Accessing and building social capital: How a farmer-led initiative influenced environmental policy implementation

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Abstract. Horizons Regional Council manages freshwater quality in the Manawatu-Wanganui Region of New Zealand. Regional freshwater quality had declined, and intensive dairying was identified as one contributor to this decline. Horizons notified the Proposed One Plan: rules and regulations designed to control intensive land use activities and to improve water quality. A farmer-led collective action group, the Tararua Community Economic Impact Society, formed to represent the Tararau community's concerns about the negative socio-economic impacts of this plan. This group accessed existing social capital and built new social capital to inform and involve the community, and to access information, knowledge, resources and support. The group created new networks, built trust, reinforced the existing norms of reciprocity and created new relationship norms based on respect. This farmer-led response resulted in the renegotiation of relationships between farmers and Horizons, and a shift to a collaborative community approach to addressing water quality issues.

Keywords: socio-cultural dynamics, farmer response, policy intervention.

Introduction

The state of New Zealand's freshwater quality has declined, and intensive dairying is one identified contributor to this decline (Smith et al. 1993; Parkyn et al. 2002; Parliamentary Commissioner for the Environment 2013). A suite of water quality interventions was progressively introduced by the dairy industry, and by central and local government to address the decline in freshwater quality. Two successive voluntary accords were introduced by industry (DairyNZ & DCANZ 2013). In addition, New Zealand's largest dairy company, Fonterra, introduced Supply Fonterra: an education programme to deliver good practice guidance and support to farmers (Fonterra 2013). Central government introduced the National Policy Statement Freshwater Management (Ministry for the Environment 2014) to guide regional and district council decision making. Regional and district councils use a mix of interventions, such as regional plans, education and economic incentives to implement the objectives of the NPSFM, and to manage freshwater quality in their regions.

Horizons Regional Council manages water quality in the Manawatu-Wanganui Region of New Zealand. In response to declining regional water quality, Horizons adopted a regulatory approach to water quality management, and prepared the One Plan (Horizons Regional Council 2014). The operative One Plan took a targeted approach to water quality management and specified the water management zones where the management of intensive farming land uses must be controlled. Under the One Plan, intensive land users in targeted water management zones must obtain a Land Use Consent, and introduce mitigation strategies to reduce their nitrogen leaching (kgN/ha/yr) to the plan's agreed targets (Horizons Regional Council 2014). Farmers in non-targeted water management zones would not require a Land Use Consent.

Horizons notified the Proposed One Plan (POP) in May 2007, informing the public of the proposal, and allowing submissions on the proposed plan. After the POP submission and independent hearings process, over 20 parties (including Federated Farmers, Fish & Game and Horticulture New Zealand) filed appeals on the POP to the Environment Court in 2010 (*Horticulture New Zealand V Manawatu-Wanganui Regional Council* 2013). The Environment Court decision was released in 2012, and reinforced nutrient loss limits being placed on farms (Horizons Regional Council 2013). Farmers and farming organisations believed that this plan would result in a significant decrease in milk production to meet the nutrient targets, and could make dairy farming uneconomic (DairyNZ 2014). They were also concerned about the negative economic impact of the POP on the local community, and Horizons' apparent disregard of the community's concerns. The objectives of this paper are to explore how dairy farmers responded collectively to the Proposed One Plan and how social capital shaped dairy farmers' collective responses to water quality interventions.

Social capital

A social capital theoretical framework underpinned this research. Putnam (1995, pp. 664-665) defines social capital as 'the features of social life - networks, norms, and trust - that enable participants to act together more effectively to pursue their shared objectives'. Social capital theory presumes that increased connections between individuals leads to increased trust (and vice versa), and that social connections sustain social norms, or 'the rules of conduct' (Putnam

2000, p. 20). Putnam's (1995) social capital theory is underpinned by a belief that an individual's life is made more productive by their social connections with others. Coleman (1988) and Putnam (1995, 2000) emphasise the intangible nature of social capital. Unlike economic capital (e.g. money), social capital exists in the structure of relationships between individuals. In order to access social capital an individual must be connected with others.

Social capital is theorised to exist in three forms: bonding, bridging and linking social capital (Putnam 2000; Szreter & Woolcock 2004). These forms of social capital are distinguished by the strength or weakness of the social relationship between individuals. Putnam (2000) argues that bonding social capital is created through strong ties between similar individuals (e.g. between family and friends) and involves closed dense networks where everyone is connected. In contrast, bridging social capital is created from weaker ties between individuals from different groups or networks. Other scholars introduced and developed the idea of linking social capital as a third form of social capital (Szreter & Woolcock 2004). Szreter & Woolcock (2004, p. 655) define linking social capital as 'networks of relationships between people who are interacting across explicit, formal or institutionalized power or authority gradients in society'. Linking social capital is argued to exist between individuals and representatives of institutions or organisations (Szreter & Woolcock 2004).

Networks, trust and norms are the three theorised elements of social capital. Social networks, also described as social connections (Putnam 2000), provide access to emotional support, resources, information, and new contacts with other individuals (Coleman 1988; Putnam 2000). Information flows through networks, and information can facilitate action (Coleman 1988). In addition, trust is built and social norms of behaviour are developed and fostered through social networks (Putnam 2000).

According to Putnam (1995), trust is a key component of social capital. Fukuyama (1995, p. 26) offers a useful definition of trust, as 'the expectation that arises within a community of regular, honest and cooperative behaviour, based on commonly shared norms on the part of other members of that community'. This definition implies that trust is underpinned by an expectation that others will behave in a particular way and that trust is based on moral obligations (social norms). The adoption of commonly held social norms can give individuals reasons to trust.

Trust is theorised to exist in a number of forms, including individual and institutional trust (Rousseau et al. 1998; Sutherland et al. 2013). Individual trust (also termed relational trust) is described as the trust between individuals, while institutional trust (also termed organisational trust), is described as the trust individuals have in formal institutions in society (e.g. government) or in organisations (Rousseau et al. 1998; Sutherland et al. 2013). All forms of trust can be influenced by previous encounters and experiences, historical trustworthiness, attributes of the other party (Rousseau et al. 1998), the longevity of relationship and institutional performance (Sutherland et al. 2013). Rousseau et al. (1998) also contend that institutional controls over behaviour can undermine institutional trust, particularly when formal mechanisms of control (rules and regulations) are used.

Social norms are the third core element of social capital theory (Coleman 1988; Putnam 1995, 2000). The varied definitions of social norms contain similar themes of 'oughtness' (what ought to be done or ought not to be done), or, an expectation of how an individual will behave in a given situation (Hechter & Opp 2001). More simply, social norms are the unwritten rules that reflect society's shared beliefs and ideas about how people should behave (Eggertsson 2001). It is commonly agreed that social norms are only effective with an enforcement system or sanction for norm violations (Horne 2001). Horne (2001) argues that informal sanctions by group members are the main method of enforcing social norms. A sanction may include punishments (for actions that are considered unacceptable) or rewards (for acceptable actions). For example, a punishment may be negative gossip or being ostracised from a group, while a reward may be a higher level of self-esteem or access to more opportunities. Furthermore, Ellickson (2001) argues that norms are not static, but evolve in response to a range of factors, including new information, observations of others' behaviour (those who question existing norms), and government interventions (e.g. rules and new sanctions).

Social capital and farmers' responses to interventions

The empirical literature demonstrates how farmers' individual and collective responses to interventions can be shaped by social capital or its elements: networks, trust and norms. Hall & Pretty (2008) and Fisher (2013) both found reduced linking social capital between the UK farmers and government staff in their studies. As a result, the farmers in Hall and Pretty's (2008) study described disrespect for government policies and were less likely to adopt sustainable land management practices. The farmers in Fisher's (2013) study were less confident in the

government's abilities, doubted the information provided and were reluctant to seek advice from government staff. The farmers in Fisher's (2013) study also described high levels of bridging social capital with their veterinarian, which developed from relationships built on trust and respect. These relationships provided emotional support, were a key source of new information and advice for farmers about policy and control methods for bovine tuberculosis and the farmers in this study were more likely to believe and act on this information. These farmers also described high levels of bonding social capital with neighbours and other farmers, emotional support from family and friends, and the importance of knowledge exchange between farmers (social learning).

Other studies reported how interactions through networks can influence farmers' responses to environmental policy interventions. Sobels, Curtis & Lockie (2001) found that shared learning through the bonding and bridging networks operating within Landcare groups, increased farmer knowledge and understanding about land management. Additionally, farmers participated in group activities, changed on-farm practice (changed behaviour), were able to attract funding, and accessed emotional support from other farmers. Other studies (Lankester, Valentine & Cottrell 2009; Mills et al. 2011; Lobley et al. 2013) also reported the importance of social learning (learning from others through social networks) in encouraging practice change. For example, social learning resulted in a change in farmer behaviour through an increased uptake and adoption of agri-environment scheme practices (Mills et al. 2011; Lobley et al. 2013), and the adoption of voluntary best management practices to improve water quality (Lankester, Valentine & Cottrell 2009). In addition, Mills et al. (2011) found being part of the group increased social interactions and increased trust and respect.

Individual and organisational trust were identified as key factors influencing farmers' responses to interventions. A range of studies found low levels of organisational trust (distrust) between farmers and government adversely influenced farmers': adoption of vegetation management practices (Mendham, Millar & Curtis 2007), use of government information about water quality management practices (Emtage & Herbohn 2012), belief in information and use of government advice (Fisher 2013), and participation in agri-environment schemes in the Czech republic (Prazan & Theesfeld 2014) and in England (Sutherland et al. 2013). Although the causes of organisational distrust were study specific, there were some common themes. For example, the landholders in Emtage and Herbohn's (2012) study did not accept they were to blame for the marine pollution problem in the Great Barrier Reef, lacked confidence in the government's appraisal of the problem, and felt their autonomy, local knowledge and identity ('honour as responsible citizens') were being challenged. The landholders in Mendham et al.'s (2007) study were also concerned about a loss of autonomy; that accepting government money for vegetation management practices may lead to future land management restrictions. Referring back to Fisher's (2013) study, the farmers believed government did not care about farmers, staff had limited farming knowledge, and policy makers were changing direction. These farmers were also frustrated by a perceived lack of government action to tackle bovine TB.

Some empirical studies of Australian Landcare groups found a group approach both encouraged existing norms and the development of new norms. Existing social norms of reciprocity, or working together for mutual benefit (Putnam 2000), resulted in landholders changing their behaviour and working on cooperative land management projects for the benefit of other individuals (Cary & Webb 2000; Sobels, Curtis & Lockie 2001). Sobels, Curtis & Lockie (2001) found Landcare group members were willing to invest time and energy in group land management projects, because group members expect others to do the same. Similarly, Minato, Curtis & Allan (2010) found a Landcare group fostered existing norms around weed control and these local norms gave community members the right to informally sanction others who did not control their weeds. The farmers preferred to use informal sanctions (e.g. community action, direct communication, judgemental gossip) above formal sanctions (fines) to enforce norm violation. Strong local norms around welcoming newcomers to the district also existed in this community. Social networks informed newcomers to the district about the expected behaviours around weed control, and in turn, the newcomers shared their new ideas and information through social networks. The Landcare group contributed to new ideas and information being disseminated through social networks, and new information was the catalyst for new norms about vegetation management being formed (e.g. planting trees). These studies illustrate how the social networks that operate within groups inform individuals about expected behaviour, allow for informal sanctioning of norm violation, and share new information that can act as a catalyst for new norms being formed.

Research method

The qualitative research presented in this paper, was conducted in 2015 using a case study research strategy (Stake 1995). A single-case study design was chosen in this research. Case study has explanatory power, and enabled an exploration of the 'how', 'what' and 'why' of dairy

farmers' responses to water quality interventions. The site for this single-case study was the Manawatu-Wanganui Region of New Zealand and managed by Horizons Regional Council.

Document collection and in-depth semi-structured interviews with dairy farmers and key informants were the main data collection methods (O'Leary 2014). The documents included legislation and submissions, planning documents, statistics, media articles, technical reports, educational materials, and industry surveys. The study site, the Upper Gorge Water Management Zone, was selected because this water management zone contains both targeted and non-targeted subzones. Twelve dairy farmers from this zone were selected using a stratified random sampling strategy (O'Leary 2014). Questions were asked about the participant's background, current farm system, farm system changes made in the past five years, water quality interventions, relationships with others, and their views on what constitutes a 'good dairy farmer'. The concept of saturation (O'Leary 2014) determined the dairy farmer sample size. A fictitious name was used for each farmer.

Key informants in this research were participants who were able to provide relevant information, knowledge, and a deeper insight into the events of the world around them (O'Leary 2014). Nine key informants were interviewed after the dairy farmers, with a purposive snowball sampling method (Robson 2011) used to identify and select the key informants specific to this case. These key informants were from a range of roles (working with farmers, to developing policy, to executive level) and a range of organisations at regional and national level. Questions were asked about the participant's background, personal involvement with water quality interventions, contact with dairy farmers, and their relationships with staff from other organisations. A fictitious name was used to ensure confidentiality. O'Leary's (2014) concept of saturation determined the key informant sample size. Both dairy farmer and key informant interviews were audio-recorded (with participant's permission) and tapes later transcribed. A thematic analysis strategy (Guest, MacQueen & Namey 2012) was used for data analysis.

Results

A collective action group forms because of the potential negative socio-economic impacts of the POP

After the Environment Court decision was released in 2012, farmers were concerned about the potential economic impact of the POP on their farm businesses. A few concerned Tararua dairy farmers met and discussed this. To meet the nutrient loss limits in the POP, dairy farmers would be required to reduce cow numbers which would result in reduced milk production (kg milksolids - kgMS). Doug - a Tararua Community Economic Impact Society (TCEIS) leader - recalls how he felt: 'we're [farmers] getting shafted here, what can we do?'. The dairy farmers talked with a 'local prominent businessman' (in Doug's opinion) and sought advice from a staff member from DairyNZ head office.

The farmers and businessman realised the POP would also impact on the wider Tararua community. The businessman prepared an economic impact analysis on the effect of the POP on one farm and extrapolated this loss across the 289 dairy farms in the Tararua District (from Norsewood to Eketahuna). This economic analysis estimated a loss of 9 million kgMS from dairy farmers in the Tararua District, and at a 2012 payout of $7-8/kgMS, this lost production was estimated to result in a loss of $63-$72 million of total gross income per year and approximately 300 jobs in the community (DairyNZ 2014).

The DairyNZ staff member checked the calculation. Doug (TCEIS) remembered how they then approached a local accountant to check their figures, and he believes using local respected professionals increased confidence in the TCEIS's analysis:

> [The community] were confident in our numbers because we used people who were respected, the numbers were respected, and that we were right in our basis of thinking.

The TCEIS formed in 2013 to respond to the POP on behalf of the local community. The TCEIS is still led by this group of local well-known dairy farmers (including Doug) and the Dannevirke businessman. The leaders were supported by local professionals, including, as Doug describes, 'one of the most prominent lawyers in town'. A local farmer, Roy, recalled the personal contribution and commitment made by the TCEIS farmer leaders, and comments: 'Good on them. They put all their time and effort into it, and they're busy people too'. Doug (TCEIS) acknowledged that the support from family, staff and other farmers enabled the dairy farmer leaders to be off-farm: 'We tended to spend most of our time [working for TCEIS], and people looked after our farms which was great, our staff they were good'.

Local farmer, Max, believes the TCEIS represents 'all the community, not just the farmers'. Doug (TCEIS) described the wide range of individuals and organisations represented by the TCEIS:

farmers, agricultural service providers, past and present mayors, district council staff, Dannevirke and Pahiatua business owners, professionals (e.g. accountants, lawyers, bank managers), members of the Chamber of Commerce, and their local Member of Parliament. Fish and Game were not involved, and Doug (TCEIS) believes this is because Fish and Game are 'anti dairy farmers'. Doug and the other TCEIS leaders recognised the POP went beyond dairy farmers and impacted on the wider Tararua community. Doug recalls:

> We [TCEIS] said let's approach this from a way of not the dairy farmers getting up and grizzling about something as dairy farmers, let's say the effect would be this great on the community so what would the community think about it? So, when you get the community saying no to something, then there's a bigger impact.

Local farmer, Jack, believes the TCEIS formed because 'people' thought the POP was just a farmer problem ('the farmers are bitching again [about the One Plan], this is just the farmers'), whereas he believes the POP affected the wider community: 'you hurt farmers you hurt everyone'. Chris (Federated Farmers) holds similar views about the public's opinion of Federated Farmers' and farmers' reaction to the POP: 'the city people - they just think we're a pack of moaning farmers'.

As Doug (TCEIS) remarked, dairy farmers and the TCEIS knew water quality had declined (river nitrogen levels were high), and they agreed that river nitrogen levels needed to reduce. The farmers were not resisting practice change to improve water quality. The farmers were resisting a perceived challenge by Horizons to their autonomy and their identity as 'good farmers'; a disregard of their local knowledge; and the lack of respect shown to them and their community by regional government. As Doug explained, the TCEIS disagreed with: Horizons' approach to reducing nitrogen levels ('reduce milksolids and the number of cows'); Horizons' understanding of the POP's impact on the community ('they [Horizons] said we've got it all sorted and you guys [farmers] will still make as much money, which wasn't right'); and Horizons' way of working with farmers that they felt was non-collaborative ('we're going to solve it and this is what you guys will do').

In addition, some staff from other organisations (e.g. Federated Farmers, DairyNZ, Fonterra) felt Horizons were not listening to their concerns about the POP. Doug (TCEIS) remembered how he felt Horizons were treating these organisations, and the influence of a community voice:

> Federated Farmers, DairyNZ and Fonterra all said to Horizons this is not workable. In some ways Horizons just about gave them the finger and said, "well this is what we're doing". It's not until you get the general community [involved] that there's a change, and that's the biggest thing that I've learnt.

How the TCEIS worked with the community

The TCEIS leaders talked individually with local service providers, professionals, business people and local farmers, went to farmer discussion group meetings, and ran public meetings. Doug (TCEIS) commented: 'Every day we had an agenda and [name] would ring, we'd get in the car and we'd go and visit different people'. Ross (DairyNZ) went to a number of meetings ('we had everybody coming, so it was the community') and recalls the size of these meetings: 'we had little community meetings, they would fill that little church'. One thing Ross (DairyNZ) remembers: 'we were getting people interested and talking'. The TCEIS leaders presented the results of their economic impact analysis at these meetings: they informed farmers about the socio-economic impact of the POP on their businesses (reduced milk production), and business people about the potential impacts of reduced milk production on their businesses and the regional economy. A local farmer, Fred, felt the TCEIS were supporting and working on behalf of the community, and he recalled: 'they [TCEIS] were saying the projected drop [in cow numbers] that they [Horizons] wanted us to have would hurt those rural communities'. The DairyNZ staff member was often present to provide scientific information and a dairy farming perspective. Local farmers Roy and Jim went to a TCEIS meeting, and they share their memories:

> I went along to one of them [a meeting], and they [TCEIS] just used all the facts, what it's going to cost the local economy, local businesses. A lot of the local businesses opposed it [the POP], just people who relied on the dairy industry and said this is just unacceptable (Roy).

> I remember [local farmer] spoke, and he spoke up there, and he said to the businesses in Dannevirke, he says, "This is what this One Plan's going to do for our farm, but we'll survive, we'll survive because we'll change, and we'll have to survive." But he said, "I don't know if you'll survive." They all looked at him, and he says, "Well we won't be coming to town to buy a car, we won't be buying tractors, there'll be no money for that (Jim).

The TCEIS leaders met new people and developed new relationships with individuals within and outside the agricultural industry. Contact lists were created, and Doug (TCEIS) recalled how the group used these lists to inform people about upcoming meetings and information. These new relationships in turn provided access to other individuals, skills, resources and support. Doug

(TCEIS) remembers how a local accountant enabled access to their boardroom for meetings: 'they supported us, gave us cups of tea and food'. Industry supported the group (Fonterra, Federated Farmers, DairyNZ), and Pete (Fonterra) describes their contribution: 'We've helped fund them a bit too with lunches and hall hireage and stuff, because they're not a money-making outfit or anything'. The DairyNZ staff member continued to support the group, and through his contacts, the TCEIS gained access to new contacts, new knowledge, support and verification, for example, 'we got [economist] from Dairy NZ who did a financial analysis to support ours, and it came out with the same result' (Doug, TCEIS). Through the process of informing others, the group members also learnt about the scope of the issue, and who was involved: 'we realised we need to involve the banks because it's going to affect the capital asset of the farms, the ability to repay, and what's the bank's position going to be on it?' (Doug, TCEIS). The TCEIS sought information and support from individuals outside the Tararua community, for example, the Minister for Agriculture, staff from Rabobank, an ANZ economist and a Ravensdown scientist.

The meetings raised awareness, encouraged involvement, and created learning opportunities. From what Ross (DairyNZ) saw and heard at the meetings, he believes as the farmers learnt about the socio-economic impacts of the POP, they developed ownership, felt empowered, and felt increasingly comfortable to ask questions and challenge Horizons:

> People started to learn, and once people started to learn then you don't have to keep defending it anymore, everybody starts to own it. They go to meetings and they say to the regional council. "But you're telling me farmers will be profitable, but the volume's going to be halved, what about me?" The regional councils have to answer it, and that's what all this is really about was giving - empowering people to ask the right questions.

The catalyst for change – a public meeting in May 2013

The TCEIS organised a public meeting on 6th May 2013, and in Pete's (Fonterra) opinion, this meeting was the 'complete and utter turning point' in the relationship between Horizons and farmers. Doug (TCEIS) described what happened. Before the meeting, Horizons' chairman rang Doug, and in Doug's words said to him: 'I hear you're going around scaremongering the people with all these economic stuff'. The chairman requested an opportunity to talk with the community, a meeting date was set, speakers organised, agenda circulated, and the TCEIS members informed the community about the meeting. The TCEIS leaders expected about '30-40' people, but as Doug (TCEIS) recalls:

> The farmers became so passionate they went around and just got an overwhelming response of people to come to the meeting. So, we ended up with 400 people there.

Pete (Fonterra) described how the TCEIS 'got the grapevine going' and he shares his recollection of the angry tone at the meeting:

> A lynching mob of 400 farmers turning up to a meeting, 400 farmers haven't turned up to a meeting in the Tararua for 100 years, they haven't…Well it was a lynching, it was string up Horizons, they're going to put us out of business.

At the May meeting, the community expressed their emotion and anger with Horizons. Simon (Horizons) remembers the anger, the 'pain in the room', and the raw emotion he saw and felt: 'there were some tears' and 'some got pretty grumpy'. A reporter described the meeting as 'emotionally charged' (McKay 2013). A vote of no confidence in Horizons' chairman was put to the community, but the motion failed to pass (McKay 2013). Thinking back to the meeting, Simon (Horizons) thinks the vote of no confidence was the community's way of expressing their 'powerlessness' and their opinion that the POP was 'not implementable'. Doug (TCEIS) firmly believes the vote of no confidence showed the community's anger with Horizons and was the start of building a relationship between TCEIS and Horizons:

> In hindsight and I guess from that, we had to be very careful that we didn't burn all of our bridges in our relationship with Horizons, but we had to give them, if you like, enough of a clip around the ears that they were going to listen, so you could have follow-up discussions.

As a result of the May meeting, an independent cost-benefit and economic impact analysis of the POP's nutrient management provisions was undertaken by Nimmo-Bell (Bell et al. 2013). Ross (DairyNZ) and Simon (Horizons) recalled how Horizons and DairyNZ staff worked collaboratively to set the terms of reference for this joint study, and to comment on the draft report. The Nimmo-Bell report verified the initial economic analysis undertaken by the Dannevirke businessman. As Ross (DairyNZ) summarises: 'this wasn't all just about farmers whinging that this was tough', it was about the 'dramatic affect' of the POP on the community.

Building and re-building relationships - implementation of the One Plan

A relationship was built between Horizons and the TCEIS after the May meeting. Doug (TCEIS) reckons Horizons and the TCEIS are 'allies now rather than enemies'. Simon (Horizons) recognised the TCEIS had 'legitimate concerns' about the Tararua's future, and as a result, believes open and honest communication between Horizons and the TCEIS has developed. After the meeting, Simon (Horizons) and the TCEIS farmer leaders developed a relationship based on regular and honest communication: 'they [Horizons] would keep us in their loop all the time and we [TCEIS] would keep them in a loop' (Doug, TCEIS). Simon (Horizons) feels he can contact the TCEIS farmer leaders and ask for advice and support: 'I phone people up and go how do we deal with this situation, or I'm worried about this situation, do you have a view of it?'. Additionally, Simon (Horizons) acknowledged the TCEIS's role and contribution ('We [Horizons] recognise that they [TCEIS] bought legitimate concerns to the table about the future of the Tararua'). The May meeting, in Pete's (Fonterra) opinion, influenced the implementation of the One Plan and the relationship between farmers and Horizons:

> It made Horizons instead of standing back and saying no, no the One Plan's going to happen as it is, it made them employ a guy like [name] and get rid of [name] and get on and talk to farmers and dumb down the One Plan basically, you know, started to consent anyone.

Doug (TCEIS) also commented on Horizons' change in approach towards farmers. He shares his experiences as a dairy farmer and TCEIS leader, and his increased respect of Horizons:

> They're [Horizons] less confrontational, they're more helping you implement smart things on your farm and helping you get your process into place. Every farmer I've talked to recently says "hell they've been nice to deal with". You talk to the council in Dannevirke, "they've been nice to deal with". You talk to other people who aren't farmers, the regional council have been great to deal with, and that is just so commendable to them.

The TCEIS leaders continue to work with farmers, and with DairyNZ, Fonterra and Horizons' staff during the One Plan's implementation. Doug (TCEIS) believes the TCEIS supports farmers ('If something's going wrong, if you feel threatened, if you're having a mental stress for you, make sure you come and talk to us'), and advocates for farmers and the community ('they [the community] know that if there's anything - if it brews to a point that's unacceptable or needs some discussion, we'll be back there discussing it with them [Horizons]'). Some farmers sought the TCEIS's support during the Land Use Consent process. Pete (Fonterra) heard that some TCEIS farmer members 'get rung by distraught farmers still who are struggling with a consent', and Henry (DairyNZ) remembered a farmer who was refusing to apply for a Land Use Consent, and how he contacted the TCEIS for support. Henry (DairyNZ) comments: 'I think [TCEIS member] has spent quite some time on the phone with this chap, talking through the issues'.

In addition to supporting farmers, the TCEIS continue to work with staff from Horizons, DairyNZ and Fonterra during plan implementation. The TCEIS have: attended farmer meetings organised by DairyNZ and Fonterra (Horizons' speakers) where farmers learn about obtaining a Land Use Consent; facilitated meetings with Dannevirke business owners about the plan's implementation (Horizons' speakers); and in 2016, were involved in the Environment Court declaration proceedings (initiated by Fish and Game and the Defence Society against Horizons).

Discussion

The findings presented in this paper emphasise the pivotal role of social capital in enabling a successful collective farmer response to a regulatory intervention. The farmer-led collective action group (TCEIS) accessed bonding (e.g. between farmers, family, TCEIS leaders), bridging (e.g. farmers and DairyNZ, accountant, lawyer) and linking social capital (e.g. farmers and Fonterra, Federated Farmers) to enable a rural community to respond as a collective, rather than as individuals, to the issues they faced. The 'community' in this research was self-defined by the individuals and organisations affected, and as argued by Warburton (1997), a community is best defined by the people affected by the issue under debate. The forms of social capital present in this rural community were similarly identified by Fisher (2013) and Hall & Pretty (2008) in their studies with UK farmers. While most studies note how social capital shaped individual farmer's responses (e.g. Hall & Pretty 2008; Fisher 2013), this research provides a detailed investigation of how social capital enabled a collective farmer response to an intervention.

This study clearly illustrated how trust and social norms enabled a collective farmer response. Trust was identified as essential to a collective response, and it is useful to consider the factors that allowed trust in the TCEIS to develop. The behaviours and actions of the TCEIS leaders built trust in the four key areas set out by Kasperson, Golding & Tuler (1992) in their social trust framework: competency, predictability, commitment and care. The TCEIS leaders were respected locals with farm and business-based experience and knowledge (competency), were contactable

and available (predictability), and were believed to be supporting and working on behalf of farmers and the community (care). The TCEIS leaders used local trusted professionals' numeracy skills to verify data (Kasperson et al.'s (1992) competency), and as a result, the community believed the economic impact analysis prepared by the TCEIS was accurate (commitment).

This research also identified the pivotal role of social norms in shaping individual and collective behaviour, and in ensuring the success of a collective farmer response. These norms included norms of reciprocity, cultural norms, and relationship norms. A collective response reinforced existing norms of reciprocity (working together for mutual benefit) and built social capital. The TCEIS leaders volunteered their time and personal resources to support the community. Putnam (2000) identified that volunteering, or 'doing good for others', reinforces the norms of reciprocity. Empirical studies of Australian Landcare groups similarly found individuals were willing to invest time and energy in group projects, and found norms of reciprocity encouraged farmers to work together because they expected others to do the same (Cary & Webb 2000; Sobels, Curtis & Lockie 2001). Collective action also enabled the community to sanction norm violation. The farmers felt that by introducing controls over land use (the One Plan), Horizons violated farmers' cultural norms (autonomy, an individual's rights to fairness and equity), and in the farmers' view, treating them with disrespect violated relationship norms. The farmers sanctioned Horizons by holding a vote of no confidence in their chairman. Furthermore, a collective response encouraged new relationship norms to form, and these new norms established relationships between Horizons and farmers that are based on understanding, trust and respect. Limited research investigates how norms operate within rural communities (Minato, Curtis & Allan 2010). While some studies identify how norms of reciprocity encourage collective action (e.g. Landcare Group studies), unlike this research, these group studies do not investigate norm sanctioning.

A collective farmer response built new social capital through creating networks, building trust, reinforcing existing social norms and creating new norms. The level of linking social capital between farmers and Horizons, and bridging social capital between some organisations and Horizons, was limited after the POP process. This collective response strengthened the bonding, bridging and linking social capital within the community, built bridging social capital with organisations external to the community, and ultimately, built linking social capital between farmers and the regulator (Horizons). While some studies identified low levels of linking social capital between farmers and government (Hall & Pretty 2008; Fisher 2013), this research provides evidence of how a collective farmer response built linking social capital to enable resolution of the issues the community faced.

This analysis revealed how social interactions through bonding, bridging and linking networks contributed to farmers accessing information, resources and support. Social interactions through social networks was argued by Reed et al. (2010) to be an example of social learning. The collaborative approach used by the TCEIS (individuals felt included) built trust, reinforced social norms, and encouraged involvement and social learning. Through social learning processes, members of the community increased their understanding of the issues (negative socio-economic impacts of the POP) and gained confidence to question and challenge information from the regulator. As a result, the community felt empowered to take control and develop their own solutions. Mills et al. (2011) found farmer social learning in a group setting contributed to knowledge exchange, a change in understanding, and a confidence to question information and practices. In particular, this study emphasised how trust and social norms between group members encouraged social learning. Similar outcomes of understanding, confidence and empowerment were noted by Sobels, Curtis & Lockie (2001) and Compton & Beeton (2012) from social learning through Landcare group activities. Both studies emphasised how empowerment increased community control over 'conditions that make actions possible' Sobels, Curtis & Lockie (2001, p. 274), and give people 'an opportunity to control their own destiny and influence the decisions that affect their lives' (Compton & Beeton 2012, p. 153).

Conclusion

This research clearly demonstrates how a farmer-driven community initiative influenced the approach of regional government and the implementation of environmental policy. In addition, the essential role of social capital in informing and supporting farmers through environmental policy implementation was emphasised. While social interactions encouraged information exchange, trust and social norms were essential to gain access to new information, resources and support, thereby building new social capital. This collective response highlighted how an inclusive planning and implementation process, is more effective than one that is perceived by the community to be exclusive and authoritarian and does not address the issues that affect their livelihoods.

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