

The social process and outcomes associated with the transformation to regenerative agriculture: A case study of Colodan



Property	Colodan
Primary Decision-Makers	James and Kylie Henderson Prev. John Henderson
Social Structure	Family Farm - decisions made between family members
Enterprise Type (s)	Beef Cattle and Forestry
Location	Queensland
Motivation for change	Improve social, environmental and economic resilience to drought so that the Hendersons can keep their family legacy alive for the next generation.



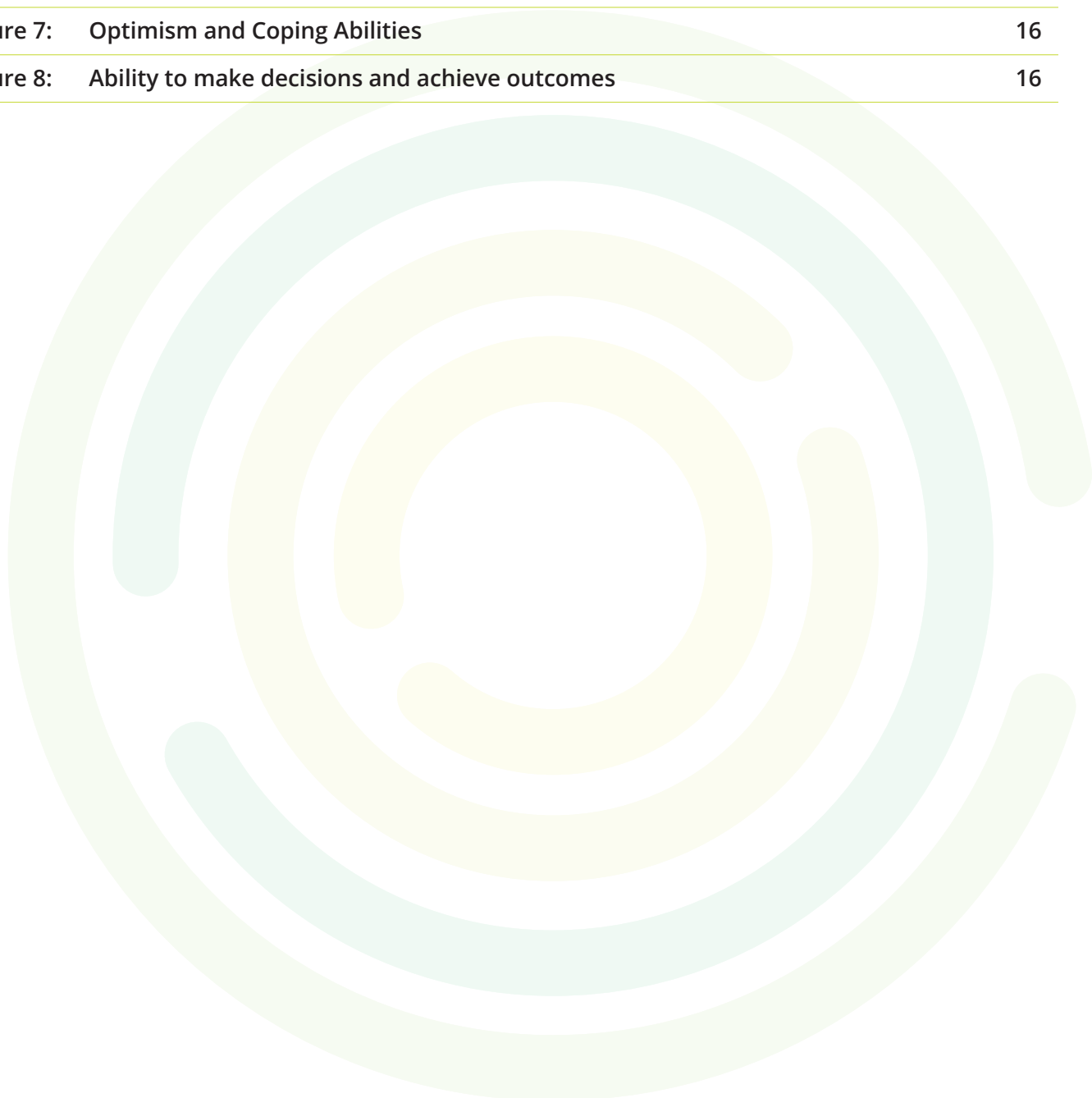
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FARM FACTS

ENTERPRISE: Beef Cattle, Carbon Forestry, Saw log production

PROPERTY SIZE: 4660 ha

LOCATION: Approximately 45 km East of Monto, Queensland.

Lat. 24°56'53.30"S
Long. 150°41'2.94"E

ANNUAL RAINFALL: 621mm

ELEVATION: 300-350m

AGRO-CLIMATIC REGION:
Sub-tropical sub-humid

SOILS: Predominantly Rudosols, Sodosols, Chromosols, Dermosols and Vertosols

SOCIAL STRUCTURE:

Family Farm – decisions made between family members

MOTIVATION FOR CHANGE:

Improve social, environmental and economic resilience to drought to keep the Henderson family legacy alive for the next generation.

INNOVATIONS:

- Grazing land now includes integrated carbon farming and forestry regime
- Innovative family culture supported intergenerational transformation

KEY RESULTS:

- Increased revenue consistently performing well above the average farm
- Improved tree-grass balance resulting in resilience to major climate events
- A happy and stable home life, optimistic about the future of the enterprise

Executive Summary

Soils For Life exists to support Australian farmers in regenerating soils and landscapes: to build natural and social capital and transform food systems. The Soils For Life case study program provides interwoven, evidence-based accounts of land manager and landscape change and regeneration, that underpin our mentoring and outreach programs. This document aims to provide an account of the social elements of this change process and the associated outcomes for social forms of capital and the enterprise more broadly.

This document details the transformation experience of the decision-makers of Colodan, a Queensland property with cattle grazing and forestry enterprises. The land has been owned and managed by four generations of Hendersons. The Hendersons have always taken a forward thinking and evolving approach to agriculture, however they made big changes to their management and became more ecologically focussed following the devastation of the Millennium Drought during the early 2000s.

Key findings

- Improvements in optimism and coping abilities (fig 7) resulted in the reduction and avoidance of stress and depression. Furthermore, a deliberate fostering of skillsets and improvements to James' knowledge base not only enabled many practice changes to take place, but also improved and diversified livelihood opportunities – (See 4.1)
- For the Hendersons, elements of social capital, such as personal relationships and social learning were closely linked to successful on-farm decision-making. – (See 4.2)
- Finding good institutional support enabled James and Kylie to make the right decisions about farm management and achieve the things they want on their farm (fig 8). This increased self-efficacy led to improved on-farm outcomes as well as social gains for the family such as improved social networks (fig 6), community access and intergenerational successional planning. – (See 4.3)
- The Hendersons' commitment to their family legacy and constant innovation has led to an increased sense of global life satisfaction (fig 4) and life achievement (fig 6), as well as a readiness to adapt to changing circumstances and cope with difficult conditions and a strong sense of optimism about the future of farming for themselves and the next generation (fig7). – (See 4.4)



1. Introduction

1.1 Purpose

Soils For Life exists to support Australian farmers in regenerating soils and landscapes: to build natural and social capital and transform food systems. The Soils For Life case study program provides interwoven, evidence-based accounts of land manager and landscape change and regeneration, that underpin our mentoring and outreach programs. This document aims to provide an account of the social elements of this change process and the associated outcomes for social forms of capital and the enterprise more broadly.

This document details the transformation experience of the decision-makers of Colodan, a Queensland property with cattle grazing and forestry enterprises. The land has been owned and managed by four generations of Hendersons. The Hendersons have always taken a forward thinking and evolving approach to agriculture, however they made big changes to their management and became more ecologically focused following the devastation of the Millennium Drought during the early 2000s.

1.2 The Agricultural Enterprise

Colodan is a Queensland property with cattle grazing and forestry enterprises. It is a family farm and decisions are made between family members. The current generation of decision-makers are James Henderson and his wife Kylie. They lived on-site with their young children through most of the transformation period, and now spend the school week at a second property, managing Colodan remotely using technological systems and returning to the property on the weekend.

Four generations of Hendersons farmed Colodan before the Millennium Drought took hold in 2002. James' father John Henderson watched, with growing depression, as his landscape was devastated before deciding that things could not go on this way. His youngest son James had taken an interest in farming and was helping John out on the property as well as contracting to the neighbouring farm.

John and James spent ten years researching solutions until, at the end of the drought, James took up 50% partnership in the enterprise and the responsibility of financial management. His new partner Kylie moved on to the property and together they began to take a more strategic, forward planning approach to decision-making and farm management. James and Kylie took on full ownership after John passed away, and are now thinking toward preparing the enterprise for the next generation.





2. Research Approach

2.1 Conceptual Framework

This document aims to provide an interwoven, evidence-based account of the social process of transforming an agricultural enterprise to regenerative management and the associated outcomes for social resources and the enterprise more broadly. The account must be comprehensive and accessible so that it can integrate with a transdisciplinary and holistic approach and contribute to the evidence base that underpins the Soils For Life mentoring and outreach programs.

2.1.1 The 'Capitals' as orienting concepts

In providing an interwoven, evidence-based account of the social processes and outcomes of the regenerative transformation of agricultural enterprises, it is necessary to define what constitutes the 'social' in this context. The concept of 'the capitals' has long been used in human ecology to conceptualise differentiated types of resources that can interact and determine the sustainability of a complex system. These capitals include financial, physical, natural, social, human, political and institutional and cultural and spiritual resources (Vanclay et al 2015, Scoones 1998).

The use of 'the capitals' concept for rural and regional social assessment has been widely demonstrated, including in the Australian context. Scoones (1998), pioneered their use as part of a framework for identifying livelihood resources, strategies and outcome indicators, in the context of sustainable rural development. The concept was broadened and developed and has since been widely used including as the best practice framework recommended by the International Association for Impact Assessment for the comprehensive assessment of the likely social impacts of change processes, particularly in the natural resource management space (Vanclay et al 2015). More recently, Shirmer et al (University of Canberra 2020), of the University of Canberra Health Research Institute incorporated 'the capitals' into a framework to assess quality of life and wellbeing with an annual broadscale Australian Regional Wellbeing Survey.

This document uses the definition of 'the capitals' provided by the International Association of Impact Assessment (Vanclay et al 2015) as the key orienting framework for analysing the social case study data.

This definition is as follows:

TYPES OF CAPITAL OR ASSET

Note: There are multiple forms of capital (assets, resources) and many different ways of grouping and defining them. What is included should depend on the context of application. The individual capitals are meant to be metaphors and used generically rather than being strictly defined and interpreted narrowly. The concept of the capitals can be applied at different levels of analysis – it can be used to apply to an individual, to a household, a local community, or region. The capitals approach was originally developed in terms of understanding the livelihood strategies of individuals living in impoverished rural communities in developing countries. It has now been applied in a wide range of situations.

Natural capital: includes the stocks and flows of environmentally-provided assets (i.e. ecosystem services) such as food and agricultural resources, forest resources, mineral reserves, soil, water, wetlands and fish stocks.

Physical capital (also known as produced, manufactured or built capital): comprises the stock of equipment, physical plant (e.g. factories), infrastructure (e.g. roads, airports, hospitals, schools), and other productive resources owned by individuals, the business sector, or the country itself, as well as the management systems needed to make them work.

Financial capital: the financial resources available to people, such as their savings and access to credit. It also notes any debts or mortgage they may have.

Human capital: includes the levels of knowledge and skill, formal education, health and nutrition of individuals, as well as their motivation and aptitude.



TYPES OF CAPITAL OR ASSET (CTD)

Social capital: sometimes simply defined as only social networks and trust, it also includes the social rules, norms, obligations, and reciprocity arrangements embedded in social relations, social structures, and the society's institutional arrangements.

Political or Institutional capital: refers to the existence and effective functioning (i.e. capacity) of the society's governance mechanisms – to the governance institutions themselves and to the standards, rules, regulations they apply and their enforcement.

Cultural and Spiritual capital: includes the way people know the world and their place within the world, as well as how they act within it. It also refers to the extent to which the local culture, traditions and language, etc promote or hinder wellbeing, social inclusion and social development. Spiritual capital assists in maintaining a balance across the different capitals and in remaining in touch with deeply-held values and the things that give meaning to life. Cultural capital influences what voices are heard and listened to, which voices have influence in what areas, and how creativity, innovation and influence emerge and are nurtured.

(From Vanclay et al 2015)

It is important to note that while Vanclay et al (2015) define political and institutional capital as specifically referring to governance institutions and systems, an expanded definition that includes broader regimes, agency/self-efficacy and power dynamics is necessary for analysing transformation processes toward sustainability (Avelino 2017, Scoones 1998). This is especially relevant for the transformation to regenerative agriculture, due to the independent and enterprising nature of farming and the resulting importance of agency/self-efficacy and financial institutions (internal review of round 2 case studies 2020, Shirmer et al 2013, Brown et al 2017, University of Canberra 2020).



Detailed consideration of landscape management strategies, business models and their relationships with natural capital, financial capital and physical capital is reserved for the Soils For Life Case Study ecological and economic reports. The interaction of natural, financial and physical capital with the other more socially focussed capitals is of fundamental interest to the case study however, and scope for this is included within the broader methodology and the narrative report.

This document focuses primarily on the social strategies and outcomes (Scoones 1998) associated with the transformation to regenerative agriculture, as seen through the lens of human capital, social capital, political or institutional capital and cultural and spiritual capital (as above).



2.1.2 Narratives of Transformation

The Soils For Life Case study program provides an interwoven, evidence-based account of the narratives of the transformation of agricultural systems to a regenerative approach. Regenerative agriculture theorises that the adoption of regenerative practices leads to a self-replenishing natural, social and economic resource base resulting in a sustainable and resilient farming enterprise. As such, agricultural systems are recognised as complex and regeneration as requiring a holistic and integrated approach to the management of natural, economic and social resources.

In an early working paper regarding sustainable rural livelihoods, Scoones (1998) pioneered the use of ‘the capitals’ to identify the differentiated resources needed to enable various livelihood strategies that could lead to sustainable livelihoods (fig. 1.).

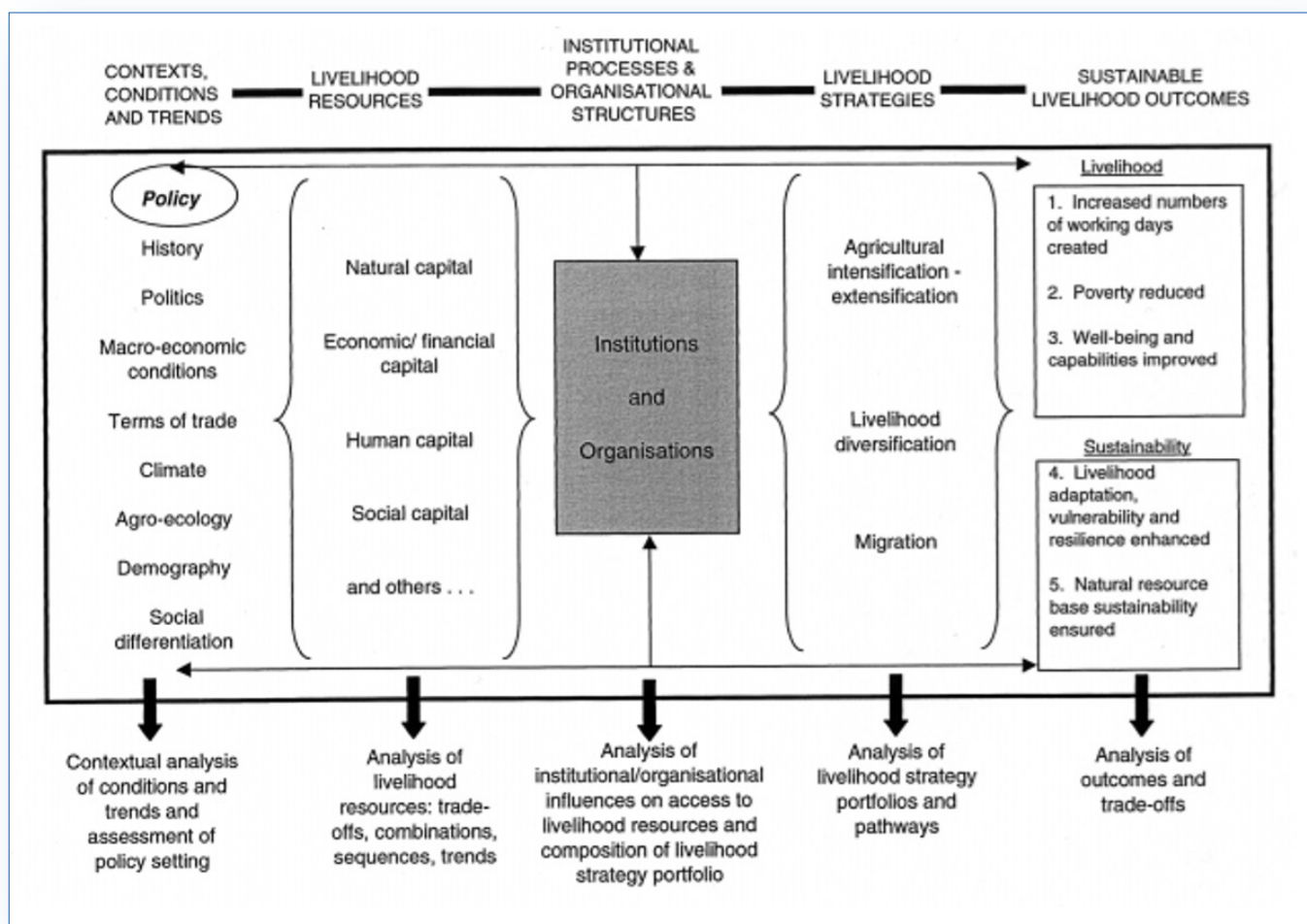


Figure 1: Sustainable rural livelihoods: a framework for analysis (from Scoones 1998)

The concept of regenerative agriculture goes one step further than this, suggesting whole of system transformation to a feedback model whereby strategies are targeted at replenishing the resources themselves. Thus, to understand how the resource base can be regenerated, it is necessary to understand the transformation process. Transformational processes are dynamic and complex and require a historical or narrative exploration to fully explore (Scoones 1998, Klein 2003).

In his consideration of innovation, Klein (2013) outlined a framework for conceptualising the pathways to change.

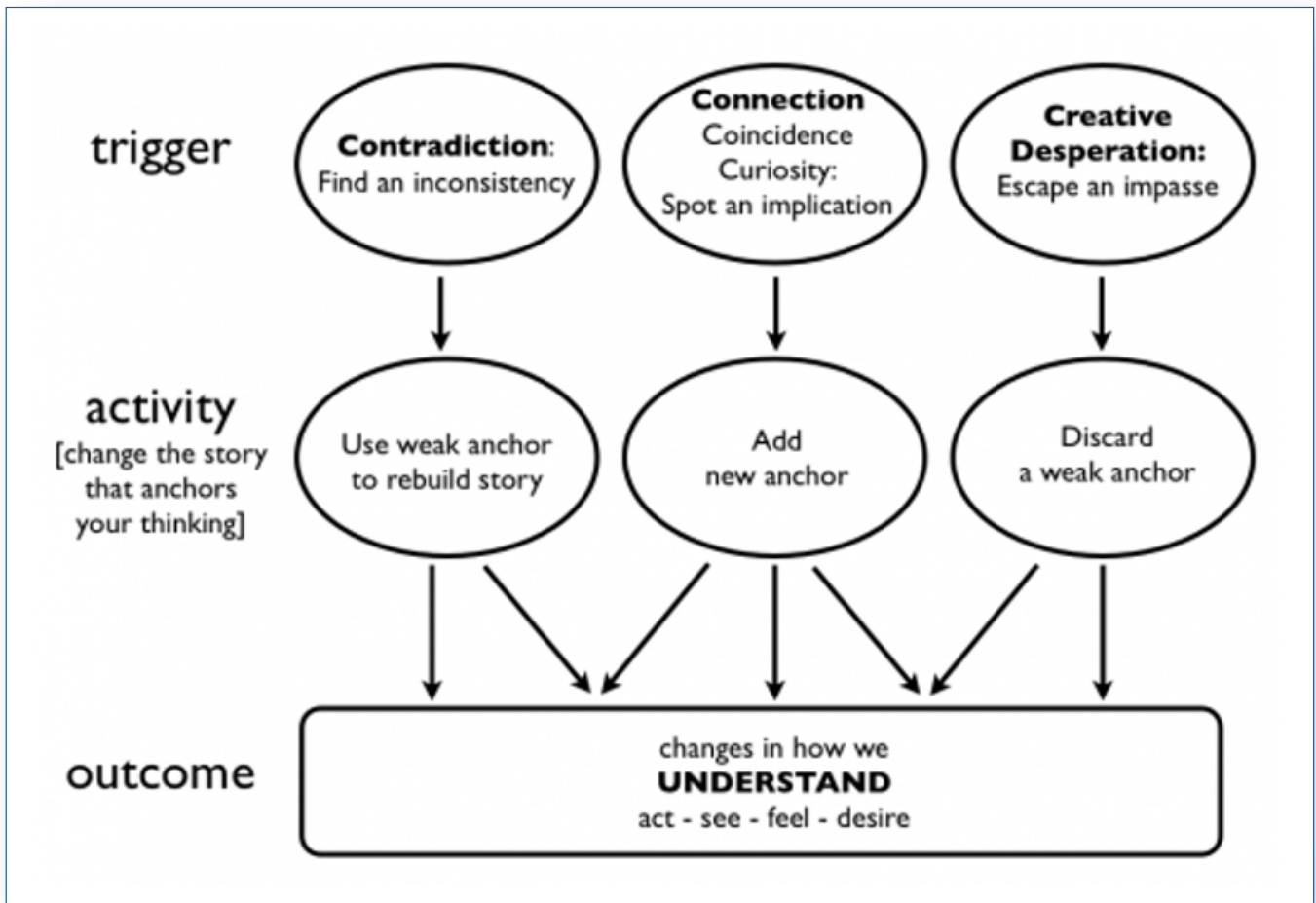


Figure 2 Pathways to change (from Klein 2013)

This model has been used by Clarke (2018) to explore narratives of agricultural transformation and is used by Soils For Life to structure the elicitation of case study narratives from participants and to provide an interwoven, evidence-based account of the process of transforming a system to regenerative agriculture. Using Klein’s (2013) model in combination with the Scoones model (1998), triggers and outcomes can be considered in the context of social resources, conceptualised as capitals (2.1.1) and ‘activity’ can be considered in terms of ‘strategies’ (e.g. Scoones 1998).

The use of structured narratives of transformation ensures that the complexity of the transformation process and the associated strategies and outcomes can be represented in a way that is immediately comprehensible to a transdisciplinary audience member, participant and researcher alike. Given that the human brain processes data in narrative format (Kahneman 2011) and the vital importance of facilitating shifts in mindset (Massey 2013), expressing the evidence base in narrative format also gives it the best chance of underpinning the Soils For Life mentoring and outreach programs.

2.1.3 Narrative Touchpoints

In an effort to identify the best approach to eliciting social narratives of transformation (see 2.1.2) that comprehensively consider a full range of social strategies and resources, a brief internal review was undertaken in early 2020 of the existing ‘round two’ Soils For Life social and narrative reports along with key sources of literature.

The literature included a meta review of academic papers detailing regenerative farmer wellbeing in Australia (Shirmer et al 2013), key findings related to regenerative farmer wellbeing across Australia from the Regional Wellbeing Survey (Brown et al 2017), Gleissman’s (2015) stages of conversion to regenerative



agriculture. The four meta-themes are used in this case study as 'narrative touchpoints' to elicit new data demonstrating the social strategies and resources involved in the transformation to regenerative agriculture.

The meta-themes or 'narrative touchpoints' are:

- Normal life
- Roles
- Decision-making
- Motivation

The touchpoints relate directly to the lived experience of transforming an enterprise and are used as recurring topics when eliciting chronological narratives from the case study participants. This is important given that a chronological and contextual approach, with limited structured topics works well in eliciting retrospective social information during interviews (e.g. Veale & Shilling 2004). Each topic is also broad enough to allow for comprehensive consideration of social strategies and resources such as human, social, political and institutional and cultural and spiritual capital as well as relationships with natural, physical and financial capital.

2.1.4 Social Report Key Themes Matrix

The 'narrative touchpoints' were set against the concept of 'the capitals' to create a key themes matrix. This matrix is used to orient the case study data during the analysis process (See 3.3).

2.2 Methodology

Given that the process and outcomes of the social elements of regenerative landscape management are complex and multidirectional, and the program team, participants and audience are highly transdisciplinary, the social evidence needs to be easily understood, flexible and comprehensive in both methodology and presentation. To this end a suite of accessible techniques including oral history, closed survey and participant observation were selected (e.g. Scoones 1998).

To best represent the complexity and individual nature of the case study, oral history data forms the bulk of the base data, with survey data and participant observation being treated as complementary. The following techniques are used to elicit and analyse social data for the Soils For Life case studies.

Oral history techniques rely on in depth qualitative recorded interviews using a small number of key topics. This allows for the emergence of anecdotes and topics of importance to the participant as well as the researcher (Veale & Shilling 2004, Scoones 1998). The chronological format of oral history also enables the natural exploration of the narratives required to contextualise and understand processes and outcomes (2.1.2).

The social interview is conducted with all available key decision makers and life partners including e.g. the previous generation. The additional participants ensure a more holistic and comprehensive perspective is represented in the data. The interview is conducted in accordance with the Ethical Practice Guidelines of Oral History NSW (2020).

Each interview contains four chronological phases consistent with the ecological report. These are; the original enterprise, the first stage of practice changes, the second stage of practice changes and now. At each stage the four narrative touchpoints (2.1.3) of normal life, decision-making process, roles and motivation are discussed. Secondary prompts for these topics relate directly to the matrix and cover all four of the socially focussed capitals including social, human, political and institutional and cultural and spiritual capital. A closed survey creates a repeatable and comparative set of data that can be used to visually represent change and comparisons. Two short sets of questions were selected from those used by the Regional Wellbeing Survey (University of Canberra 2020), the first being the widely used Personal Wellbeing



Index (Australian Centre on Quality of Life 2020) and the second being a set of questions that were found by the researchers to be significantly different in regenerative farmers to conventional farmers (Brown et al 2017).

The questions were kept to a short set to allow the participant time to reflect on changes to these factors across the phases of the conversion process, as discussed during their oral history and ecological interviews. This means that baselines can be set on a case-by-case basis (e.g. as phase one of the transformation process) rather than against broader averages such as those found by the Regional Wellbeing Survey (University of Canberra 2020). This reduces the likelihood of flawed comparisons due to differences in methodology and timing.

Participant observation involves the immersion of the researcher in the day-to-day activities of the subject. The field work undertaken by the project team as a whole uses these techniques to get a holistic understanding of the case study, determine key themes or points of interest and develop rapport with the participant.

The analysis involves scanning the data for themes and organising them within the Key Social Themes Matrix (See 3.3) and the Social Chronology (See 3.1). A key theme is selected for each of orienting concepts of human, social, institutional and political and cultural and spiritual capital. The themes are then used to identify narratives of transformation that demonstrate social triggers, activities and outcomes (See 3.4).

2.2.1 This Case Study

Data was elicited for this report using the above methodology, by Soils For Life social scientist Rebecca Palmer-Brodie during July and August 2020. The participants included the current primary decision-makers, James and Kylie Henderson.

Initial data was sourced from the Soils For Life Case Study Application Form, completed by James Henderson, and from observations communicated by ecologist Richard Thackway following his site visit to the property.

Semi-structured interviews of 1.5hrs each were undertaken with James and Kylie together. The first interview covered the first and second phases and the second interview, held the next evening, covered the third and fourth phases. The interviews were undertaken online using the Webex video conferencing program. The transcript was generated automatically by the Webex program and used as a signpost to allow the interviewer to locate and record key quotes verbatim.

A joint survey was completed by James and Kylie Henderson, reflecting their family wellbeing. They were asked to take all relevant members of the family into consideration when considering each phase.

The resulting data was analysed to determine the social chronology (3.1), key survey findings (3.2), the key social themes (3.3) and the key social narratives of transformation (3.4). These are presented in the following section.

3. Results

This section provides a summary of the key data collected through the oral history interviews and the closed surveys. It has been organised into a social chronology (3.1), graphic representations of the survey results (3.2), a matrix of key social themes (3.3) and a diagram of the key narratives associated with the transformation of Colodan to a system of regenerative agriculture (3.4).





3.1 Social Chronology

Figure 3 Social Chronology of Colodan

Phase One - the original enterprise

1932 - 1999 1932 began 4 generations of family farming.
Production focussed – data (e.g. cattle genetics) seen as key to business
John managing in decision-making partnership with wife. Decision-making informal, not strategic but required 'justification'.
John involved in Landcare & local politics in '80s & '90s but burnt out. As James becomes more involved, John leveraged James' youth and energy to access new technologies etc



Phase Two - the first stage of practice changes

2000-2006 John in good health but depressed re: drought and associated security of financial future. James living on farm and enjoying active social life. James' siblings work off farm.
Motivated to make the business more resilient to drought & financially and socially sustainable
Decision-making influenced by field days and speakers, what other local farms were changing. Started changing focus to ecosystem approaches e.g. thinking about carrying capacity
James learning farming from John, contracting to next door property and mustering.



Phase Three - the second stage of practice changes

2007-2015 James met wife Kylie. She had no farming background but fresh perspectives, volunteering, working 5 days in town and providing on-farm labour. James contracting management next door and influencing their practice change until on farm responsibilities too high. John's depression abates as he sees the practice changes occurring and feels more optimistic. He becomes involved less in management and more in things of interest and is supportive of ecosystem approach
Decision-making gradually transferred to James and Kylie. They took a more strategic planning approach (5-year plans etc), but retained John's 'justifying' approach. Became involved in a number of innovation trials that provided key feedback.
2014 on Kylie temporarily reduced capacity due to caring for children and stopped contributing on farm & input into decision-making. In 2015 John received a terminal illness diagnosis. James reduced capacity to care for John and stopped working off farm. Family had very little free time – started to burnout & stop communicating leading to poor decision-making and family suffering.



Phase Four - the present

2016-2020 Decision-making was improved by rebuilding channels of communication between James & Kylie. Motivated to improve on the family legacy with a healthy & diverse business & ecosystem
James upskilled in carbon farming, forestry and started contracting as carbon consultant to Green Collar. Started to become active in promoting change – ran field days, contracted to Ag Force in management and policy.
The Hendersons now have a strong sense of resilience, self-efficacy and life achievement, building on a dynamic family legacy and avoiding significant stress during the most recent drought



3.2 Wellbeing Survey

The current Colodan decision-making generation, James and Kylie, completed a short survey rating their estimated personal wellbeing and relationship with farming across the different phases of the transformation to regenerative agriculture. Phase 1 corresponds with the original enterprise, Phase 2; the initial stage of practice changes, Phase 3; the second stage of practice changes and Phase 4 to now (see 3.1 for corresponding dates).

Key changes over the transformation period:

- James and Kylie indicated overall increases in Global Life Satisfaction (fig 4), satisfaction with safety, future security (fig 5), life achievement and personal relationships (fig 6), over the transformation period.
- While Global Life Satisfaction increased steadily over the transformation period, James and Kylie experienced dips in other personal wellbeing indicators during the first and second stages of practice changes (phases 2 and 3). All indicators had recovered by the time of the study (phase 4) and achieved overall increases except for health, which, while it has shown signs of recovery has not yet returned to pre-transformation levels (phase 1) (fig 6).
- Self-efficacy, as indicated by agreement with the statements 'We can achieve the things we want on our farm' and 'We can make the right decisions about farm management' increased steadily over the transformation period until ultimately reaching the highest level of agreement with the statements by the time of study (phase 4) (fig 8).
- James and Kylie's perception of their optimism and coping abilities, as represented by agreement with the statements 'I/we feel optimistic about our farming future' and 'I/we can cope with difficult conditions on the farm' dipped during the first stage of practice changes before ultimately reaching the highest level of agreement with the statements by the time of study (phase 4) (fig 7).

3.2.1 Personal Wellbeing Indicators

James and Kylie rated their satisfaction with eight aspects of their lives at each phase of the transformation process, on a scale of 1 (extremely unsatisfied) to 10 (extremely satisfied). Together, these aspects form a widely used set of personal wellbeing indicators (Australian Centre on Quality of Life 2020) and are systematically included in the long term broadscale Regional Wellbeing Survey conducted by the University of Canberra (2020).

James and Kylie's response indicated overall increases of between 1 and 3 points in Global Life Satisfaction (fig 4), satisfaction with safety, future security (fig 5), life achievement and personal relationships (fig 6), over the transformation period.

While Global Life Satisfaction increased steadily over the transformation period, James and Kylie experienced dips of 1 and 2 points in other personal wellbeing indicators during the first and second stages of practice changes (phases 2 and 3). All indicators had recovered by the time of the study (phase 4) and achieved overall increases except for health, which, while it has shown signs of recovery has not yet returned to pre-transformation levels (phase 1) (fig 6).



Global Life Satisfaction

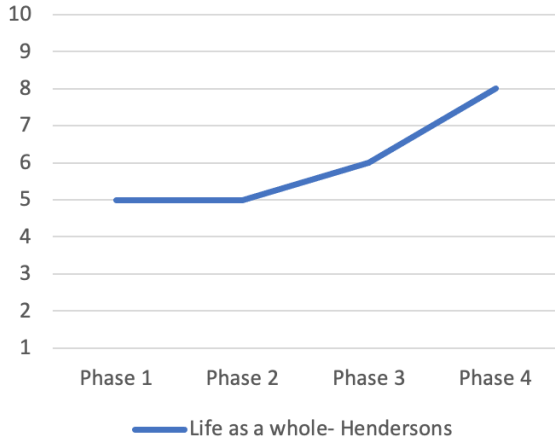


Figure 4 Global Life Satisfaction

James and Kylie indicated an overall increase in Global Life Satisfaction of 3 points, over the transformation period.

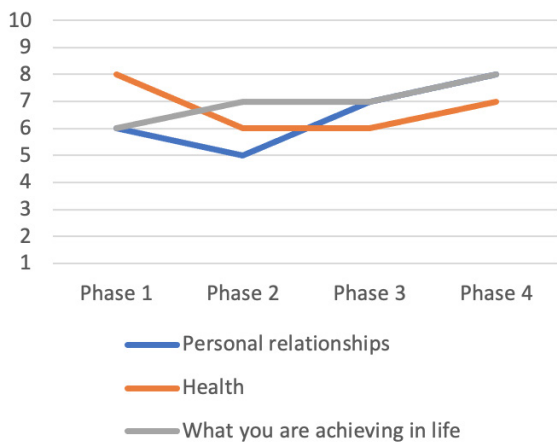
The 2018 Regional Wellbeing Survey of Australian Farmers ((University of Canberra 2020) found that Queensland farmers rated their Global Life Satisfaction as 7.19 out of 10 on average. The Hendersons' global life satisfaction was 2 points lower than this average during the original enterprise, however it consistently increased over the period of transformation to a current score of 8 out of 10, nearly a point higher than the 2018 average.

Figure 5 Personal Relationships, Health and Life Achievement

James and Kylie indicated overall increases in their satisfaction with personal relationships and life achievement of 2 points each respectively. Their satisfaction with health, on the other hand, decreased by 1 point overall.

Despite an increase in satisfaction with life achievement, the Hendersons experienced a dip of 2 and 1 point respectively in their satisfaction with health and personal wellbeing shortly after beginning to make changes on the property (phase 2). During the next phase, satisfaction with personal relationships appear to have not only recovered but improved on the initial position, while satisfaction with health and life achievement plateaued before increasing during phase 4.

Personal relationships, health and life achievement



Safety and Future Security

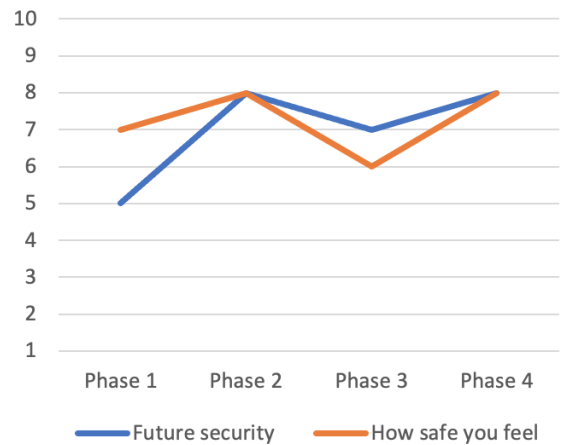


Figure 6 Safety and Security

James and Kylie indicated overall increases in their satisfaction with safety and future security of 3 and 1 points respectively, over the transformation period.

The first stage of practice changes (Phase 2) appears to have corresponded with increased feelings of safety and confidence in future security. However, the Hendersons appear to have experienced a dip during Phase 3, corresponding to health obstacles and familial stress (see 3.1.) The family's sense of safety and security appears to have recovered by phase 4, returning to the levels experienced during the first stage of practice changes.



3.2.2 Relationship with Farming

James and Kylie Henderson rated their agreement with several statements related to their relationship with farming including perceived resilience, self-efficacy and optimism. In an exploratory Australian study, these statements were found to have correlations with regenerative agriculture (Brown et al 2017).

James and Kylie rated their agreement with the statements for each phase of the transformation process, on a scale of 1 (strongly disagree) to 7 (strongly agree). Phase 1 corresponds with the original enterprise, Phase 2 the initial stage of practice changes, Phase 3 the second stage of practice changes and Phase 4 to now (see 3.1 for corresponding dates).

Self-efficacy, as indicated by agreement with the statements 'We can achieve the things we want on our farm' and 'We can make the right decisions about farm management' increased steadily over the transformation period until ultimately reaching the highest level of agreement with the statements by the time of study (phase 4): a change of 2 and 3 points respectively (fig 8).

James and Kylie's perception of their optimism and coping abilities, as represented by agreement with the statements 'I/we feel optimistic about our farming future' and 'I/we can cope with difficult conditions on the farm' dipped by 1 point during the first stage of practice changes before ultimately reaching the highest level of agreement with the statements by the time of study (phase 4) and an overall increase of 2 points each (fig 7).



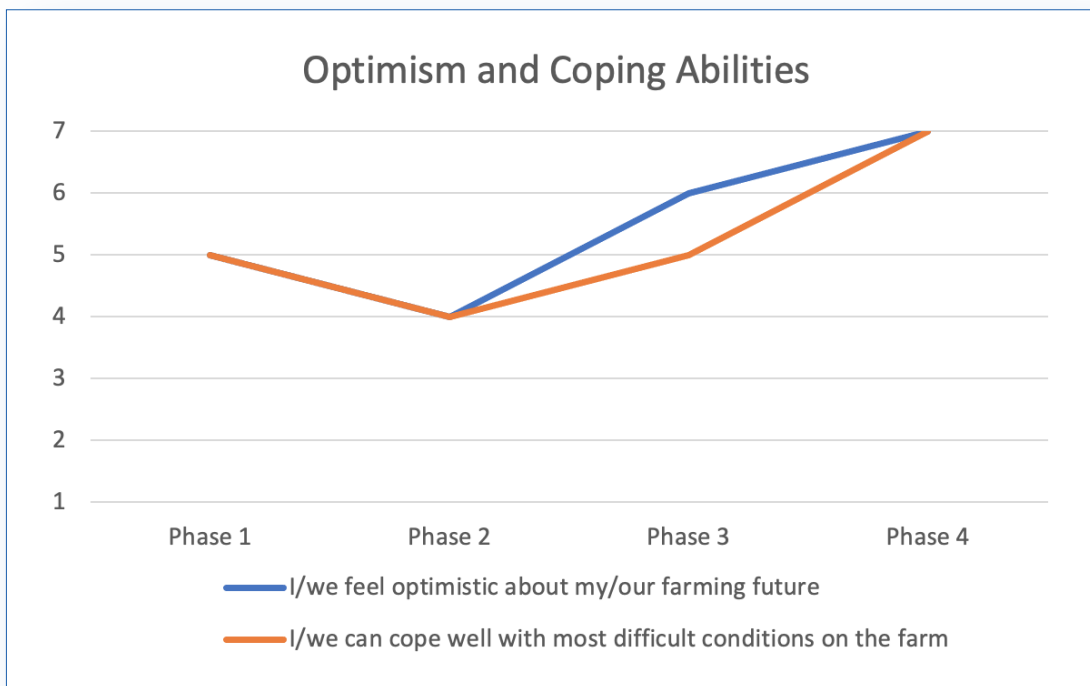


Figure 7 Optimism and Coping Abilities

James and Kylie's perception of their optimism and coping abilities, as represented by agreement with the statements 'I/we feel optimistic about our farming future' and 'I/we can cope with difficult conditions on the farm' dipped by 1 point during the first stage of practice changes before ultimately reaching the highest level of agreement with the statements by the time of study (phase 4) and an overall increase of 2 points each (fig 7). The dip at the first stage of practice changes corresponds to John's depression resulting from a lack of optimism about his farming future arising from difficulties coping with the difficult conditions of the Millennium Drought (see 3.1.) . Once practice changes are fully underway (phase 3), we see an alleviation of John's depression (see 3.1.) and a corresponding recovery of the above indicators of optimism and coping abilities.

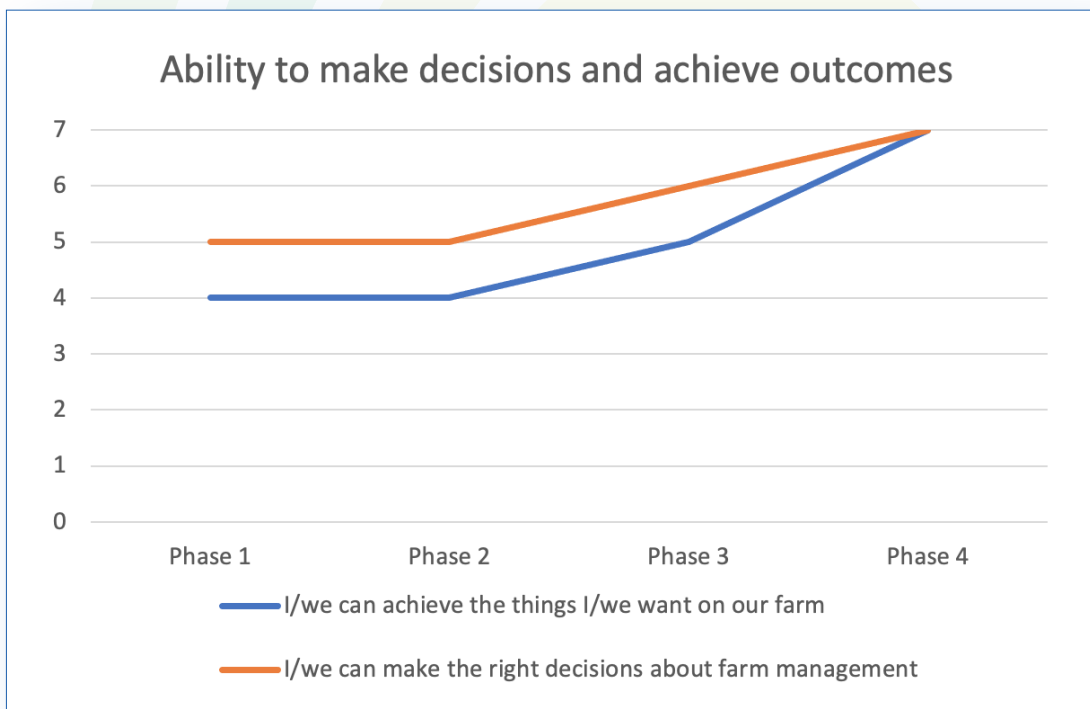


Figure 8 Ability to make decisions and achieve outcomes

Kylie and James indicated an overall increase in their perceptions of self-efficacy, as represented by their agreement with the statement "I/we can achieve the things I/we want on our farm" and "I/we can make the right decisions about farm management". Their level of agreement increased steadily over the transformation period until ultimately reaching the highest level of agreement with the statements by the time of study (phase 4): a change of 2 and 3 points respectively (fig 8).



3.3 Key Social Themes Matrix

	ROLES	DECISION-MAKING	MOTIVATION/ TRIGGERS/ VISION	NORMAL LIFE
Human Capital	<p>John was the primary decision-maker in the previous generation of family management. Stepped back as James and Kylie took over and focussed more on the things he enjoyed such as ecology and cattle work.</p> <p>James and Kylie are the current generation of family management.</p> <p>James is the primary decision-maker and Kylie inputs into decisions, contributes on and off farm labour and cares for the next generation.</p>	<p>John required decisions to be 'justified' and researched so that they had the highest chance of success.</p> <p>James deliberately researched and undertook courses to build his skillset and knowledge-base to inform decision-making.</p>	<p>John – drought induced depression about viability of the enterprise into future</p> <p>James' desire to avoid anxiety and depression during droughts</p>	<p>James enjoyed a lot of fishing and football in his free-time during his youth.</p> <p>John experienced clinical depression during Millenium Drought which lifted when practice changes started taking effect and he felt more optimistic about the families farming future. Diagnosed with terminal Motor-Neurone disease in 2015.</p> <p>James and Kylie have young children and live between Colodan and a new property. They maintain a garden around the homestead to protect their mental health. The youngest child has been diagnosed with Downs Syndrome.</p>
Social Capital	<p>James worked on neighbouring property and influenced practice changes there.</p> <p>Colodan has hosted field days to share their experiences.</p> <p>James consults for Green Collar to advise on carbon farming initiatives and cared for terminally ill father.</p> <p>Kylie raises the children and worked and volunteered in local town.</p>	<p>Primarily made between pairs of family members. John and his wife, then John and James, then James and Kylie.</p> <p>James attended many field days and talked to experts in specific areas to learn from others experience and inform decision-making.</p> <p>John passed on his knowledge and experience of managing Colodan to James.</p>	<p>Degraded family relationships due to time pressures from caring responsibilities & heavy workload, leading to poor decision making and resulting in family stress and financial loss</p> <p>Desire to save time, money and effort by making good decisions on existing and new enterprises</p>	<p>Both Kylie and James involved in local community when they were younger but not as much as they became more dedicated to the farm and family.</p> <p>Struggled with personal relationships and family stress due to increased caring and on farm responsibilities during the first stage of practice changes. This has now alleviated.</p> <p>Staying at the new property during the week means that they are closer to the town and have become involved in the school community more.</p>
Political and Institutional Capital	<p>John initially involved in Landcare, NRM groups and local politics but became burnt out.</p> <p>James policy role with AgForce.</p>	<p>NAB unsupportive of loans for innovative ag. techniques</p> <p>Farmers lobbied QRIDA to change restrictions about required capital for accessing loans for succession planning, farm purchase and capital works etc enabling the Hendersons to access funding.</p> <p>Grants difficult to access, but eventually ended up enabling the first big practice changes to occur and John's vision to be realised.</p>	<p>Inability to find financial support for innovative actions – NAB not willing to fund carbon farming, high percentages of cash needed for QRIDA loans, failed grant applications.</p>	<p>The Hendersons were able to access supportive institutions that provided the funding and scientific data which enabled the family to successfully implement regenerative practices, ensure family succession and purchase a satellite property, easing production pressure on Colodan and allowing the family to stay together during the school week and socialise with the local community</p>
Cultural and Spiritual Capital	<p>Initially data and production focussed, shifted to more of a stewardship role that considered the landscape and the family legacy.</p>	<p>Foster family culture of 'doing the right thing', embracing innovation and intergenerational cooperation to ensure progression and evolution.</p>	<p>Desire to leave a good family and landscape legacy – arising from terminal illness & birth of next generation</p>	<p>The Hendersons have a strong sense of purpose, life satisfaction and achievement.</p> <p>They also have a readiness to adapt to changing circumstances and cope with difficult conditions and a strong sense of optimism about the future of farming for themselves and the next generation.</p>



3.4 Key Narratives of Transformation

ORIENTING CONCEPT	TRIGGER	STRATEGY	OUTCOME
Human Capital	<p>John -- drought induced depression about viability of the enterprise into future</p> <p>James' desire to avoid anxiety and depression during droughts</p>	<p>Implementing preventative measures for mental health such as gardening during the drought</p> <p>Taking positive action to increase optimism about the future.</p> <p>Deliberate upskilling to support the implementation of innovative measures, reducing reliance on external or traditional knowledge and approaches</p>	<p>Johns depression lifted and he became optimistic about his legacy</p> <p>John and Kylie avoided stress during recent drought</p>
Social Capital	<p>Degraded family relationships due to time pressures from caring responsibilities & heavy workload, leading to poor decision making and resulting in family stress and financial loss</p> <p>Desire to save time, money and effort by making good decisions on existing and new enterprises</p>	<p>Decisions are made through discussion between 2 Family Members with strong social bonds. Open and constant communication to retain bonds.</p> <p>Decisions need to be justified and learn from the experiences of others- this is done primarily through social learning from field days, Ag Force Networks neighbours, similar enterprises and family history</p>	<p>Improved family relationships and social learning processes leading to better decision making with high likelihoods of success and head start on new enterprises</p> <p>James able to influence and support other enterprises to transform by sharing his experiences and attained knowledge through field days, management work with neighbour, AG Force policy role and carbon farming advice with Green Collar</p>
Political and Institutional Capital	<p>Inability to find financial support for innovative actions - NAB not willing to fund carbon farming, high percentages of cash needed for QRIDA loans, failed grant applications.</p>	<p>Shopping around to find institutions that support innovation and family succession including grants, banks, research trials and lending agencies</p>	<p>Supportive institutions provided funding and scientific data which enabled the family to successfully implement regenerative practices, ensure family succession and purchase a satellite property, easing production pressure on Colodan and allowing the family to stay together during the school week and socialise with the local community</p>
Cultural and Spiritual Capital	<p>Desire to leave a good family and landscape legacy - arising from terminal illness & birth of next generation</p>	<p>Foster family culture of 'doing the right thing', embracing innovation and intergenerational cooperation to ensure progression and evolution.</p>	<p>A strong sense of purpose, life satisfaction and achievement.</p> <p>A readiness to adapt to changing circumstances and cope with difficult conditions and a strong sense of optimism about the future of farming for themselves and the next generation.</p>



Discussion

The primary decision-makers of the Colodan property reported numerous positive social outcomes arising from their transformation to regenerative agriculture. These include a strong sense of life achievement and self-efficacy, attaining the highest levels of self-assessed resilience including the ability to cope with difficult conditions and optimism about the future (fig 7), building on a dynamic family legacy and securing the institutional support for the vision.

Several useful social strategies were employed to enable these positive social outcomes as well as support the broader transformation process including a deliberate focus on building human capital elements such as mental health, social capital such as personal relationships and social learning opportunities, institutional support and a family culture of innovation and commitment to 'doing the right thing'. This discussion will consider these strategies and outcomes in their narrative context and through the lens of 'the capitals'.

As outlined in the conceptual framework (3.1), this report uses the definition of 'the capitals' provided by the association of Impact Assessment (Vanclay et al 2015). This definition considers 'the capitals' as generic metaphors that are useful for loosely conceptualising and analysing social resources or assets. For the purposes of this report, the social data has been analysed through the lens of 'the capitals' to determine key social strategies and outcomes associated with the case studies' transformation to regenerative agriculture.

The following sections explore key narratives of transformation associated with the key social strategies and outcomes for each 'capital' (3.4). While elements of financial, physical and natural capital do appear in the social narratives due to the nature of the systemic change in question, they are explicitly addressed in separate economic and environmental reports.

4.1 Human Capital

Human Capital includes elements associated with individuals such as their health and wellbeing or their skillsets and knowledge base (Vanclay et al 2015). For the decision-makers on Colodan, this meant improvements in optimism and coping abilities (fig 7) resulting in the reduction and avoidance of stress and depression. Furthermore, a deliberate fostering of skillsets and improvements to James' skillset and knowledge base not only enabled many practice changes to take place, but also improved and diversified livelihood opportunities. This process is illustrated in the following narrative:

The Henderson families' mental health is intrinsically tied to the Colodan landscape. John suffered clinical depression during the Millennium Drought. He was deeply concerned about the emerging landscape degradation resulting from previously conventional management approaches and the ability of the enterprise to support the next generation.

Once the family began to take action and make real changes to the management approach, John began to feel optimistic and hopeful about the future. These changes went on to see the family successfully through the most recent drought and James and Kylie believe that they "would certainly have struggled...and been stressed" if they had not changed their approach.

Seeing his father struggle with depression during the drought, James took a very proactive approach to managing his wellbeing. At the beginning of the Millennium Drought he heard a speaker encouraging farmers to foster green garden spaces around their homesteads to help them recover and recharge from the stress of working barren landscapes. James took this advice to heart and created a beautiful space that the family continues to enjoy today.

"The main thing... is always to have a garden, especially for James to come home to in a drought. You have that greenery and that distraction.... If we weren't doing so well you could almost guarantee we weren't growing much up in the gardens and the gardens probably weren't doing well either I reckon"

Kylie Henderson, Colodan



James also took a proactive approach to developing his skill set and knowledge base to meet the challenge of undertaking innovative practice changes. Rather than employing technical advisors, whom he found to lack understanding of cutting-edge techniques, he undertook his own research, talked to neighbours about their experiences and attended field days and courses. This increased skill set and knowledge base enabled him not only to transform the enterprise but also to find contract work with Green Collar and a representative role with AgForce.

These narratives, along with the survey results, indicate a positive impact on elements of human capital such as mental health, skill sets and knowledge base. By deliberately and proactively building these elements of human capital, James and Kylie were able to improve their ability to cope during difficult conditions on the farm such as the recent drought, implement diverse and innovative practice changes, increase and diversify their livelihood opportunities and consequently improve their optimism about their farming future.

This suggests a strong feedback loop between human-capital and the process of on-farm transformation whereby improvements to human capital elements such as skills sets and knowledge base can enable innovative on farm transformation, which in turn improves human capital elements such as mental health including coping abilities and optimism.

4.2 Social Capital

Social Capital includes social structures and networks such as families and groups, as well as rules, norms, trust, obligations and reciprocity (Vanclay et al 2015). For the Hendersons, elements of social capital, such as personal relationships (fig 6) and social learning were closely linked to successful on-farm decision-making (fig 8). As a consequence, James and Kylie discovered that the process of successful transformation required a close focus on deliberately building social capital, as illustrated in the following narrative:

Family relationships form the core of decision making and motivation at Colodan. When John managed the enterprise, he regularly discussed the management with his wife. As James became increasingly involved, this role passed to him. After John stepped back, James relied on his close relationship with his partner Kylie to “bounce ideas” and stay on track.

When social pressures increased due to an expanding family and a terminal diagnosis for John, Kylie and James struggled to find time to communicate and discuss the farm. As a result, James made a few poor decisions about cattle marketing and sale. Despite the farm being in excellent ecological condition this led to financial losses that James felt should not have occurred, as illustrated in the quote (left).

“it really frustrated me because...John [had been] really good at timing and sales and... Kylie and I were not communicating... We made a loss and we should have made a profit...We had the resources to make money..., ecologically the property was powering ahead, but we didn't tie it in to business... you've got to join the dots. Just because you do one doesn't mean the other will automatically follow. You've got to make it happen.”

James Henderson, Colodan

Kylie and James worked hard on restoring their communication, making time for talking through their personal lives and farm decisions every day after the kids go to bed and on drive-arounds. Now that they have repaired their strong bond, their motivation has returned and they feel confident in their decision making. After the difficult time they had recovering from this period, Kylie and James are determined to maintain their communication and avoid “falling into another rut” in the future.



As time went on, James and Kylie also began to realise the crucial importance of learning from the experiences of other similar enterprises as well as skilled experts in particular areas such as accountants. The approach to farm management had never been “trial and error” under John’s management. He insisted on researching and “justifying” new approaches to ensure that practice changes had the highest possible chance of success.

When James began to expand the social network of the farm, through his work with AgForce, and the Green Collar he found that he was able to save himself time, money and effort by “justifying” the proposed changes by learning from the experiences of those who had already tried a specific approach. He also found that he was able to help others who were trying to improve their approach by sharing his experiences through field days, advice and in his contracting role on the neighbouring property.

The Henderson’s immediately applied their lesson in social learning by prioritising the early building of networks, as soon as they purchased a new irrigated satellite property. They believe that this will give them a head start and allow them to make informed decisions as they try their hand at something new.

These findings indicate that key elements of social capital such as personal relationships and social learning were integral to the on-farm decision-making process during the transformation period. This resulted in a deliberate focus on these elements and consequent improvements to personal relationships and processes of social learning.

This suggests that social learning can play a key role in informing and improving decision-making around the transformation process. It also suggests that focussing on fostering the personal relationships between decision-makers is essential for well-functioning decision-making processes.

4.3 Political and Institutional Capital

For the purposes of this document, political and institutional capital refers to governance institutions and processes as well as other structures and processes related to power, regimes and agency/ self-efficacy (Vanclay et al 2015, Avelino 2017, Shirmer et al 2013, University of Canberra 2020, Scoones et al 1998).

Finding good institutional support for the vision proved essential to the transformation process on Colodan by providing James and Kylie with financial and scientific resources. These resources allowed enabled James and Kylie to make the right decisions about farm management and achieve the things they want on their farm (fig 8). This increased self-efficacy led to improved on-farm outcomes as well as social gains for the family such as improved social networks (fig 6), community access and intergenerational successional planning. This process is illustrated in the following narrative:

Finding institutions that would support innovative agricultural approaches, as well as family succession was essential for the ambitious changes the Hendersons wanted to see on Colodan. This was not an easy process and early attempts at becoming involved in local NRM groups, getting the support of financial institutions and applying for grants were not successful. Things began to change when farmers successfully lobbied for changes to the Queensland Rural and Industry Development Authority’s (QRIDA) eligibility criteria for loans.

By allowing them to use capital rather than cash to apply for low interest loans, QRIDA gave James and Kylie the ability to begin their first big regenerative projects as well as purchase a new satellite property. The new property eased the production pressure on Colodan as well as allowing the family to stay within easy driving distance of schools during the week. The loans also allowed the family to complete their succession planning in time to secure another generation of excellent land management.

Connecting with research and cutting-edge institutes and programs such as the Cash Cow Benchmarking Scheme and the Carbon Credit Scheme was also critical to enabling the Henderson’s innovative approaches. These schemes provided the Henderson’s with baseline data about Colodan, advice about practice changes and data-based feedback about the outcomes. They were then able to make sound decisions and confidently roll out changes across the rest of the enterprise.



These findings indicate that, for James and Kylie, the resources provided by good institutional support enabled the self-efficacy required for a successful transformation process such as the funding required to purchase land and capital works and the scientific data required to make good decisions. This led to improvements in social resources such as social networks, access to community and intergenerational succession.

Institutional resources were not accessed easily, however, and several strategies including advocating for structural institutional change and 'shopping around' for better aligned institutions, as well as persistent grant and trial application were required. This suggests that, while difficult, the strategy of deliberately pursuing supportive institutional services can play a fundamental role in accessing the resources required to pursue the transformation process.

4.4 Cultural and Spiritual Capital

Cultural and Spiritual Capital encompasses a person's sense of their role and greater purpose within the world. It transcends the separate capitals to take a holistic view and considers broader cultural influences as well as creativity and innovation (Vanclay et al 2015).

"We never really considered what we were doing as regenerative ag... We just keep doing what we think is the right thing... For us it's just my fathers' practices, they changed significantly from the '70s to the '80s, to the '90s, to the 2000s. We're just doing the same thing within a shorter time frame...the world is moving quicker... it's culture in general and we're just at the front of it, that's all... we've never considered a stop point."

James Henderson, Colodan

For the decision-makers of Colodan, the relationship between cultural and spiritual capital and the transformation to regenerative agriculture manifests as a sense of their role as a dynamic steward to a landscape that has been in their family for generations, and they hope will do so for many generations to come. This commitment to their intertwined family and landscape legacy is the driving motivation behind John, James and Kylie's innovations and their vision for transforming Colodan. The following narrative illustrates this process:

The past and future of Colodan is intimately tied to the evolving legacy of the Henderson family. They are deeply committed to constant improvement and

the idea of trying to do the right thing, as demonstrated in the following quote:

The Hendersons' consistently progressive attitude enables the family to implement new approaches, such as carbon farming, that James had witnessed prove impossible for other families due to intergenerational differences. Instead, John and James used these differences to their advantage with John contributing his deep knowledge of farm ecology and practice and James engaging with emerging technologies and approaches.

When John received a terminal diagnosis of Motor-Neurone disease and James and Kylie's baby daughter was diagnosed with Down's syndrome the family's security and confidence in the future was shaken. As the family worked through this period their focus shifted to appreciating the present and planning for the future of the next generation. John and James became driven to realise the important changes that John had not yet achieved in his lifetime and together they implemented important projects related to water and soil conservation.

"Dreams, the thoughts of how things should be, changed quite quickly with the different circumstances... I think with everything going on you just take a step back as to what is really important in life...I have come to realise we are still going to be here for many years to come, so it didn't have to be an instant change straight away..."

Kylie Henderson, Colodan



True to the family culture of innovation, the Hendersons are excited about diversifying Colodan and exploring the opportunities offered by new technologies and approaches. They hope to create a flexible enterprise for the next generation, that can adapt to whatever the future brings.

These findings indicate that the innovations and desire to transform Colodan is driven by a fundamental commitment to doing the right thing by their family legacy and their landscape. This process has led to an increased sense of global life satisfaction (fig 4) and life achievement (fig 6), as well as a readiness to adapt to changing circumstances and cope with difficult conditions and a strong sense of optimism about the future of farming for themselves and the next generation (fig7).

This suggests that focusing on the life purpose of the decision-makers, clarifying motivations and acknowledging the need for constant adaptation to changing circumstances could be key to driving a successful transformation process.

5. Conclusions

The primary decision-makers of Colodan enterprise reported numerous positive social outcomes arising from their transformation to regenerative agriculture. These include a strong sense of life achievement and self-efficacy, attaining the highest levels of self-assessed resilience including the ability to cope with difficult conditions and optimism about the future (fig 7), building on a dynamic family legacy and securing the institutional support for the vision.

Several useful social strategies were employed to enable these positive social outcomes as well as support the broader transformation process including a deliberate focus on building human capital elements such as mental health and skills, social capital such as personal relationships and social learning opportunities accessing institutional support and a family culture of innovation and commitment to 'doing the right thing'. Key findings and recommendations arising from this case study are summarised below.

Key findings

- Improvements in optimism and coping abilities (fig 7) resulted in the reduction and avoidance of stress and depression. Furthermore, a deliberate fostering of skillsets and improvements to James' knowledge base not only enabled many practice changes to take place, but also improved and diversified livelihood opportunities –(See 4.1)
- For the Hendersons, elements of social capital, such as personal relationships and social learning were closely linked to successful on-farm decision-making. – (See 4.2)
- Finding good institutional support enabled James and Kylie to make the right decisions about farm management and achieve the things they want on their farm (fig 8). This increased self-efficacy led to improved on-farm outcomes as well as social gains for the family such as improved social networks (fig 6), community access and intergenerational successional planning. – (See 4.3)
- The Hendersons' commitment to their family legacy and constant innovation has led to an increased sense of global life satisfaction (fig 4) and life achievement (fig 6), as well as a readiness to adapt to changing circumstances and cope with difficult conditions and a strong sense of optimism about the future of farming for themselves and the next generation (fig7). – (See 4.4)



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