Applying Group and Collective Action Theory to Community Forestry in a Social Landscape

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Highlights
- For community forestry initiatives, institutional support may act as an ameliorating influence on group heterogeneity;
- Depending on the social dynamics of the group, heterogeneity may re-emerge as a disruptive influence;
- Successful community forestry is predicated, inter alia, on group homogeneity and small group size;
- Community–based forest landscape restoration should be considered in the context of a social as well as a geographic landscape.

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Abstract
We applied group and collective action theory to a case study of the success of community forestry at three sites in Papua New Guinea (PNG) and one site in the Philippines. Though the medium of agroforestry extension, we studied the ameliorating influence of institutional support on group heterogeneity. Training, material assistance and community organising was initially effective in supporting collective action, but group heterogeneity re-emerged as a disruptive influence once active support ceased. Strong leadership and small group size acted as countervailing forces. We conclude that in PNG and the Philippines, attempting to scale up community forestry across a wide geographic landscape may not be feasible. Successful collective action to plant trees or manage forests is more likely on land on which group activities can be closely managed by their leaders, concomitant with sustained institutional support to develop a collective vision between heterogeneous sub-groups. For initiatives like the Bonn Challenge and the Global Partnership on Forest Landscape Restoration, our research suggests that planning and implementation policies should include a social as well as a geographic landscape.

1. Introduction

Group and collective action sociology has recently become a neglected aspect of community forestry. The literature is largely based on case studies and empirical evidence, i.e. description and analysis of cause, effect and context (see Baynes et al. 2015a). While the complex interaction of biophysical, economic and socio-cultural factors is widely acknowledged (see Padgee et al. 2006; Maryudi et al. 2012; Le et al. 2014), recent contributions to social theory which provide a background to how community forestry groups form and manage their affairs, is scant. The use of the word community is often vague and ambiguous in terms of social structure, homogeneity and shared norms (Charnley and Poe, 2007; Flint et al. 2008).

Community forestry still depends on the narrative proposed by Elinor Ostrom in 1990 that local communities can autonomously form groups to regulate the use of natural resources (Gilmour, 2016). She rejected Hardin’s (1968) ‘Tragedy of the Commons’ scenario of the management of common-pool resources, in which individual gain triumphs over collective good. Ostrom specifically disagreed with the views of the economist and social scientist Mancur Olson (1965), that rational, self-interested individuals will not act to achieve group
interests if they can ‘free-ride’ on the contributions of others. Collective action is feasible if there are appropriate social institutions\(^1\),

Since Ostrom’s seminal work, theoretical developments in the study of collective action for community forestry have been few, recent emphases being on enhancing women’s participation (see Agarwal, (2009a,b) and shifting the focus from conservation and preservation, to conservation through livelihood creation (see Baral 2007; Bahadur, 2011). Reviews of the effectiveness of community forestry have been mainly concerned with deriving lessons from the past, e.g. Larson (2004) for lessons learnt in Africa, Asia and Latin America, Pulhin et al. (2007) for the Philippines, Porter-Bolland et al. (2013) for Mexico, Fisher (2014) for Asia, and Gilmour (2016), generally. Their consensus is that the full potential of community forestry in developing countries has yet to be realized. Part of the answer may be that there are many definitions of what community forestry actually is, and that the literature from community forestry advocates is often uncritical (Fisher, 2014).

We suggest that there is a current gap in the manner in which social theory is used to guide community forestry initiatives in developing countries. This gap specifically relates to group theory and collective action theory, i.e. the principles which describe why and how groups form, cooperate, engage in intra-group conflict and collapse. Social theory relating to group size and composition has been investigated for a wide range of situations, e.g. religious group affiliation and coherence (Hoverd et al. (2009), political parties (Bloom, 2013); workgroup discrimination, (Boehm 2014); socio-metric testing (Velásquez et al. 3013); legislative lobbying (Schneider, 2014) and conflict resolution, (Levine et al. (2011), but less so for community forestry. Social theory relating to collective action has been applied to environmental governance (Ishihara and Pascual, 2008) wildlife management, (Wagner et al., 2010) and water resource management (Bisung et al., 2014), but less in recent years for community forestry in developing countries. Although Poteete and Ostrom (2004) drew on research from the IFRI\(^2\) research network, to attempt to find relationships between group size, heterogeneity and collective action (i.e. community forestry), several of their quoted case studies reported conflicting results.

\(^1\) We describe institutions as constraints which people devise to guide human interaction. Institutions may include strategies, norms and rules. Ostrom (2014) defined strategies as plans of action, norms as preferences concerning acceptable behaviour in groups, and rules as linguistic statements about norms but which carry an additional sanction if forbidden actions are observed by monitors.

\(^2\) International Forestry and Resources and Institutions.
Group theory and collective action theory will become important for those nations which use community forestry to address the Bonn Challenge through forest landscape restoration (FLR). This approach to forest restoration is explicit that forest restoration should occur with the participation and support of all stakeholders, rather than as *ad hoc* implementation of small or scattered restoration initiatives (Appanah, 2016). Unfortunately, there is little detail in the Bonn Challenge or FLR literature about dealing with the social landscape. This landscape includes stakeholders, i.e. people and groups, with attributes such as social networks, behaviours, activities and social capital which do not follow spatial patterns in the same manner as biophysical information (Ryan, 2011; Sabogal, et al., 2015). Identifying the social attributes of groups, including land which they control, and understanding which social attributes are necessary for collective action will therefore be critical to the biophysical success of community forestry-based FLR.

An opportunity to undertake research relating to group and collective action theory arose through two ACIAR projects, (i.e. ‘Enhancing the Implementation of Community Forestry Approaches in Papua New Guinea’ and ‘Improving watershed rehabilitation outcomes in the Philippines using a systems approach’) which were supported by the Australian Centre for International Agricultural Research (ACIAR). The research presented here complements and extends earlier findings from this project (see Baynes et al. 2016a), that extension assistance for clans to engage in community forestry is typically undertaken by one family or small group of families, rather than a clan as a whole.

In this paper we address the need for principles of group behaviour and collective action theory which can be applied to community forestry and FLR. We draw on the findings of over a decade of our research in the Philippines, and more recently in Papua New Guinea. In both countries, we had found that attempts to promote community forestry have largely failed and that the underlying reasons are social, economic or cultural, rather than biophysical (see Baynes et al., 2015a; Baynes et al. 2015b; Baynes et al., 2016a, Baynes et al., 2016b). For an overall case study of the effect of institutional support (i.e. training, material assistance and community organising) on the success of community forestry, we undertook research at three sites in PNG and one site in the Philippines. We use the results of the four cases to propose general relationships between group size and heterogeneity, and the role of institution support, as it affects the success of community forestry. In the next section, we present the
background to group theory and collective action theory. In the following sections we present the methods and results of the four cases. We interpret the results in terms of group and collective action theory in the social landscape in which the research occurred. Finally, we present recommendations which may be applied to community forestry and FLR in comparable contexts.

2. Methods: Background to group theory

Social theory which describes how people operate in groups and how they undertake collective action is treated separately in the literature. Neither is a subset of the other. Group theory specifically applies a focus to changes in group behaviour with size. Collective action theory, particularly for natural resource management, is more concerned with the situational and institutional factors which cause it to flourish or fail.

*Group theory*

Groups are sets of people who interact with each other and are conscious of their identity as a group, the structure of the group defining the relationship between members (Newman, 2014). The theoretical principles which apply in different and context dependent ways to groups are termed *group theory*. As a special subset of other societal groups, community forestry groups share one common principle, collective action to manage forest resources. Because successful community forestry implicitly requires cooperation between individuals (see Charnley and Poe, 2007; Flint et al. 2008; Maryudi et al. 2012), power relationships and leadership are therefore integral parts of group theory which is applicable to community forestry.

In Michael Hechter’s (1987/2012) economics-based theory of *group solidarity*, power relationships are presented in terms of *control capacity*. Because individuals depend on each other for resources of goods which they cannot produce for themselves, they must either rely on others to produce it for them, or join others for joint production. Hence, groups exist to provide or produce goods (i.e. joint goods) for their members. Within these groups, each member will attempt to extend his or her power over those activities in which they have most interest (Coleman, 1964).
A general problem is to prevent free-riders, i.e. those people who want the benefits of group membership but are not prepared to contribute anything in return (Olson, 1965; Newman 2014). Control capacity (and therefore group solidarity) becomes a problem of *monitoring* whether group members are prepared to conform to group norms and rules, and *sanctioning*, i.e. rewards or punishments to induce conformity. A group will dissolve if control and compliance are ineffective and as groups get larger, monitoring and sanctioning capacity usually decrease.

Kimmel and Aronson (2009) also considered group size as a function of *primary* or *secondary* groups. Primary groups were first defined by Cooley (1909), as characterised by face-to-face association and cooperation, e.g. families. They are usually small and come together, for example, for support and security. Secondary groups are larger and come together to meet broader common goals. Both types of groups have a leader, a small number of ‘hardcore’ members who are emotionally committed to the group and ordinary members who are less committed. Participation and influence are correlated, the most active members being the most influential (Webster and Sell, 2012). In primary groups, monitoring and sanctioning is consequently simpler and easier because compliance with group norms is high. In secondary groups, deviance amongst the ordinary members is more likely and harder to control. The chain of command can be long and responsibility for specific functions can be diffused.

### 2.1 Background to collective action theory

At a shallow level of engagement, collective action is internalised as an intention which can simply disappear as circumstances change, but at a deeper level it involves thought-out decisions and commitments (Gilbert, 2010). These commitments and decisions are made in the context of pre-existing social variables, e.g. relationships, networks and institutions (Robbins et al. 2010). Hence, interpreting the importance of these variables through collective action theory has proved useful in explaining social phenomena as diverse as dissident and terror groups (e.g. Francisco 2010; Pinard, 2011), and natural resource management (e.g. Wagner et al. 2010; Bisung, 2014).

*Elinor Ostrom’s contribution to collective action theory*
Elinor Ostrom (1990/2015) used Hardin’s (1968) *Tragedy of the Commons* model as the basis of her approach to how common pool resources could be collectively managed\(^3\). In rejecting the logic that individual rational strategies will inevitably lead to collectively irrational outcomes, she argued that the capacity of individuals to extricate themselves from various types of Tragedy of the Commons situations varies from situation to situation.

In rejecting Hardin’s rationalism, Ostrom’s (1990) suggested that the key to collective action is managing the parameters and settings, (e.g. resource rights, governance and monitoring), in a practical, flexible and context dependent manner. This includes the social compatibility and shared aims and objectives of the participants. She also encouraged using empirical evidence (e.g. through case studies) as a guide, particularly if they threw light on the internal workings of a group (e.g. trust and communication). Part of the appeal of her work has been that it offers relief from Hardin’s or Olson’s determinedly rationalist approach which viewed human behaviour as governed by cold logic.

More recently, the importance of social capital in terms of interpersonal trust, reciprocity and mutual aid has been examined as a key mediating influence in facilitating collective action (see Rudd, 2000; Ishihara and Pascual, 2008; Wagner et al. 2010; Bisung et al. 2014; Baynes et al. 2015; Baynes et al., 2016b).

*Integrating group theory and collective action theory as an approach to our research*

We integrated the concepts provided in group and collective action theory to design research activities in three communities in PNG and one community in the Philippines. From group theory, we used the concept of control capacity to investigate group behaviour, particularly in relation to leadership and group size. From collective action theory we investigated whether groups had the intra-group trust and the social capital to undertake collective action. Following Poteete and Ostrom’s (2004) findings concerning the importance of the social context in which community forestry occurs, at the four sites we interviewed community leaders and ordinary members and triangulated their responses to other in-country actors. We also observed what people did and compared it with their stated intentions. For the three

\(^3\) In Hardin’s model, individual farmers directly benefit when their cattle graze a commons, but suffer delayed losses if the pasture is overgrazed. A rationalist approach would result in individual farmers adding more and more of their own cattle because they receives the direct benefit and bear only a share of the costs resulting from overgrazing. The farmers become locked into a system which compels them to increase their individual herd to the ultimate destruction of the grazing capacity of the commons.
cases in PNG, and for the one case in the Philippines, we compiled a thick dataset which may serve to interpret and predict community behaviour in comparable situations.

2.2 Designing and implementing the three cases in PNG

Background to village communities and land ownership in the three sites in PNG
PNG is situated approximately 6 degrees south of the equator. Average rainfall is high, being 3,000mm of rainfall per year. Hence, much of the vegetation is (or was) tropical rainforest. The total land area is approximately 46 million hectares of which some 29 million hectares is forested. Approximately 95% of all land is owned by clan members under customary land tenure arrangements (PNGFA, 2007).

The three cases used for this research followed separate lines of enquiry at two locations (Figure 1):

- Kasi and Para clans in Sungkit village, as separate cases, situated adjacent to the township of Ramu in the Ramu-Markham valley;
- Una Koto village, situated approximately 60 km west of the township of Goroka in the Eastern Highlands.

![Figure 1. The study sites in Papua New Guinea, adjacent to the towns of Ramu and Goroka](image-url)
In these villages, people largely depend on subsistence agriculture for their livelihoods. At Sungkit, some community members are employed by local businesses, but at Una Koto, opportunities to enter the cash economy are few. Both communities are patrilineal and exogamous. As is usual in PNG, people of several clans may live in a village, but in terms of land-use, they operate independently. Each clan owns land which is held – and recognised in PNG law – under customary land tenure. Clan leaders apportion land to men so that they can grow a vegetable garden and ownership rights to this land may be inherited by his sons. Daughters or widows may be granted usufruct but not inheritance rights. Limited cooperation occurs between family or fellow-clan members, e.g. for cultivating land, but cross-clan cooperation is rare. Unfortunately intra- and inter-clan land ownership disputes are frequent as clans evolve into new sub-clans and family groups which compete for natural resources (Baynes et al., 2016a).

While the demography of PNG is changing, with young people drifting to the towns in search of employment, village life is marginal to the cash economy. When questioned about the role of vegetable gardens and cash crops, one villager from Sungkit replied:

‘We plan our gardens for what’s going to happen in the season or so, food for us and festivals and so on, but mostly we grow rice so we can buy things like soap and clothes. If they go to Lae, maybe three days, their wantok⁴ would look after them, but they’re secure here’.

The comment echoes the centrality of village life to most people in PNG. The apparent paradox of clans being both cohesive and conflict ridden at the same time is explained by the circumstances. Clans cooperate to repel intruders, but individual members compete with other members to maximise usufruct rights at a family level.

Designing and implementing the two cases at Sungkit

Sungkit is a village with an overall population of approximately 1200, spread over four clans and many sub-clans. Research at the two sites was facilitated by our project partner, Ramu Agri Industries Ltd (RAIL). Community relations are always a matter of some sensitivity, but fortunately, RAIL staff had been approached by village leaders from the Kasi and Para clans to help them to grow timber tree seedlings and establish woodlots. Beginning in May 2016,

⁴ In Tok Pisin language the term wantok translates literally as ‘one-talk’, i.e. kinsmen.
institutional support was provided as part of a wider extension project in which communities were provided with basic materials (e.g. a shade-cloth and a wheelbarrow) and extended technical assistance to establish seedling nurseries and out-plant seedlings. RAIL community engagement staff facilitated meetings with the community. The main steps were:

- A preliminary meeting with community leaders and members, followed by delivery of a formal letter from the community to RAIL which requested assistance;
- Surveying the land (approximately 3 ha) proposed for planting;
- Nursery construction and training;
- Deciding which trees and crops would be planted, timelines for work schedules and signing a memorandum of understanding (MOU) between the project and ACIAR;
- Brushing, burning and ploughing the land;
- Planting crops and trees.

During these meetings, we noted people’s comments and opinions. Negotiated agreements were recorded in meeting notes which were shared between the parties. With community members’ permission, we also drew genealogical charts to describe which family members were involved, the family ties between them, and who benefited from our extension assistance.

*Researching the results of previous institutional building at Una Koto*

Una Koto community consists of several hamlets of two adjacent tribes, Una and Keto, with a total population of over 4,500 people belonging to seven clans, overall. Together, they own approximately 7000 ha of land. At the invitation of a tribal leader, ACIAR researchers had visited the village of Una Koto in 2014 and 2015 to discuss whether silvicultural training could be provided to community members. Agreement was reached for the training to be provided, but the proviso was that ACIAR researchers could also interview community people and leaders concerning the success of previous institutional support in the form of training and a community nursery, both of which were intended to assist reforestation of unused land. Accordingly, in May-June 2016 ACIAR researchers visited the community and undertook extensive discussions with community leaders and members. Information gathered at formal meetings was triangulated to information gathered during opportunistic interviews
and casual conversations with community members (Holzknecht, 2016). Data collection included:

- In-depth discussions with a Local-level Government councillor and the acting chairman of the Una Koto People’s Foundation (OKPF);
- Opportunistic field discussions with Una and Koto community people;
- Group discussions, which were held separately with OKPF leaders and committee (‘committee’) members.

2.3 Designing and implementing the case on Biliran Island in the Philippines

Background to village communities and land ownership in the Philippines

The Philippines is a country of over 7600 islands situated 5-20° north of the equator. The climate is hot and wet and similarly to PNG, much of the original vegetation was rainforest. Biliran Island, on which this research was undertaken, is typical of rural areas in the Philippines in that its forest cover was intensively logged in the 1970s and 80s. This opened up most of the flat or fertile land for copra and abaca plantations and annual cropping. Where irrigation is possible, rice is grown on terraces and river flats. Other patches of less-fertile land are often degraded and covered with perennial grass, and as is common on many upland areas in the Philippines, subject to shifting cultivation by poor farmers who have no legal title to the land. Population density is high at 302 people per square kilometre (PSA, 2013) and the area of individual farms is commensurately low, often being as little as one hectare or less. In contrast to PNG, families live as separate economic units and are governed locally by local level ordinances rather than clan councils.

Community forestry operates under the current banner of the ‘Community Based Forest Management’ program (CBFM and is managed through People’s Organisations (POs). While CBFM is regarded as the best strategy to rehabilitate denuded uplands and manage the remaining forest in a sustainable way, implementation is complex and difficult. Poverty alleviation and sustainable management of forest resources are far from being realized, largely due to a failure to address livelihood issues, lack of financial incentives and food security issues (Gregorio et al. 2015). Hence, as part of ACIAR project ‘Improving watershed rehabilitation outcomes in the Philippines using a systems approach’ research was undertaken.
to ascertain whether key deficiencies of the previous community-based reforestation programmes could be overcome.

**Undertaking the case at Kaway**

Our research was undertaken at Kaway (Figure 2), a community within the municipality of Caibiran in Biliran Province. The community is very poor, with substantial food security issues and virtually no cash earning opportunities. Smallholder farming, including slash-and-burn agriculture, is the major source of income and food for most families. Some residents earn income from selling firewood and working as labourers outside the community. Others rely on remittances from family members working in metropolitan areas. The educational background of community residents is generally low. Government-owned land is widely farmed by adverse claimants.

![Figure 2. Map of Biliran Island and the location of the Kaway PO](image)

ACIAR researchers found the PO at Kaway had become dysfunctional. Only three members were active in the organisation, partly because the survival of trees established during past reforestation projects was very low. Interviews with the office holders and meetings with PO members, community residents and staff of the Department of Environment and Natural Resources (DENR) revealed that a lack of social preparation, and an absence of livelihood projects, had reduced people’s willingness to participate in PO activities.

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5 Adverse claimants are people who are not legal owners of the land but claim land ownership.
At Kaway, our institutional support initially consisted of a series of meetings and activities with PO members. Training and other capacity-building activities included nursery management, plantation establishment, record keeping and financial management. Follow-up meetings were undertaken to ensure that capacity-building activities were adopted and PO membership was reinvigorated with a new set of officers, although the PO leader was re-elected. Limited finance, (e.g. PHP 1000 (approximately USD20) per hectare of fire-line) was made available to fund tree planting, weed control and fire protection.

Between 2014 and 2015, a community nursery was established and 26 ha of grassland and remnant forest was zoned as either agroforestry, production forest or protection forest. Fire prone boundaries were planted with pineapples, cassava, taro and sweet potato. The agroforestry zone was planted with food crops, fruit trees and fast-growing timber species, the production forest was planted with a range of tree species and the protection zone was left largely untouched. PO members were paid for necessary labour inputs.

3. Results: Results of the cases at Sungkit

The results of extension activities at Sungkit became apparent as three main outcomes, each involving several meetings and site visits. First, in April 2016, after ACIAR researchers outlined their offer (of minimal material assistance and extended assistance) to a general meeting of community members, approximately 20 members of the Para and Kasim clans expressed interest in the project. Leaders from both clans led community input and indicated that any form of assistance was welcome if it would help them to bring land back into production as timber trees, intercropped with vegetables. For them, food security was a perennial concern and in the Ramu grasslands, fire is a seasonal threat to their gardens. Hence a community nursery which would enable them to grow seedlings, plant trees and vegetables and hence reduce grass cover, would be a valuable asset. To make watering easier, the nursery would be located adjacent to a small local creek. The leaders of both clans indicated that seedlings grown in a community nursery would be shared between the clans.

The second outcome was that during site visits in late May, June and July, leaders of the Para and Kasi clan indicated that their members had agreed that a cooperative working
relationship between the two clans was unworkable. Sharing a nursery between two clans would result in conflict and thus, as a means of maintaining community harmony, two small nurseries were requested, one for each clan. To reduce theft, both nurseries would be located adjacent to houses occupied by members of separate clans, even though water would have to be carted from the creek. The leaders acknowledged that the overall budget for extension activities would be split between the two clans. ACIAR researchers agreed to the request and two separate nurseries were subsequently installed on Para and Kasi clan land.

In the third stage, differences in the leadership of the two clans became apparent. The ability to exert strong leadership became evident with the Kasi clan. The clan nursery produced high quality *Theobroma cacao* (cacao) seedlings and *Eucalyptus pellita* (pellita) seedlings to act as shade cover for the cacao. The clan leader had attended a World Vision agricultural training course and had already grown cocoa seedlings. In his own words, he stated:

‘I look after the nursery with my family. When I need assistance, then other clan members are called to assist. I have only sisters and I have included them in my clan. They are married to other clans. I have included them and their children’.

In terms of leadership, the Kasi clan leader had:

- Germinated and grown healthy cocoa seedlings;
- Responded to extension advice to grow healthy pellita seedlings;
- Paid youths from a local soccer club to clear the land.

By March 2017, over one hectare of pellita seedlings had been planted to provide timber. A further 0.5 ha had been planted with cacao seedlings and the shade trees which are necessary for their protection. Taking attendance lists of those people who are working in the plantation as a guide, benefits will be shared almost exclusively between the leader and his seven sisters. RAIL community engagement staff commented that the nursery was essentially a family affair managed by an entrepreneurially-minded farmer, who fortunately has his people’s best interests at heart.
In contrast, the Para nursery had not progressed well. RAIL community engagement staff commented that nursery management had collapsed to women who were embarrassed about the lack of progress, but could not motivate either the clan leader or fellow clan members to help them. By January 2017, three clan members had gained outside employment and the planted area was being managed by the remaining clan members. By March 2017, approximately 100 seedlings, (which had been supplied by the RAIL nursery) had been planted on 0.1 ha. The planting area had been split into ten individually managed vegetable gardens. A further 0.2 ha had been planted with cacao by one male clan member. Clan members revealed that the man was descended from a female clan member. Hence because inheritance is patrilineal, he could not inherit land. However, by planting it with cacao, he had established usufruct rights over the land, and with clan permission, the rights to the cacao bushes could be inherited by his sons. A RAIL community engagement officer summed up the situation as follows:

‘My personal observation relates back to the Melanesian society and especially in a patrilineal society in which man make decisions. Para clan have women taking the lead in a society in which men inherit. Thus my assumption is that their brothers are only observers in terms of the actual work but will still be the end point decision-makers. The brothers’ children are also not fully participating as they understand that their fathers own the land and they inherit from their fathers. The sisters on the other hand understand that their children do not own the land but have user rights to it. Thus, if they work the land, whatever they plant will belong to their children automatically.

Kasi, on the other hand, have their clan leader taking full leadership in this project. Thus in terms of community mobilisation, he has the power to mobilize his clan because of his status. He also has knowledge in tree planting, while being previously employed with RAIL, thus an added advantage for him’.

At Para, while institutional support in the form of material support, training and mentoring was initially successful in promoting collective action, long-established male/female role models, weak leadership and the opportunity cost of outside employment have reduced collective action. The challenge now is whether to continue supporting the reduced clientele of enthusiastic families. At Kasi, strong leadership appears to have kept the group together, albeit with small membership.
3.1 Results of the interviews at Una Koto

At Una Koto, people described their community – as is common with many communities in the RMV and the Eastern Highlands – as being patrilineal in terms of land tenure, reckoning of descent, inheritance and leadership position. There is no individual land or natural resource ownership regarding land tenure. Individual members of a sub-clan or clan, in consultation with their leaders, have access and rights to use clan resources.

During the interviews, committee members and villagers related that institutional support for reforestation at Una Koto began in the mid-1990s and with external funding, community leaders set up OKPF as restoration groups which worked in several hamlets. There was widespread and increasing concern in these communities that the continued removal of forest cover on steep mountain slopes and the resulting increasing spread of grasslands would imperil peoples’ lives and livelihoods at times when long periods of heavy rainfall often preceded devastating landslides. Committees which were set up to represent each clan or sub-clan were responsible for managing an agreed programme of work in their individual community areas. Collectively, they were responsible for the planting of several thousand trees.

In the early years little attention was paid to clan land boundaries. Communities demarcated areas to be reforested and community members who were committed to the OKPF, gave their time and labour to out-planting tree seedlings. The seedlings were partly sourced from an OKPF nursery which was built with financial support from overseas donors.

In the early years the main aim was to get as many seedlings planted out as possible. As one community member noted, there was general consensus that problems with clan boundaries would be sorted out later. The main thing was for the project to get moving and get new trees growing. However, the first ‘broad brush’ approach to planting was discarded as clan members started questioning the ownership of young trees. Subsequently any plantings were consciously linked to sub-clan members’ demarcated land areas about which no ownership queries would arise.
During meetings, people related that in conjunction with a very severe El Nino-induced drought in the area in 2015, and possibly careless use of fires, parts of the reforested areas had been burnt. Other people indicated that some younger members, frustrated at the increasing lack of leadership from OKPF and the lack of other opportunities, may have been responsible for the fires. The consensus view was that the initial strong thrust and excitement of being involved in OKPF’s program has slowed and begun to dissipate. There is widespread disaffection and a key disappointment has been the decision of the OKPF leader to move from Una Koto to Port Moresby. Irregular visits by this leader necessitated other people being appointed to undertake his duties, leading in one case, to financial impropriety. The community nursery has become inactive and no further planting has occurred for several years. At Una Koto, a decrease in material support and training, allied with a lack of leadership, has weakened the institutions, (i.e. the restoration groups and committees) which provided people’s motivation for collective action. Group heterogeneity in the form of clan rivalry has re-emerged.

3.2 Results of the case in the Philippines

Initial results at Kaway in Biliran have been highly promising. With the rejuvenation of the PO, the number of active members increased from three individuals to 30 families. The PO has developed local policies regarding membership agreements, management of the project and sharing of immediate and long-term project benefits. Land claimants from the site have become members of the PO. Their farms were delineated and formal agreement was reached with the PO to recognize their claims. Community ordinances have been developed in collaboration with other community leaders to help protect plantations from fire and grazing animals. PO members have also received individual certificates indicating their ownership and rights regarding the plantation. As at late 2016, regular PO meetings have taken place at which financial reports are presented. Overt corruption appears to be negligible.

Further challenges to the successful operation of the PO

As at March 2017, although the PO has successfully maintained the community nursery and reforested 26 hectares of grassland, the livelihood benefits have brought a noticeable shift in group organisation. The new leadership group has consolidated as a primary group of approximately 10 families who regularly attend meetings. This group allocates work
schedules and decides benefit-sharing, principally wages. Some of the secondary group have complained but the response from the primary group has been that in the early days, some people (themselves) proved more willing to commit their time to the project. The PO has also set a membership ceiling at 30 families. As institutional support has tapered off, group heterogeneity, (i.e. as the new primary and secondary groups) has emerged.

4. Discussion

The key message from these four cases is that for community forestry, the success of technical and material support and institution building involves a dynamic interplay between group size, heterogeneity and group leadership. While removing technical impediments (e.g. through training) and supplying institutional support (e.g. through MOUs) may act as an ameliorating influence on group heterogeneity, weak leadership or large group size set the scene for divisive aspects of heterogeneity to develop or re-emerge. If people’s personal objectives become incompatible with group objectives, motivation for collective action is consequently reduced and groups subsequently dissolve.

Our results differ from Poteete and Ostrom (2004) in that while the context of each of our four cases was different, they illustrate that the ameliorating influence of technical, material and (particularly) institutional support may not be effective in enabling long-term collective action. Support produced a positive result in the case of the Kasi clan, but in the other three cases, the amelioration was illusory (as with the Para clan), or only temporary (as at Kaway and Una Koto). This indicates that there are many communities for which collective action is not possible unless support is effectively open ended. From a policy perspective, our results suggest the general desirability of maintaining group homogeneity by reducing group size to the requisite level.

The other lesson which we derived from this case study through group theory and collective action theory, is that leaders’ need for control, may result in exclusion of non-primary group members. Core-group membership may be low and the area of land which is actively managed may also be low. The implication of our results for community forestry, the Bonn Challenge and FLR, is that identifying the elements of the social landscape is complementary to the geographic landscape. The elements of the social landscape which may be most useful
to these initiatives are those communities (often family groups) which may have small membership but which possess the strong leadership and social capital to undertake collective action. In the geographic landscape, the land which they control is possibly the only land on which reforestation (with livelihood benefits) is likely to succeed. Identifying which communities possess the required social attributes may be protracted, but our cases indicate that it is a necessary precursor to successful collective action. Although FLR acknowledges that restored landscapes may occur as a mosaic of inter-dependent land uses in a geographic landscape, (IUCN, 2016), our cases showed that the first step is to identify the sites in the social landscape which are amenable to collective action. The environmental downside is that restoration may suffer from the ‘Swiss cheese’ effect in which small reforested sites form ‘holes’ in the geographic landscape which have minimal impact on the needs of the system (Daly, 2001, p.332).

The cases provided insights into how collective action may be influenced by culture, social structure and strong leadership. Both in PNG and the Philippines, using the power held by strong leaders to motivate their people to collective action, carries the caveat that these leaders may divert benefits to their own ends, or those of their close family. This does not negate the validity of the ‘collective’ action because wide kinship ties in these countries are often strong, perhaps more so than in the nuclear families of developed countries. In PNG, – using group size as a proxy of family group, single or multi-clan social organisation – as group size increases, we found that the chance of collective action diminishes. The multi-clan approach to reforestation at Una Koto failed because there was little immediate benefit from the new plantations. Allied with a lack of leadership, the two factors caused collective action to cease and for their main asset (tree plantations) to be under threat from arson. Tree planting at Una Koto could be described as a simple case of poor planning which was doomed to failure. However, as at Sungkit, it illustrates that in PNG there are few instances of cross-clan institutional arrangements which have made economic cooperation possible. Given that social hierarchies and structures are embedded within sub-clans and clans, and the high rate of inter-clan violence, it is not surprising that families maximise their capacity to control quasi-collective economic activities by limiting membership to close family members, i.e. those people who they can monitor and sanction.

Our findings at Para illustrated how the patrilineal aspect of clan culture mitigates against women taking leadership roles. The traditional structure of household duties – for men to
clear and prepare agricultural land and for women to undertake subsequent planting and maintenance – presents difficulties for single women. They do not have the power to motivate recalcitrant male leaders to action.

In the Philippines, monitoring and sanctioning were facilitated by small group size. Although this may not be surprising, the manner in which it was manipulated at PO leaders at Kaway has implications for any external agency-led proposals for collective action, e.g. FLR. Cramb et al. (2000) also found that adoption of soil conservation measures was facilitated by small working groups which used a traditional labour exchange system to facilitate pooling of capital and to reduce the burden of labour requirements on individual households. However at Kaway, creating a large inclusive group was necessary because government support for the PO to manage publicly-owned land would not have been otherwise forthcoming. Managing this large group of people consequently required new institutional arrangements which included monitoring and sanctioning. Evolution of the small PO from a primary core group of (mostly related) members, to a wider membership, proved successful when benefits (from ACIAR) flowed to the entire group. However, the later actions of the core group in limiting PO membership and directing the benefits to themselves – exposes the self-interest which precedes corruption. Their justification that the core group supplied most of the labour in the initial stages of the project may be true, but whatever their rationale, our results indicate that initially successful collective action may not result in long-term altruistic and equitable intra-group governance.

Although our cases showed that initiating collective action can be a complex and time consuming process, the success of the POs at Kaway and Kasi offers guidance for scaled-up initiatives. The common denominators of successful community forestry in both countries appear to include (1) strong leadership and group social capital, (2) focusing on people’s livelihoods and (3) reducing the problems associated with reduced control capacity which inevitably occurs in large groups. Small group size and inclusive leadership act to nullify members’ tendency to separate into primary and secondary groups. Estrangement from group norms is reduced and the likelihood of free riding is also reduced. In PNG, our research indicates community forest initiatives should first identify these attributes in communities across the social landscape. Attempts to foster multi-clan collective action are likely to fail. In the Philippines, community forestry initiatives may adopt a more institutionalist approach (i.e. PO structure, rules and inclusion of land claimants) to collective action. In both societies,
it is difficult to envisage a model of collective action which will spontaneously diffuse to other communities.

We attribute the larger area of land reforested in the Philippines to a greater degree of social capital which enabled people to cooperate as a group and to interact with society. Unlike farmers in PNG, farmers do not belong to a clan which confers automatic land ownership and usufruct rights. Even itinerant kaingineros grow cash crops as well as food and by necessity, are driven to engage with the wider society. In contrast, the vegetable gardens in PNG may reduce farmers’ engagement in formal employment, but clan society provides mutual protection. Clan members are more influenced by cultural ties and their social position within the clan structure. In both countries, our research suggests that the success of community forestry is dependent on a detailed understanding of the motivations which guide people’s actions.

5. Conclusion: Implications for the implementation of community forestry and FLR in other contexts

Our findings at Kasi, Para, Una Koto and Kaway, revealed the importance and limitations of the social context surrounding community forestry, particularly group size, heterogeneity, leadership and the capacity of leaders to control their people. Creating successful community forestry groups which cross social boundaries may prove very difficult and may depend on transparent benefit sharing from the inception of any proposed collective action.

Our research does not negate the importance of other factors such as markets and finance. However, social forces such as control capacity, intra-group trust and social capital predicate group behaviour as much as biophysical or commercial factors. For project planners, it may be better to include social, as well as geographic landscape criteria for planning and scaling-up. We suggest that assessments of the success of community forestry or reforestation initiatives should include the number and nature of groups which successfully undertake collective action, rather than the current emphasis on land area.


