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Sustainable Development: A Model Indonesian SRI Co-operative.

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ABSTRACT

This research report explores how ‘sustainable livelihoods’ have been achieved at a model co-operative using the ‘System of Rice Intensification’ named SIMPATIK. To conduct the research a novel template was developed. The framework was required following a review of sustainable livelihood literature which found deficiencies with the ‘sustainable livelihoods framework’, particularly its treatment of equity, social capital, culture and agro-ecology which disqualified the framework as an appropriate approach for the research. Amekawa’s (2011) ‘Integrated Sustainable Livelihoods Framework’ which synthesises agro-ecology and the sustainable livelihoods framework is then discussed. Further work is then presented on social capital which this paper argues has a critical role in facilitating access to livelihood capitals. A discussion of the significance of culture then follows to underline its importance as a form of livelihood capital. The research then introduces an operational model that is appropriate to the local cultural, institutional and geographical context to demonstrate how livelihood capitals are linked to livelihood outcomes, a model I have labelled the ‘Apt-Integrated Sustainable Livelihoods Framework’.

This framework is then informed through field research at the SIMPATIK co-operative. Impact pathways through ‘synergetic forms of social capital’ and the System of Rice Intensification (SRI) are shown indeed to lead to sustainable livelihood outcomes for research participants. The ‘sequencing’ of livelihood capitals is seen to be critical and the research culminates in the development of a ‘SRI Co-operative Template for Sustainable Livelihoods’; a transferable model that shows how SRI can be promoted as a sustainable livelihood strategy.

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ACRONYMS AND ABBREVIATIONS

| | |
|----------|---|
| Apt-ISLF | The Apt Integrated Sustainable Livelihoods Framework |
| CIIFAD | Cornell International Institute of Food Agriculture and Development |
| DFID | Department for International Development |
| FAO | Food and Agriculture Organisation |
| HSRC | Human Sciences Research Council |
| IDF | International Development Fund |
| IMO | Institute For Marketecology |
| IMPACT | Improving Marketing Productivity of Agricultural Co-operatives in Timor |
| ISLF | Integrated Sustainable Livelihoods Framework |
| KPGS | Koprasi Produsen Gapoktan Simpatik |
| MBCA | Mutually Beneficial Collective Action |
| MOL | Mikro Organisme Lokal/ Local Micro Organisms |
| NL | Neo Liberal |
| M-FAT | Ministry of Foreign Affairs and Trade |
| MSD | Mainstream Sustainable Development |
| PM | Participatory Methods |
| SDG | Sustainable Development Goals |
| SL | Sustainable Livelihoods |
| SLA | Sustainable Livelihoods Approach |
| SRI | The System of Rice Intensification |

INDONESIAN TERMS

| | |
|---------------|--------------------------------|
| Gapoktan | Farmers group |
| Gotong Royong | Cultural collective work ethos |
| Tengulak | Rice profiteers |
| Sala | Meeting hall |
| Masjid | Mosque |

CHAPTER ONE: INTRODUCTION

1.1 THEMES AND CONCEPTS

How do you do sustainable development? This research answers the question by exploring how Sustainable Livelihoods (SLs) are achieved using the System of Rice Intensification (SRI) at a model co-operative named SIMPATIK.

To answer the above question requires a framework, a novel SL framework is developed from a literature review; named the Apt-Integrated Sustainable Livelihood Framework (Apt-ISLF). It is so named as it meets SL criteria and has the scope to describe processes within SIMPATIK that lead to SL outcomes. The research therefore produces a template for how SRI co-operatives can achieve SL outcomes and promote SRI's agro-ecological potential.

Livelihood strategies that upscale agro-ecological practices leading to SL outcomes have increasingly become a focus of the rural development community. A recent symposium held by the Food and Agriculture Organisation (FAO) concluded that a re-focus on concrete strategies orientated on the promotion of local livelihoods and agro-ecology were essential in realizing Sustainable Development Goals (SDGs) (Silici, 2014), both the eighth goal; promote inclusive and sustainable economic growth, as well as the twelfth; ensure sustainable consumption and production patterns.

The call to find practical models of 'how to do sustainable development' poignantly matters to the vast numbers of impoverished rural communities experiencing vulnerability as it does to responsible development professionals alike. Silici often cites Altieri (2002) who reminds us that in the developing world, resource-poor farmers comprising about 1.4 billion people are located in risk-prone, marginal environments who as yet remain directly or indirectly untouched by modern agricultural development. This matters Silici (2014) explains because, 'How sustainability is defined and responded to in relevant institutional settings (such as the FAO) will influence how policy makers and technicians shape not only the SDG indicators but more broadly, the global agricultural agenda. The development community would therefore benefit by highlighting cases where agro-ecology achieves SL improvements and support them she adds (Silici, 2014).

The call to find models of how Sustainable development (SD) outcomes can be achieved in agriculture given current trajectories has become a more urgent concern of agencies such as the FAO. This trend is spurred in part by the prevalent development paradigm, a model which Goetz and O'Brien (1995) characterise by largely unchecked and overly rapid market liberalization and technological transfer. This paradigm García-Barrios et al. (2009) observe, continues to result in legions of people who, unable to profitably farm with industrialised agriculture, are forced to migrate to cities. Agriculture trajectories that according to Vidal (2010) and Silici (2014) alike require SD models that regenerate agricultural livelihoods by re-orientating the food value chain to support rural

livelihoods with the integration of agroecology. This approach to rural development Silici (2014) and others refer to as re-localization, a place orientated concept that focuses on the livelihoods of rural people and communities, increasing local equity as well as natural capital.

As alluded to above in Silici (2014) how SD is defined and responded to has a direct bearing on ‘How Sustainable Development is done’ or as many critics have pointed out failed to have been done. The point is illustrated from SD’s foundations which are traced to The Rio Earth Summit 1992 (UNCED). SD’s myriad themes of incorporating social, environmental and economic issues took centre stage at the summit. Terms which quickly became contended as poorer nations vied successfully for their rights to exploit environmental resources so long as activities didn’t impinge others. A compromise resulted in article 27 of the Rio Declaration which was signed to by over 170 nations present (Adams, 2003). With SD’s introduction firmly implanted on the world stage, a more complex understanding of poverty centred on livelihoods similarly took hold; the Sustainable Livelihoods Approach (SLA). The approach centred on people’s livelihoods, it recognized livelihood needs that depended on interrelated livelihoods capitals. A definition of sustainability that chimed with what Chambers (1988) and other SD researchers had long been advocating, i.e. for sustainability to be primarily about sustaining human life on the planet, focussing on poverty and the lack of resources that threaten human life (Chambers, 1988). By the end of the Earth Summit the SLA was considered to have provided a far better descriptor than previous development terms such as “employment” or GDP for resource-dependent rural communities. However, then as now without concrete strategies on how to achieve SL outcomes within a capitalist system criticism remains, according to Adams (2003) the Rio Declaration has remained inept while original SD tensions have also remained unresolved (Adams, 2003).

By asking what a (SD) strategy is i.e. how it is informed and operationalized, this research is able to say how SL outcomes can be achieved for SRI co-operatives. The discussion begins with an analysis of the SLA’s principle framework; The Sustainable Livelihoods Framework (SLF). However, although some strengths of the SLF are recognized, its shortcomings in terms of SLA criteria exclude the use of the framework in this analysis, notably the SLF’s inexplicit treatment of equity, agro-ecology and culture. The conceptual product of that overcomes these deficiencies and is found in Amekawa’s (2011) Integrated Sustainable Livelihood Framework (ISLF) with which agro-ecology and the SLF are integrated. Amekawa, Sseguya, Onzere, and Carranza (2010) spell out key reasons for the integration citing how despite the worldwide adoption of Green Revolution technologies and significant improvements in agricultural productivity, development achievements had been offset by unintended side-effects, such as inequitable access to resources, damage to human wellbeing and the biophysical environment (Amekawa et al., 2010). Amekawa’s call for an integrated framework accounts for three main agro-ecological fortes; collective asset building, subjective meaning with regards to livelihood choices including culture and thirdly agro-ecosystems that rely on natural

synergies and diversity. The ISLF Amekawa (2011) adds can be applied usefully to guide participatory projects where he also adds that a promising approach would be to apply the framework using Participatory Methods (PMs) to an organic producer co-operative with the view of expanding their activities. In doing so, the integrated approach could gain institutional pillars to gauge various household nexuses as well as stimulate collective empowerment (Amekawa, 2011).

Amekawa's advice is certainly adhered to within this research. With the Apt-ISLF developed from his ISLF model, research is conducted on an exemplary SL model; 'The SIMPATIK Rice Co-operative'. This is a co-operative renowned for delivering SL outcomes for which it has received several distinguished accolades, including a presidential award for Best Organic Farming practice in 2010 and a Certificate of Excellence from Cornell University in 2011 (CIIFAD, 2011). Coupled with its use of SRI, its farmer owner organisational structure and business success, SIMPATIK has the hallmarks of a potent SL strategy.

The research project asks how and whether co-operatives using the System of Rice Intensification (SRI) can be said to promote effective Sustainable Livelihood (SL) strategies. As such, the research offers insights into how livelihood capitals are linked and how they can be increased. The research enquires how livelihood outcomes are sequenced, what the nature of these capitals are and how they integrate within the framework. Central to the study is the role of social capital with which a synergetic view of social capital enables the explanation of how SL outcomes have been successfully achieved at SIMPATIK. Exploring these issues develops a template which summarizes how to 'do' sustainable development in SRI co-operatives. The research accords with calls from several key Sustainable Development(SD) writers including Bebbington (1999) who recommended that we look for ways in which 'synergies' could be created between capitals and accessed through social capital as well as Chambers and Conway's (1992) call to look into ways in which capability, equity (including relative income distribution) and sustainability can be combined to ensure mutual support remains high. By understanding how SRI-co-operatives are able to achieve SL outcomes at SIMPATIK, SRI can be promoted as an SL strategy. This is important given SRI's potential as an effective agro-ecological method.

The System of Rice Intensification (SRI) is a set of improved rice management practices. As an agro-ecological approach it has attracted much attention due to its yield, economic, health and environmental potencies. Yet as Takahashi and Barrett (2014) observed we know surprisingly little about how SRI's socio-economic impacts are achieved. Nevertheless, as a practice SRI has become widely adopted and is a mainstay of many national agriculture programs for developing nations, as it is in Indonesia, where eight hundred thousand hectares have been planted in SRI since 2002 (Sato, 2005). Despite the widespread benefits SRI brings from such national strategies, its SL potentials as an agro-ecological strategy have been criticised, a main reason for the contention being the reference

systems used to assess SRI's impacts (Dobermann, 2004; Tsujimoto, Horie, Randriamihary, Shiraiwa, & Homma, 2009). It is because of the discord of the appraisal systems, these writers add, that has often led to contrary results. To the best of my knowledge such appraisals haven't applied an SLA framework, nor developed the methodology for one, an outcome that has led at times to the misrepresentation of SRI's SL potential. Much research has underestimated SRI's environmental, social and economic benefits and offered little on planning interventions. Takahashi and Barrett (2014) went some way towards exploring aspects of the social and economic effects brought about with SRI and likewise conclude to the best of their knowledge that only Noltze, Schwarze, and Qaim (2013) had explored the household income impacts of SRI. Furthermore Alem, Eggert, and Ruhinduka (2015) concluded SRI indeed improves yield; critically however farmer's profitability hinges on the actual market price they face which varies. By omitting cases where SRI's impact pathways lead to SL outcomes, the full social and economic potential SRI can deliver appears understated. A key research goal in this report is therefore to develop methodology to support SRI co-operatives with a working model to achieve SL outcomes effectively.

The methodology to achieve SL outcomes as Chambers and Conway (1992) have alluded to, has the correct organisational 'settings' with which as these writers state, livelihoods are able to grow not only in environmental and economic terms but also social; the latter also qualifying collective capital growth which answers SD's causal question which is: How are the poor and marginalised benefitted? (Blowfield & Frynas, 2005). SRI is an outstanding agro-ecological intensification strategy, offering many benefits and savings to farmers, yet studies into its social consequences and how the strategy may be optimised are more limited, understanding how SRI can be promoted as an SD strategy means understanding how 'organisational settings' can validate SRI as an SL strategy by delivering on equitable and economic livelihood growth.

1.2 PERSPECTIVES AND JUDGEMENTS ON THE TOPIC

During 2013, as the lead writer for a Ministry of Foreign Affairs and Trade (M-FAT) funded program called Improving Marketing Productivity of Agricultural Co-operatives in Timor Leste (IMPACT), I recognized the potential of co-operatives to efficiently benefit impoverished farmers. Additionally I was able to document yields from SRI trials of up to six point six tons of cut rice per hectare¹. The increased productivity was a substantial increase that led to improved economic returns. The yield not only compared well to conventional methods but also other SRI studies, the most relevant of which was Noltze (2012)'s study of SRI adopters in Timor Leste, which averaged a mere two point nine four ton yield per hectare. These figures indicated that without certain 'organisational settings' and supports SRI potential can and has been underestimated.

¹ For more on the SRI trials in Timor Leste see note 20, Pg 44.

1.3 THE RESEARCH AIM

To explore whether and how co-operatives using SRI are promoting effective SL strategies.

Within this aim objectives are;

1. Develop a conceptual framework to inform how Sustainable Livelihoods can be achieved for SRI co-operatives.
2. Explore whether and how sustainable livelihood capitals for SIMPATIK members are achieved within the model, with particular attention on the role of social capital and co-operative organisation.
3. Analyse findings to develop a methodology on how SL outcomes using SRI can be achieved.

1.4 REPORT STRUCTURE

This research moves from the development of a theoretical framework from literature to informing the framework from grounded research from the case study. Chapter two begins with a literature review of SRI where issues regarding its potential as an SL strategy are more fully discussed. This is followed by a thorough review of the emergence of the SLA and the SLF. Following the analysis of the SLF's elements in 2.3 deficiencies are identified that detract from SL literature. Agro-Ecology and Sustainable Agriculture are then addressed in 2.4 where despite remedying some of the issues identified with the SLF we also note some of agro-ecologies own deficiencies. The ISLF is then introduced in 2.5 based on Amekawa (2011)'s insights given above and analysed. How social capital and culture are understood within a framework suitable to SRI co-operatives follows, discussed in sections 2.6-2.8. The chapter then culminates in 2.9 the presentation of the Apt-ISLF. How the Apt-ISLF is to be informed is covered in Chapter three; the methodology. Chapter four then presents findings based on each of the elements within the Apt-ISLF with a particular focus on social capital. Having discussed the elements how they then impact pathways within the SIMPATIK co-operative are established. These are then summarised in figure five, 'A Template for Sustainable Livelihoods' with which the nature of the co-operative's capitals and processes are understood. Chapter five concludes with the research findings and its implications for SRI co-operatives.

2.1 THE SYSTEM OF RICE INTENSIFICATION

The System of Rice Intensification (SRI) is a synthesis of improved rice management practices that originated in Madagascar with Father Henri de Laulannié, a French Jesuit priest in 1983. It is a set of practices that include raising seedlings in fertilized beds, transplanting seedlings in rows with wide spacing between each from a young age, intermittent paddy flooding and weeding, preferably mechanical. The use of organic fertilizer is also applied to the soil before transplanting, additionally liquid organic fertilizer is often used during growth (Basu & Leeuwis, 2012). However it has been mentioned that SRI's wide adoption among farmers within the research community regarding the efficacy and feasibility of SRI has often been questioned. There are scholars who argue the success stories on SRI are only anecdotal and not supported by sound scientific evidence, while others believe that SRI has the potential to solve the rice crisis Glover (2011). Uphoff (2012) likewise acknowledges 'an anecdotal chasm' which at times has made donor organisations reluctant to promote SRI. Much of the evidence produced had resulted from farmer and program reports rather than peer-reviewed scientific studies. Nevertheless science and particularly social science requires publishable methodology. Developing development methodology for SRI within the SLF or ISLF has not to date been established. This results in the lack of a common reference to study SRI impacts as it does to systemize and promote SRI as an SL strategy. Furthermore the focus of SRI studies to date has emphasised instead whether or not farmers had adopted SRI as cited in C. M. Moser and Barrett (2003), whether and how that adoption was beneficial and /or whether those benefits are due to farmer management qualities or SRI itself (Basu & Leeuwis, 2012). SRI potentials can be realized further by applying an Apt-ISLF to exemplary case studies that produce design templates for reference by the development community. An ISLF study, as with any SL study, goes beyond agronomic performance and potential. I have mentioned Takahashi and Barrett (2014)'s observation that we know surprisingly little about SRI's socio-economic impact. These writers add, given SRI's remarkable productivity and (potential) earning benefits, SRI's (relatively) low uptake seems puzzling (Takahashi & Barrett, 2014). An SLA analyses causal relationships within a framework which is informed by the specific context (Discussed further in 2.2) . Needless to say the analysis includes consideration of incentives for SRI adoption and the organisation required to support livelihood outcomes, these include physical and social supports. In the absence of coherent reference systems and methodology first-hand experience can lead to contrary results and can underestimate SRI's potentials. For instance Noltze et al. (2013) drew very different conclusions with regards to the feasibility of SRI in Timor Leste from field trials compared to those with which I was involved . Indicating as Noltze (2012) does that with the right supports and 'settings' obstacles such as SRI's apparent increased labour demand and/or issues relating to market access can be overcome. We briefly discuss SRI's agro-economic potentials and calls to identify supportive organisational 'settings' within a coherent framework from available literature.

Increased Productivity

Significant agro-ecological benefits include 20–40% increases in yield and water savings of up to 50% with the practice of SRI as indicated by (Anthofer, 2004; Barah, 2009; Barrett, Moser, McHugh, & Barison, 2004; Biksham & Thiyagrajan, 2010; Ceesay, Reid, Fernandes, & Uphoff, 2006; Kassam, Stoop, & Uphoff, 2011). In Timor Leste the agriculture trials found increased productivity of more than 150% compared to conventional methods. Profitability, as these trials demonstrated and Ly, Jensen, Bruun, Rutz, and de Neergaard (2012) note come almost entirely from increased land productivity. Takahashi and Barrett (2014) noted the net rice income increase of 77.4% with a productivity increase of 25.2%. Yet we also know above from Alem et al. (2015)'s African studies that SRI profitability hinges on the actual market prices. Prices that depending on the market strategy vary. Indeed significantly, as was Alem's observation where the price of SRI was much lower than that of traditional grown rice, an issue where SRI resulted in a loss to farmers and as such was a disincentive. Alem et al. (2015) state that where equitable prices for SRI were received in comparison to conventional rice, adopting SRI becomes a relatively more profitable decision despite increased labour costs. Alem et al. (2015) conclude that there is a need within the development community to address access to open and equitable markets free of distortion as well as promote organisation to meet these markets

Takahashi and Barrett (2012) found however that productivity gains of SRI vanished at the household level. SRI appears to induce reallocation of (women's) time from off-farm self-employment, thus wiping out any income gains. The net effects on the economic welfare of SRI-adopting households have attracted surprisingly little study, because of its labor use implications we should look beyond just the impacts of land yield (Takahashi & Barrett, 2012). As these writers note, experimental plots measuring productivity may not authentically reflect the realities faced by farmers, while simple with/without or adoption comparisons common of some of the other writers mentioned above ignore process. Several points pertaining to this study are raised, firstly what marketing options are available for SRI that can increase its return? Secondly, what systems are available to assist the efficiency of SRI in terms of labour inputs? And critically in agro-ecology, as livelihood options are not solely based on economic returns, can SRI Co-operatives provide a better option than other livelihood options, particularly migration from rural communities?

As Noltze et al. (2013) notes broad generalizations without reference to the specific context should be avoided. His observations in Timor Leste found that SRI does not seem to be beneficial when compared to conventional rice grown under best practices; this is consistent with findings by (McDonald, Hobbs, & Riha, 2006), yet as he also mentions there is also evidence that SRI can outperform conventional best management practices in many situations; this is consistent with (Anthofer, 2004). Of import to this study is what is meant by performance and context. Productivity

wise, my observations in Timor Leste with SRI's full set of rice management practices and material support for farmers, SRI dramatically outperformed conventional methods in the same areas as Noltze et al. (2013)'s study. Furthermore financial performance additionally critically depended on market prices obtained. Context refers to the circumstances that form the 'settings' for an event, idea etc. in terms of which it can be fully understood and assessed. Context within this research asks how SRI can be promoted as an SL strategy, these 'settings' include how productivity and financial outcomes are obtained and crucially how 'livelihood' performance is improved through agro-ecology and social capital.

Takahashi and Barrett (2014) have noted the higher labour demand of SRI. Noltze et al. (2013) also noted that the labour requirements seemed to decrease with growing SRI experience. Of principle concern is the application of organic fertilizer and weeding issues that Noltze et al. (2013)'s studies of TL note have not yet been widely promoted in SRI programs. I have mentioned in Timor where provision for such supports has been provided, SRI potentials are realizable. These potentials have included productivity gains resulting in threefold increase in income for SRI users from (Rp238,800) to (Rp732,500) as in (Takahashi & Barrett, 2014). Altieri (2002) cites Vandermeer (1997) who refers to sustainable agriculture's recurring research frustration; the inability of low-input practices to out-perform conventional practices despite the success of many organic and low-input production systems in practice. Therefore how SIMPATIK manages itself, its large scale supply of organic fertilizer, its labour demands and returns for farmers etc. are of import to these studies.

Indeed as Alam (2015) notes the achievement of rice self-sufficiency in Indonesia in 1984 was the transition of traditional farming to non-organic farming. Increased production of modern agriculture meant increased dosages of chemical fertilizers and pesticides. Not only can SRI restore the state of soil fertility and rice productivity due to the saturation of fertilizer usage and chemical pesticides (Pirngadi, 2009) but in doing so it has the appeal of being able to be promoted as organic, a market link discussed in chapter four that increases returns to SRI farmers even further. Dependent on the promotion of technology as a livelihood strategy is social capital, both in terms of networks to support its growth as in Alem et al. (2015)'s study of the spread of SRI revealed and also in terms of equitable structures (Chambers & Conway, 1992). We now turn to the conceptual framework pioneered by these writers used in this study.

2.2 THE SLA AND SLF

We now expand the discussion on the SLA with analysis on the SLF and agro-ecology, with which we arrive at a synthesis of both with the ISLF. The remainder of chapter two then turns to developing the conceptual model informed from the SIMPATIK case study the Apt-ISLF. This happens by taking into account livelihood capitals with particular attention to the role of social capital which literature

has suggested sits well with co-operative structures. Co-operative members then inform the Apt-ISLF as applied to SIMPATIK, how such indicators and context then are developed through initial meetings with co-operative members is given in methodology. This in turn sets the structure for the interviews. These result in being able to inform the contextual model sought; the results of an applied Apt-ISLF to a model SRI co-operative; Chapter Four.

The UN's Brundtland Commission released the Brundtland report also known as 'Our Common Future' in October 1987, the report's mission was to unite nations to jointly pursue SD. The publication is seen as the starting point of what came to be known later in the 1990s as the 'Sustainable Livelihoods Approach' (Scoones, 2009). Likewise the elements for the SLF can be traced from emergent elements in the report. The resulting elements came to emphasise the mediating role of institutions in defining access to resources rather than mere production and other generic indicators of wealth creation (Leach, Mearns, & Scoones, 1997). The results drew heavily on the work by North (1990) whose research focussed on social capital and institutions as the principle driver for economic performance. The schematic likewise chimed well with Bebbington (1999)'s work from which the 'capitals and capabilities' framework had emerged earlier with his studies of rural poverty in the Andes. Central to the emergent livelihood schematic were discussions around the meanings and definitions of poverty and progress, assumptions that could be accommodated with the acceptance of complex livelihoods informed by PMs (Scoones, 2009). Although certain assumptions of the SLF are critiqued and discussed below, the SLA is heralded as a significant step forward in understanding poverty in contrast to what had been until then the discursive monopoly of Neo Liberal (NL) modernisation. NL linked progress and poverty to evolutionary end points centred on growth criteria, a form of market ideology linked with burgeoning urban economies (Scoones, 2009) and is identified with the decline of agricultural livelihoods. NL ideology itself rested on the Washington consensus, a paradigm of non-state interference and market led growth championed with the World Bank's Structural Adjustment Programs (SAPs) in developing nations. An approach which however, as Gwynne and Kay (2000) have identified that generally resulted in increases in poverty and increased inequality, likewise discussed with the implications of the 'green revolution'. Within this backdrop, until the early 90's, NL had emerged as the uncontended grand development idea, an idea according to Chambers (2010) and Pieterse (2000) that was both heteronomous and reductionist as the grand idea's (both left and right) economic imperatives often came at the expense of other rich and rewarding modes of life, especially social capital and local social imaginaries (Pieterse, 2000). Schumacher (2011) went further in questioning the role of economics in clarifying the meaning of development in his book *'Small is Beautiful: A Study of Economics as if People Mattered'*, observing that 'Economic development is something much wider and deeper than economics itself'. The SLA in contrast was 'bottom up' with its approach in which 'economic development' was to be informed contextually, operationalizing the approach was of key concern. Battle lines within the World Bank

inevitably emerged, researchers such as M. Woolcock and Narayan (2000) searched for ways to define this ‘social capital something.’ They aspired to demonstrate how more democratic, supportive and inclusive communities could be created which would in turn lead to mutually supportive sustainable livelihood strategies, themes also mentioned above in Chambers and Conway (1992), in which a community increased capability (livelihood capitals) , equity (including relative income distribution) and environmental sustainability. Scoones (2009) writes that ‘ a livelihood comprises of capabilities, assets (including both material and social capital) and activities for a means of living’, and adds a livelihood is sustainable when it can cope with and recover from stresses and shocks, maintain or enhance its capabilities and assets, while not undermining the natural resource base. With SLA’s focus on complex local realities, multiple entry points existed to discuss how SL outcomes could be achieved and in doing so for mutual learning between local people and outsiders in dialog (Scoones, 2009), which according to these writers is its informative appeal. In Bebbington (1999) where we first find his discourse on livelihood capitals, he refers to Zoomers (1998) Andean studies, one important reason projects fail is probably that they simply misinterpret the way people get by and get things done, adding the principle error with the Andean case studies was how the interventions had pre-determined a cool NL line between the economically viable (*los viables*) and those who were not (*no-los-viables*). Much of the work on access to resources suggests that with appropriate forms of social structure and intermediaries, barriers of exclusion are rather both permeable and movable. Needless to say the Andean intervention’s pre-determination of the non-economically viable received no investment. We now turn to discussing the principle conceptual framework for the SLA; the SLF.

2.3 DESCRIPTION AND ANALYSIS OF THE SLF

The legislative enshrining of the SLA as conceived in ‘Our Common Future’, popularly endorsed since Rio 92, began in earnest with liberal development reform. In the United Kingdom this occurred in 1997 with the White Paper on International Development with which, as its title suggests ‘Eliminating World Poverty’ effectively mandated the livelihood approach. Tasked with this White paper’s implementation was the Department for International Development (DFID). By 1998 a multidisciplinary committee had been formed within DFID to operationalize SLA thinking and in doing so provide a framework that could analyse comparative livelihoods and inform ‘funding’ (Scoones, 2009). At one such meeting an International Development Fund (IDF) checklist composed of SLA elements and centred on Bebbington (1999)’s pentagon of capitals (Fig 1) pertaining to livelihood access was creatively transformed into the SLF as presented below (Fig 2)

Figure 1. Pentagon of Capitals (Bebbington, 1999)

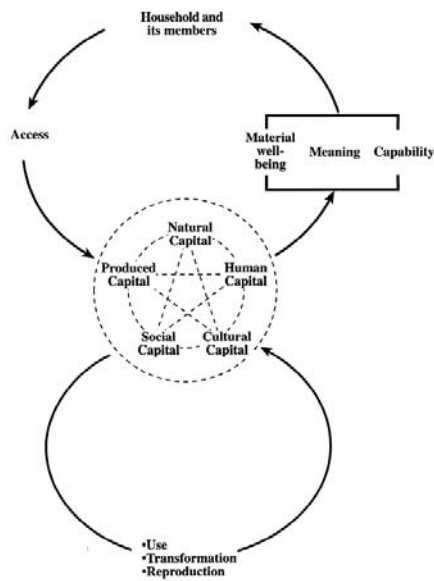
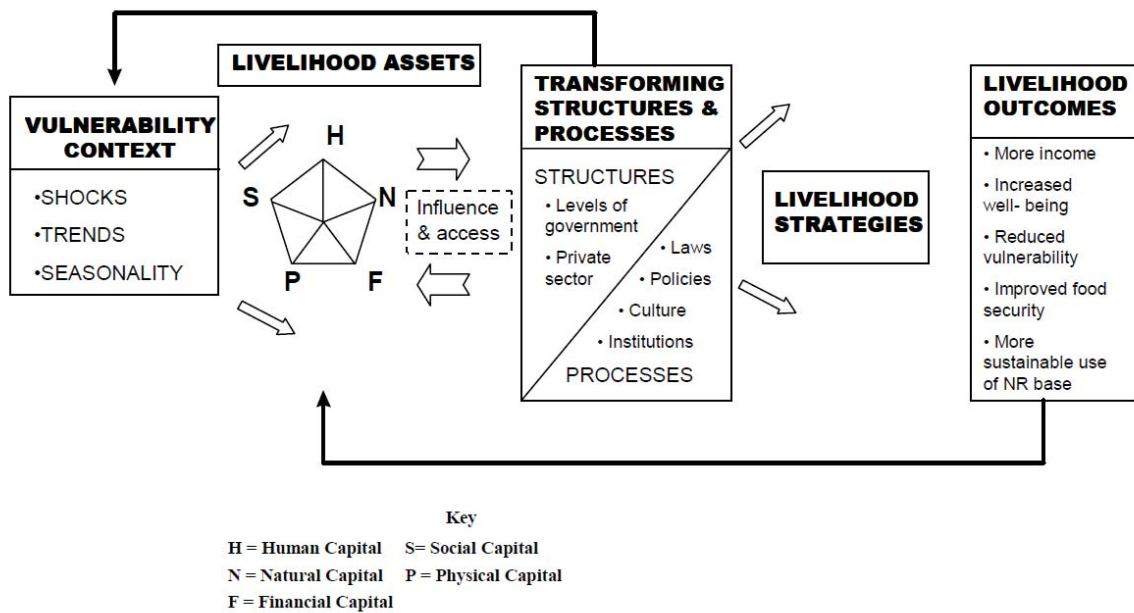


Figure 2. The Sustainable Rural Livelihoods Framework (Carney, 1998)



The model used in this research is the ISLF. As stated it is a synthesis of Agro-ecology and the SLF. The synthesis does not exclude any elements of the SLF although it does remedy some of its weaknesses. SLF elements carried into the ISLF are discussed and introduced here as follows.

The SLF's holistic framework is sophisticated; it provides researchers with a checklist of explanatory factors that should be considered when designing research, with multiple entry points which PMs can inform, the researcher can then understand which issues are relevant to people's livelihoods (Krantz 2001). A major strength of the SLF is that it can make explicit factors that may influence SL outcomes (Addinsall, Glencross, Scherrer, Weiler, & Nichols, 2015). The types of transforming structures and processes are of critical importance to the SLF as the type of livelihood strategy employed has a direct bearing on livelihood outcomes and so therefore the trajectory of livelihoods, this is because outcomes in turn, either increase, decrease or substitute the livelihood capital base(s) upon which livelihoods depend. Krantz (2001) likewise considers that the basic analysis of the SLF is the interplay between capitals, transforming structures and strategies. The analysis Addinsall et al. (2015) note that by linking assets and institutional processes and structures an understanding of restrictions that would otherwise impact on livelihood sustainability is provided. This sentiment is echoed by Levine (2014) who likewise recognized that core SL thinking is based on the requirement to understand and act upon the asset limitations of the poor; their context faced and the institutional environment that facilitates or blocks their endeavours to build pathways out of poverty. Furthermore, the SLF should be considered as a continuous interrelated development process; increasing livelihood capitals for instance can alter and shape context and institutions themselves, in so doing calling on new strategies. Important livelihood trajectories however are informed development *a priori*es the strategies reflect. With the SLA these begin by informing context and the consequential determination of according strategy based on the capitals at hand. A systematic discussion the strengths and limitations of how well the SLF's informs SL strategy is now required to in determining the Apt-ISLF.

CONTEXT

Within the SLF, how context is defined differs significantly, particularly with our discussions in regards to the treatment and placement of culture within the framework and the role of transforming structures. Woodhouse, Howlett, and Rigby (2000)'s description of the SLF deliberately avoids the specific use of 'vulnerability context' but certainly infer that context sets the pre-conditions within which livelihood strategies are designed to respond. Literature, he states, refers to 'context' within the SLF as having two aspects. The first relates to a range of historical and current socio-economic trends, including demography, technological change and income distribution. He adds here that 'shocks' occur when there is a major disruption to socio-economic trends such as brought about by war or drought. The second aspect of context he refers to is less commonly adopted by SLF practitioners and

certainly not made explicit, he further states that it is imbedded in ‘structures and processes’ that are subject to policy either facilitate or impede access to livelihood capitals. The interpretation matters because as re-emphasized, what is explicitly defined or left unaddressed in context will or will not inform strategy which in turn affects participant’s rights and access to resources. Above I have mentioned also that ‘context’ itself can be altered by strategy, a point illustrated with in SIMPATIK’s case where through the co-operative laws relating exports for farmers were amended, discussed further below in 4.3 Linking Social Capital. Suffice here to say, this second aspect of context ‘policy and access to resources’ is rarely laid down as context, Tang, Bennett, Xu, and Li (2013)’s description of the SLF explicitly omits it referring to ‘vulnerability context’ as simply trends, shocks, and seasonality; where perceived and/or actual vulnerability directly influences livelihood options. This common interpretation obscures a livelihood response for institutional context. It is also worth noting here that some writers place culture within the vulnerability context as do Rao and Rogers (2006) while others place culture within transforming structures alongside norms and laws as does Amekawa (2011), while others either obscure or make no mention of culture nor show how culture may be treated within the framework, such as with earlier SLF attempts (DfID, 1999). In this research culture is explicitly discussed within the ISLF as a capital itself (2.5) linked to social capital.

CAPITALS

Livelihood capitals or assets are used to generate livelihoods. As mentioned, depending on how used, these stocks of different ‘capitals’ can either be increased, depleted or substituted. How these capitals are understood therefore is critical to understanding available livelihood options (Rao & Rogers, 2006). Within the SLF, livelihood strategies of individuals and households depend on access, use and development of five capitals; Human capital refers to people’s state and ability to work, the quality of labour, their education training and skills as well as their health. It is considered essential in terms of elevating people’s capability to manage other assets. (Bingen, Serrano, & Howard, 2003): Natural capital is simply the ‘environment’, land, water, and biological resources. Of central concern to the SLF is the ability to sustain ‘life support systems for future generations without undermining the natural capital base that livelihoods depend on particularly given likely stresses and shocks’ (Scoones, 2009): Physical capital refers to the assets created by economic production processes; infrastructure such as roads, irrigation canals as well as productive assets such as machines, tools and equipment that enhance livelihood options (Woodhouse et al., 2000): Financial capital refers to stocks of available money for households in the form of savings, credit, remittances, and pensions (Carney, 1998). It is the most easily convertible of capitals into other types, clearly livelihood strategies that deliver positive financial outcomes increase this capital’s ability: And fifthly Social capital, as the interpretation of which is vital in terms of this case study and the operationalization of the Apt-ISLF, it is discussed further in 2.6 where the ‘synergy view of social

capital is adopted in this study, a view that is found to have the strongest empirical support and apt for co-operative organisation and likewise linked to positive potentials of culture. Suffice here that social capital is understood broadly as the networks, organizations and relations to which the person or household connects that facilitate access to the other forms of capital (Grooteaert, 1999; Narayan Pritchett, 1999). According to (Putman 1993, 167) general consensus has emerged tending to settle on depicting social capital as incorporating key aspects of social organization, such as “trust, norms, and networks” resulting in enhanced economic performance and the ability to adapt positively to a specific environment. Similarly Bebbington (1999) adds that social capital refers to trust and reciprocity embedded in the relationships of individuals and households with other actors and entities such as family, relatives, friends, organizations, and networks. These networks of trust and reciprocity are typically classified into three categories; bonding, bridging and linking social capital. They include membership rights and claims within social structures. This may include the ability to call on friends or kin for help in times of need or benefits from reciprocal arrangements as co-operative structures themselves may be. Such rights, membership and access to resources can be considered marks of social inclusion or exclusion (Woodhouse et al., 2000). ‘Organisational settings’ within the ISLF; livelihood assets, and strategy foster synergetic social capital and so too culture, how this is done becomes a priority research objective, discussed further below. Social capital is recognized as contingent on these ‘settings’ (Amekawa, 2011). The nexus for the treatment of social capital is found within the ISLF which recognizes the role of inclusive approaches to asset building, a point likewise not explicitly made within the SLF despite SL’s call from Chambers and Conway (1992) that social sustainability requires inclusive approaches to equity building.

TRANSFORMING STRUCTURES AND STRATEGIES

Transforming structures and processes refer to institutions and organizations that either facilitate or place barriers on how people use capitals to pursue livelihood strategies. Transforming structures could include for instance government agencies or farmer businesses, while processes may include regulation or co-operative organisational policy such as ‘pay-outs’. Scoones (1998) has identified three broad livelihood strategies within the SLF; intensification or extensification of existing productive activity: diversification i.e. adopting additional productive activities and, thirdly, migration to develop productive activity elsewhere. Within the SLF these strategies are both natural resource based and non-natural resource-based. Tang et al. (2013) adds strategies are the choices rural residents employ in pursuit of income, security, well-being, and other productive purposes, including vulnerability reduction and resource sustainability. Strategies employed consistent with development a priorities as with Tang et al. (2013) indeed raise at least three development critiques. In summary they refer to context/outcomes, assets and broadly subjective meanings. The first mentioned was the discordance with foundational writers regarding shared equity. The second that the

SLF is inconsistent with the Food and Agriculture Organisation (FAO)'s call for a re-focus on concrete strategies orientated on the promotion of local livelihoods and agro-ecology (Silici, 2014). The third that there is the inexplicit brushing over of meaning assigned on behalf of participants; a subjective-objective dissonance not only regarding discord over the correct placement of culture within the framework, but also as to the recognition of other subjective agriculture benefits that very much involve the 'subject' in place based agriculture; this might include for instance the ability to care for family members. The space within an Apt-ISLF emphasises the need to mediate strategies to support small-scale farmers' on-farm/place livelihood fulfilments. A concept discussed below as 'agro-ecological multi-functionality' which explores the idea that sustainability is not only relevant to popular production and income indicators but also identity, interior dialogue and valuation of quality of life (Amekawa, 2011). The FAO's re-call to curb agriculture's decreasing importance as a means of livelihood within a pre-defined 'economic' context, requires more attention and is spurred on given the disintegration of household membership where people have long since migrated to urban areas only to realize, opportunities particularly in developing urban sprawls are also inadequate (Amekawa et al., 2010).

SLF's have so far demonstrated a lack of consciousness regarding these broader issues particularly the area of power and inclusion. Scoones (2009) likens the attitude shown in this regard as 'fiddling while Rome burns'. The DFID's SLF cowed in some critical aspects from SLA's original conception, de-emphasizing mutual equity building and so permitting potential development pre-marginalization where the less endowed continued without remedy as the '*los no-viables*' (Amekawa, 2011). To its credit the framework however should be considered progressive, until the DFID, a people orientated framework hadn't occupied central development space, certainly there was no model that represented complexity or recognized that people employ multiple livelihood strategies with varying capitals. The need to integrate the conceptual affinities researchers have with Bebbington (1999)'s assets or Chambers and Conway (1992)'s collective asset building above within livelihood approaches is attested with the limited successes the SLF has had. Of particular concern to Scoones (2009) is the fact that few SLF studies have successfully integrated local contexts and responses with concerns for wider vulnerabilities such as global warming and globalization, both associated with unmitigated NL growth that left unchecked will continue to impinge on livelihoods. Bebbington and Batterbury (2001) state broader livelihood's analysis is required, studies that examine "networks, linkages, connections, and marketing chains but are firmly rooted and informed by place and context". Such studies understand how people, places, environments and markets are related and can be mutually constituted. The absence of cases of reference to operationalize SL is problematic to offer credible resistance to current NL. Levine (2014) summarizes SLF's role in this research, it remains a useful conceptual picture of how livelihoods are shaped, it is not however readily applicable as an SL research tool. This research asks how SRI co-operatives can be promoted as an SLA strategy. A

model is therefore required that meets SLA criteria as originally conceived with Chambers and Conway (1992). The model required is derived from the ISLF as it overcomes the SLF deficiencies above mentioned while incorporating its fortes, particularly its recognition of complex livelihood capitals and the participatory approach. Inducting the Apt-ISLF model to SIMPATIK we learn in practice how relevant capitals relate and member's SLs can be formed. The production of such cases for comparative studies of similar interventions are critical. Tang et al. (2013) notes how few studies have highlighted the relevance of the SLA for assessing the impact of agricultural practices on rural communities. The lack is due to its operational relevance, a dis-organization noted by Rakodi (1999) who likewise stated with regards to the SLF that the literature provides little guidance on how assets should be strengthened, which should be prioritized and for whom, or even which are sustainable. These issues may be overcome with a contextually informed ISLF for SRI co-operatives. We now move to the ISLF's agro-ecological foundations.

2.4 AGRO-ECOLOGY AND SUSTAINABLE AGRICULTURE

Scoones (2009) noted the central challenge must be to integrate livelihoods thinking and understandings of local contexts in response to concerns for the global environment and therefore livelihoods. Additionally Chambers and Conway (1992) have called for supportive and inclusive capital building. The above criticism of the SLF has noted that the absence of either does not constitute an SLA. This paper seeks a model with which to explore how SRI co-operatives can be promoted as SLA strategies. The model not only needs to be operational and comparable with other SRI co-operatives but to explicitly capture SLA criteria; criteria that within the SRI co-operative model include SRI's agro-ecological foundations and inclusive equity structure. Amekawa (2011)'s ISLF, discussed below, synthesises aspects of agro-ecology to remedy the discussed SLF deficiencies. In so doing it gives the vantage points with which to determine the sought SL framework for the case study. This is because it not only offers treatment for equity and agro-ecological principles but in the synthesis explicitly incorporates culture and subjective meaning into livelihood choices. Bebbington (1999)'s capitals are not merely mobilized as instruments of sustenance but were meant to permit the 'capability to be and to act'.

Agro-ecology contributions to the ISLF are two fold; firstly as it takes a holistic systems view of the food system, it emphasises the interrelatedness of all agro-ecosystem components, particularly on the complex dynamics of ecological processes and local systems of knowledge and cultures (Vandermeer, 1995). Secondly since its emergence as a modern scientific discipline from the 1970s, agro-ecology has provided the scientific bases to promote sustainable agro-ecological production; sustainability achieved with synergetic relationships between components of bio-diverse agro-ecosystems (Altieri, 2002). Agro-ecology's economic benefits are significant and have been given with the discussion on SRI, specifically agro-ecology utilizes diversity to achieve minimum reliance on external inputs as

well as crop and livestock integration. Typically attributed to these agro-ecological practices are reduced costs, improved soil quality, increased productivity, stable incomes, diversity of diets, improved environments, human health and wellbeing (Altieri, 1999; Gliessman, 1997). Sustainable agriculture as a discipline emerged later during the 1980's from agro-ecology and as with the SLA similarly rose out of concerns with the green revolution. It however has an additional foci on the food system's marketing channels. It looks at how consumers and producers are linked with the view of supporting community based agriculture environmentally, an example would be a local farmer's market selling direct to local consumers avoiding wholesaler's transportation costs. Such food market links have been recognized as instrumental in reconnecting food and agricultural livelihoods to a social and cultural context (Amekawa et al., 2010). In doing so agro-ecology has been recognized as having the ability to uphold SD's three pillars, namely the ability to be both economically, environmentally and socially viable, and contribute positively to local livelihoods (Uphoff & Altieri, 1999). Asking how SRI co-operatives can be promoted as SLA strategies provides an operational template as useful for agro-ecology and sustainable agriculture as it is for SL studies i.e. a framework expressly tempered for sustainable livelihoods. We now turn to the ISLF with an analysis of points of convergence and divergence between sustainable agriculture/agro-ecology and the SLF in relation to informing an Apt-ISLF framework for the case study.

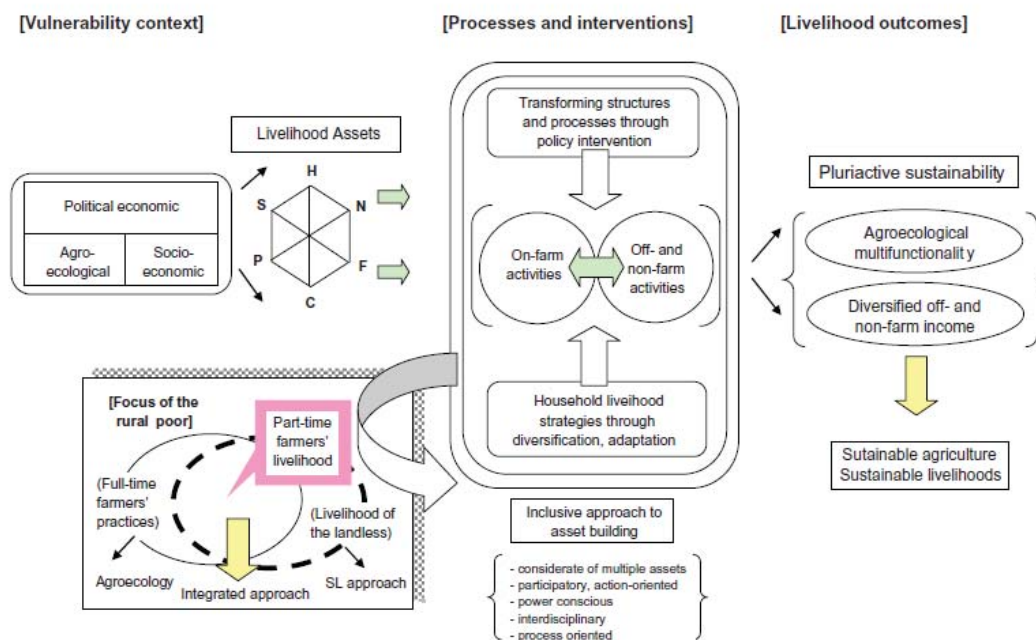
2.5 THE INTEGRATED SUSTAINABLE LIVELIHOOD FRAMEWORK

How sustainability is informed depends on the epistemological position taken, as this informs the development context (Redclift, 2005). A growing number of publications associate agro-ecology with sustainable development (Wezel & Soldat, 2009), this is because they recognize agro-ecosystems as integral in achieving sustainable outcomes (Amekawa, 2011). The call however to upscale agro-ecology requires an analysis and understanding of processes i.e. sequencing which comes from focusing on sustainable livelihoods rather than sustainable agriculture per say (Addinsall et al., 2015). SL and agro-ecology are both considered vital to rural development, yet until Amekawa (2011)'s conceptual synthesis the terms had only cut loosely across one another. The synthesis critiques aspects of both and achieves much in doing so, not only resolving key issues associated inherent within the SLF i.e. development a priorities related to context, the environment, equity, culture and generally the subjectivity of livelihood options, but additionally the synthesis addresses agro-ecology's sole focus on agricultural livelihoods and in so doing widens sustainable agriculture's scope. Principally this is achieved with the ISLF's recognition of both agricultural and non-livelihood activities as sustainable livelihood options. Thus agro-ecology is emphasised retaining its environmental cultural and place based significance without presupposing that rural livelihoods are necessarily all agricultural or that these livelihoods are confined to local markets. The recognition likewise dismantles agro-ecology's restrictive focus, a focus particularly true of subsistence activities that have long been recognized as

unable to meet the modern needs of most rural landholders (Hayes, 1993). Within the framework, SL's assumptive de-emphasis on agriculture is likewise checked. The analysis of elements and processes with the ISLF likewise overcomes another important critique of agro-ecology namely the weakness of the discipline in producing workable references of agro-ecologically based sustainability as part of livelihood studies (Reardon, Taylor, Stamoulis, Lanjouw, & Balisacan, 2000).

Figure 3 The ISLF (Amekawa, 2011)

Agroecology and Sustainable Livelihoods



CONTEXT AND OUTCOMES

As with the SLF, vulnerability context and 'sustainability' outcomes are the differing ends of the framework's spectrum, these concepts and means of achieving them however differs with the ISLF. Explicitly the ISLF includes political, economic, agro-ecological and socio-economic aspects within the vulnerability context, the latter two of which are the primary focus of development (Amekawa, 2011). Context relates to threats that restrict access to capitals, capitals that depending on the strategy produce 'sustainable' outcomes. Outcomes within the model Amekawa refers to as 'pluri-active sustainability', this is because the model recognizes the multiple benefits and uses agro-ecology can have, a concept he calls 'Agro-ecological multi-functionality'. It also recognizes the fact that rural residents who are not all land owners may have sustainable and diverse non-agricultural means of livelihoods, a complex of livelihoods he allows for with the subcategory 'Diversified off and non-

farm income'. By expanding context and correlated outcomes in this way, the model overcomes SL study's weakness in undervaluing agriculture by the non-recognition of non-monetary benefits that local agriculture can add to livelihoods growth for the wider community (Amekawa et al., 2010). This latter point is particularly important in the promotion of SRI's agro-ecological benefits presented earlier. The degree to which co-operative membership is effective in achieving livelihood fulfilments can likewise be depicted through the more holistic view of multi-functionality frames. This is seen not only in terms of subjective benefits to farmers from remaining and developing livelihoods in their own communities, but in the more concrete effects of the co-operative's financial earnings and associated diversified incomes obtain. How well SRI co-operatives can support rural livelihoods is of interest to this research given present trajectories of rural livelihoods as in Reardon's (1997) findings from twenty seven African rural case studies, where impoverished small farm holder's inadequate non-farm incomes were as high as 45 % of their total. Does SIMPATIK reduce the need for such migration? How would such results be attributable to co-operative organisational structure? How are such outcomes attributable to actual market price? The latter being a viability alluded to in Alem et al. (2015), an export aspect that technically does not fit with 'sustainable agricultures' local marketing focus but does not necessarily exclude sustainable outcomes, even enhanced agricultural ones within the ISLF. Lastly as has been emphasised in the SLF's critique, sustainability is regarded as inclusive, strategies therefore require an inclusive approach to capital building. As social capital requires reciprocity a synergetic view of social capital is adopted within co-operatives. This is likewise inserted into the Apt-ISLF for SRI co-operatives.

CAPITALS AND TRANSFORMING STRUCTURES

Capitals have been discussed under the SLF; within the ISLF an additional capital is given: 'cultural capital' (denoted as 'C'). The addition concurs with emerging recognition in both agro-ecology and SL studies of the importance of subjective meanings, local knowledge and place based values in livelihood generation as discussed (Bebbington, 1999). By delineating it as a capital the model recognizes that local culture can likewise be increased, decreased or re-shaped in certain aspects by a given livelihood strategy. Expanding on the SLF the ISLF assumes that rural livelihoods depend on ownership of a complex set of capitals to enhance their resistance against vulnerability (C. Moser, 1998) rather than models focussed on simplified or reduced models such as technology transfer that had so far uncritically assumed progress (Berdegué & Escobar, 1995). How such ownership facilitates the increase in a complex of capitals is linked to social capital, where structures such as co-operatives provide the platform for its positive expression discussed further in 2.7.

As with the SLF, the ISLF is complex and participatory. Outcomes and indicators are informed by those to whom the intervention is most relevant; the participants. Further however, the model provides a better platform on which to base sustainability livelihood criteria which the SLF formerly

hadn't attributed. Chiefly these are in terms of agro-ecological imperatives, collective capital building and subjective meaning, relevant outputs, strategy and indicators informed by participants.

Overcoming the previous subjective- objective dissonance mentioned, indicators are not reduced to mere popular production and income indicators but more aptly include identity, interior dialogue and valuation of quality of life (Amekawa, 2011).

2.6 THE SYNERGY VIEW OF SOCIAL CAPITAL

The Apt-ISLF goes further in describing how livelihood capitals are increased with SRI co-operatives. The sustainable strategy requires focussing on how synergies and virtuous cycles can be created with a given set of livelihood capitals. As such this requires taking the synergy view of social capital. This concept is elaborated on here as it is central to the framework and study of co-operative organisation. This view of social capital is then distinguished in relation to cultural capital, with the view of realizing the positive potentials both capitals can have within the Apt-ISLF and so too SRI co-operatives.

The central role social capital has both in terms of accessing other forms of capitals has been covered in Bebbington (1999)'s above observation of the Andean studies, it followed that he likewise called for research into how 'synergies' between capitals can be created. To realize the sought 'synergies,' this research posits that organisational or transforming structures within the framework themselves require 'Structural Social Capital' to facilitate 'mutual beneficial' growth, not only among all capitals within the framework but in order for a framework to qualify as a 'Sustainable Livelihood approach;' the growth needs to be collective and this requires equitable ownership structures. The Apt-ISLF emphasises the structure of social capital required to express not only positive forms of cognitive social capital but also the increase of other forms of capital. Of import to the model in this section are both cognitive and structural forms of cultural capital. By applying the Apt-ISLF at the SIMPATIK co-operative we explore how livelihood synergies can be created. Central to this livelihood strategy is how social capital is created through its co-operative organisational structure. This is because literature and experience suggest that member equity ownership and other functioning elements are related and required alike to generate social capital, such as a well-functioning SRI co-operative would when coupled with SRI and marketing links. Conversely I propose that the absence of such structures are 'bottlenecks' as referred to by De Haan and Zoomers (2005) that are largely responsible for poverty and social exclusion. A point Easterly (2001) another lead researcher at the World Bank likewise recognized where equitable structural omission de-democratized people by reducing the opportunity for reciprocity and so de-generated wealth circulation. Well-functioning, equitable organisation tends to create reciprocity among its members, its synergetic elements are mutually supportive of livelihood capitals. Temple and Johnson (1998) as well as Hall and Jones (1999) equated social capital with social capabilities and development. Their conception of social capital

originates from Robert Putnam's (1993) comparative *ceteris paribus* studies in Northern and Southern Italy that compellingly attribute differing economic and governmental performances to their degree of inclusive or exclusive organisation, reciprocity and accompanying levels of trust.

Robert Putnam (1993) himself notes how social capital came to emerge as incorporating 'trust, norms, and networks' that enhanced economic performance and the ability to adapt positively to a specific environment. Debates over its interpretations and operations were quickly contended, these tended to fall into four camps; the communitarian view, the networks view, the institutional view, and the more recent synergy view which 'synthesised' those preceding and is recognized as having the most empirical support (M. Woolcock & Narayan, 2000). To understand the synergy view of social capital it is useful to contrast it with the previous. The Communitarian view simply equated social capital with participation in community organisations taking a 'more social capital the better' approach. However it ignored its process and therefore social capital's potential "downside", for instance as when parochial organisations work against society's collective interests as noted by (Portes & Landolt, 1996). The Network view however recognizes both outcomes and goes some way in explaining how such outcomes are achieved within different types of social networks. For instance, as in Michael Woolcock (1998) it recognizes links and associations built upon relations within homogeneous groups as 'bonding social' capital, interethnic or horizontal networks; 'bridging social capital' and 'linking social capital' or 'vertical social capital.' These offer opportunities to connect to more diverse sources distinct from the aforementioned horizontal relationships. They in turn link to sources that can facilitate the acquisition of new resources, ideas, and information from more formal institutions beyond the immediate community (Turner & Nguyen, 2005). The networks view fails however in doing anything about transforming negative social capital or promoting the positive beyond explanations of some of the outcomes associated with the concept. The institutional view however does not regard social capital as an independent variable and so does not separate it from the institutional environment that happens to give rise to its various "goods" and/or "bads" but rather sees them as the product of the political, legal, and institutional environment (North, 1990). North (1990) adds that it is organisational structures that can both create and be created by social capital. The synergy view actively focuses on how to create synergetic, co-productive, complementary and participatory linkages between institutions and the local community (M. Woolcock & Narayan, 2000). Uphoff and Wijayaratna (2000) poignantly likewise adopt the synergy view and add that if social capital is to be more than a metaphor, it needs to refer to things that can be observed. The most specific phenomenon associated with social capital is *Mutually Beneficial Collective Action* (MBCA). Bebbington and Foo (2008) engaged with Uphoff's view and distinguish two categories of recognisable social capital; the cognitive which pertains to the domain of values, trust and perceptions as identifiable in attitude surveys and: Structural conceptions of social capital that focus on reciprocal organisational relations etc. Both are related; for instance cultural values

(identified as a subset of social capital) can lead to organized shared labour arrangements (Uphoff & Wijayaratna, 2000).

2.7 SOCIAL CAPITAL AND CULTURE

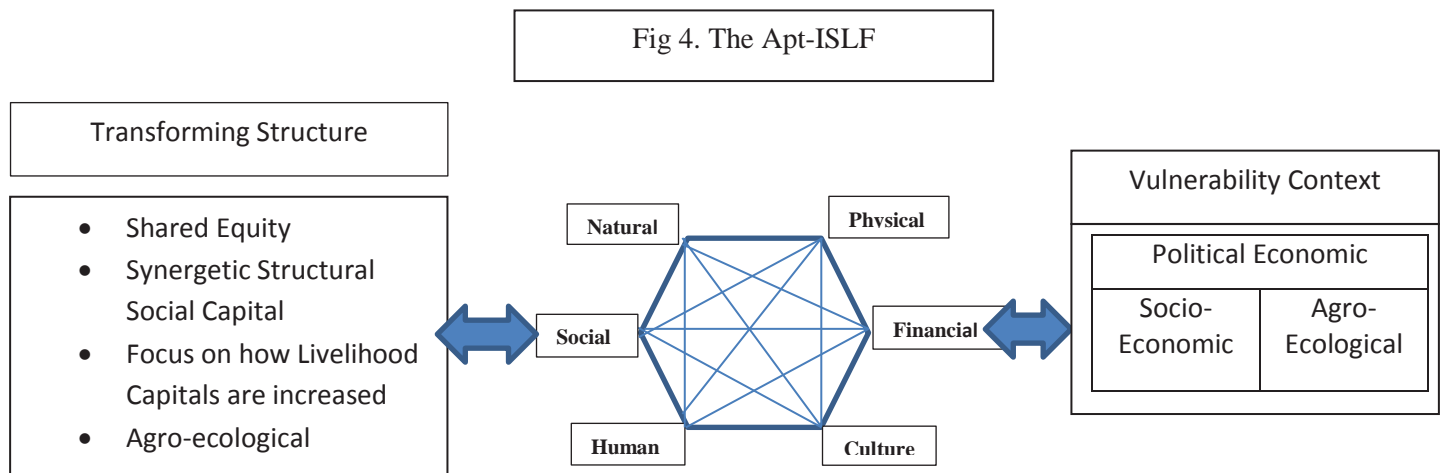
Applying the synergy view of social capital Uphoff and Wijayaratna (2000) recognized that any culture has the potential to exhibit positive and or negative social capital for various purposes. All cultures have the basic elements of social capital within them they believe, but social structures and shared values can be disinvested in by neglect or misuse. One reason why these positive potentials of culture often remain latent is that they lack appropriate structural forms of social capital for their effective expression. To be able to capitalize on cognitive social capital, it is essential to construct or install appropriate structural forms. Uphoff and Wijayaratna (2000) in recognizing the link between cultural potentialities expressed in structural forms of social capital likewise distinguish between cognitive and structural forms of social capital. This is because as (Bebbington, 1999; Cahn, 2006) have noted that although social capital and cultural capital are not the same there are overlaps and the expression of culture and building of cultural capital, can depend on social capital to foster the socialisation that enables culture to be practiced. Others such as Addinsall et al. (2015) argue that the inverse dependency is more prevalent and that it is culture, particularly institutional culture, such as customary law that defines livelihoods. In this case study structural and cognitive forms of culture as well as social capital are not so fixed but rather seen as malleable and adaptable. The adaption of livelihood practices are seen to alter the capital mix, in some cases it enhances aspects of social capital and/or cultural capital. For instance where mechanization at SIMPATIK reduced the practice of certain aspects of traditional culture related to rice harvesting, yet the increase in place based livelihoods increased communal ‘bonding’ with group prayers and the retention of local language and child rearing in concord with communal Islamic tradition. The ISLF has placed culture as a separate capital however, accordingly Cahn (2006) likewise adopted the Human Sciences Research Council (HSRC) 2002 definition of cultural capital defined as resources (heritage, customs, traditions) upon which people can draw to pursue a livelihood, further she adds that this includes ‘values’ to be drawn on to give meaning to livelihoods. It is an addition Bebbington (1999) neither omits in SL analysis, who adds identity whose maintenance may, beyond any material measure, be a critical determinant of the sense of being poor or not. The Apt-ISLF recognizes this distinction as both structural and cognitive forms of cultural capital. Unlike Cahn (2006) however they are not considered pre-determinants of livelihoods although their positive potentials and affinities are considered more retainable within a synergetic sustainable framework. Michael Woolcock (1998), who equating social capital with aspects of culture identifies the task to identify the conditions under which the many positive aspects of “bonding” in poor communities can be harnessed and local integrity retained while enhancing livelihoods as through linking social capital. He adds likewise this

may mean altering social systems that are the product of long standing cultural traditions or powerful vested interests. How Social capital can be realized through the potentials of cultural and participatory approaches to building and maintaining a community's social fabric requires a conducive organisational structure, an implication that remains little explored (Rakodi, 1999).

2.8 CO-OPERATIVES AND SOCIAL CAPITAL

Majee (2007) applied the synergy view of social capital to studies of co-operatives. Unlike Woolcock who observed local bonding social capital reduce as livelihood links were made outside the community, she observed that this is not the case with co-operatives. She found instead that co-operatives were able to simultaneously strengthen group ties (bonding social capital) while connecting the group with outside resources for their advancement (linking social capital). This critical element of co-operatives Hoyt, Merret, and Walzer (2004); (Johnston, 2003) observe is due to members working together collectively, common ownership facilitates, trust and awareness. Elements which increase participation and the flow of information, furthermore collective asset sharing and member organisation produces mutual synergies that reduce transaction costs and dilemmas of collective action. Majee and Hoyt (2011) add that the unique role and potential of worker owned co-operatives in delivering equitable outcomes for the marginalized have long since been acknowledged, yet few studies have dealt specifically with social capital from a co-operative business perspective, indeed the lack of empirical evidence on how co-operatives create social capital beneficial to local communities has impeded the promotion of the co-operative approach. The above writers referred to cases of successful co-operatives and demonstrated that these can be very effective livelihood strategies when organised and linked to other market actors, in so doing they can open up livelihood possibilities. Effectively organised co-operatives have the potential to offer concrete and inclusive solutions to the intervention concerns raised as with Bebbington (1999)'s account of the '*no-los viables*'. Agricultural Co-operatives enable people to stay in their communities through the complementary income coming from being a labourer in the nearby agro-enterprises (Korovkin, 1997). They are hotbeds for social capital particularly due to the structural form of social capital which is embedded in co-operative organisation, principally member owned equity. This aspect generates responsible and incentivised participation (Majee & Hoyt, 2011). How both culture and social capital are enhanced likewise depend on the organisational strategy, this determines specifically how and in what form capitals interact and impact on one another. Certain forms of human capital, for instance, will have more mutual synergy than others (Bebbington, 1999). What precise processes are at work determine the 'how'. Structural social capital facilitates forms of action that one would expect to enhance collective livelihoods, it facilitates the processes so that synergies are created collectively and so qualifies as a sustainable livelihood approach. Arguments reinforced at SIMPATIK. We now present the Apt-ISLF that is the basis for the SRI-Co-operative research.

2.9 THE Apt-ISLF



The layout of the Apt-ISLF more closely approximates Bebbington (1999)'s original pentagon of capitals (Fig. 1) rather than the SLF, in so doing it adopts both agro-ecological and SLF fortes as discussed from the ISLF. This in turn creates a framework for an analysis of how capitals impact and relate to one another; a process called 'sequencing' in relation to the given transforming structure and vulnerability context. As mentioned A. Bebbington (1999) observed that livelihood strategies are potentially emancipatory i.e. potentially able to influence the 'context' themselves. He also noted that capitals are not only vehicles to make a living but also of hermeneutic action. The hexagon adds however one more capital namely financial capital to his five. The framework recognizes that the transforming structure produces both objective and subjective outputs for members both in terms of discrete tangible outcomes such as increased income and in terms of significance and meaning participants assign due to the quality of life the livelihood strategy may convey. In doing so Amekawa's 2011 pluractive sustainability and agro-ecological multi-functionality are accounted for in relation to the livelihood strategy's effects on multiple capitals. Similarly with the ISLF, the model acknowledges the supportive function agricultural livelihoods have in rural communities and accords to calls discussed for a re-orientation to them. By recognizing the interrelated impact pathways between assets it emphasises the description of their processes. For instance an increase in income can lead to improved health and educational options, a cascade or virtuous circle effect where an increase in a certain capital can for instance improve other livelihood areas and capitals. The model then focusses on demonstrating specific impact pathways of a given case study with a view to demonstrating how capitals are increased and mutually supportive. The analysis leads to sequencing assets that produce synergetic effects. This is primarily achieved through social capital and its organisational or structural 'settings' which as discussed following the above distinction that social

capital can be both cognitive and structural. Shared equity is emphasised which is itself a form of structural social capital essential for collective capital building, the outcome of which is MBCA and which facilitates reciprocity. The focus therefore in the model is on defining how, through structural social capital embedded within the organisational structure, synergies can be built up among assets using a given livelihood strategy. A synergy that in order to meet SL criteria requires a symbiotic agricultural processes that do not debase its natural capital. These aspects are a function of organisational design which itself is in response to the vulnerability context illustrated in Amekawa (2011).

CHAPTER THREE: METHODOLOGY

3.1 DISCUSSION ON METHODOLOGY

In order to understand how co-operatives using SRI can be promoted as an effective SL strategy, two discrete research activities were required. In the first instance was the conceptualisation of a framework that met SL criteria namely that could be used to understand how processes leading to SL outcomes could be achieved, given above with the 'Apt-ISLF', secondly was the application of the framework to a SRI co-operative that reputedly had exhibited a number of SL hallmarks. The output of such applied research could then be a reference model that could be used to promote achievable SL outcomes for SRI co-operatives. In this section we discuss the assumptions involved at each of these stages of research, including data collection, its analysis and output.

The conceptual model was based on a literature review, developed from deficiencies with the SLF and informed by critical SL nexus as discussed from Amekawa's 2011 ISLF. These points aspired to address both agro-ecological and social points that the SLF did not and upon further analysis the ISLF model itself was simplified and came to resemble Bebbington (1999)'s pentagon of capitals (Fig 1) principally because it equates the growth of farmer's livelihood capitals with outputs, outputs which these writers consider overcome or reduce vulnerabilities. Furthermore the Apt-ISLF was designed in order to understand whether and how livelihood capitals are sequenced. i.e. with a view of the impact pathways and processes involved within the livelihood strategy led to SL outcomes. From such a framework a co-operative member research questionnaire based on the Apt-ISLF was developed (Appendix One). The focus of this questionnaire was to inform the specific nature and interaction of livelihood capitals from the field research at SIMPATIK. The framework as I perceive has been able to capture how SL livelihood capitals are linked based on participant's responses within the SIMPATIK co-operative. Results that are consistent with the methodology and its development 'a priori'. A priori that consistent with SL literature calls for PMs to inform a Mainstream Sustainable Development (MSD) approach, one that retains marketing elements along with a plurality of other outcomes associated with poverty.

The SLA sits well with the researcher's beliefs, understandings and development experience. With first-hand experience in SRI co-operatives in Timor Leste using PMs, understanding was gained that helped guide the informing of livelihood processes and meanings in in-depth semi structured interviews at SIMPATIK. The knowledge gained from the interviews was co-constructed in the sense that it was both inductive and deductive, a process which is informed by prior knowledge with regards to dialogue as explained in Bogdan and Taylor (1975). Whitehead (2004) adds that with such an approach it is impossible to separate the researcher and researched, and it therefore contains one's own knowledge, previous experience and bias. For instance common meanings and terminology known by the farmer and my own personal experience with regards to SRI or Indonesian culture could be built on that without would have otherwise not given rise to a line of questioning in the interviews. The interviewer and respondent could frequent common ground based on mutual experience that assisted informing impact pathways and accessing additional knowledge with regards to the local context. The dialectic approach suited a flexible and phenomenological discourse with which relational processes and elements relevant to SL's could become understood through joint discussion and reflection (Freire, 2014).

Data collection involved interviews with SIMPATIK management and farmers. It was important to have an inductive meeting with management first in order to seek permissions, discuss research aims, understand SIMPATIK's context including its organisational structure as well as arrange appropriate documents and an interview schedule that could meet these aims. The initial meetings clarified several key issues that involved the nature and types(s) of co-operatives within SIMPATIK, the organisation's operations, its structure as well as SIMPATIK's aims and purposes. This had three main benefits, the first was a substantial narrowing down of an otherwise long and convoluted and largely irrelevant list of potential questions and sustainability indicators to a more honed set of questions that now could be grounded in SIMPATIK's actual context, this was a method of honing questions and sustainability indicators introduced by Woodhouse et al. (2000). Apart from serving to clarify relevant livelihood processes and references within SIMPATIK, these initial meetings assisted generating meaningful discussion with farmers due to the adopted common themes and terms, and as such it assisted greatly in saving everybody's time and energy. Secondly, upon learning more about SIMPATIK, interviewees could be selected based on criteria for the intended research outcomes (Patton, 1990). To be able to identify how pathways leading to SL outcomes had been achieved for instance, involved farmers who had experienced the vulnerability context first hand and who were in a position to say how, with the establishment of the SRI co-operative their livelihood's had improved. This required experienced longer term members as some vulnerabilities such as unfair traders had been acutely experienced by founding members. Since the establishment of the SIMPATIK co-operative newer and younger farmers had not experienced the same vulnerabilities or improvements over time as older experienced members. To capture such data the interview schedule given below

designed. Thirdly with the initial meetings, requests for managerial documents relating to SIMPATIK's constitution and organisational structure and operations were arranged for viewing. The analysis of these documents provided additional qualitative and quantitative data and included financial statements that supported material from the interviews.

3.2 THE MEETING AND INTERVIEW SCHEDULE

| | Date | Who | FROM |
|----|----------------------|---|---|
| 1. | 12 th May | SIMPATIK Management | SIMPATIK Management |
| 2. | 13 th May | Purkonudin (Secretary II/Farmer) | SIMPATIK |
| 3. | 13 th May | Maman Nurjaman (Long Term farmer) | SIMPATIK |
| 4. | 13 th May | Muhamad Yayan Royan (Secretary I/Farmer)) | SIMPATIK |
| 5. | 13 th May | Saeful Bahri (Chairman) | SIMPATIK |
| 6. | 14 th May | Kesid (Long term farmer and Co-operative member) | Kelompok Tani Jambar 2 Katua, Koprasi Simpatik Member |
| 7. | 14 th May | Deuis Heni. H (Long term farmer and Co-operative member) | Benclahara kelompok Jembar 2 |
| 8. | 14 th May | Lili Supriadi | Anggota Kelompok tani Jembar 2 |
| 9. | 14 th May | Hajii Aopalimin | Anggota Kelompok tani Jembar 2 |

Upon consent, all interviews and meetings were digitally recorded producing ten and a half hours of audio. Recording seemed to assist the flow of language as no note taking was required. This assisted translation efforts. I gratefully acknowledge Bogor Agricultural Institution for organizing the two translators who accompanied me, one of whom also served as a driver and navigator. He knew the SIMPATIK co-operative well and spoke both local Sudanese as and Indonesian. The questionnaire had been translated into Indonesian and we had rehearsed it thoroughly prior to arriving in Tasak Malaya, having two professional translators additionally assisted the accuracy of translation. The recordings themselves were then systematically transcribed and coded by material according to emergent themes based around the Apt-ISLF. During the analysis and write up of the data, the translators also assisted with follow up communications with SIMPATIK management, including the translation of the final research summary.

3.3 VALIDATION AND TRIANGULATION

However useful in-depth qualitative approaches are to inductively describing SL processes, it would have made a more compelling case to have had the time to conduct a widespread survey following the

inductive interviews, a use of both breadth and depth as advocated by O'Leary (2010). However, the nine interviews produced material that was consistent with one another; for instance, the dealings of the Tengkulak (Unfair traders) that had existed before the establishment of SIMPATIK were unanimously described. As the responses were repeated by the individual interviewees it became clear that a form of data saturation had been achieved. Accounts from interviews were also consistent with regards to document analysis that confirmed figures such as payments and operations. Such cross referencing therefore represents a form of cross referencing.

3.4 ETHICS

All research was conducted in accordance with Massey's research requirement detailed in the IDS Ethics form and application. Ethics approval required the production of the application along with a meeting between myself and two faculty members. Following application a low risk notification was issued by Massey University's Human Ethics Committee prior to field research being conducted. The low risk notification, is given in appendix two.

4.0 CHAPTER FOUR: THE SIMPATIK CASE STUDY

The following research findings are based on interviews, document analysis and the literature review. In this section research aims are met by describing how capitals and impact pathways within them achieve SL outcomes within the SIMPATIK co-operative. The findings are presented in accordance with elements as described in the Apt-ISLF. The discussion begins by discussing SIMPATIK's background, context and organisation. As a key focus of this research has been to explore the role social capital and co-operative organisation have in achieving SLs, the presentation then moves into a discussion on social capital, this then gives a platform to discuss the framework's other elements and capitals and how they interrelate with one another. Emergent from the research, a clear impact pathway leading to increased capitals is established that guides the presentation. Stemming from social capital we trace impacts from increased natural capital to productivity, to physical capital, health, to increases in financial capital which in turn has benefitted re-localisation, quality of life; subjective meaning and culture. The sequencing of capitals and processes culminates in Figure five: A Template for Sustainable Livelihoods at the SIMPATIK Co-operative; a reference-able model able to demonstrate how SL outcomes can be promoted within SRI co-operatives which has been the main aim of the research.

4.1 CONTEXT

SIMPATIK Co-operative members had overcome many of the constraints typical of small holder farmers in developing nations and so offer critical insight into how sustainable livelihoods can be achieved. Vulnerabilities the members specifically faced included; lack of collective representation,

lack of access to urban or export markets, lack of organisation and knowledge to create and sustain supply chains to such markets, low prices, market volatility, inadequate access to productive capital, low productivity, the inability to compete in unregulated regional markets and urbanisation; the latter of which respondents reported was particularly responsible for local youth leaving agriculture. Additionally agro-ecological vulnerabilities appeared endemic to 'Green revolution' agriculture and had seen stagnating and in some cases reducing productivity, lowering soil quality and reported increased health risks. Additionally, increasing climatic volatility had prolonged the dry seasons preventing or crippling a season's yield due to variable water supply in some areas.

SRI was introduced to farmers in Taikmalaya by the Indonesian Ministry of Agriculture whose objectives at the time were to achieve food self-sufficiency, alleviate rural poverty and increase agricultural exports (Oka, 1997). Of acute concern to the Ministry has been the ability to maintain the increases in yield production to feed Indonesia's growing population, a population trajectory set to swell beyond two hundred and sixty five million by 2025 (Goldstone, 2006). A population with a calorific intake of which 60% is derived from rice consumption, it follows rice self-sufficiency continues to be a critical national objective. In the 1983/84 season self-sufficiency was achieved, to maintain it however required an annual increase in rice yield of 2% to keep up with the population. For ten years Indonesia was able to keep up with the required increases in productivity required, largely due to a widespread intensification program run through the Indonesian Rice Research Institute (IRRI) with FAO support, a program and period farmers referred to as Suharto's 'Ordem Baru' or 'New Order' where the heavy use of chemical fertilizers (N,P,K and micronutrients) and heavily subsidized pesticides achieved yields of up to 5-8 tons per hectare (Oka, 1997). By 1994 productivity stagnated and importations were forced to resume. Critical lowland rice productivity growth, such as the key fields in West Java had not only stagnated while consumption had increased but seasonal volatility had indeed reduced productivity (Kusnadi, Tinaprilla, Susilowati, & Purwoto, 2011). Coupled with imported rice at 1,500 rupiah per kilo well below the 2,500 Rp required to sustain domestic production, a strong political echo was sounded by the one hundred million Indonesians dependent on agriculture livelihoods (Oka, 1997). IRRI and its research parent the Indonesian Agency for Agricultural Research and Development (IAARD) needed better modes of intensification methods.

Following Prof. Dr Norman Uphoff's October 1997 SRI presentation in Bogor, his first outside of Madagascar, IRRI began a series of SRI evaluations under the leadership of Dr. Sunendar Kartaatmadjah² who Dr. Sunendar Kartaatmadja went on to direct IAARD's Assessment Institute for Agricultural Technology (AIAT) in 1999, at its field institute in Sukamandi (160 kms from Tasik

² It is worth noting Dr. Sunendar Kartaatmadja's important role in SRI dissemination, he went on later to direct IAARD's Assessment Institute for Agricultural Technology (AIAT)

Malaya (Uphoff, 2003) Based on such research IAARD was able to be convinced that a higher level of production could be attained with SRI, inspired no doubt by results of up to nine tons per hectare that had been achieved at Sukamandi³. Indonesian authorities quickly saw the potential and some in the ministry began to champion SRI's dissemination throughout their field school approaches within the Department's Integrated Pest Management (IPM) program, one such champion respondents informed me was an extension officer named Pak Alik Sutaryat whose work with the group of farmers from Tasik Malaya led to the establishment of the SIMPATIK Co-operative in its current form.

4.2 SIMPATIK

From SRI's introduction to farmers in Tasik Malaya in 1999, a local farmer's social group was formed in 2000 as part of the national SRI program, a program that West Javanese farmers were involved with until 2007. Increased productivity came as a relief to members of the soon formed Gapoktan SIMPATIK (SIMPATK farmers group). With conventional methods they had yields of just four tons per hectare, but with SRI that figure rose to six.⁴ Additionally external fertiliser inputs were no longer required as farmers learnt how to organise and supply natural fertilizer from the surrounding environment resulting in reduced input costs.

Farmer membership soon passed 2,300. However it quickly became apparent that despite the adoption of organics and the co-operative's own efforts, appropriate links and organisation were required. Until the establishment of the Gapoktan, farmers had remained subject to unfair marketing conditions. Invariably, this meant as reported by nearly all respondents lower prices for the sale of rice to Tengulak, (rice profiteers). Tengulak would employ various strategies to secure exclusive sales to them, such as low interest loans in times of need. Within such a context Emily Sutanto, director of Bloom Agro, (a social enterprise aimed at promoting sustainable agriculture) met Mr Saepul Bahri, the then leader and present chairman of the farmers group (Field notes). Assisted by Bloom Agro, a series of training programs and inspections followed to gain fair trade certification throughout the co-operative. In 2009 the co-operative was awarded the "Fair for Life" label by the Swiss based Institute for Marketecology (IMO) (Ubuddirect, 2014). SIMPATIK became the first rice growing co-operative in Indonesia with an internationally recognized organic and fair trade certificate and the first of its kind to export with its first shipment in 2009 to the U.S.A. through Bloom Agro's Sunria brand. Demand quickly grew with support from Lotus foods, the U.S. importer, and the Cornell International Institute of Food Agriculture and Development (CIIFAD). By 2011 markets had

³ It is also worth noting here that this intensification effort also produced another popular rice growing method in the region known as the Integrated Crop and Resource management (ICM) method, ICM is based on SRI principles yet allows for site specific nutrient requirements that integrate introduced NPK fertilizer depending on nutrient deficiencies. Deficiencies are identified using pioneered leaf colour readings, an important point as SRI is not necessarily organic.

⁴ A rise from four tons to six tons was the reported average given by research interviewees who had adopted SRI compared to conventional methods.

included Australia, Malaysia, Singapore and Europe. Their achievements attracted numerous awards and even a presidential visit by President Suliso Bambang in 2010. This visit followed a bumper harvest that demonstrated SRI's high organic productivity along with SIMPATIK's expanding organisation (CIIFAD).

ORGANISATIONAL STRUCTURE

The SIMPATIK Farmers Group of the District of Tasik Malaya,⁵ had become increasingly organised, assisted in part with Government funded plant and machinery. By 2015 the Gapoktan consisted of eleven internationally certified rice farmer groups (and one non-certified sugar group) with a total membership of 366 households⁶. Appendix three details the Gapoktan's current functional organisational structure along with personnel. Functions include an internal control unit to insure organic compliance, an inspection team, a fair trade committee, a marketing and a warehousing division among others. The 'SIMPATIK 'Farmers Group' has the legal status of a 'Social Group' and as such individual farmers sell their rice for a pre-set fixed price through SIMPATIK to Bloom Agro. In 2015 this price had been set at 6,000 Rupiah per kilo as detailed in Appendix four which shows a typical receipt to a farmer for organic rice supplied from the Jembar Dua 'local co-operative'⁷. It is worth noting that due to increasing commodity prices particularly of Indonesian rice, domestic non-organic prices reached parity with SIMPATIK's 2015 pricing arrangement. In part to incentivise farmers and accommodate for the rise, a new price agreement was set for 2016 at the current market price + 750 Rupiah. Farmers will therefore receive 6,750 Rupiah per kilo within the current long term purchasing agreement, an arrangement further discussed below. It is also worth noting here that although anyone can join 'the farmers group' organic certification is required: Obtaining this certification is reported to be a difficult and convoluted process which interviewees reported to me saw membership fall from the original 2,300 who participated in SRI programs pre 2009 to the current 366.

CO-OPERATIVE FORMS WITHIN SIMPATIK

With a view to expanding growth through SRI organics, the Koprasi Produsen Gapoktan Simpatik, (KPGS) usually simply referred to as the Kooperasi was formed in May 2014 to be a legal trading co-operative in contrast to the Gaboktan 'social group'. The Kooperasi was formed because SIMPATIK Farmers Group management and farmers recognized numerous growth advantages with the independent marketing co-operative, foremost its legal ownership structure discussed further below.

⁵ By 2009 with its first exports The SIMPATIK Farmers Group of the District of Tasikmalaya had become an organised 'social group' that differed considerably from the SIMPATIK farmers group pre 2008, however both are referred to as the Gapoktan by participants.

⁶ Membership is represented by households i.e. one households is equal to one member who represents their household. Additionally appendix three details eleven certified rice local rice groups or co-operatives and one sugar group who are also co-operative members.

⁷ The receipt is typical, it details a member's land area, amount produced in a growing season, the amount supplied, the amount received as well as the household's own consumption.

The Kooperasi presently consists of forty ‘full’ or ‘paid up’ members who serve on its management board as owner operators and an additional two hundred and fifty households who supply and work with the organisation but are not as yet ‘full board members’ pending their certification and the paid up capital contribution requirements. Management report from the interviews that an organisational structure of shareholder owners is a future aim for SIMPATIK, as shareholder ownership is seen as a way to raise capital as well as extend membership. To become a member owner a sum of five shares at 50,000 Rupiah each is required (details of membership requirements are found along with other excerpts from translated from KPGS’s constitution in appendix five), KPGS’s founding values are on page two of the same document and include democracy, equity, justice and fairness. The document also states ownership and management of this autonomous organisation belongs to its members. Functions are listed in article seven which specify member’s democratic controls, their rights and responsibilities. Article eleven emphasises that the co-operative members themselves are KPGS’s owners for whom organisation is constituted to serve.

KPGS’s strengthening strategy includes international certification for all members. Until this is achieved KPGS’s members remain locally organically certified and restricted to supplying only the local organic market. KPGS is presently a ‘supply co-operative’ in the initial stages of becoming a marketing co-op: i.e. it is organising to market on behalf of its members. In order to break through to the foreign organic market KPGS needs guaranteed supply from many more fully paid up members to achieve the required capital to advance. As such it intends to use a ‘user pays management system’ to finance additional equipment and operations as well as pay dividends. Membership to the co-operative is open and voluntary (article seven), however until it is able to supply international contracts on its own account, present Gapoktan farmers have less incentive to join it as no paid up capital is required within the Gapoktan’s social group. Nevertheless the Kooperasi is seen to be able to resolve dilemmas associated with joint ownership of common plant and equipment, and its legal status as a trading entity that offers growth continues to attract applicants to join. Lastly, the Kooperasi and Gapoktan are affiliated and use common resources; for example the Gapoktan rents machinery to Kooperasi. The plan is that the Gapoktan will merge with the Kooperasi when the latter is ready to export under its own name and intended logo, at which time management intends to be able to provide a yet more efficient return that is expected to further incentivise membership.

Although both groups discussed above are strictly speaking co-operatives, being by definition associations based on the mutual benefits of their members, it is worth distinguishing for our discussion the different forms of co-operatives that exist within the body collective known as ‘The SIMPATIK co-operative and farmer’s group’ (the SIMPATIK Co-op). Firstly within an agriculture co-operative with a legal status as a trading entity (which may/may-not necessarily be the case), equity belongs to its farmer members who own and retain control of the co-operative (Melmoth,

2005). Agricultural co-operatives tend to adopt legal status to pool resources for the mutual economic benefit of its members in one of four forms as given in Cobia (1989) are:

1. As agricultural service cooperatives that provide various services to their individual farming members, as demonstrated by the SIMPATIK farmer group who supplied training pre 1999.
2. Secondly, as agricultural production cooperatives, where production resources such as land or machinery are pooled and members farm jointly as with the Gapoktan's supply of fertilizer and the current sharing of plant:
3. Thirdly, as an agricultural supply co-operative which takes advantage of aggregate purchases, storage and the distribution of farm inputs for their members:
4. Lastly, as agricultural marketing cooperatives that provide the services involved in moving a product from the point of production to the point of consumption. Agricultural marketing co-operatives involve a series of interconnected activities including planning production, growing, harvesting, grading, packing, transport, storage, processing, distribution and sale. Agricultural marketing cooperatives tend to be formed to promote specific commodities Cobia (1989). The more effective co-operatives become at supplying their respective market the more efficient and widespread returns tend to be to their owners whom equity belongs.⁸

4.3 SOCIAL CAPITAL

In this section we discuss the effects of the co-op on the processes of social capital of its members and how this leads to mutually beneficial outcomes. The discussion starts with structural social capital and the meaning and implications of shared equity which results in collective capital growth. Additionally several key synergetic forms of social capital are presented that additionally are shown to lead to SL outcomes. Links and organisation to such outcomes were both found between members within local co-operative groups and between those groups and the SIMPATIK organisation.

SHARED EQUITY

Equity carries two general meanings. The first is financial in terms of the value of ownership less external liabilities that an owner or owners have in a business, secondly to jurisprudence and in particular fair conduct. Both are also applicable to our discussion, not least because farmer's financial capital is represented solely by owner's equity⁹ but also because as this equity belongs to all SIMPATIK co-operative members, a platform exists that leads to increases in other critical livelihood capitals collectively. SIMPATIK's shared equity structure not only capitalises on the agro-ecological synergies of SRI and its organic external marketing link, both discussed below, but by capitalising on

⁸ Efficient cases of farmer owned marketing cooperatives have included the Annand dairy co-operative in India, which also required members to buy shares and returned seventy percent of each consumer Rupee spent on milk produce to the farmer owners (Esman & Uphoff, 1984), a potential management report is similarly aimed at within the SIMPATIK co-op.

⁹ An Internal rule at SIMPATIK denies members getting into debt.

them has created an organisation ripe with structures and processes that are found to simultaneously create several forms of social capital, forms that access and promote the growth of other livelihood capitals. This is particularly evident with operations such as sharing labour that were reciprocal and mutually beneficial.

Equitable values and structures that express and promote processes that build social capital were found at all levels within the SIMPATIK co-operative. This is illustrated within KPGS's constitution. Along with the requirement of farmers to become equal shareholder members this also specifies the rights and responsibilities of what this membership involves which always has the aim of improving membership welfare. There are reciprocal rights and benefits to training, operations and critically participation in the co-operative's management and governance. Article fourteen for instance specifies voting entitlements, which entitles farmers to speak up whether requested to or not at strategic meetings which they are expected to attend. Respondents reported in the interviews that they are incentivised as owners to participate in such meetings and all reported that they were more motivated to work because of the benefits owner membership brought with it.

COLLECTIVE CAPITAL GROWTH

Farmers linked their livelihood outcomes to equity and collective growth. They said in the interviews 'how they experienced greater familiarity and closer ties with their neighbours due to common livelihood goals'. This they report has resulted in a more supportive work structure, greater sharing and consequent access to knowledge and experience, this in turn has led to higher returns and the vanquishing of unfair traders. They noted that as the facilities are owned by members both at the Gapoktan and their local co-operative, whenever assets increase, they expand for all members. They also noted that members receive equal benefits from these assets, an additional 750 Rupiah margin on supplied kilos of rice benefits all farmers. Proof of such growth, they added, are the youth being trained today¹⁰ being graduates both from secondary school and university and opting to work on family farms. Others noted however that this growth is not yet so apparent, several citing the size of their respective plots as the limiting factor.

SYNERGETIC SOCIAL CAPITAL

Mutual benefits achieved through building social capital, both due to external links as well as synergies at the local level through structures, processes and operations leading to more sustainable livelihood outcomes are given below.

¹⁰ A training workshop on organic fertilisers for youth preparing to join SIMPATIK was held on site on the 15th of May 2016 and involved around two dozen youth.

LOCAL SYNERGETIC SOCIAL CAPITAL

Members reported that their main source of income had always been from farming, they noted prior to the introduction of SRI in 1999, village farming was at a loss in terms of how they could continue to feasibly farm. With a market link established through Agro Bloom in 2009, local co-operatives had become organised to supply it, an organisation that involved numerous activities and processes that were both reciprocated among members and mutually beneficial to them. This included the sharing of labour, equipment and the collective provision of fertiliser.

The work schedule for the Jembar Dua co-operative's is displayed on a whiteboard on a wall in their communal meeting hall or 'sala'. Co-operative members had decided what days planting would commence and what equipment was to be used. It was the May 2016 planting season, trays of seedlings had been prepared ready to be planted¹¹, additionally innovative spacing equipment¹² using rollers hung on the 'Sala' wall and their fields had recently been ploughed and organic fertiliser added. Such equipment and innovations belonged to all members and was also allocated to communal planting schedules at on individual plots. Shared labour at planting and harvest times was essential as shared planting meant less stress on seedlings and at harvest prevented spoil. Additionally, fertilizer was made constantly and communally in mass from local organic resources which was then spread across member's fields with the use of a group tractor¹³. At the local level, the local co-operative pays for all pre-harvest costs, one of the larger expenses being the tractor. A tractor in rural rice farming is an essential and relatively expensive piece of equipment without which the labour demand is increased. With SRI organic fertilizer is typically ploughed into the field which is then saturated before planting commences. Image one shows such a field being prepared for planting at the Jembar Dua co-operative on the day of interviewing. Jembar Dua is well equipped co-operative, internal 'user pay' agreements are used that assure the group meets its needs. For instance members pay a rental fee to the co-operative for the use of a communal tractor to plough their individual plots, a rate that is fixed at two million rupiah per hectare. The arrangement has several benefits, firstly pooling equipment reduces the group's overheads, secondly organic certification is stringent, 'Fair for Life' certification requires that rules relating to the contamination and use of equipment are strictly adhered to; a standard more easily met with the collective ownership of plant and equipment. Thirdly the funds collected from the individual rental of the tractor are used to fund other material needs the group may have. It is worth also noting that in our discussion SL has related to co-operative members, however not everyone at the village level has land which means they cannot supply the Gapoktan. At the local

¹¹ With SRI seedlings are transplanted from nurseries to fields. At the Jembar Dua co-operative innovative plastic trays in which seedlings had been raised hydroponically had been prepared are used.

¹² Permanent rollers used to mark the lines for planting were also an innovative and specialist equipment available for all members.

¹³ The Gapoktan covered all post-harvest costs associated with transport, milling and marketing while individual co-operative groups were responsible for pre-harvest costs. With rice farmers significant costs relate to mechanisation, particularly tractors, threshing machines and milling equipment.

co-operative level, increased earnings went beyond farmer owners¹⁴ and included landless community members as they were often hired to do work. A rule stood at the co-operative that was often referred to whereby ‘the people who plant, harvest and benefit.’ This rule ensured more work for the landless who having planted a crop are guaranteed to also harvest it and share in some of its benefits¹⁵. Although landless community members did not receive as many benefits as land owning Gapoktan members, members did remark that the ‘Gotong Royong’¹⁶ was stronger because of their collective organisation and that the sense of trust among members through co-operation increased the closeness and ease with which they could talk to one another since the co-operative was established.

SRI FIELDS READY TO BE PLANTED AT JEMBAR DUA



With fields ploughed, fertilized and saturated, SRI seedlings are ready to be planted positioned to the right of the rest area.

¹⁴ What percentage of community members were landless or their reliance on casual farming was not determined in this study. Often landless local people were employed. Reasons varied, some members were for instance too old to work their own fields.

¹⁵ Although interviewees stated Landless benefited from such internal rules it could be clarified to what degree the landless shared in benefits beyond the guarantee of labour.

¹⁶ Gotong Royong’ is a cultural term that corresponds to the willingness and action to co-operate and work together.

BETWEEN THE GAPOKTAN AND LOCAL CO-OPERATIVE

Members highlighted mutually beneficial action between the Gapoktan and their local co-operative in three distinct ways;

- Plant and material supports
- Training and business supports
- Social projects

As noted the Gapoktan covers all postharvest costs. Unlike a marketing co-operative it does not require paid up membership to cover these costs nor does it have shareholdings nor pay a dividend. This is partly because as a social group the Gapoktan's plant and processing equipment was financed by the West Javanese government and also because it retains an annual surplus with which it runs and maintains the group's plant and equipment. This includes the use of a truck to transport rice from the individual co-operatives to the plant, threshing machines, milling and sorting equipment, packaging and storage facilities. Additionally, the processing plant includes a mass fertilizer facility. Threshed rice stalks are fed to cattle in adjacent pens as pictured below, manure is then mixed with other fertilizer and transported back to farmer's fields who purchase it as required. Co-operatives such as Jambar Dua avoid this cost as they produce their own sufficient supply of organic fertilizer. Farmers spoken to reported that the supply of organic fertilizer to their fields has improved soil fertility and led to several key benefits, discussed below.

THRASHED RICE STALKS ARE FED TO CATTLE TO MAKE MANURE
AT SIMPATIK'S PROCESSING CENTRE



Training is provided through the Gapoktan which ensures local co-operatives know and practice everything they need to obtain and maintain organic certification. Training programs included business mentoring, SRI, the production of compost and liquid fertilizer, Bio-pesticide control, record keeping and other ICS requirements. Training and mutual farmer support was high within and among local groups who further disseminated their knowledge of organic SRI locally. New members, often neighbours of successful SRI farmers, were further incentivised to attend training workshops at SIMPATIK and an allowance was made available for them to participate. The sharing that occurred through SIMPATIK with SRI farmers in what appears to be a largely farmer field school approach increased mutual knowledge among its co-operative groups. Knowledge shared and created had immediate effects, for instance the use and development of natural fertilizers resulted in immediate cost savings as did several innovative pesticides. One farmer even reported that he carried out research online and created his own new and improved combinations of Local Micro Organisms (MOL). The product of linking social capital between farmer groups led in turn to improved knowledge and practice. This was evidenced by large numbers of youth on site working on liquid fertilizer who were preparing to become the next generation of SRI organic farmers whom I met on the second day of interviews.

Thirdly, in accordance with the 'Fair for Life social certification', Gapoktan members met annually to decide upon what social projects the Gapoktan would finance. This has included such things as repairing school buildings, building roads and lavatories, training other groups and in recent years in response to prolonged droughts had included sending water trucks to members in need.

LINKING SOCIAL CAPITAL

As discussed the relationship between local farmers and the government SRI training program was instrumental in establishing the Gapoktan. Training programs co-ordinated through the ministry were intensified from 2003 to 2008 with the objective of spreading the adoption of SRI in the region. With the assistance of Bloom Agro's training programs the focus turned to achieving organic certification with SRI in order to overcome the afore mentioned market constraints. The challenges involved in becoming a commercial enterprise reduced Gapoktan participant numbers at the time from two thousand three hundred members to around six hundred. There were two main reasons, the first given was due to the limited size of the farmer plots, and hence without excess supply farmers simply opted instead to support themselves. The second reason given was the difficulty of achieving certification. Despite the initial reduction in membership, external links were seen as critical to sustainable livelihood improvement, both in terms of initial funding and in terms of networking and accessing external markets. Being the first of its kind to export organic rice from Indonesia, SIMPATIK required initial external political support also. In a socio-political climate that banned the export of

rice, a critical law required review. This was championed by Emily Sutanto, Agro-Bloom's director whose campaign led to the required exemption to export. This exemption was given based on the project's ability to provide superior export returns and wider community benefits (Ubuddirect, 2014). Furthermore Agro-Bloom covered all certification costs. This enabled the Gapoktan to commence exports in late 2009. Exports were shortly boosted again when CIIFAD's collaborative efforts with Lotus Foods opened up sales in U.S. markets.

THE MARKETING LINK

The 'Fair for Life' label was awarded to Bloom Agro and the SIMPATIK co-operative in July 2009, the details of the certification are available at the Fair for Life website, which show SIMPATIK excelling certification criteria (Fair For Life, 2014). The award is stringent and goes beyond traditional Fair Trade certification. Apart from requiring fair payment to producers and high environmental standards, the label's criteria additionally requires ethical working conditions at all stages along the marketing chain. These standards that include gender equal wages and opportunities as well as other similar commitments aimed at inclusive social development such as opportunities for disabled workers (Fair For Life, 2014). A highly qualified external verifier is used by the IMO to assure the label's objectivity. SIMPATIK scored higher than the norm attributed largely to the environmental benefits, particularly water savings and soil conservation benefits that are intrinsic to SRI practice. (CIIFAD, 2009). Farmers report that there are a number of significant benefits that the label carries; firstly as discussed, the Gapoktan receives a premium for social activities, secondly there is a long term purchasing agreement that sets a transparent and guaranteed price for the amount of organic rice each individual producer wishes to sell. With an open upper limit to that supply, a certain income is guaranteed which reduces marketing dilemmas yet leaves the individual farmer able to choose how much rice they may wish to keep for their own household consumption.

4.4 NATURAL CAPITAL

Agro-ecological vulnerabilities that Gapoktan farmers had and continue to face were discussed at the beginning of this section; reduced soil quality, stagnant productivity and an increasingly volatile climate that acutely affected farmer's water supply. Outcomes relating to improved natural capital directly attributable to SRI were brought about in the first place by the practice of intermittent flooding and organic fertilizer. Farmers reported that they irrigated typically no more than twice a week which resulted in water savings in contrast with conventional methods which continually flood paddy fields. Farmers reported that the ability to continue growing SRI rice in dry periods was due not only to the method's water savings but also to the improved quality of the soil it brings during dry spells. With conventional methods the soil in dry periods became cracked, since the introduction of SRI in comparable dry periods the soil retained its structure. One farmer reported that as a

consequence of the 'Order Baru's heavy use of chemical fertilizer that "The soil had become less fertile and quickly became dry", an observation linked to the reduction or elimination of soil biota and organic matter (Uphoff, 2003)¹⁷. Additional observations noted by farmers I spoke to regarding soil fertility since introducing organic fertiliser included, increased worm counts, a darker soil colour, a soil composition easier to work with and the continued often unintended growth of rice plants once harvested. Such increased fertility was attributed to the preparation and use of organic fertilizer.

Five tons of organic fertilizer is required per hectare per planting cycle which is often three times a year. For local cooperatives such as Jembar Satu and Jembar Dua who collectively own 27 hectares, the provision of as much as eighty one tons of fertilizer is required. This is an amount which they can usually achieve themselves without needing to rely on additional SIMPATIK supply. The local co-operative produces their fertilizer in two ways; daily from kitchen waste, vegetables and other natural resources, which is done both individually and collectively, and secondly following harvesting, by returning locally thrashed rice stalks mixed with manure to the fields. Where personal supply was insufficient it was reported that organic fertilizer was also bought locally from other farmers.

Overall, fertilizer was either continually prepared or done as one discrete activity three weeks before planting. In either case the requirement for fertilizer was reported by farmers I spoke to as twice that of conventional farming. Standard SRI activities including the preparation of fertilizer, raising seedlings in nurseries, planting the individual seedlings in lines, weeding¹⁸ between the lines usually four times for each planting, harvesting, pest control and monitoring all significantly increased the labour time required compared to conventional farming. One of the farmers remarked to me that conventional methods had simply been a 'sow and go' practice requiring no additional input. Another of my respondents with a typical small plot of approximately 1,250 m² (An of 8th hectare) reported that he worked from 5am to 7pm for approximately one month per harvest. Such increased labour was reported as an obstacle impeding initial SRI adoption. However the increased labour requirement farmers reported was offset with increased income. This was due to general productivity increases from four to six tons coupled with more profitable sales due to the marketing link. This was a practice that incentivised and sustained the spread of SRI locally. Additionally, although it was reported that increases in productivity took several seasons, they were particularly assisted by inter-member consultation, organisation and innovation. Such innovations noted included developments in hydroponic seed trays, wheeled liners and liquid fertilizer to attract organisms.

¹⁷ Gani, Kadir, Jatiharti, Wardhana, and Las (2002) similarly link the reduction of biota and soil structure to the use of NPK fertilisers and therefore drought susceptibility. Oka (1997) adds the practice of chemical treatments is also linked to the susceptibility of rice plants to pests and diseases.

¹⁸ Although mechanical weeders are available to weed between rows in SRI plots which can save labour, it was reported that co-operative members usually used hoes to weed given the small size of individual plots.

4.5 PRODUCTIVITY

Farmers interviewed were taken by surprise with the gains in productivity able to be achieved on their own land with SRI, common statistics given from interviewees were increases that ranged from four to six or seven tons per hectare, an increase of around 50% on conventional methods. These findings were confirmed by management and are consistent with studies of similar farmer groups in the region, most of whom were similarly small holders. The average paddy field at SIMPATIK was found to be approximately 100 Bata (1428 M²) (As in Appendix four).¹⁹ My interviewee plots themselves ranged between 50 Bata (740 M²) to 200 Bata or (2856M²) or * or .29 Ha.

The average yield reported by my respondents per season was 6.8 tons of unprocessed rice per hectare. Typically rice sold requires processing; drying, thrashing and de-husking²⁰. Appendix four illustrates a typical 100 Bata holding where 530 kgs of processed rice is sold from a 100 Bata or (1428 M²) plot. A useful productivity indicator is the quantity of marketable/processed rice per square metre for comparison studies with other plots. In this case it is $530/1428 = .377$ kg per square metre. This figure was also found in the Timor Leste SRI trials²¹ where the productivity of de-husked rice per square metre was .39 kg per square metre. Although dependent on the severity of water shortages, typically respondents were able to plant three successful harvests a year, planting spurred in part by SRI's resilience in dry conditions and its quicker planting cycle, 126 days compared to the 135 with the conventional method. In a good year, the potential produce of a small holder at that rate would be approximately 1.7 tons of marketable rice with potential earning of 11, 475,000 Rp (U.S \$842), a significant boost in capability for the small holder.

4.6 PHYSICAL CAPITAL

Productive assets such as SIMPATIK's plant, machinery and how the co-operative's operations provide member's benefits have been introduced and discussed above. Also discussed was the financing and equipping of tools and equipment used in SRI farming at local co-operatives which included weeders, nurseries, nursery trays, lining equipment, thrashing machines and tractors. Although local co-operative equipment was sufficient, management report that SIMPATIK's plant itself runs at over capacity and is inadequate to meet increasing processing needs. Organic processing requires stringent sorting which includes removing debris and husks from milled rice. Of critical concern is the large capital outlay needed for a sophisticated sorting machine. Current reliance on inferior equipment disrupts and limits productive potential and capacity to five tons of marketable rice per day. Poor sorting capability results in high losses of quality rice. Continual break downs also tend to occur. This adds work to a tedious sorting process largely done manually. The financing of plant

¹⁹ One Bata is equivalent to 14.28M²

²⁰ A process with which the rice loses approximately 39.65% of its weight once de-husked.

²¹ A presentation of the Timor Leste SRI trials conducted by Movimento Co-operativa Econômica Agricultura (MCE-A) and Oxfam NZ are available on request from the author. Additionally details can be found at <http://sri.ciifad.cornell.edu/countries/timorleste/index.html>.

and equipment is a managerial priority as it directly relates to capacity and cooperative growth. Increased capital and plant capacity is considered to require a marketing co-operative, a point revisited in concluding comments.

4.7 HUMAN CAPITAL

Consistent with the Indonesian ‘Home Garden Program’ respondents reported that the primary purpose of the introduction and promotion of SRI in the area was to increase health benefits. Advocates of SRI within the Ministry who were key on promoting the program were likely to have been influenced by the findings of researchers such as Oka (1997) who cited reports of 404 human poisonings and pesticide related deaths in Indonesia in 1986 alone. The reported fatalities related to the use of synthetic fertilizers, pesticides and insecticides at that time included blanket spraying of UVL formulations. My respondents using SRI, generally reported improved health benefits, increased energy and productivity. Although much more research is required to establish the link scientifically, farmers reported benefits derived from both the practices e.g. the use of bio-pesticide, as well as the consumption of the organic rice itself. Respondents reported that increased personal health and productivity was also linked to increased income which could be used to access health and medical services. Improved health was reported also to reduce medical costs and further reduced the need to employ outside labour. Similarly respondents reported to me of increased access to education and training opportunities for themselves and family that increased income afforded. One respondent noting that SRI had put his sons through college, another that was able to pay for school fees. While all my interviewees noted improved farming skills brought about from association with the SRI co-operative.

4.8 FINANCIAL CAPITAL

The long term purchasing agreement coupled with higher and more sustainable productivity resulted in improved income. Respondents reported increased paddy income ranging from 80% to 130% compared to using conventional methods without marketing links. With the 2009- 2016 price set at 6,000 Rupiah per kg of (husked rice), a typical 100 Bata land holder producing 500 kgs could expect to receive three million Rupiah (U.S. \$220). At such a rate maximum earnings from 100 Bata could potentially reach U.S. \$440 with two seasons and U.S. \$660 with three²². With even three planting seasons a small holder farmer however remains marginally above the poverty line. Sole dependence on small holdings even with SRI was reported as an unviable household income by some of my respondents. Viability was increased in two ways, either by integrating other agricultural and

²² Although a third planting season in a year was likely, it is unlikely to reach the yield of the first two due to the lower productivity in the dry season.

complimentary sources of income which included integrating fish ponds²³ providing fertilizer or other associated agricultural inputs. Secondly, income was supplemented with other non-agricultural local work. Although most respondents (not all) had at least one additional source of income, all reported that their agricultural income was their main and therefore their most important source of income. Improving agricultural margins are assured with the negotiated price in the long term purchasing agreement and reduced costs related to the practice of SRI and co-operative organisation. It follows due to sustained improved margins that long term co-operative members I spoke to over time had been able to achieve significant livelihood outcomes that included putting their children through college, buying more land, building and repairing houses, buying motorcycles and even cars. Additionally, these farmers noted that non-members remained static and had been unable to access such livelihood improvements.

4.9 RE-LOCALIZATION

The SRI co-operative provided a living that enabled co-operative members to remain in their local communities. This was considered very important by respondents in several ways. Foremost was with regards to the youth who would, as reported by farmers, otherwise give up farming intergenerational plots in search of opportunities, often insufficient ones, in large cities. Kinship and ties to ancestral land were significant to respondents and linked to deep seated values and culture. All respondents interviewed had no desire to live elsewhere. Male respondents regarded themselves as ‘sons of the land’ whose ancestors had lived there longer than ‘they knew’. The continuance of ‘local Gotong Royong’ culture and a secure income gave members a sense of security and quality of life that was markedly less certain with their experiences of urbanisation. There were reports anecdotally of instances of land that had been given from parents to sons who seeing no future in farming simply sold the family land and opted to become Go-Jek drivers (urban motorcycle taxi drivers) instead. No inherited land however had been given up that had been planted in SRI. Concerns for youth emigration ranged from inadequate opportunities due to low skill levels, family and cultural breakdown and moral decline associated with alcohol and drugs. Proof that youth are able and willing to stay on the land as given by SIMPATIK’s director “could be observed by the large numbers of youth opting to learn to become organic farmers, most of whom have an education even degrees but don’t see the need to emigrate to the cities as they can continue the business here”. A view shared by several respondents.

4.10 SUBJECTIVE MEANING

Prior to being able to make a sufficient local living a family father I spoke to had spent twelve years in Jakarta trying to support his family with often inadequate and uncertain income from street

²³ Integrating permaculture systems such as trout farms was common in the area, at the Salalu co-operative an extensive trout farm increased local income. Integrating fish and livestock was often used for fertiliser needs.

vending. Now with his plot able to sustain them all he is able to stay at home with his family. They are all able to eat when hungry, he feels his family is safer, he can attend Masjid (Mosque services), feels more relaxed in a natural environment, can be involved in local activities and be there as a father for his children when they return from school because he is working locally.

Such sentiment is shared by other members I spoke to, who do not want to go anywhere else. They reported that family life, their sense of morality, peace and community life was equally supported within a local context that provided sustainable livelihoods. Most of my respondents also commented on the beneficial connection to family and health from the local community network which they considered very supportive. A seventy three year old grandfather still farming added, 'No Gapoktan member has had to leave, he himself was content having achieved everything including having been able to put his sons through college, one even to the PhD level'. A Muslim woman respondent added further that to stay here was essential to being able to manage and look after her children, their health, education and economic well-being. Rules relating to equal employment opportunities for men and women likewise helped women stay locally, however as customary, the roles and manner of work differed, men tended to do more physical work like harvesting while women took the less strenuous roles in groups such as SIMPATIK's eight factory workers.

4.11 CULTURE AND GOTONG ROYONG

Heidegger (1996) uses the German 'sorge' or 'caring' to presuppose the significance or meaning of ontological being which he distinguishes from 'Ontic' being or 'thinghood', the latter of which is composed of mere concrete and specific realities. The being capable of ontology (Daesein) recursively comprehends properties of his/her own being having 'modes' or dimensions of consciousness beyond the ontic. These include self-awareness in relation with the world and community as well as evolutionary vestiges that deepen experience, meaning and significance. Gotong Royong likewise denoted a deep seated care or (Simpatik/sympathy intentionality) that was both seen as prior to co-operative organisation and expressed through it. Gotong Royong can be strong or weak in a given place. For respondents Gotong Royong was very strong locally and manifest in the making of communal buildings, collective construction of private homes and shared labour and meaningful support. A respondent illustrated Gotong Royong, 'There has been a drought, in the Selalu farmer's group who had more than enough rice, so despite the poverty they supported those who didn't.' The co-operative was seen to promote this positive aspect of culture as well as others such as traditional organic planting methods and traditional language (e.g. the Gapoktan's anthem is in Sudansese). Traditions such as puppet and dance performances at harvest time likewise added to respondent's sense of meaning, collective identity and co-operative practice. Co-operative organisation sat well with respondent's most meaningful values. This seemed to indicate what others have said above. i.e. that potentialities and values for co-operation are existent in all cultures yet

often remain latent due to the lack of suitable structures for their expression (Uphoff & Wijayaratra, 2000).

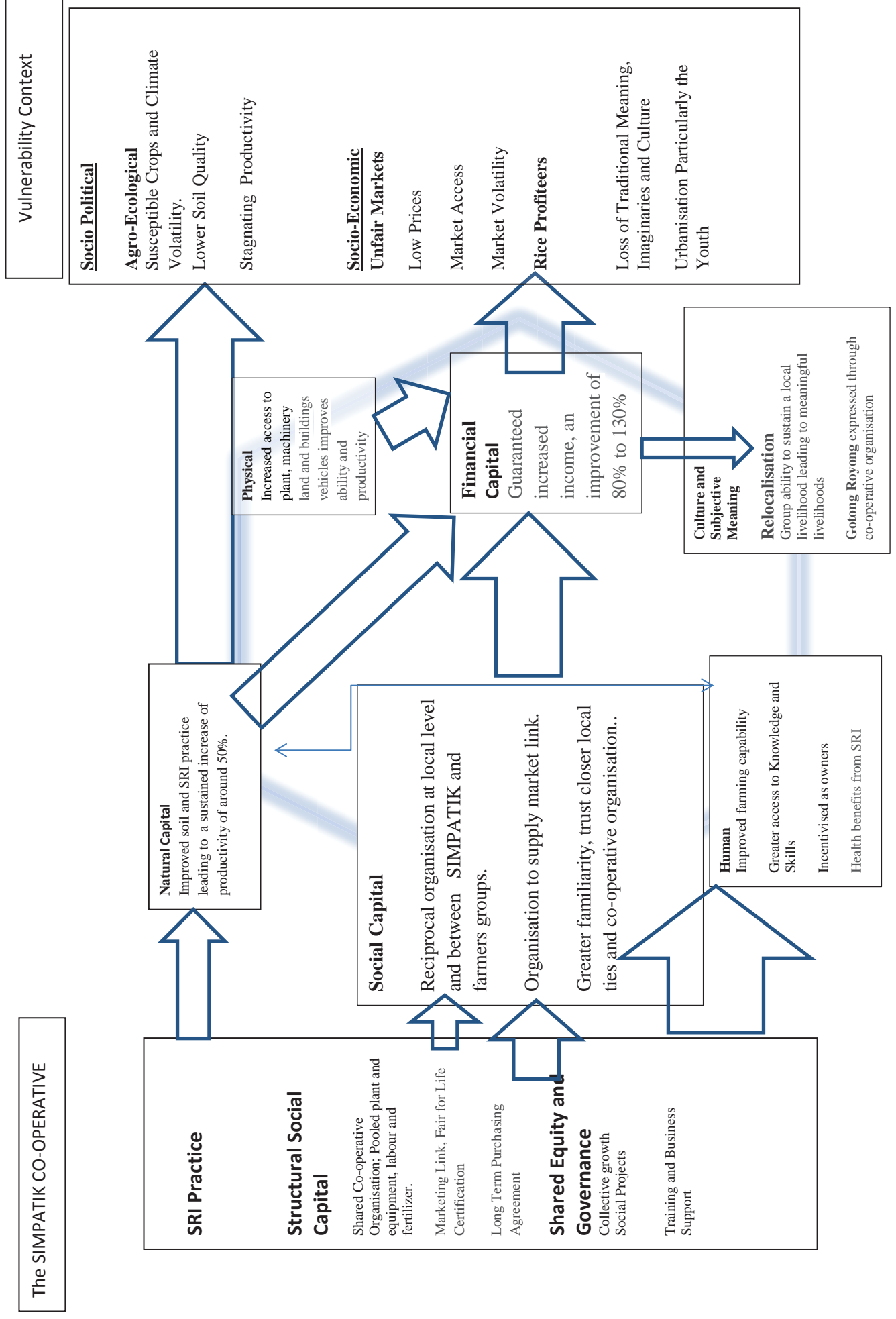
4.12 IDENTITY AND ISLAM

Cultural intentionality as with 'Gotong Royong', and co-operative organisation also overlapped with respondent's interpretations of Islam, indeed the three seemed to mutually reinforce each other. This was because, respondents stated, 'togetherness and family' is prioritised in each. Through local co-operative organisation respondents were able to support their local Mosque through donations and increased participation which was very significant to them. Additionally rural life was seen to support the practice of their other important values including the ability to raise children, attend prayers and the practice of virtue. This was akin to ontological, meaningful relationships of personhood in community beyond the ontic, that were filled with sacred values akin to 'I-It vs I-Thou' relatedness described in Buber (1970) that reinforced the collective identity in the community.

4.13 IMPACT PATHWAYS AND OUTCOMES

The nature of livelihood capitals and the processes leading to sustainable outcomes for SRI co-operatives is evident in what has been discussed above. The specific nature and sequencing of supports for different livelihood capitals through the SIMPATIK co-operative structure has been shown to increase co-operative member's livelihood assets. Consistent with Bebbington's (1999) discourse relating to the pentagon of capitals (Fig 1), livelihood capitals were found to have mutually supportive effects. Initial training efforts led to the spread and use of SRI which itself then led to improved soil, higher and sustained productivity. The SIMPATIK co-operative then provided training and material supports to its members to achieve organic certification and establish a marketing link. This overcame member's initial marketing constraints. Co-operative ownership in turn is found to incentivize farmers to practice SRI. The higher productivity gains and guaranteed returns led to improved financial outcomes. These outcomes are reported to have health and other benefits for members including re-localisation. Re-localisation is linked to subjective meanings including family ties, place, culture and beliefs. Respondents emphasised that increases in SL outcomes reduced both environmental and economic vulnerabilities. These included crops susceptible to volatile weather patterns and rice profiteers. Outcomes such as these in turn led to increasing access to physical capital: plant within the co-operative structure which further enabled increases to household livelihood capitals. Farm equipment and vehicles increased capability while improved housing and health was also reported. In overcoming vulnerabilities improved opportunities for the youth in terms of education and in terms of viable farming livelihoods became available. Impact pathways discussed in this chapter are able now to inform the Apt-ISLF and substantiate a template model for SRI co-operatives illustrated in figure five.

Fig 5: THE SRI CO-OPERATIVE TEMPLATE FOR SUSTAINABLE LIVELIHOODS AT SIMPATIK



CHAPTER FIVE CONCLUSION AND DISCUSSION

The SRI co-operative Template informed by respondents at SIMPATIK has illustrated how SL can be achieved. As such it is a reference able model to demonstrate how SRI can achieve SLs and so too therefore how SRI can be promoted as an SL strategy. The impact pathways and processes informed by respondents have validated SL criteria. This criteria itself had been developed from the ISLF (Amekawa, 2011) which was a synthesis of agro-ecology and the SLF. The synthesis addressed deficiencies with both approaches while retaining their strengths: collective asset building, subjective meaning, culture and the use of agro-ecosystems. The later reliant on natural synergies that are found with the use of SRI. The ISLF was intended as a nexus with which to develop conceptual frameworks. Following discussion on social capital and culture, it was found that the elements from the ISLF could be incorporated into a novel Apt-ISLF. This later framework approximated Bebbington's (1999) pentagon of livelihood capitals. By discussing livelihood capitals and applicable processes with respondents; structures and impact pathways leading to SL outcomes were identified. This in turn gave an answer to Silici's (2014) original call with which we began the research to find concrete strategies that can operationalise Agro-ecology and sustainable development, which she as mentioned requires re-orientating of food value chains that support the livelihoods of local farmers i.e. re-localization.

Respondents had reported the ways in which agro-ecological and economic vulnerabilities faced have been overcome with the increase of livelihood assets that were found to be interrelated. The research has not only proven SRI to be a potent agro-ecological method, a finding that supports earlier research but we had in addition gained first-hand insights into SRI's socio-economic outcomes, that according to Takahashi and Barrett (2014) had been lacking. Critically it has been shown how and in what form SL outcomes can be achieved with SRI, namely in this case through an effective co-operative structure linked to a fair market. Furthermore, improved returns for farmers culminating from the marketing link and co-operative organisation, justified to farmer's the extra work SRI required. This increased labour requirement, Takahashi and Barrett (2014) state, diminished SRI's economic value. Respondents did not report that to be the case. Synergetic structures of social capitals were shown to reduce costs, further shared equity incentivised membership and collective capital growth. Synergetic and reciprocal organisation and structures were not only found in co-operative organisation amongst its members but pre-existent in the local culture, particularly with imbedded values such as 'Gotong Royong' that the co-operative structure was able to express. This finding accorded with other writers who had written how co-operative livelihood structures are able to express the positive potentials of otherwise latent cultural values (Uphoff & Wijayaratra, 2000). Additionally the capitals identified were found to be mutually reinforcing, an improvement in one, (e.g. income) brought about re-localization which strengthened local group ties. Again this is a finding which accords with Majee

(2007)'s observation that co-operatives while linking beyond the group to advance local livelihoods are able to do so not only by retaining bonding social capital but as in this case actually increase them.

SRI is not necessarily an organic process, depending on purposes and organic fertilizer availability, non-organic methods or ICM may be a more viable option. However, organic versions of SRI have gained in popularity as well as in productivity and profitability as originally expected (Uphoff, 2003). This statement is attested by Amekawa et al. (2010) who state that changing trends have led to an increasing demand for natural, organic, and 'ethical' produce in developed countries. By 2013, the Appoli Farmer Association in Boyolali became the second SRI co-operative in Indonesia to achieve IMO organic and fair trade fair certifications, it began exports in the same year (CALs) through Bloom Agro. Other groups likewise have grown in size and profitability, the largest and most successful organic SRI group the Farmer-Nature Network (FNN) in Cambodia now has over forty thousand households as members. Bloom Agro and other suppliers have not as yet set an upper limit for the supply of organic rice. Given that demand is set to outweigh supply for some time and the success to date farmers have had, it is little surprise that all respondents are motivated to do more and that SIMPATIK had been able to attract large numbers of youth to its expanding membership.

Although there is open membership the organisation remains limited in two ways. Firstly although there is collective asset building and relative equality among small holders within SIMPATIK not all community members can qualify as not all have land. The circumstances of the landless are not known and although the employed landless do increase financial capital locally it is not known whether there is relative equality locally or even what the qualification of relative equality would be in this respect. The second main limitation relates to collective capacity in terms of plant and equipment running at over capacity, with an additional 252 household members ready to join membership is expected to be over seven hundred households. The need to refit and finance plant is a collective dilemma. Furthermore providing large quantities of organic fertilizer is difficult without sufficient livestock which are best organised in conjunction with new buildings and plant. These dilemmas the marketing co-operative aims to overcome by resolving its collective capital ownership. As a legal entity it is intended to have the capability of raising funds either as loans or through paid up contributions. Preferably with an equitable user pays system. As the marketing co-operative will buy rice from farmers then market it, proceeds will be used not only to pay an efficient return with dividends to farmers but the co-op will also be able to finance capitals such as land, buildings and equipment. The practice of developing the marketing co-operative is expected to increase the capacity to develop business skills such as marketing management, financing and budgeting. Given that significant SL outcomes had been achieved to date through SRI Co-operative organisation at SIMPATIK, It follows such a model should be used and promoted in agricultural development proposals.

REFERENCES

- Adams, W. M. (2003). *Green Development: environment and sustainability in the Third World*: Routledge.
- Addinsall, C., Glencross, K., Scherrer, P., Weiler, B., & Nichols, D. (2015). Agroecology and Sustainable Rural Livelihoods: A Conceptual Framework to Guide Development Projects in the Pacific Islands. *Agroecology and Sustainable Food Systems*, 39(6), 691-723.
- Alam, M. N. (2015). Socio-Economic and Technical Efficiency Level of Organic Rice Farming with System of Rice Intensification: A Case Study in Morowali Regency Indonesia. *American Journal of Applied Sciences*, 12(4), 290.
- Alem, Y., Eggert, H., & Ruhinduka, R. (2015). Improving welfare through climate-friendly agriculture: the case of the system of rice intensification. *Environmental and Resource Economics*, 62(2), 243-263.
- Altieri, M. A. (2002). Agroecology: the science of natural resource management for poor farmers in marginal environments. *Agriculture, ecosystems & environment*, 93(1), 1-24.
- Amekawa, Y. (2011). Agroecology and sustainable livelihoods: Towards an integrated approach to rural development. *Journal of Sustainable Agriculture*, 35(2), 118-162.
- Amekawa, Y., Sseguya, H., Onzere, S., & Carranza, I. (2010). Delineating the multifunctional role of agroecological practices: toward sustainable livelihoods for smallholder farmers in developing countries. *Journal of Sustainable Agriculture*, 34(2), 202-228.
- Anthofer, J. (2004). Potential of the system of rice intensification (SRI) for Cambodia. *Report for the Food Security and Policy Support Project, GTZ, Phnom Penh*.
- Barah, B. (2009). Economic and ecological benefits of System of Rice Intensification (SRI) in Tamil Nadu. *Small*, 5(9).
- Barrett, C. B., Moser, C. M., McHugh, O. V., & Barison, J. (2004). Better technology, better plots, or better farmers? Identifying changes in productivity and risk among Malagasy rice farmers. *American Journal of Agricultural Economics*, 86(4), 869-888.
- Basu, S., & Leeuwis, C. (2012). Understanding the rapid spread of System of Rice Intensification (SRI) in Andhra Pradesh: Exploring the building of support networks and media representation. *Agricultural Systems*, 111, 34-44. doi: <http://dx.doi.org/10.1016/j.agsy.2012.04.005>
- Bebbington, A. (1999). Capitals and capabilities: a framework for analyzing peasant viability, rural livelihoods and poverty. *World development*, 27(12), 2021-2044.
- Bebbington, A., & Batterbury, S. P. (2001). Transnational livelihoods and landscapes: political ecologies of globalization. *Cultural geographies*, 8(4), 369-380.
- Bebbington, A., & Foo, K. E. (2008). Social capital and development. *The Companion to Development Studies*, 132-136.
- Berdegue, J. A., & Escobar, G. (1995). New directions of the systems approach for the modernization of Latin American peasant agriculture. *Journal for Farming Systems Research-Extension*, 5(1), 1-30.
- Biksham, G., & Thiyagrajan, T. (2010). *New Hope for Indian Food Security?: the System of Rice Intensification*, Gatekeeper series: IIED, London.
- Bingen, J., Serrano, A., & Howard, J. (2003). Linking farmers to markets: different approaches to human capital development. *Food policy*, 28(4), 405-419.
- Blowfield, M., & Frynas, J. G. (2005). Editorial Setting new agendas: critical perspectives on Corporate Social Responsibility in the developing world. *International Affairs*, 81(3), 499-513.
- Bogdan, R., & Taylor, S. (1975). *Introduction to qualitative research methods: a phenomenological approach to the social sciences*. New York: J: Wiley.
- Buber, M. (1970). *I and Thou*. *Walter Kaufmann (New York: Charles Scribner's Sons, 1970)*, 57.
- Cahn, M. (2006). *Sustainable rural livelihoods, micro-enterprise and culture in the Pacific Islands : case studies from Samoa : a thesis presented in partial fulfilment of the requirements for the*

- degree of Doctor of Philosophy (Ph. D.) in Development Studies, Massey University, Palmerston North, New Zealand / Miranda Cahn: 2006.
- CALS.). Indonesia Progress and Updates. 2016, from <http://sri.cals.cornell.edu/countries/indonesia/index.html>
- Carney, D. (1998). *Sustainable rural livelihoods: what contribution can we make? Papers presented at the Department for International Development's Natural Resources Advisers' Conference, July 1998*. Paper presented at the Sustainable rural livelihoods: what contribution can we make? Papers presented at the Department for International Development's Natural Resources Advisers' Conference, July 1998.
- Ceesay, M., Reid, W. S., Fernandes, E. C., & Uphoff, N. T. (2006). The effects of repeated soil wetting and drying on lowland rice yield with System of Rice Intensification (SRI) methods. *International Journal of Agricultural Sustainability*, 4(1), 5-14.
- Chambers, R. (1988). *Sustainable rural livelihoods: a strategy for people, environment and development*: Earthscan.
- Chambers, R. (2010). Paradigms, poverty and adaptive pluralism. *IDS Working Papers*, 2010(344), 01-57.
- Chambers, R., & Conway, G. (1992). *Sustainable rural livelihoods: practical concepts for the 21st century*: Institute of Development Studies (UK).
- CIIFAD. (2009). BloomAgro Begins Exporting Rice Grown with SRI Methods. <http://sri.ciifad.cornell.edu/countries/indonesia/indoarchives.html>
- CIIFAD. (2011). Indonesia SRI Archives (1999-2011). <http://sri.ciifad.cornell.edu/countries/indonesia/indoarchives.html#archives>
- Cobia, D. W. (1989). *Cooperatives in agriculture*: Prentice Hall.
- De Haan, L., & Zoomers, A. (2005). Exploring the frontier of livelihoods research. *Development and change*, 36(1), 27-47.
- DfID, U. (1999). Sustainable livelihoods guidance sheets. *London: DFID*.
- Dobermann, A. (2004). A critical assessment of the system of rice intensification (SRI). *Agricultural Systems*, 79(3), 261-281.
- Easterly, W. (2001). The middle class consensus and economic development. *Journal of economic growth*, 6(4), 317-335.
- Esman, M. J., & Uphoff, N. T. (1984). *Local organizations : intermediaries in rural development / Milton J. Esman and Norman T. Uphoff*: Ithaca : Cornell University Press, 1984.
- Fair For Life. (2014). Fair For Life Certified Operators. Retrieved 30th May 2016, 2016, from http://www.fairforlife.org/pmws/indexDOM.php?client_id=fairforlife&page_id=certified&lang_iso639=en&company_id=94
- Freire, P. (2014). *Pedagogia do oprimido*: Editora Paz e Terra.
- Gani, A., Kadir, T., Jatiharti, A., Wardhana, I., & Las, I. (2002). The system of rice intensification in Indonesia. *Assessments of the System of Rice Intensification*, 58-63.
- García-Barríos, L., Galván-Miyoshi, Y. M., Valsieso-Pérez, I. A., Masera, O. R., Bocco, G., & Vandermeer, J. (2009). Neotropical forest conservation, agricultural intensification, and rural out-migration: the Mexican experience. *Bioscience*, 59(10), 863-873.
- Glover, D. (2011). Science, practice and the System of Rice Intensification in Indian agriculture. *Food Policy*, 36(6), 749-755.
- Goetz, A. M., & O'Brien, D. (1995). Governing for the common wealth? The World Bank's approach to poverty and governance. *ids bulletin*, 26(2), 17-26.
- Goldstone, J. A. (2006). *Flash Points and Tipping Points: Security Implications of Global Population Changes, 2005-2025*. Paper presented at the Mackinder Forum, Minster Lovell, UK.
- Grootaert, C. (1999). Social capital, household welfare, and poverty in Indonesia. *World Bank Policy Research Working Paper*(2148).
- Gwynne, R. N., & Kay, C. (2000). Views from the periphery: futures of neoliberalism in Latin America. *Third World Quarterly*, 21(1), 141-156.

- Hall, R. E., & Jones, C. I. (1999). *Why do some countries produce so much more output per worker than others?* National bureau of economic research.
- Hayes, G. (1993). 'MIRAB' processes and development on small Pacific Islands: a case study from the Southern Massim, Papua New Guinea. *Pacific Viewpoint*, 34(2), 153-178.
- Heidegger, M. (1996). *Being and time: A translation of Sein und Zeit*: SUNY Press.
- Hoyt, A., Merret, C., & Walzer, N. (2004). Consumer ownership in capitalist economies: Approaches of theory to consumer cooperation. *Co-operative and Local Development by Merret and Walzer (Eds.)*.
- Johnston, B. (2003). *Rediscovering the cooperative advantage: Poverty reduction through self-help*: Geneva: International Labour Organization.
- Kassam, A., Stoop, W., & Uphoff, N. (2011). Review of SRI modifications in rice crop and water management and research issues for making further improvements in agricultural and water productivity. *Paddy and Water Environment*, 9(1), 163-180.
- Korovkin, T. (1997). Taming capitalism: the evolution of the indigenous peasant economy in Northern Ecuador. *Latin American Research Review*, 32(3), 89-110.
- Krantz, L. (2001). The sustainable livelihood approach to poverty reduction. *SIDA. Division for Policy and Socio-Economic Analysis*.
- Kusnadi, N., Tinaprilla, N., Susilowati, S. H., & Purwoto, A. (2011). Analisis efisiensi usahatani padi di beberapa sentra produksi padi di Indonesia. *Jurnal Agro Ekonomi*, 29(1), 25-48.
- Leach, M., Mearns, R., & Scoones, I. (1997). *Environmental entitlements: a framework for understanding the institutional dynamics of environmental change*: Institute of Development Studies, University of Sussex Brighton.
- Levine, S. (2014). *How to Study Livelihoods: Bringing a sustainable livelihoods framework to life*. SLRC Working Paper 22, London: ODI. www.securelivelihoods.org/publications_details.aspx.
- Ly, P., Jensen, L. S., Bruun, T. B., Rutz, D., & de Neergaard, A. (2012). The System of Rice Intensification: Adapted practices, reported outcomes and their relevance in Cambodia. *Agricultural Systems*, 113, 16-27.
- Majee, W. (2007). *Cooperatives and the creation of social capital: The case of Caring Home Services*: ProQuest.
- Majee, W., & Hoyt, A. (2011). Cooperatives and community development: A perspective on the use of cooperatives in development. *Journal of community practice*, 19(1), 48-61.
- McDonald, A. J., Hobbs, P., & Riha, S. (2006). Does the system of rice intensification outperform conventional best management?: A synopsis of the empirical record. *Field Crops Research*, 96(1), 31-36.
- Melmoth, G. (2005). Simply legal: an introduction to legal structures in the social economy, 'foreword' in cooperatives UK. *Cooperatives UK, Manchester*.
- Moser, C. (1998). The asset vulnerability framework: reassessing urban poverty reduction strategies. *World development*, 26(1), 1-19.
- Moser, C. M., & Barrett, C. B. (2003). The disappointing adoption dynamics of a yield-increasing, low external-input technology: the case of SRI in Madagascar. *Agricultural Systems*, 76(3), 1085-1100.
- Noltze, M. (2012). Adoption and impacts of system technologies in smallholder agriculture-the system of rice intensification in Timor Leste.
- Noltze, M., Schwarze, S., & Qaim, M. (2013). Impacts of natural resource management technologies on agricultural yield and household income: The system of rice intensification in Timor Leste. *Ecological Economics*, 85, 59-68.
- North, D. C. (1990). *Institutions, institutional change and economic performance*: Cambridge university press.
- O'Leary, Z. (2010). *The Essential Guide to Doing Your Research Project*: Zina O'Leary. *London [etc.]*: Sage, 196.

- Oka, I. N. (1997). Integrated crop pest management with farmer participation in Indonesia *Reasons for hope: instructive experiences in rural development* (pp. 184-199): Kumarian Press.
- Patton, M. Q. (1990). *Qualitative evaluation and research methods*: SAGE Publications, inc.
- Pieterse, J. N. (2000). After post-development. *Third world quarterly*, 21(2), 175-191.
- Portes, A., & Landolt, P. (1996). The downside of social capital. *The American Prospect*, 26(94), 18-21.
- Rakodi, C. (1999). A capital assets framework for analysing household livelihood strategies: implications for policy. *Development policy review*, 17(3), 315-342.
- Rao, N., & Rogers, P. (2006). Assessment of agricultural sustainability. *Current science*, 91(4), 439-448.
- Reardon, T., Taylor, J. E., Stamoulis, K., Lanjouw, P., & Balisacan, A. (2000). Effects of non-farm employment on rural income inequality in developing countries: an investment perspective. *Journal of agricultural economics*, 51(2), 266-288.
- Redclift, M. (2005). Sustainable development (1987–2005): an oxymoron comes of age. *Sustainable development*, 13(4), 212-227.
- Sato, S. (2005). *Years Experiences of SRI (System of Rice Intensification) under SSIMP-DISIMP in Eastern Indonesia*. Paper presented at the Workshop on integrated Citarum Water management Project.
- Schumacher, E. F. (2011). *Small is beautiful: a study of economics as if people mattered*: Random House.
- Scoones, I. (2009). Livelihoods perspectives and rural development. *The Journal of Peasant Studies*, 36(1), 171-196.
- Silici, L. (2014). Agroecology-what it is and what it has to offer. *Issue Paper 14629IIED*. London: International Institute for Environment and Development.
- Takahashi, K., & Barrett, C. B. (2012). *The system of rice intensification and its puzzling impacts on household welfare: Evidence from rural Indonesia*. Cornell University, Mimeo. Retrieved from <http://slideplayer.com/slide/4515959/>
- Takahashi, K., & Barrett, C. B. (2014). The System of Rice Intensification and its impacts on household income and child schooling: Evidence from rural Indonesia. *American Journal of Agricultural Economics*, 96(1), 269-289.
- Tang, Q., Bennett, S. J., Xu, Y., & Li, Y. (2013). Agricultural practices and sustainable livelihoods: Rural transformation within the Loess Plateau, China. *Applied Geography*, 41, 15-23.
- Temple, J., & Johnson, P. A. (1998). Social capability and economic growth. *Quarterly Journal of Economics*, 965-990.
- Tsujimoto, Y., Horie, T., Randriamihary, H., Shiraiwa, T., & Homma, K. (2009). Soil management: The key factors for higher productivity in the fields utilizing the system of rice intensification (SRI) in the central highland of Madagascar. *Agricultural Systems*, 100(1), 61-71.
- Turner, S., & Nguyen, P. A. (2005). Young entrepreneurs, social capital and Doi Moi in Hanoi, Vietnam. *Urban Studies*, 42(10), 1693-1710.
- Ubuddirect. (2014). Organic Rice From the Land of Volcanoes. <https://healthylifeindo.wordpress.com/2014/09/01/organic-rice-from-the-land-of-volcanoes/>
- Uphoff, N. (2003). Report On S.R.I. Visit to Indonesia. <http://sri.ciifad.cornell.edu/countries/indonesia/indontu03.pdf>
- Uphoff, N. (2012). Comment to 'The System of Rice Intensification: Time for an empirical turn', [NJAS-Wageningen Journal of Life Sciences 57 (2011) 217–224]. *NJAS-Wageningen Journal of Life Sciences*, 59(1), 53-60.
- Uphoff, N., & Altieri, M. A. (1999). *Alternatives to conventional modern agriculture for meeting world needs in the next century: report of a Conference on Sustainable Agriculture, Evaluation of New Paradigms and Old Practices, April 26-30, 1999, Bellagio, Italy*: Cornell International Institute for Food, Agriculture and Development.

- Uphoff, N., & Wijayarathna, C. M. (2000). Demonstrated benefits from social capital: The productivity of farmer organizations in Gal Oya, Sri Lanka. *World Development*, 28(11), 1875-1890.
- Vandermeer, J. (1995). The ecological basis of alternative agriculture. *Annual Review of Ecology and Systematics*, 201-224.
- Vandermeer, J. (1997). Syndromes of production: an emergent property of simple agroecosystem dynamics. *Journal of Environmental Management*, 51(1), 59-72.
- Wezel, A., & Soldat, V. (2009). A quantitative and qualitative historical analysis of the scientific discipline of agroecology. *International Journal of Agricultural Sustainability*, 7(1), 3-18.
- Whitehead, L. (2004). Enhancing the quality of hermeneutic research: Decision trail. *Journal of advanced nursing*, 45(5), 512-518.
- Woodhouse, P., Howlett, D., & Rigby, D. (2000). A framework for research on sustainability indicators for agriculture and rural livelihoods.
- Woolcock, M. (1998). Social capital and economic development: Toward a theoretical synthesis and policy framework. *Theory and society*, 27(2), 151-208.
- Woolcock, M., & Narayan, D. (2000). Social capital: Implications for development theory, research, and policy. *World Bank Research Observer*, 15(2), 225-249.
- Zoomers, A. (1998). Estrategias campesinas en el Surandino de Bolivia: diversidad y dinamica de la vida campesina. *Estrategias campesinas en el Surandino de Bolivia intervenciones y desarrollo rural en el norte de Chuquisaca y Potosí*, 13-33.

APPENDIX 1 THE COOPERATIVE MEMBER QUESTIONNAIRE

General

1. How long have you been a member?
2. Do you own the land? / What size land do you cultivate in SRI?
3. Do have any other sources of income/non agri-cultural income?
4. How many People are in the Co-operative?

Context

4. Why was the farmers group/ co-operative created? What is its purpose? What was it intended to resolve? Can you tell me about marketing issues faced? How did joining SIMPATIK overcome these issues? What environmental/ farming issues had you faced pre-1999?

Social Capital

5. How important has marketing / govt links been in the spread of SRI in the region? How have they helped?
6. How are decisions made at the co-operative who decides?

Social Structural Capital and Equity Structure

7. Does SIMPATIK use some of the proceeds to pay for maintenance equipment etc? Who owns the machinery etc.?
8. Are people's collective assets growing together? Is this due to the co-op organisational structure? inclusion/exclusion?
9. Can anyone join the co-operative? Exclusion / inclusion
10. Are you more motivated because you are a co-op member/ owner? How is that an important ? Do you find higher participation among members because of this? Is there more trust / co-operation? how?
11. What reciprocity is there within the co-opertive, e.g agreements to share labour resources?
12. What environmental performance standards does the Social & Fair Trade Certification involve? What community relations does it involve?

Natural Capital

13. Do you see the health in the soil improving? How?

Production and SRI

14. Has production increased with SRI if so by how much?
15. Do you plant SRI using a mechanical weeder/with space/fertilizer/nurseries?

16. Do you see SRI taking more time?

Financial Capital

17. What is the difference in income since using SRI? e.g. kilos per hectare

18. How did you join the co-operative?/ How did you learn about the Co-operative?

19. Do you see costs reduced for members because that are in the co-opertive and if so how?

20. How does the co-operative organise contracts of supply ? Does the co-op receive sufficient supply?

21. What local employment opportunities does the co-operative create?

22. What is the long term purchasing agreement what does this mean?

Physical Capital

23. What access to equipment (specialized) plant and machinery do you have that you hadn't had before joining SIMPATIK? Have you had other improvements in physical capital?

Human Capital

24. Do you see any health Improvements due to SRI? since joining?

25. What training/ knowledge does SIMPATIK give? How have your skills / knowledge increased?

Culture and Beliefs

26. Does the co-operative structure and organisation suit Sudanese cultural values such as gotong royong, if so how? Because Co-op is locally based does it support culture and beliefs such as integrate with Islam?

Relocalization

27. How Important is making a living to stay local /has the co-operative been able to help prevent relocation?

28. Do you see families able to meet family goals/ aspirations by staying here due to the cooperative?

Livelihood Impacts

29. How has the co-operative/Gapoktan been able to benefit you? How have you been able to reduce poverty? Are you prospering ? Have you been able to fulfil your/your family livelihood aspirations? For example has it assisted esteem, religious or cultural values etc.

30. Did you see improved soil? Improved production? Increased Income? Other Sequencing?

Lastly

31. How do you think SIMPATIK could grow? Be improved? How important is it to become a marketing /co-operative in terms of supporting the adoption of SRI

APPENDIX 2 LOW RISK NOTIFICATION



Date: 22 March 2016

Dear Gawain Sharp

Re: Ethics Notification - 4000015755 - Research topic: Sustainable Development: A Model Indonesian SRI Co-operative

Thank you for your notification which you have assessed as Low Risk.

Your project has been recorded in our system which is reported in the Annual Report of the Massey University Human Ethics Committee.

The low risk notification for this project is valid for a maximum of three years.

If situations subsequently occur which cause you to reconsider your ethical analysis, please go to <http://rims.massey.ac.nz> and register the changes in order that they be assessed as safe to proceed.

Please note that travel undertaken by students must be approved by the supervisor and the relevant Pro Vice-Chancellor and be in accordance with the Policy and Procedures for Course-Related Student Travel Overseas. In addition, the supervisor must advise the University's Insurance Officer.

A reminder to include the following statement on all public documents:

"This project has been evaluated by peer review and judged to be low risk. Consequently, it has not been reviewed by one of the University's Human Ethics Committees. The researcher(s) named in this document are responsible for the ethical conduct of this research."

If you have any concerns about the conduct of this research that you want to raise with someone other than the researcher(s), please contact Dr Brian Finch, Director - Ethics, telephone 06 3569099 ext 86015, email humanethics@massey.ac.nz.

Please note, if a sponsoring organisation, funding authority or a journal in which you wish to publish requires evidence of committee approval (with an approval number), you will have to complete the application form again, answering "yes" to the publication question to provide more information for one of the University's Human Ethics Committees. You should also note that such an approval can only be provided prior to the commencement of the research.

Yours sincerely

Research Ethics Office, Research and Enterprise

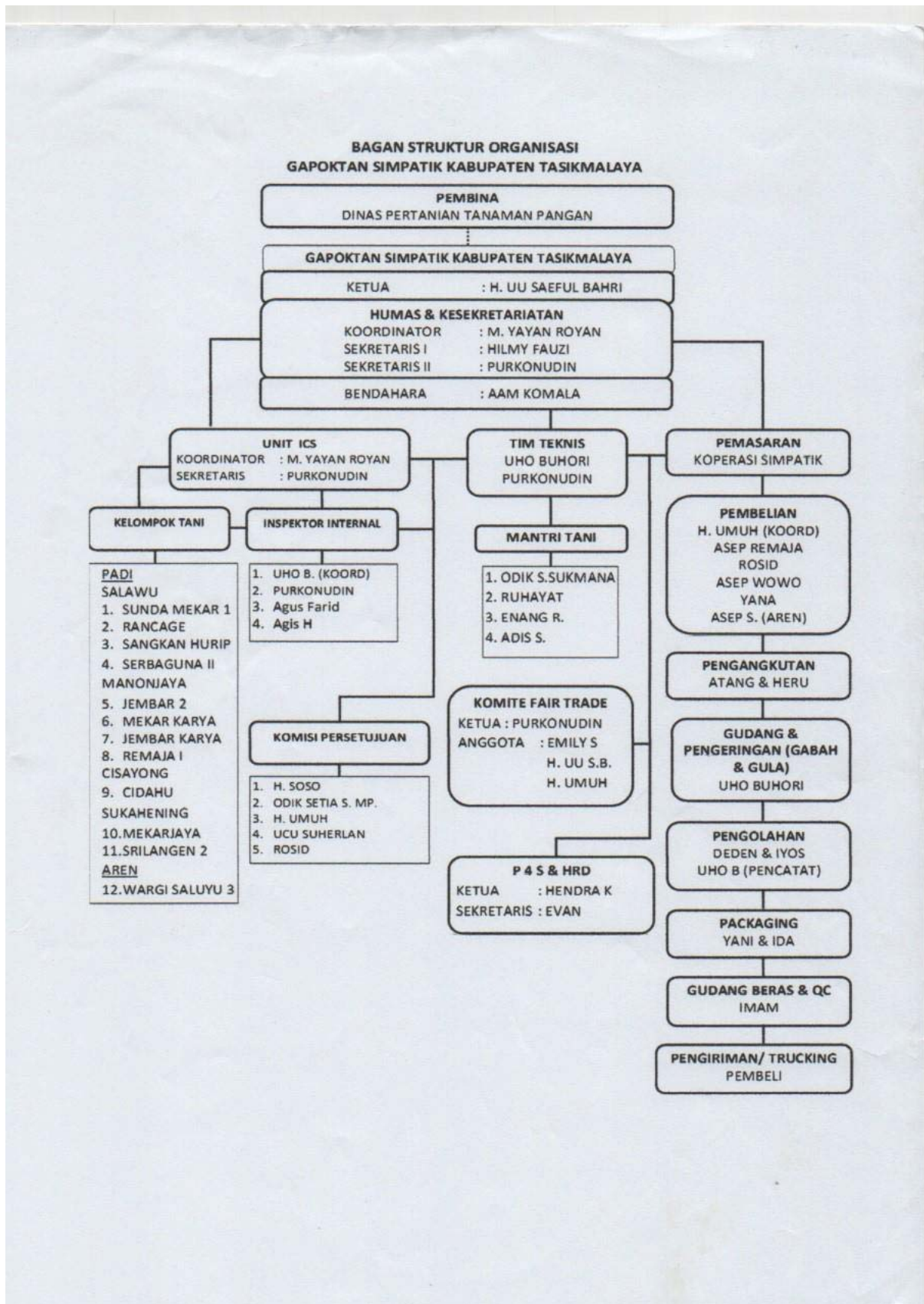
Massey University, Private Bag 11 222, Palmerston North, 4442, New Zealand T 06 951 6841; 06 95106840
E humanethics@massey.ac.nz; animaethics@massey.ac.nz; gtc@massey.ac.nz

Human Ethics Low Risk notification

Dr Brian Finch
Chair, Human Ethics Chairs' Committee and Director (Research Ethics)

APPENDIX 3 THE SIMPATIK FARMER'S GROUP ORGANISATIONAL STRUCTURE

(Source; SIMPATIK management)



APPENDIX 4

TYPICAL FARMER'S RECEIPT FOR ORGANIC RICE SUPPLIED

FORMAT PEMBELIAN GABAH (GKG)
OLEH KETUA POKTAN/ICS DARI PETANI

F - 1

No. Register Petani :

| | | | |
|----|-----|----|-----|
| 15 | 704 | MT | MST |
|----|-----|----|-----|

| | | |
|---|---|------|
| 7 | 1 | 2015 |
|---|---|------|

(Lihat AFL) (No Urut) (Poktan) (Desa) (Kec.) (P'belian ke) (MT ke) (Tahun)

Luas Lahan : 100 Bata / Ha)* Varietas : Sintanur

Produksi : 530 Kg GKG Status Sertifikasi : organik

| Dikonsumsi | Dijual |
|------------|--------|
| 280 Kg | 250 Kg |

KUITANSI

Telah Terima Dari : rosid

Uang Sejumlah : Satu ratus lima puluh ribu rupiah

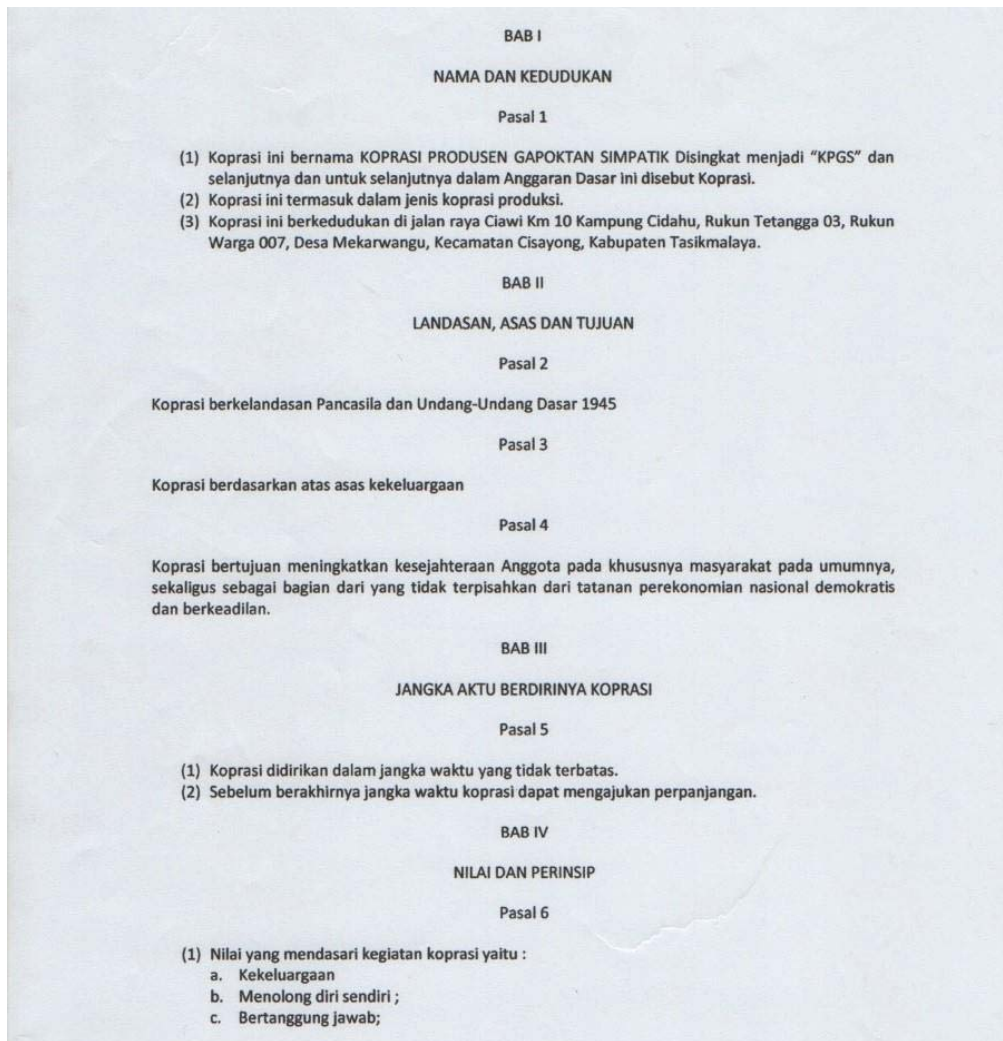
Untuk Pembayaran : Pembelian Gabah Organik sebanyak 250 Kg GKG
Dengan Harga Rp. 6000 / Kg = Total Harga Rp. 1.500.000

Tasikmalaya, 20 Agustus 20 15

Petani
Samsu
 (Nama, Tanda Tangan)

 Ketua Kelompok Tani / ICS
[Signature]
 (Cap, Nama, Tanda Tangan)

APPENDIX 5 EXCERPTS AND TRANSLATIONS OF ‘KOPRASI PRODUSEN GAPOKTAN SIMPATIK’S CONSTITUTION



Where ‘excerpts from Bab II/ Chapter II Foundation principles and Objectives’ include:
 Article 3

The Co-operative is based on the principle of family.

Article 4

The Co-operative aims to improve the welfare of members in particular, the public in general, and be an integral part of the national economy and to do so democratically and fairly.

Co-operative values from Article/Pasal 6

- | | | |
|--------------|--------------------|-------------------|
| a. Kinship | b. Helping oneself | c. Responsibility |
| d. Democracy | e. Equation | f. Fairness |
| g. Autonomy | | |

2) Principle Values by co-operative Members

- | | |
|----------------|-----------------------|
| a. Honesty | b. Openness |
| c. Responsible | d. Concern for others |

- d. Demokrasi;
e. Persamaan;
f. Keadilan; dan
g. Kemandirian.
- (2) Nilai yang di yakini Anggota Koperasi yaitu :
- a. Kejujuran;
b. Keterbukaan;
c. Tanggung jawab; dan
d. Kepedulian terhadap orang lain.

Pasal 7

- (1) Koperasi dalam melakukan kegiatannya berdasarkan prinsip-prinsip koperasi yaitu:
- Keanggotaan bersifat sukarela dan terbuka;
 - Pengawasan oleh anggota diselenggarakan secara demokratis;
 - Anggota berpartisipasi aktif dalam kegiatan ekonomi Koperasi;
 - Koperasi merupakan badan usaha swadaya yang otonom, independen;
 - Koperasi menyelenggarakan pendidikan dan pelatihan bagi anggota, Pengawas, Pengurus, dan Karyawannya, serta memberikan informasi kepada masyarakat tentang jadi diri, kegiatan, dan kemanfaatan koperasi;
 - Koperasi melayani anggotanya secara prima dan memperkuat gerakan Koperasi, dengan bekerjasama melalui jaringan kegiatan pada tingkat lokal, nasional, regional, dan internasional; dan
 - Koperasi bekerja untuk membangun berkelanjutan bagi lingkungan dan masyarakatnya melalui kebijakan yang disepakati oleh anggotanya.
- (2) Prinsip Koperasi sebagaimana dimaksud pada ayat (1) menjadi sumber inspirasi dan menjiwai secara keseluruhan organisasi dan kegiatan dan kegiatan usaha koperasi sesuai dengan maksud dan tujuan pendirinya.

BAB V

USAHA

Bagian Pertama

UMUM

Pasal 8

- (1) Untuk mencapai tujuan sebagaimana dimaksud Pasal 4, maka koperasi menyelenggarakan kegiatan usaha produksi melalui :
- Menyediakan bahan baku produksi dan barang penolong untuk memenuhi kelancaran aktivitas produksi yang dilaksanakan anggotanya.
 - Menyediakan sarana pengolahan produk-produk yang dihasilkan oleh anggota.
 - Menyediakan informasi pasar atas perkembangan design product sesuai dengan produk-produk yang dihasilkan oleh anggota.
- (2) Dalam melaksanakan kegiatan usaha produksi sebagaimana dimaksud pada ayat (1), koperasi wajib memiliki surat izin usaha bidang produksi dari instansi yang berwenang, dan mengurus atau

Article/Pasal 7

1) The Co-operatives in conducting its activities is based on:

- Membership that is voluntary and open
- Oversight by members that is held democratically
- Members active participation in cooperative economic activities
- The co-operative is a self-autonomous and independent entity
- The Co-operative provides education and training for its members, the supervisory board.. as well as provide information to the community on so ourselves, activities and expediency
- The Cooperatives serve their members and strengthen the prime co-operative movement, working through a network of activities at the local, national, regional, and international; and
- The co-operative is to work to build sustainable for the environment and their communities through policies approved by their members

melengkapi surat –surat izin lainnya yang diperlukan sesuai ketentuan peraturan perundang-undangan yang berlaku;

- (3) Dalam melaksanakan kegiatan usaha sebagaimana dimaksud pada ayat (1), Koperasi dapat koperasi dapat melakukan kerjasama dengan koperasi sekundernya dan pihak-pihak lainya baik yang berada di dalam wilayah Negara Republik Indonesia maupun di Luar negri.
- (4) Pengolahan kegiatan koperasi produksi dilakukan oleh pengurus atau pengelola profesional berdasarkan keahliannya.
- (5) Biaya dalam rangka peningkatan keahliannya bagi pengelola dialokasikan dalam Rencana Anggaran Pendapatan Belanja Koperasi (RAPBK)

Bagian Kedua

Kelayakan Usaha

Pasal 9

Dalam melaksanakan kegiatan usaha produksi, Koperasi wajib memperhatikan skala ekonomi dan kelayakan usaha serta ketrkaitan usaha dengan anggotanya.

Pasal 10

Untuk meningkatkan pelayanan kepada anggota koperasi dapat membentuk jaringan pelayanan yang terbentuk divisi –divisi pelayanan sesuai dengan yang diperlukan.

BAB VI

KEANGGOTAAN

Bagian pertama

Umum Pasal 11

- (1) Anggota koperasi merupakan pemilik sekaligus pengguna jasa
- (2) Keanggotaan Koperasi tidak biasa dipindahtangankan
- (3) Syaratn untuk diterima menjadi anggota sebagai berikut :
 - a. Warga Negara Indonesia;
 - b. Memiliki kemampuan penuh untuk melakukan tindakan hukum (dewasa dan tidak berada dalam perwalian dan sebagainya);
 - c. Memiliki aktifitas usaha produktif.
 - d. Bertempat tinggal di seluruh wilayah Indonesia.
 - e. Telah menyatakan kesanggupan tertulis untuk
 - 1). Melunasi setoran pokok sebesar Rp. 50.000,- (lima puluh ribu rupiah);
 - 2). Memiliki sertifikat modal koperasi minimal 5 (lima) lembar sebagai bentuk kepemilikannya terhadap koperasi;
 - f. Menyetujui ini Anggaran Dasar, Anggaran Rumah Tangga dan peraturan-peraturan khusus yang berlaku dalam koperasi

General Article 11/ Umum Pasal 11

- 1) Co-operative members are the owners and users of the service
- 2) Membership is not transferable
- 3) The requirements for admission to become a (full) co-operative member is as follows:
 - a. Indonesian citizens
 - b. Has the full capability to take legal action (adults and are not in custody, and so on);
 - c. Have many productive business activities
 - d. Residing a region of Indonesia
 - e. Has expressed willingness in writing to
 - 1) Pay off the primary deposits of Rp. 50.000, - (fifty thousand rupiah);
 - 2) Have a **certificate of co-operative** capital of at least 5 (five) pieces as a form of ownership in the co-operative
 - f) approving the Statutes, bylaws and regulations

Pasal 12

- (1) Sahnya anggota koperasi jika seluruh persyaratan telah dipenuhi, setoran pokok telah dilunasi dan yang bersangkutan tercatat dan telah menandatangani Buku Daftar Anggota Koperasi.
- (2) Pengertian keanggotaan sebagaimana dimaksud pada ayat (1) termasuk para pendiri.
- (3) Dalam hal mereka yang telah melunasi pembayaran setoran pokok, tetapi secara formal belum sepenuhnya melengkapi persyaratan administratif, sebagaimana di atur dalam anggaran Rumah Tangga diberi waktu paling lama 3 (tiga) bulan untuk melengkapi persyaratan menjadi anggota.
- (4) Jika dalam waktu tiga bulan calon anggota tidak dapat memenuhi persyaratan sebagaimana dimaksud pada ayat (3) maka yang bersangkutan dinyatakan tidak menjadi anggota dan dilarang memperoleh pelayanan pinjaman atau penyimpanan.

Bagian Kedua

Kewajiban dan Hak

Pasal 13

Setiap anggota mempunyai kewajiban :

- a. Mematuhi anggaran Dasar, Anggaran Rumah Tangga, Peraturan Khusus dan Keputusan Rapat Anggota;
- b. Menghadiri rapat anggota;
- c. Berpartisipasi aktif dalam kegiatan produksi koperasi;
- d. Turut mengawasi jalannya pengelolaan organisasi dan usaha koperasi; dan
- e. Melakukan aktifitas usaha sektor riil / produktif.
- f. Mengembangkan dan memelihara nilai sebagaimana dimaksud dalam pasal (6)
- g. Membeli sertifikat modal Koperasi dalam jumlah minimal 5 (lima) lembar sesuai yang ditetapkan dalam anggaran dasar.

Pasal 14

Setiap anggota berhak :

- a. Menghadiri, menyatakan pendapat, dan memberikan suara dalam rapat anggota ;
- b. Mengemukakan pendapat atau saran kepada pengawas dan pengurus diluar rapat anggota baik diminta atau tidak;
- c. Memilih dan/atau dipilih menjadi pengawas atau pengurus sesuai persyaratan yang ditetapkan dalam anggaran dasar;
- d. Meminta diadakan rapat anggota menurut ketentuan dalam anggaran dasar;
- e. Memanfaatkan pelayanan kegiatan produksi yang disediakan oleh koperasi;
- f. Mendapat keterangan mengenai perkembangan koperasi sesuai dengan ketentuan dalam anggaran dasar; dan
- g. Mendapatkan selisih hasil usaha koperasi dan sisa hasil penyelesaian koperasi apabila koperasi bubar.

Bagian Ketiga

Berakhirnya Keanggotaan

Article 14

Each member is entitled to;

- a. Attend managerial meetings, express opinions, and voting at the meetings of members;
- b. express opinions or suggestions to the superintendent and board members outside the meeting whether requested or not;
- c. Selecting and / or have become supervisors or administrators according to the requirements set forth in the statutes
- d. Has the right to organize a meeting of members in accordance with the provisions in the statutes
- e. Utilize... production provided by cooperative
- f. Obtain co-operative managerial development information in accordance with the provisions of the articles of association; and
- g. Receive the difference of profits/equity of operations with settlement proceeds if the co-operative is disbanded

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