchers should begin experimenting by merging aspects of successful common property systems with private property. By doing so, a hybrid system may evolve that is more robust, sustainable and applicable to current situations than either of the two parent systems. In order to avoid confusion with pure common property systems, we have called this hybrid system collective land management or cross boundary management.

An "on the ground" approach should be adopted in this experimentation. This is supported by Davidson-Hunt & Berkes (2003) who state that a special focus on developing local-level institutions is needed. They argue that local-level institutions learn and develop the capacity to respond to environmental feedbacks faster than centralized agencies. Being "on the ground" they are physically closer to the resources, there is no separation of the user from the manager,

and there is more learning-by-doing in accumulating a base of practical ecological knowledge (Mackay & Jones 1997).

Collective land management: a hybrid of private and common property systems

Common property theory may provide contemporary landholders with the principles to achieve sustainable land management. A system that incorporates common property elements into private property (what we call collective land management) might be more resilient and have the adaptive capacity to deal with modern social and economic pressures of change. An approach that combines flexibility, collaboration and appropriate scale may be the much-needed tool to address environmental and social decline in rural areas (Coop & Brunckhorst 2002).

Collective land management can be defined as a system whereby landowners retain their individual titles but extend their resource base through a common property resource management arrangement and benefit from this and from making collective decisions and shared enterprise. Collective management decisions promise to be better matched to multi-scale natural processes that supply ecological goods and services. Collective property management is a self-help framework that is not dependent upon changes to natural resource policy and government incentives. This is important because rural areas in crises cannot afford to wait until better natural resource management policies reach ground level (Coop & Brunckhorst 2002).

The establishment of a common piece of land by merging sections of individual private properties is a good way to start in developing new collective property management systems. This piece of land is the responsibility of no-one member of the system but is the responsibility of all and it serves several functions. Members of the system benefit through the scaling-up of the productive resource simply through the benefits obtained by additional acreage. It provides buffering against drought, relieves current productive pressures, and is seen as a zone of focus throughout the system by providing connectivity for members. The common land also serves a more important function in that it provides an area for experimentation, group decision-making and collective management (Brunckhorst *et al.* 1997). It is this area of land that the institutional learning develops. As members become more confident in their ability to manage collectively, these lessons will be applied across larger areas even though individual property title is retained. As it evolves, this institutional learning provides the framework for building collective responsibility, monitoring of activities and environmental condition of the landscape, and self regulation and adjustment (i.e. flexible adaptive management). In turn through a sharing and management of infrastructure as well as natural resources, other capacities and resources such as time, labour, equipment and money are freed up for allocation in other activities or diversification (Brunckhorst 2002a).

Kittredge (2005) examines the benefits to such cooperation. This has been adapted and summarised as follows:

- Increased productivity (e.g. landowners can focus their attention on the most agriculturally productive areas of the collective property and there is thus less pressure to utilise every hectare of land, including the more agriculturally marginal areas)

- Opportunities for conservation (e.g. following on from above, sensitive areas and habitats can be set aside for conservation; larger populations of indigenous animals can be maintained)
- Ecosystem services and natural processes can be managed at a more appropriate scale (e.g. allows for rehabilitation of rivers)
- Physical consolidation of very small parcels to enable an effective and efficient management unit in fragmented landscapes.
- Reduced inputs (e.g. farmers can share labour, equipment, insurance costs and can purchase supplies in bulk).
- Co-ordinated management and management planning (e.g. farmers can develop system-wide fire management and invasive alien plant management programmes; farmers can jointly construct and maintain roads)
- Shared knowledge, experience and assistance and improved information and educational opportunities.
- Increased potential for lobbying and raising political awareness.
- Financial assistance (e.g. a coalition of landowners will have improved access to financial support from government and private sector grants than individual landowners)
- Joint marketing opportunities and the potential to develop a regional or local 'brand' for products, thereby creating a market niche and potentially greater value.

This spectrum or potential list of cooperative benefits may be limited in size only by the creativity of the owners and the organization. The potential benefits depend on the local circumstances, so all of the benefits of course would not be generated in all cases (Kittredge 2005).

In order to create access to these benefits, an approach to parcelling up private titles of adjacent farms that will be acceptable to farmers and their families is needed. To allow title to be retained while bundling up a much larger collective resource pool with scales of economy and production benefits requires a novel application of common property resource management principles (Brunkhorst 2002a).

Key elements of cooperation

Several characteristics have been shown as prerequisites for collaborative management arrangements to succeed. Most basic of these are voluntary involvement, mutual goals and economic incentives. The acceptance by landholders to participate in a collective land management institution is likely to be determined by its ability to improve scales of economy and to address financial viability through cost restructuring (Brunckhorst 2002a).

Ostrom (1990) proposed a set of design principles that characterise enduring common property institutions. These are:

1. Clearly defined boundaries – individuals or households who have rights to withdraw resources must be clearly defined, as must the boundaries of the system itself.
2. Congruence between appropriation rules and provision rules and local conditions – rules restricting appropriation of resources must be related to rules linked to the provision of labour, material and money and to the local conditions.
3. Collective choice arrangements – individuals affected by rules can participate in modifying rules.

4. Monitoring – monitors must actively audit conditions within the system and be accountable to the users or be the users themselves.
5. Graduated sanctions – users who violate rules must be sanctioned according to the seriousness and context of the offence.
6. Conflict-resolution mechanisms – users must have rapid access to low-cost mechanisms to resolve conflicts.
7. Minimal recognition of rights to organise – the rights of users to devise their own institutions should not be challenged by external government authorities.

The experiment will be to determine if these principles apply to the subtly different collective land management scenario. Brunckhorst (2002b) states that these principles, and other principles for sustainable common property systems, will indeed need to be applied when designing new collective land management systems. He goes further to state that this must be combined with a practical understanding and knowledge on how to do it. Above all, Brunckhorst (2002a) states that such an approach requires a group of landowners who are prepared to take a leap of faith to do something different.

Conditions that are conducive to creating collective land management systems

There are several factors that could improve the potential for establishing a new collective land management system (Kittredge 2005). The following points are of relevance:

- This type of intervention will work better in areas suffering from environmental and social decline. This acts as a 'threat' or 'catalyst' to inspire landowner interest.
- Organizational jump-start - There needs to be a 'vehicle' to bring landowners together. Few cooperative management arrangements, if any, have developed in the absence of government or external intervention or inspiration. Conservation-oriented non-governmental organizations could play a role in lieu of direct government involvement.
- Be local to be relevant - Most if not all examples of cooperation have roots in a small, local village, or watershed area. While modern communication enables local groups to network with one another and facilitates larger scales of cooperation, this activity probably needs to remain local to remain relevant. This raises the question, however, of absentee ownership, and whether or not 'local' is important to someone who may reside hundreds of kilometres away from their land and visit infrequently. Absentee owners may seek some other measure of relevance, if 'local' is less important to them. However, distant owners who miss their land may be strongly attracted to the local nature of cooperation.

Why collective property management will not always work

Cooperative management approaches, such as collective land management, do not have universal appeal and they are not a universal cure for energizing landowners. Kittredge (2005) developed a list of factors that prevent landowners from participating in collective forest management. This list has been summarised and generalised below:

- Disinterest in their properties in general (due to absentee ownership, recent acquisition through inheritance, preference for urban lifestyle/values).
- Disinterest in the financial aspects of their properties, contrasted with the primary financial motivations of many cooperatives.

- Distrust of an organization or of the profession of conservation. Dislike of, or personality differences with, local cooperative leaders.
- Belief that they can manage their land better on their own; achieve greater returns independently.
- Ability to 'free ride' and indirectly receive sufficient benefits of cooperatives without actually joining/ participating.
- No market incentive to participate.
- Needs/interests are currently met or satisfied by a different model or landowners make good living off current practises.
- Perceived 'costs' of participating do not outweigh the perceived 'benefits'.
- No driver or facilitator to promote change or adoption of new practices.

Suda et al. (1999) review obstacles to cooperation in collective forestry enterprises by landowners in Bavaria. They describe the following obstacles to cooperation that need to be overcome:

- Perspective or personality of owners. Most owners are protective of their own property and might be reluctant to think and act as a group.
- Communication and the differences between beliefs and knowledge. Objective information is needed to enable informed decision-making.
- Rights and policy or regulations (particularly pertaining to environmental protection) may represent an obstacle to cooperation.
- Economic benefits of management: some owners place a high priority on managing for financial benefits and others do not.
- Physical structure of the ownership (e.g. the average Bavarian owner has 4 ha of woods, in perhaps 2 or 3 parcels.
- Technical differences - it can be difficult to organize actual timing of harvest, machinery capabilities, access and products.

In addition to this, Naskali (2003) states that the existence of barriers, such as the lack of a common culture (terminology, values and objectives) among stakeholders can prevent cooperation. One way to address these barriers is to use an Agreement to Collaborate that lays out rules, responsibilities, limitations, and desired results. Ranging in formality from non-binding to contract, these agreements serve numerous purposes such as alleviating mistrust and facilitating communication.

Marshall *et al.* (2005) call collective land management "group farming" and list the following reasons why the approach has not been more widely adopted:

- A shortage of experts to advise on and facilitate group farming.
- Problems of finding suitable partners within manageable distance of each other.
- Farmers' fears of making a bad choice of partners.
- Farmers' lack of understanding of the advantages of group farming.
- Farmers' perception of the loss of independence that would occur.
- The rules necessary for the operation of a group farming operation would be unacceptable to some farmers.

Ultimately, one must accept that this approach does not have universal appeal, and that some landowners may be satisfied with the status quo.

Difficulties of Collective Property Management

An ecosystem-based approach to management is complex when the ecosystem is owned or controlled by a large number of individuals. Collective control is far from easy, indeed McKean (1996) states that it is often highly unpleasant but that it is the price to be paid for the impairment of natural resources and for living on a small planet. The collective approach is sensitive to transaction costs, co-ordination costs, information collecting, monitoring and enforcement (Hanna *et al.* 1996). The costs of exploring and initializing management options based on common property theory are high. Without a support, crafting and exploring alternatives will prove too risky for small groups of individuals (De Young 1999). Brunckhorst (2002b) agrees that the initial collective planning phase is substantial as issues relating to enterprise consolidation and operation, the establishment of the managing body (including determining the rules, voting rights and formula for the distribution of proceeds), and the identification of key infrastructure and equipment are considered.

General landowner distraction or apathy towards their properties may slow progress. Many owners, especially the increasing number of absentee, non-resident landowners, have little time or energy to devote to their properties because they are fully occupied by the other requirements of daily life that compete for their attention (Kittredge 2005). Landowners that are engaged in agriculture may feel that attempts to establish a collective arrangement are a distraction from their daily activities. Even if landowners can be convinced to establish a collective management system, it is not guaranteed to endure. Unless landowners see continued benefit from collective management their interest may wane (Kittredge 2005).

Case Studies

Despite the numerous studies analysing common property institutions and their contribution to sustainable management of natural resources, there are very few examples which have been carried out within western-world contexts. It seems as if these authors chose to study common property institutions in the purest form and under the most unadulterated conditions possible, where external intervention by both the State and the market is extremely limited (Thomi *et al.* 2006). Consequently, a review of a large number scientific and popular articles revealed only two case studies where common property principles have been applied to private farmland in western-world situations.

This review examines these documented cases studies that apply common property principles to the management of private property. Compounding the paucity of documented case studies is the fact that most projects are "works in progress" rather than successfully completed projects.

The Tilbuster Commons – New South Wales, Australia

The Tilbuster Common Resource Cooperative Project was a three-year project initiated by the Institute for Rural Futures of the University of New England, Australia. The project's purpose was to form a contemporary commons with the participation of a number of farmers on the New England Tablelands. Individual farmers contributed land, livestock, infrastructure and labour to form a common pool arrangement. These combined resources were managed collectively by the entire group as a single enterprise. Collectively known as the Tilbuster Common Resource Cooperative, the members and their families established a grazing arrangement to demonstrate that a collective land management model is capable of delivering improved economic returns while ensuring the sustainability of the productive resource through the allocation of resources for the maintenance of ecological integrity. This is achievable only through an integrated management regime at a more appropriate scale (Coop & Brunckhorst 2002).

The aims of the project were to:

1. Experimentally establish a model collective land management institution for rural resource management.
2. Demonstrate the capacity of the institution to deal in an integrated way with the decline of ecological and social elements of rural production systems.
3. Development of a transferable methodology or approach for the establishment of other similar institutions.

After nearly three years of planning, the landholders formed the Tilbuster Common Resource Cooperative. The decision to participate was based, not on a set of rules that were already in existence, but rather only on a guiding collective land management philosophy in which issues that affected the group would be managed collectively. Each participating member could see the advantages of the collaborative arrangement and had the confidence that the group was capable of negotiating an equitable outcome (Coop & Brunckhorst 2002). Even though the arrangement had no legal standing, it provided a social vehicle for the group to continue exploring a way forward. Through this vehicle and its practical achievements, trust, credibility and acceptance of each others' strengths and weaknesses grew. Over time, each participating

member saw the advantages of collaborating. Increasingly, confidence grew in the group's capability to negotiate equitable outcomes with multiple benefits (Williamson et al. 2003).

While establishing the Tilbuster Commons, landowners were asked to identify three core values that were expressed as objectives that could be used to test and monitor decision making. In order of importance to the group, these were (Brunckhorst 2002a):

1. Freeing up of time.
2. Improving the natural environment and the resilience of the resource base.
3. Improved financial returns and reduced input costs (including reduced labour).

Further discussion and more intensive planning over the next eighteen months led the group to start considering the kind of legal structures and corporate arrangements they needed. The group felt strongly, however that the simplest structure providing flexibility would best serve them. The group considered various legal structures to establish an entity to undertake the management and enterprise development of the Common, including a Partnership, Trust, Co-operative and company. Towards the end of the year 2000, the group decided that a private company structure seemed to provide the best arrangement (Brunckhorst 2002a).

In January 2001, Tilbuster Commons Pty Ltd was registered and the group worked towards getting various elements in place for the company to start functioning in the next financial year. With the arrangement of the Commons, and the collective decision making and 'holistic' goals of the group, there is an apparent 'conflict of interest' which is established in the company, because the landholders are also directors of the Company. It is appropriate and useful to deliberately create a tension between the individual landholders' interests and the collective interests of the group of landholders represented in the company. With both hats on, individuals are always considering the best options of benefit to themselves and the other members through the company (Brunckhorst 2002a).

Once established the priority issues included livestock management issues, grazing and pasture management, the strategic allocation of conservation and rehabilitation areas, and the issues associated with the operation of the Commons. Since that time the processes that guide the management of the common have been continually evolving and developing through this collaborative process (Coop & Brunckhorst 2002).

By recognising the distinction between resource utilisation and land tenure these landholders consolidated their herds and grazed them across all the properties involved in the commons. This allowed for the utilisation of grazing techniques such as rotational grazing regimes over a much wider area, and offered benefits including improved pasture and weed management, drought management. In addition pest issues such as external and internal parasite control could be managed far more effectively, but with reduced costs in terms of fencing or chemical needs. At broader and more meaningful ecological scales across the landscape, it also provided opportunities for long-term conservation and maintenance of rare basalt associated ecosystems and for restoration. In order to do this, it was necessary to assess natural capital across the ecological landscape of the collective property. Landholders learned to share, nurture, conserve, restore and harvest across the entire area. This allowed for certain farming activities, such as cropping and haymaking, to be performed on the most suitable and resilient areas and the remaining land was used for grazing, conservation, restoration or a suitable diversification. This

removed the pressure for individual landholders to conduct these activities independently, on largely unsuitable locations (Coop & Brunckhorst 2000).

The project demonstrated improved resource planning and integration and this lead to more efficient and sustainable grazing, improved pasture, improved water quality, reduced labour and other input costs, increased drought resilience and improved financial returns (7 to 12% over 3 years) (Coop & Brunckhorst 2002).

The Tilbuster Commons was designed as a three-year experiment running from 1999 to 2002. From the above, it is clear that the experiment was successful and that the collective land management model has significant potential. After project period, the landowners decided to continue operating the initiative due to the benefits they were receiving. However, in 2004 the Tilbuster Commons ceased functioning as a collective land management initiative due to the withdrawal of one of its members for personal reasons that were not directly related to the initiative (David Brunckhorst *pers comm.*). Thus, even after spending significant resources have been spent on establishment, collective land management ventures may disintegrate due to a variety of reasons, including those related to the complexities of human behaviour.

Nonetheless, Coop & Brunckhorst (20002) believe that the approach is transferable to other farming systems, resource uses, and communities and that it could be particularly useful in more marginal landscapes and in areas where farm sizes have become too small to be viable or sustainable.

Furracabad Valley – New South Wales, Australia

The successful experience of working together for shared environmental outcomes stimulated a group of landholders in the Furracabad Valley of northern New South Wales to work together more closely to achieve greater economic and social benefits. The aim of the project was to 'develop an innovative way of managing a collective group of farms and in doing so create new ways to use human, natural, built and community resources to provide a more enriched environment for the stakeholders'. This 'innovative way' was to involve a group or 'cluster' of farms 'all managed under one entity' (Marshall *et al.* 2005).

The project concept evolved from the Furracabad Landcare Group that had worked together successfully for over a decade in enhancing the environmental sustainability of the Furracabad Valley. This valley consists of about 25-30 farms, varying from 10 to 1,500 ha. The accomplishments of the landcare group led its members to consider how they might use the platform, established for environmental reasons, for local collective action to pursue economic and social sustainability in their district as well (Marshall *et al.* 2005).

Driven by the concerns for the future, the group of farmers completed a program offered by New South Wales Agriculture in order to improve their skills in business planning. The program highlighted the economies of scale that the smaller farms were missing out on. The view was formed that all farms in the valley could gain economically if they were to pool their resources into a single collective property enterprise - that they referred to a 'farm cluster' - and share the resulting economies of scale. Compared with the alternative of some farmers buying others out

in order to capture these economies for themselves, it was anticipated that the group approach would strengthen the district's social fabric (Marshall *et al.* 2005).

The farmers decided that implementation of the concept would best occur as a formal project involving professional support and a staged consultation process. The project funding application justified this approach as follows: 'Farmers have traditionally operated in management isolation, making their own decisions and rarely having to make joint decisions that directly influence their financial future. It is here that the greatest challenge lies in ensuring that stakeholders fully understand the concept and the impact on them'. External project funding was sought because the smaller farmers interested in participating were not in a position to share the costs of the professional support envisaged for the project. The funding application was approved in early 2002. The project method outlined in the funding application comprised the following steps:

- undertake a 'resource audit' to indicate the potential gains from forming a group farming enterprise;
- outline a structure for implementing the concept and identify the likely gains under that structure for interested farmers;
- develop the concept to the stage of a business plan;
- obtain acceptance of the business plan by a 'critical mass' of farmers; and
- achieve sign-off from these farmers on establishing the group farming enterprise.

The following guidelines were suggested in the implementation of the project (Marshall *et al.* 2005):

- There is no single best way of translating the group farming concept into practice. The best way in the case of the farm businesses participating in this project could be determined only on the basis of their particular circumstances. The basic concept involves multiple farm businesses establishing some kind of joint organisational entity to manage the lands owned by the businesses as if it were a single property. The businesses would agree at the outset on a 'constitution' for the joint entity, which would cover such issues as selection procedures for directors of the entity, rights and responsibilities of the directors, rules for apportioning profits, procedures for conflict resolution, procedures for selecting management and labour, and so on.
- A business plan for the joint entity would be negotiated by the participating businesses. This would identify the enterprise mix to be established and run by the group farming operation over the agreed period for which the land owned by participating businesses is to be leased to that operation. This business plan would determine which of the land and non-land assets owned by the participating businesses would be of value to the group operation.
- On the basis of the business plan, the joint entity would negotiate with participating businesses how they would be remunerated for the assets needed to put the plan into action. Each participating business would retain private ownership of its land, but agree to lease some or all of its land to the joint entity for an agreed period according to an agreed scheme of remuneration.
- The joint entity would also remunerate individual businesses for the non-land assets acquired from them, such as livestock, machinery, and other plant and equipment, according to market value. Persons involved in the participating businesses could be employed by the entity at agreed rates of remuneration. However, it need not be

obligated to employ all these persons or be restricted to employing persons involved in the participating businesses.

The identified economic advantages of the group farming option arise from the economies of scale it offers prospective members. It allows them to pool their land parcels into a single farming operation closer to the scale at which their goals can be realised most efficiently. The social advantages of the option arise from the scope it offers for this optimal scale to be achieved without farmers buying their neighbours out and consequently losing at least some social interaction with, and support from, them. The advantages of the option revolve around economies of scale and a variety of such economies were identified by the farmers involved in the project (Marshall *et al.* 2005):

- Pooling land under a single entity offers productivity gains to the extent that there are production synergies between the land parcels that are pooled. These synergies can arise from the parcels 'supplementing' or 'complementing' each other. Land parcels supplement one another when they share similar characteristics that allow production efficiencies or market advantages from expanding an existing activity (e.g., sheep breeding). They complement one another when pooling them establishes sufficient areas of land with different characteristics that specialisation of land use becomes possible.
- Pooling the land of different farm businesses might also offer important non-agricultural productivity advantages. This may occur as a result of supplementing land suitable for a particular non-agricultural land use (e.g., ecotourism) such that the total area available for that use becomes sufficient to pursue that use on a commercial basis. Non-agricultural commercial land uses of this kind that were mentioned by the participating landowners included farm-stays, wildlife tours, hunting and fishing, and convention facilities.
- The group farming option can provide sufficient scale to realise productivity and personal benefits from specialisation of labour more generally. To the extent that the skills, temperaments and interests of members of the group differ, the scope for each member to spend more time on activities suited to them and at which they enjoy a comparative advantage will make for a more productive and motivated group.
- The increased scope for specialisation of labour can also increase the potential for children and senior individuals to contribute to the success of a farm business. Despite any loss of strength or vitality, people can continue to make valuable contributions as they age by sharing their knowledge and experience as well as by taking on some of the less strenuous tasks. Any diversification of activities carried out by a group farming enterprise might also be expected to broaden the opportunities for children to find a niche in its work life. The greater variety of mentors for children can also broaden the opportunities for children to develop the kinds of skills that they would need to find work in the district as an adult.
- Group farming can provide sufficient scale to permit fuller utilisation of permanent labour. Operating multiple farm businesses as a single entity expands the scope to include activities that soak up seasonal surplus capacity in permanent labour and thus reduce labour costs per unit of overall output. To the extent that skilled and experienced permanent labour is often in short supply in the project area, fuller utilisation of this labour is even more valuable.
- By leading to formation of a larger labour pool than any individual business would have at their disposal, the option provides for greater flexibility in matching the size and composition of labour teams to the demands of particular tasks.

- By increasing the size of the labour pool, the costs per employee associated with satisfying accreditation and other quality control requirements, occupational health and safety requirements and so on can be reduced (e.g., it might not take much more effort to train two employees than one).
- Forming a larger labour pool might also provide scale economies in the training of farm apprentices. The demands on any one worker to provide hands-on experience to an apprentice would be reduced, and the apprentice might be expected to obtain a higher-quality training experience as a result of learning from specialised workers who are more skilled in performing their assigned functions than would be 'jacks-of-all-trades'.
- The greater scope the option affords for working in teams can foster learning and innovation by increasing opportunities for 'bouncing ideas around'. Greater teamwork can also offer important psychological and social benefits through increasing the possibilities for sharing with peers the emotional highs and lows associated with successes and failures. Teamwork can also motivate individuals who do not want to let the team down or be outshone by their peers.
- Working as part of a larger team offers team members greater scope for taking time off due to the potential for coordinating individuals' work rosters over a week and over a year. Working within a team can also relieve the pressure on individuals to 'soldier on' when they should take time off for health reasons.
- Pooling of land through a group farming arrangement provides opportunities to reduce business risk for group members in at least two ways. First, their income will be derived across a wider and more diverse landscape the total production from which will depend less on single climatic or other natural events than would their smaller and less diverse individual holdings. Second, the pooling of land provides greater opportunities for diversifying the enterprise mix beyond that possible for any individual farm business.
- Group farming also allows the farm businesses joining it to share the risks of innovation. Trying out innovative opportunities often requires a minimum scale of investment that can expose individual businesses to a level of financial risk they are unwilling to bear. Spreading the required investment across a number of businesses can reduce their respective risks sufficiently that they become willing jointly to take a chance that would have been too risky as individuals.
- The group farming option can provide for sufficient scale of operation to own larger and more up-to-date items of machinery and plant that the individual businesses could otherwise afford only to make use of via contractors. Aside from the contracting costs avoided as a result, ownership can be expected also to provide productivity benefits through enabling greater timeliness of machinery operations.
- Group farming can also permit fuller utilisation of machinery owned by group members, thus spreading the fixed costs of this ownership over a significantly greater level of production.
- The increased scale of business from forming a group farming enterprise can strengthen market power in purchasing inputs and services and thereby reduce the prices paid for these inputs and services.
- This increased scale of business can also strengthen market power in selling outputs from the business and thereby increase the prices received for them.

Farmers participating in the project also identified the following disadvantages to group farming (Marshall *et al.* 2005):

- Loss of independence arising from having to fit in with a group-determined business plan.

- Increased dependence on others. A sentiment expressed a number of times was 'I'd rather make my own mistakes than have others make them for me'.
- Loss of identification with what is produced and with one's land. As one farmer commented, 'I wouldn't be able to stand there at the sale-yards and point to a pen of sheep that I could say was mine'. Even though the land pooled under the group farming operation would remain under private ownership, the fact that each parcel would be managed and worked collectively meant for some farmers that the pride they take in the condition of their land would be lessened.
- Reduced motivation to work hard in order to 'get ahead'. One farmer observed that there would be less reason for individuals to work hard and long for a group farming enterprise if the benefits of working harder and longer were shared by everyone. Others commented that this risk could be forestalled by devising remuneration arrangements that adequately reflect differences in the levels of effort that individuals put in.
- Risk that the group farming enterprise will not employ an individual farmer's labour, thereby making him or her worse off if alternative employment opportunities do not exist.

While virtually all the farmers interviewed in the project acknowledged group farming to be a good idea in principle, for most it was 'too much, too soon'. In a few of these instances, changes in family or other circumstances had become a further obstacle to participating in the option. In some cases, farmers interviewed stated plainly that they could not see themselves fitting in comfortably with this option. Nonetheless, the project Steering Committee was optimistic that if a group farming arrangement based in the Furracabad Valley could get started, then the reluctance of some other local landholders to join the arrangement would gradually be overcome (Marshall *et al.* 2005).

While the landholders appreciated the potential social and environmental advantages of joining a group farming enterprise, they agreed that their decisions to join would depend ultimately on evidence that they would benefit in economic terms. In order to help landowners consider the economic implications of joining, the project implementers led them through a likely suitable structure for a group farming arrangement. Most important within this structure, economic rewards in the group farming enterprise must be apportioned according to two key principles: (i) all contributions of inputs to the enterprise should be remunerated commercially; and (ii) all remuneration should occur transparently (Marshall *et al*. 2005).

The group farming enterprise structure would involve the contribution of land, labour and working capital to a company that would run the affairs of the enterprise. Under this structure, the resources contributed by the participating farm businesses would generate a single pool of gross income to be shared between them. Deducting from this pool the variable costs of the various enterprises utilised to generate it would yield the gross margin of the group enterprise. Deduction of the overhead costs of the group enterprise and the reward paid for labour and management would give the gross profit available for rewarding the land and working capital contributed by the four participating businesses. The reward for the working capital contributed – (i.e. the net profit) – would be given by deducting from gross profit the reward allocated for land. This net profit would be available for some mix (decided by the company directors) of paying dividends to the participating businesses and reinvesting in the group farming company (Marshall et al. 2005).

The following emerged as key lessons of the project (Marshall *et al.* 2005)

- Timing - the source of many of the obstacles to gaining the commitment of farmers to the group farming concept can be traced to time. This factor was critical in two ways. Firstly, circumstances need to be such that a 'critical mass' of individual farmers within reasonable proximity to one another are ready to join a group farming arrangement at the same time. Such a favourable situation seemed to prevail around early 2000 when the concept was conceived and the funding application was submitted. By the time that the project commenced, however, the situation had become less propitious. Family circumstances had changed in some of these cases, with sons or sons-in-law unfamiliar with the group farming concept having become more interested in taking over farm management responsibilities. In these cases, the original interest in the concept had been motivated considerably by the scope the concept offered for ageing farmers to retire from physical work while retaining a say in the management of their own and other land in the group farming company and remaining in a position to share their local farming knowledge with other members of the group farming operation. A son or son-in law taking over the management of their farm would offer many of the same benefits, in addition to the satisfaction of keeping the farm 'in the family'. In other cases, farmers formerly committed to the concept had left the district. In one or two other cases, it seemed that the earlier enthusiasm for the concept had simply dissipated with the passage of time, perhaps due to the morale-sapping effects of the drought or disappointment at loss of interest from others they had looked forward to working with in the group farming arrangement.
- Conservatism - Due to conservatism of farmers, considerable time is often needed to change their attitudes. Probably the most formidable attitudinal obstacle in this respect derived from the widespread 'rugged individualist' self-image of many Australian farmers and their associated preoccupation with operating their own land without outside interference. Changes to attitudes of this nature do not occur overnight. Thus it was optimistic to expect that the attitudes of farmers unfamiliar with the group farming concept at the beginning of the project could be shifted sufficiently by its end (i.e., within three-quarters of a year) that they would seriously consider giving up their independence in order to join a group farm. Perhaps the concept might have been implemented within the life of the project if more of the farmers already interested in the concept had remained in a position to participate in its implementation.
- Safeguarding the social and environmental benefits of the concept - despite the stated emphasis of the project on maintaining and strengthening the social fabric within and surrounding the Furracabad Valley, concerns were raised during consultation meetings that the formal structure envisaged for the group farming enterprise may stand in the way of realising social benefits of this nature. A particular concern raised during consultation meetings was that formalisation of work routines and specialisation of tasks within a group farming company might leave less opportunity for children to participate in, and thereby learn from and develop an interest in, 'life on the land'. It is often the case on family farms that children 'tag along' to help with appropriate tasks and even do some easier tasks alone. Although short-term productivity may be less as a result of this 'investment' in building the children's skills, confidence and enthusiasm, this investment is clearly important for the longer-term social sustainability of agriculture. It was recognised in the discussion pursuant to this concern being raised that social considerations could indeed become sacrificed in a group farming company's pursuit of economic goals unless the social goals of entering the arrangement were enshrined in the rules of the company. It was agreed unanimously that the social goals are fundamental to what their group

farming concept is about, and that they should therefore be written into the constitution of the company as some kind of 'charter'. For similar reasons, it was agreed also that the environmental goals of the company should also be enshrined formally in a charter.

In the project, the concept of group farming, or collective land management, was investigated as a way of farmers in and around the Furracabad Valley responding to the ongoing adjustment challenges posed by their declining terms of trade. The potential of the concept to help farmers in the Furracabad Valley face these challenges more resiliently was demonstrated in the project. A preliminary budgeting exercise indicated that individual farmers joining a group farming arrangement would benefit in financial terms, in addition to the social and environmental benefits that would be generated (Marshall *et al.* 2005).

In spite of this, it was not possible to obtain sufficient commitment from enough farmers in order to establish a group farming operation during the life of the project. Nonetheless, the building blocks were put in place for landholders to capitalise on. The project strengthened awareness and understanding of the group farming concept and proposed a structure through which it can be implemented. Indeed, since publication of the project report three further meetings of representatives from farm businesses interested in the concept have occurred. These meetings have been attended by two businesses involved in the project plus four businesses whose interest in the concept was stimulated by the project report (Marshall *et al.* 2005).

Marshall *et al.* (2005) believe that further research should be conducted on the influence of different types of farmers and the farming community on the potential for success of collective land management. Powell *et al.* (1982) found that 'farmers who decide to join forces will often be neighbours of long standing, close friends or even members of the same family. ... Where members are strangers to one another, they are most likely to begin by co-operating in a modest way, perhaps sharing only one piece of equipment'. Yet the households involved in the Tilbuster Commons began cooperating at a much more ambitious level than this, despite one of the households being known to the others for relatively few years. Often the critical ingredient is that 'something extra' which allows farmers' desires and capacities for increased cooperation to clear the hurdle of inertia: critical incidents, a combination of unusual circumstances, or a person to act as a catalyst, may be needed to develop momentum. Both the Furracabad and Tilbuster farming communities had individuals prepared to act as such a catalyst, and each succeeded in accessing external funds to support these catalytic efforts. However, the Furracabad experience reveals that the existence of such persons and funds does not guarantee success (Marshall *et al.* 2005).

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