Australian Agricultural and Resource Economics Society
52nd Annual Conference

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Abstract:
Effective socio-economic service delivery is vital for alleviating poverty in developing countries. Increased financial support without complementary investment in service delivery mechanisms often results in little or no impact. This paper contributes to the discussion on how to maximize the impact of agricultural R&D. The case study examined is the South African Beef Profit Partnerships project that is underpinned by the Continuous Improvement and Innovation process. The evidence is presented using a 'trident' evaluation approach: a description and analysis of the process followed; the measurement of the outcomes achieved (impact); and the perspectives of the stakeholders involved.

Key words:
Continuous Improvement and Innovation; Beef Profit Partnerships project; Socio-Economic Development; Sustainable Livelihoods; Research and Development

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Acknowledgements

The authors owe thanks to Richard Clark and Janice Timms of the Queensland Department of Primary Industries; Ephraim Matjuda, Dan Motiang and Baldwin Nengovhela of the South African Agricultural Research Council; The Farmer Support Teams composed of staff of the Agricultural Research Council and the Limpopo and North West Provincial Departments of Agriculture; and most importantly, the Beef Profit Partnerships project farmers in Limpopo and North West Provinces. The Australian Centre for International Agricultural Research generously provided project funds.

1. Introduction

Extreme poverty remains a daily reality for more than a billion people who live on less than US$1 a day (United Nations, 2005:6 and World Bank, 2006:2). The *World Development Indicators* report estimated that, by 2015, more than 600 million people will still be trapped in poverty. The majority of these will be in Sub-Saharan Africa (SSA). The World Bank (2007:4) and the Economic Commission for Africa (2005:5) indicated that many countries in the SSA region most likely will not reach their Millennium Development Goals (MDGs) of halving extreme poverty by 2015. Current average poverty rates remain above 40 per cent. South Africa is no different. According to DFID (2002:1), poverty in South Africa is mainly in the rural areas (72 per cent) and about 70 per cent of these people are both poor and food insecure. The role of agricultural research and development (R&D) in rural socio-economic development is seen as crucial in reducing poverty levels.

Agricultural R&D in South Africa faces many challenges (Bamberger and Abdul, 1991; Meinsen-Dick *et al*., 2003; Economic Commission for Africa, 2005). One challenge is the lack of taking stock of the level of investment versus the outcomes achieved and whether there is ongoing improvement and innovation after the life of a project (i.e. are the project outcomes sustainable). Project outcomes must impact on household livelihoods in a sustainable manner if long-term poverty reduction is to be achieved.

The case study project examined in this paper is the work done in the South African Beef Profit Partnerships (BPP) project. This is a large bilateral project between the governments of Australia and South Africa, funded by the Australian Centre for International Agricultural Research (ACIAR) over the period 2001/02 to 2006/07 to the amount of $1.3 million (ACIAR, 1999:1). The commissioned organizations were the Cooperative Research Centre for Cattle and Beef Quality (Beef CRC) in Australia and the Agricultural Research Council (ARC) in South Africa. As a pilot, the project was implemented in Limpopo and North West Provinces for the period 2001/02 to 2005/06. The sub-component reported here is titled "Developing profitable beef business systems for previously disadvantaged farmers in South Africa". Its aim was to empower small-scale and emerging farmers to be self-sustaining by opening new markets for their beef and beef products. The Continuous Improvement and Innovation (CI&I) methodology was trialled to test whether it was an effective approach to sustainable socio-economic development.

This paper describes the CI&I methodology used in the South African BPP project and investigates whether it is effective using an evaluation approach that addresses three main questions. The first question is the obvious one: did the project work? did it meet its stated objectives? The second question is what happened in the project? who did what to or for whom? What were the processes involved? The third question is what did the various participants and stakeholders think of the project? This threefold approach might be likened to a trident, each prong of which probes into the project to gather different types of data.

2. Study Background

The challenge facing industries, regions and nations is to achieve sustained prosperity, and improved human, social and natural capital in a dynamic world. So the question that must be answered is: How to enable people in businesses, organizations, communities, industries and regions to achieve these outcomes, now and in the future?

Agriculture promotes pro-poor growth (Byerlee *et al*., 2005). A basic tenet for this study is that agriculture is an important primary component in the national economy and for the South African rural community. It is not only the major factor in rural economic growth and development, but the necessary programmes to support agriculture play a distinctive role in broadening the economic and social options of rural and urban people through primary and secondary contributions, and consequently in improving the quality of life.

Agricultural R&D should be instrumental in creating a supportive environment with: capacity building for skills development; entrepreneurship; knowledge, and networks and partnership development, to foster income generation, job creation, social investment and empowerment (Clark *et al*., 2005a).

South African agricultural R&D poses specific challenges. Typically in the past, development has been a top-down affair, organized centrally and delivered to the people. Projects of this type are being called in to question for: 1) less than desired achievement of outcomes; 2) low rate and scale (volume) of outcomes; and 3) improvement and innovation collapsing after the life of the project (Clark *et al*., 2005b:1).

To achieve relevance, effectiveness, efficiency and sustainability, development must be conceived as a multi-dimensional process involving changes in structures, attitudes and institutions as well as the acceleration of economic growth, the reduction of inequality and eradication of absolute poverty (Todaro, 1992:100). This view has increased the need for government and publicly funded agencies to demonstrate their effectiveness, efficiency and relevance. According to Crawford *et al*. (2004:175), Forss *et al*. (2006:129), and Liverani and Lundgren (2007:241), demands are being placed to demonstrate impact, that is, to demonstrate significant and lasting changes in the well being of the project's intended beneficiaries. These demands are brought about by the requirement to meet information needs for policy makers, strategic planners, managers and practitioners in socio-economic services and programmes delivery to improve the quality of policy, programme design, programme administration or programme service delivery (Rebien, 1996:4). That is, understanding "what works better for whom in what circumstances, and why" (Stame, 2004:58 and Van der Knaap, 2004:17) for social betterment (Greene *et al*, 2001:25 and Mark and Henry in Schwandt. 2003:353).

The BPP project is targeting improved profits for emerging farmers, who own 40% of the beef cattle breeding herds in South Africa but generate only 5% of cattle sector returns. The income from these enterprises is very low (Tapson, 1990). The BPP project was designed to achieve target outcomes from the outset and to sustain outcomes post-project. The specific target outcome of the BPP project was: "to achieve sustained improvement in profit per beef enterprise, per year, in a growing number of enterprises, communities and regions, in two provinces in northern and north western South Africa".

Fifteen farmer teams commenced in the BPP project in 2001 and the number had risen to 28 by 2006. These farmer teams routinely measured a number of price, cost and herd productivity KPIs based on the model set out in Figure 2 below. Following specialized training and capacity building workshops, a subset of the farmer teams also routinely calculated and recorded gross margins for their beef enterprises.

3. Method

The study reported in this paper followed a trident approach to programme evaluation described by Ellis and Hogard (2006). The three 'prongs' of the trident represent the measurement of outcomes; the description and analyses of the process; and the sampling of the views of major stakeholders (project beneficiaries). The way this was implemented in this project is described in Table 1.

Table 1: Methodological implications regarding data types required to address the three prongs of the trident

Item	Data Type
1. Measurement of outcomes	Recorded data (from 2001-2006) on pre-determined key performance indicators (KPIs) were analyzed. The study used Tapson's (1990) work as baseline data. The outcomes are subsequently interpreted using the five forms of capital for Sustainable Livelihoods.
2. Description and analysis of the process	A literature review on the underpinning pillars of CI&I was interrogated against the backdrop of sustainable livelihoods.
3. Sample of stakeholders' perspectives	A survey (face-to-face) was conducted using structured questionnaires; with the study sample being recruited from selected BPP project farmer teams in Limpopo and North West provinces.

4. Results

4.1. Project Economic Outcomes

A performance management framework was developed from the project documentation and this was assessed against recorded data (2001-2006) (as in Table 2) to investigate if the project delivered as promised. Fifteen farmer teams commenced in the BPP project in 2001 and stayed involved in 2002. While the number dropped off slightly to 14 in 2003 and to 13 in 2004, the number of farmer teams rose substantially to 24 and 28 in 2005 and 2006 respectively. Following specialized training and capacity building workshops, a subset of the farmer teams (2 in 2002, 8 in 2003, 7 in 2004, 5 in 2005 and 6 in 2006) also routinely calculated and recorded gross margins for their beef enterprises.

Some of the herd productivity and profitability KPIs are reported in Table 2. Addressing the project outcomes, through determining whether the initiative had met its stated objectives, is the first prong of the trident evaluation.

Table 2: Benefits of the BPP Project, 2001-2006 (Madzivhandila *et al*., 2007:6; Madzivhandila, 2007:66- 67) (R = Rand, Aus$1.00 = R6.10)

KPI	2001	2002	2003	2004	2005	2006
Price – Ave R/kg	4.56	8.5	7.13	7.23	8.8	11.18
Growth – Ave weight (kg) of calves sold		188	210	205	194	200
Reproduction Rate - Ave % calves/100 cows mated	43	51	53	62.6	64	61
Health - Ave pre-weaning mortality %	-	-	8	3.7	9.32	3.98
Throughput – Number sold/year	-	23	187	219	389	322
GROSS MARGIN						
Income - actual selected farmer team annual average (R)	12,824	34,455	57,779	150,330	102,153	67,340
Costs - actual selected farmer team annual average (R)	11,445	9,965	30,721	30,361	53,207	26,644
Gross Margin - actual selected farmer team annual average (R)	1,379	24,490	27,058	119,969	48,946	40,696
Implied gross margin (R/kg)	0.49	6.04	3.34	5.77	4.22	6.76

Based on the recorded data from the farmer teams, we have estimated that the BPP project increased revenue to the emerging farmers involved in the BPP farmer teams by more than R1.95 million over the period 2001-2006 (Madzivhandila *et al*., 2007). These additional revenues represent between R216 per farmer team in 2001 to R25,005 per farmer team in 2006. The average across these six years is R16,185 per farmer team.

Tapson (1990) suggested that prior to the BPP project, an emerging farmer with 25 breeding cows would be able to generate a gross income of only R1,050 per year from those cattle. It is difficult to compare his estimates with those made here as they are based on different assumptions, but from the data in Table 2 we can suggest that Tapson's farmer would have received an annual income of around R20,000 in 2006 if he or she had been a participant in the BPP project.

Based on the recorded gross margin data from the subset of farmer teams, we have estimated that the BPP project increased profits to these teams by R236,352 over the period 2002-2006. This translates into an average improvement in gross margin due to the BPP project of R7,460 per selected farmer team per year.

Therefore, the BPP project has been able to achieve measurable improvements in profit per beef enterprise, each year, in the participating communities and regions. While marketing costs have been reduced substantially on a per kilogram basis due to transport efficiencies, some additional production costs apparently have been incurred to achieve these improvements in profit.

Overall, almost half of the additional revenue estimated to be attributable to the BPP project would be expected to be retained as additional profits to the participating farmer teams. Thus each Rand spent on improvements in cattle production and marketing has resulted in about a two Rand return to farmers. For these farmers involved in the BPP project, the project has demonstrated that there is a way out of poverty that does not rely on social security payments.

Detailed discussions on these results can be found in Madzivhandila *et al*. (2007) and Madzivhandila (2007).

4.2. The Project Process

Evaluation is concerned with what works and why. The term has been defined variously as "a study designed and conducted to assist audience to assess an object's merit and worth", or a "careful retrospective assessment of merit, worth and value of administration, output and outcome of government interventions, which is intended to play a role in future, practical action situations" (Stufflebeam in Hansen, 2005:448; Scriven in Henry, 2002:182; Mathison, 1995:469; U.S. Department of Health and Human Services, 2005:1). This fits well with the CI&I literature, which states that it is important to capture what happened, that is, what project professionals (farmer support teams) and farmer teams actually did. According to Ellis and Hogard (2006:373) this is the second prong of the evaluation approach, the process. Why did it work as well as it did?

The BPP project used the process of CI&I presented in Figure 1. This process is defined as "individuals in teams, networks and partnerships regularly and frequently focusing their thinking and action to achieve improvement and innovation, now and in the future" (Timms *et al*., 2004:5). It is designed to enable individuals to continually improve thinking, decisions, and performance. The concept describes the support and supervision offered to farmers to undertake activities in their beef enterprises on issues relating to improving profitability.

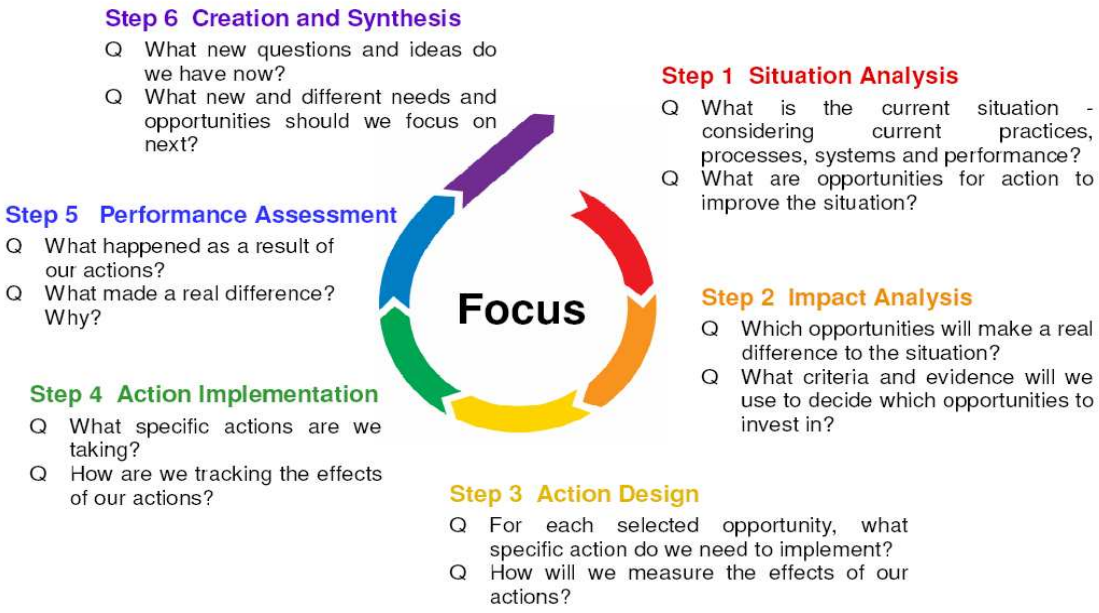

Figure 1: The six steps of the CI&I process and the questions used to focus thinking and action for continuous improvement and innovation (Timms & Clark, 2007:76; Clark *et al*., 2005b:10)

This process of CI&I identifies practical models and key components for design, implementation and management of R&D programmes and projects, to ensure that impact is achieved during the life of the project, and that improvement and innovation are sustained post-project. According to Timms and Clark (2007:75), CI&I steps are focused on how to make a real difference to performance in a given situation, and all six steps are designed to deliver specific outputs and outcomes.

Figures 2 and 3 together show examples of Focusing Frameworks that were used to focus thinking and action in the BPP project. Use of the key components of profit organized in a simple framework of levels (Figure 2) enables people to select and focus on one component of profit at a time. Using a flow diagram, as in Figure 3, encourages people to look at the interconnections, and identify and select a level at which they can have both impact and influence. The use of Focusing Frameworks in local farmer teams and networks helped to achieve shared understanding of team and individual target outcomes and actions.

	PROFIT	=	INCOME		–	COSTS
Elements at different levels	Profit	=	Price	x	Throughput (Units/Time)	– Costs
			▪ Quality ▪ Supply ▪ Demand		▪ Growth ▪ Reproduction ▪ Health	▪ Fixed ▪ Variable ▪ Time

Figure 2: A Focusing Framework used in CI&I to consider the key elements affecting profits in a livestock enterprise management system (Timms & Clark, 2007:11).

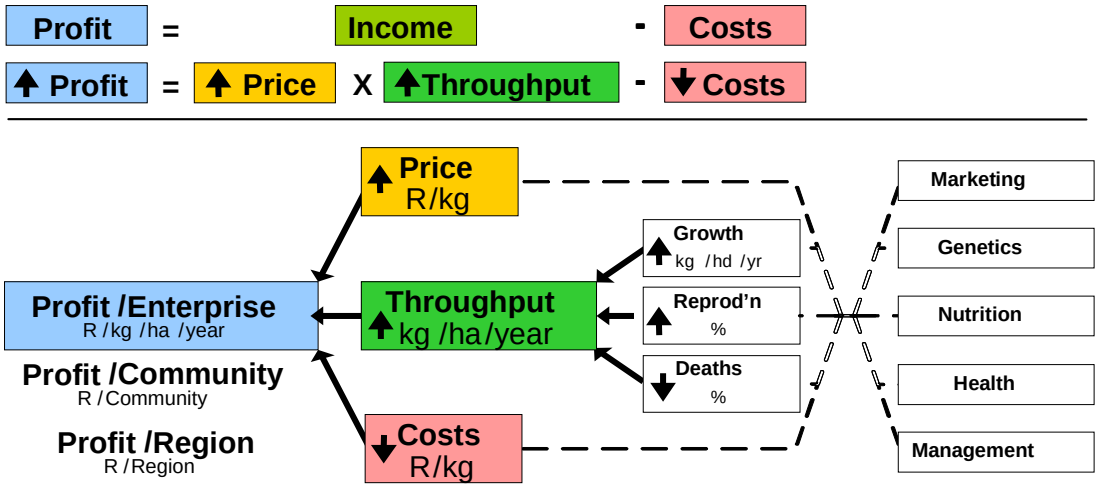

Figure 3: The Livestock Profit Focusing Framework used to achieve an outcome focus and shared mental models of targets (Timms & Clark, 2007:24; Clark *et al.*, 2005b:5).

The use of these approaches in emerging farmer beef enterprises:

- Helped to identify, understand and work with those elements essential to achieving target outcomes, and the key relationships and interdependencies between these components;
- Helped to better visualize, understand and develop a shared mental-model of the whole system; and
- Provided a practical, easy-to-use project management framework for thinking, implementation, regular measurement/assessment, and continuous improvement of project performance.

Continuous change may only be effective where the timing and pace are carefully phased (Buchanan *et al.* 2003:7, citing Abrahamson; and Myerson). Figure 4 shows a model of how momentum and feedback were developed and maintained in the BPP project. It was implemented in start-up, 30-day, 90-day and 180-day workshop sessions to ensure that individual and team thinking and action is supported and that early results are achieved and maintained.

The CI&I 30-day rule was the key and is important in thinking and acting regularly in achieving CI&I.

Every time a cycle is completed, a new level of performance has been created and further improvement and innovation is possible. Consecutive cycles fit together to form an upward spiralling process of improvement and innovation.

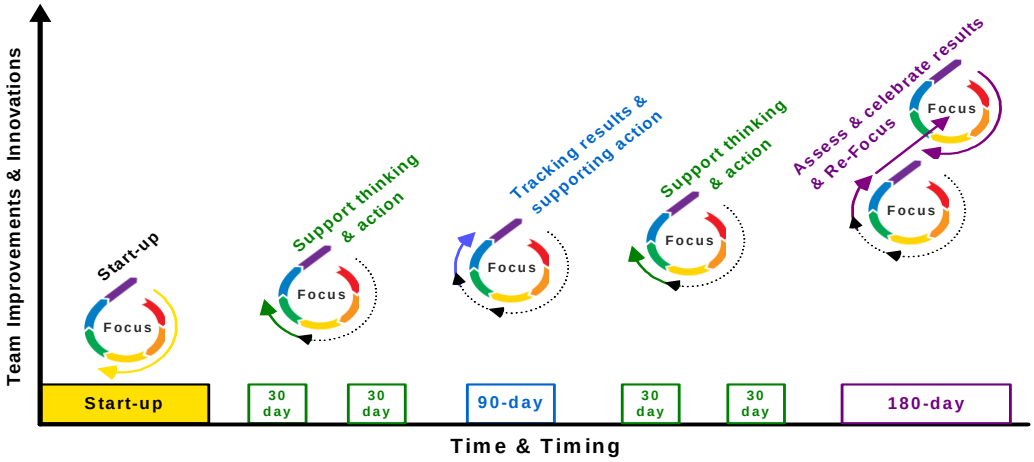

Figure 4: The time and timing of CI&I workshop sessions designed to support and practice of CI&I, and to develop and maintain momentum and feedback in CI&I teams and networks (Timms & Clark, 2007:96)

In agricultural situations, it is often desirable to involve farmers (practitioners), extension agents (facilitators) and researchers (technical specialists) in a close learning relationship called participative research and development (Timms & Clark, 2007:22). In the BPP project, networks were regarded as value-adding partnerships that facilitated the exchange of experience, knowledge and opportunities between members.

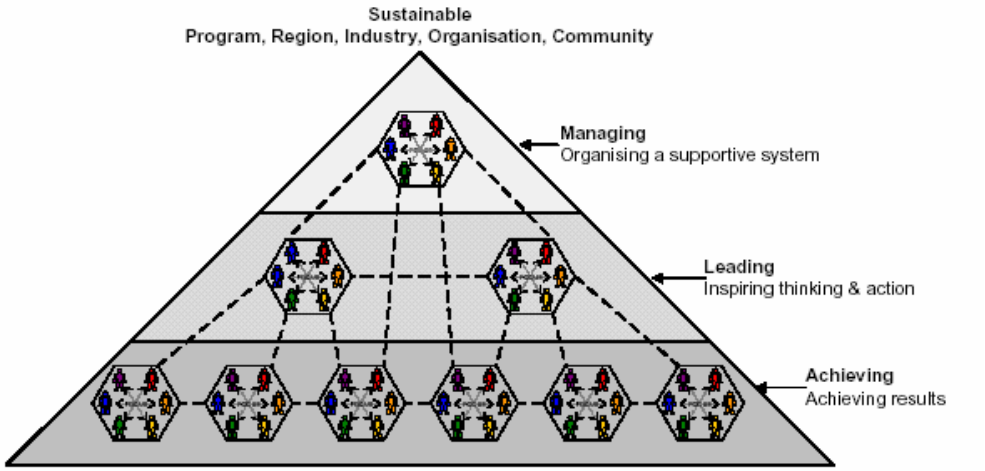

Figure 5: The infrastructure (network of teams and partners) necessary to achieve sustainable improvement and innovation in programs, organizations, communities, industries and regions (Timms & Clark, 2007:84; Clark *et al.*, 2005b:8)

It is believed that through networking between community-based initiatives and other stakeholders in development, many of the problems of uncoordinated action are prevented. For the established collaborative infrastructure, roles and functions were identified as in Table 3.

Table 3: The functions of Achieving, Leading and Managing in CI&I (Timms & Clark, 2007:84)

Role	Function
Achieving Improvement & Innovation	To practise CI&I to achieve individual and team target outcomes which contribute to project or initiative target outcomes.
Leading Improvement & Innovation	To lead teams and networks to achieve their target outcomes effectively and efficiently. To practise CI&I to achieve individual and leadership team target outcomes which contribute to initiative target outcomes. To build capacity of individuals, teams and networks to achieve and co-lead CI&I.
Managing Improvement & Innovation	To design and manage a system to enable leaders and achievers to achieve individual and management team target outcomes which contribute to project or initiative target outcomes.

Ovretveit (2002:192) defines collaboration as a group of practitioners from different sites who meet periodically to exchange ideas and methods of making changes while maintaining quality. Working with others in partnership to deliver both individual and joint outcomes is a requirement for delivering effective public services. The CI&I literature advocates that successful partnerships rarely just happen – they have to be designed (Clark *et al*, 2005b:8). A collaborative method was planned in CI&I as an underpinning pillar seeking to carry out widespread improvements and sustainability.

4.3. The Stakeholders' Perspectives

The BPP project targeted improved profits for emerging black cattle farmers. The CI&I practitioners involved in the project trained these farmers, built their capacity and interacted with them according to the process outlined above. It is important to know what all these farmers thought of the BPP project and its underlying CI&I methodology. According to Ellis and Hogard (2006), these questions are separate from whether the outcomes of the project were achieved and the description and analysis of the process. This is the third prong of the overall approach.

4.3.1. Profile of BPP farmers

A sample of 100 farmers from an estimated 540 farmers then involved in the BPP project in 2006 were surveyed (Madzivhandila, 2007). The profile and characteristics of this sample of farmers are given in Table 4.

From the sample interviewed, the data show that:

- There was an equal distribution between males and females at 50% each.
- The majority of beef enterprise owners or managers had primary and secondary education levels, at 40% and 36% respectively. The data also show that 17% had no education and 7% had achieved tertiary education levels.
- The average household contained 7.62 members, with a range from 1 to 13 members. The majority of families had between 2 and 7 members per household.
- Almost 4 in 5 households (78%) received other types of income (apart from beef income) while 22% depended only on beef farming. The most likely other income received was a pension grant (39%), followed by formal employment at 12%. The rest of the 78 households had a combination of pension and any other form of income.
- The majority of beneficiaries had been in the project for five years (started with it in 2001), with only a few joining in the fourth, fifth and sixth years.
- The overwhelming majority (71%) of the enterprises supported by the BPP project were providing employment.

Table 4: Characteristics of the sample (n=100)

	Percentage (%)
[1]Gender	
Male	50
Female	50
Education level	
No education	17
Primary level	40
Secondary level	36
Tertiary level (university &colleges)	7
Household size	
1	2
2	7
3	3
4	10
5	12
6	18
7	11
8	12
9	5
10	12
11	4
12	2
13	1
Other source of income except beef farming	
Other form of farming (1)	1
Self employed (2)	9
Social grant (3)	39
Employed (4)	12
Remittance (5)	5
No income (6)	22
3&4	6
3&5	4
4&2	1
4&3	1
[2]Number of years participating in BPP project	
1	18
2	11
3	0
4	0
5	71
[3]If enterprises employing people	
Yes	71
No	29
[4]Type of farming enterprises (land tenure system)	
Communal	36
SLAG	45
LRAD	2
Private	17

*Column totals do not always add up to total sample size because of missing data.

SLAG = Settlement and Land Acquisition Grant
LRAD = Land Redistributed for Agricultural Development

Notes on the Table

[1]Gender bias and blindness persist: farmers are still generally perceived as 'male' by policy-makers, development planners, and providers of agricultural services. Women consequently find it more difficult than men to gain access to valuable livelihood resources. Therefore, it was important for this study to know the gender representation in the project.

[2]This can be interpreted as: 1) most of the knowledge was assimilated by beneficiaries and they participated for an extended period of time; 2) only when people see benefit they stick around; 3) investing time in CI&I activities was beneficial to participants; and 4) when the project gained momentum, there was an increased number of farmers joining the project to realise the benefits other farmers were enjoying. Another deliberate strategy was to start small and grow the project big after learning from previous experiences.

[3]Given the high unemployment rates in rural areas, agriculture is one of the main sectors providing employment. When support is offered to farmers more sustainable jobs can be maintained. Families of those employed are provided with an opportunity to earn a living out of agriculture, if the enterprise is using best practice in the form of CI&I.

[4]Farmers participating in the BPP project are farming in many different situations and conditions. Some 35% are located in communal rangeland where they do not have control over the grazing resource, although in some areas pieces of land are fenced off exclusively for grazing. Forty-five per cent are the beneficiaries of the initial land redistribution programme, SLAG, where land was distributed to families. Farmers operating on private land (bought or leased) were at 17% indicating a low number of farmers who have complete control of their land resource (exclusive land tenure system, not communal). Only 3% of the project participants were beneficiaries of the LRAD programme (Kriuki, 2003 and Jacobs, 2004).

4.3.2. Perspectives on focus areas and changes perceived on outcome drivers

As guided by the Focusing Framework (Figure 3), the following areas of the profit driver tree were chosen as key focuses by the sample of farmers (Figures 6 and 7).

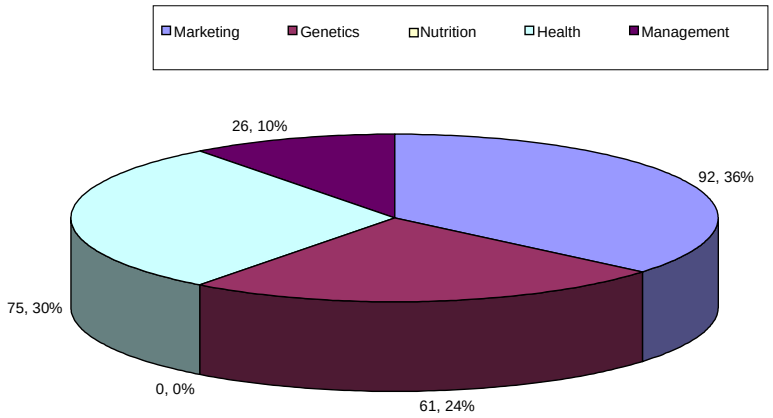

Figure 6: Focus areas dealt with by the farmers, as in the Profit Focusing Framework

Of the 100 project participants interviewed, Figure 6 shows about 92 people focused on marketing in their enterprises (35% of all reported focusing activities). Health and breeding or genetics were the other focuses that got priority, with 75 and 61 people respectively reporting to have focused on improving them.

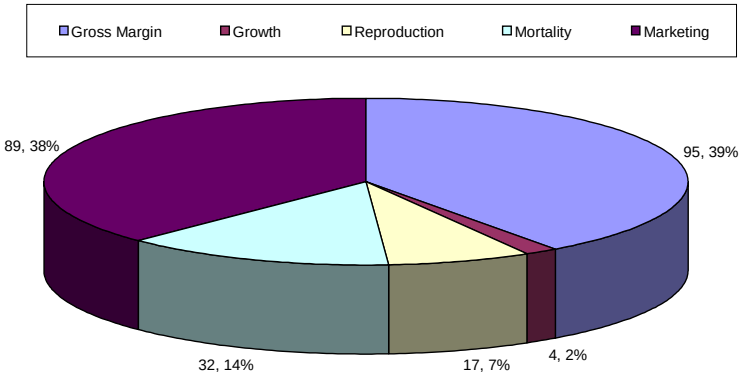

Figure 7: Farmers' perceptions of the impact of focuses on profit tree drivers.

From the 100 BPP project participants that responded, 95 reported that their Gross Margins improved, and 89 from the same sample said that marketing had improved, Figure 7. The main contributor to these improvements was improvement in sales off-take, improvement in prices received through market access and improvement in marketing knowledge and information.

4.2.3. Project participant's perception on project process (methodology, methods and tools)

Lickert scale scores of 1 to 10 (1 indicating low and 10 indicating high) from the farmers survey were used to describe the perceptions (use and understanding) of the CI&I underpinning pillars.

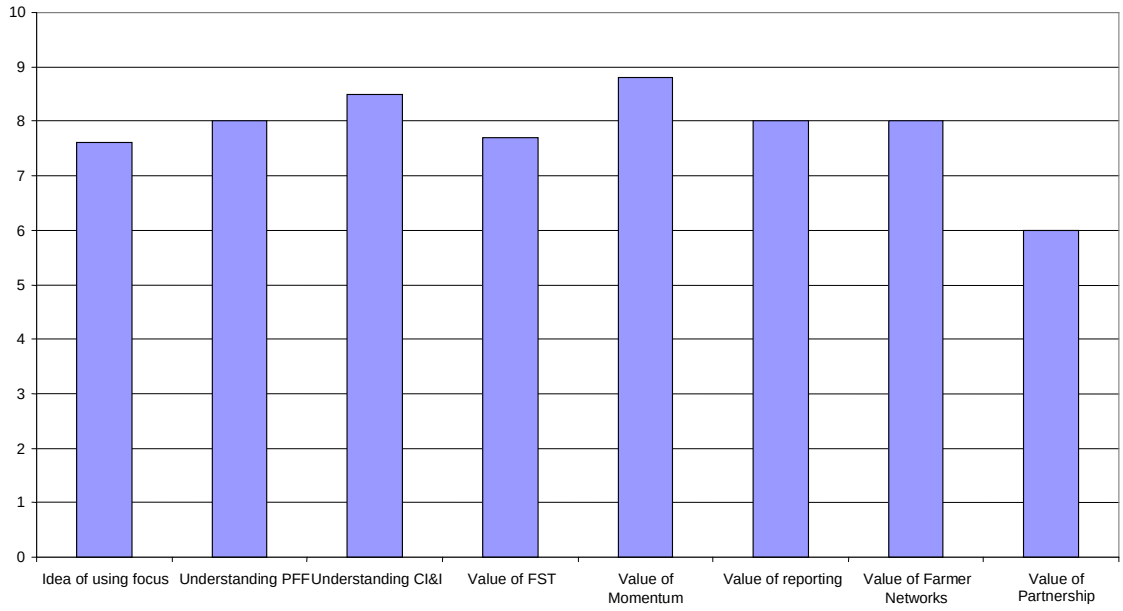

Figure 8: Lickert scale results, showing value and/or understanding of CI&I underpinning pillars and tools.

Reported scores were high for all investigated CI&I underpinning pillars or factors and tools, indicating farmers' understanding and value of the methods and tools used in the project. These scores relate to the idea of farmers using a focus for thinking and action, a profit-driver tree as a Profit Focusing Framework and to create a focus boundary, CI&I cyclic steps, being supported by the farmer support team and its value to them, momentum every 30-60 days taking focused actions to improve their situations, reporting for support every 90-180 days, and operating in farmer teams and farmer networks, and in partnerships.

All the underpinning CI&I indicators, methods and tools got scores above 7.5 except the value of partnership which got a score level of 6.

Capacity building and empowerment were two other underpinning pillars emphasized by the project methodology. Figure 9 shows the knowledge accumulated to practice CI&I and to use the profit focusing framework during and after the life of the project.

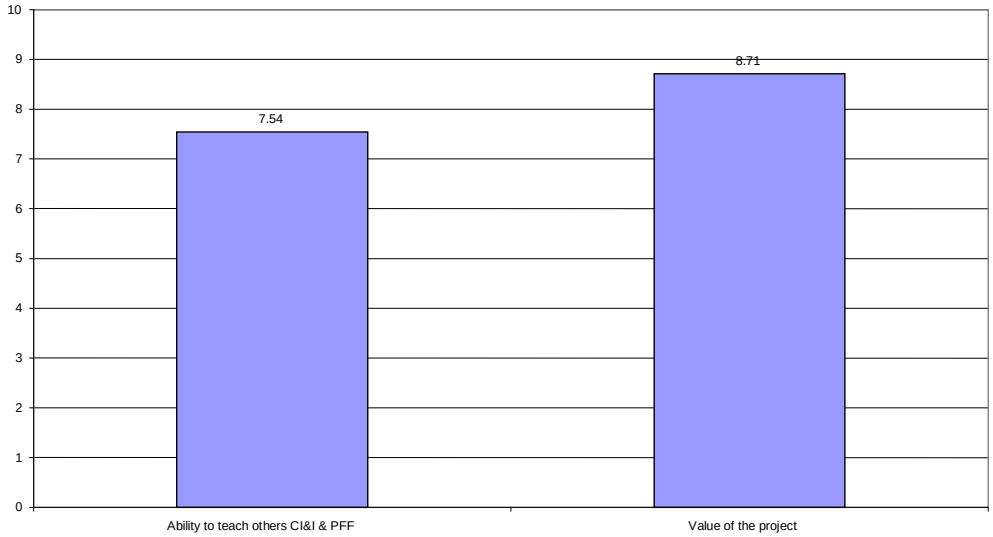

Figure 9: Measure of Lickert scale for the ability to teach others CI&I and PFF and the overall value of the project.

The score for the ability to teach other farmers averaged 7.54. The value of the overall project achieved a score of 8.71. This is an important indicator, because it is only when people value 'something' that they continue to invest their effort and time. It indicates that when the project ends, farmers will continuously seek to improve their performance.

5. Discussion

The Sustainable Livelihoods framework (Carney, 1998) offers a conceptual framework for understanding the causes of poverty, and the design of and/or evaluation of interventions (Adato and Meinzen-Dick, n.d:1). The framework is used here to present and discuss the impact of agricultural R&D using the CI&I methodology in the BPP project.

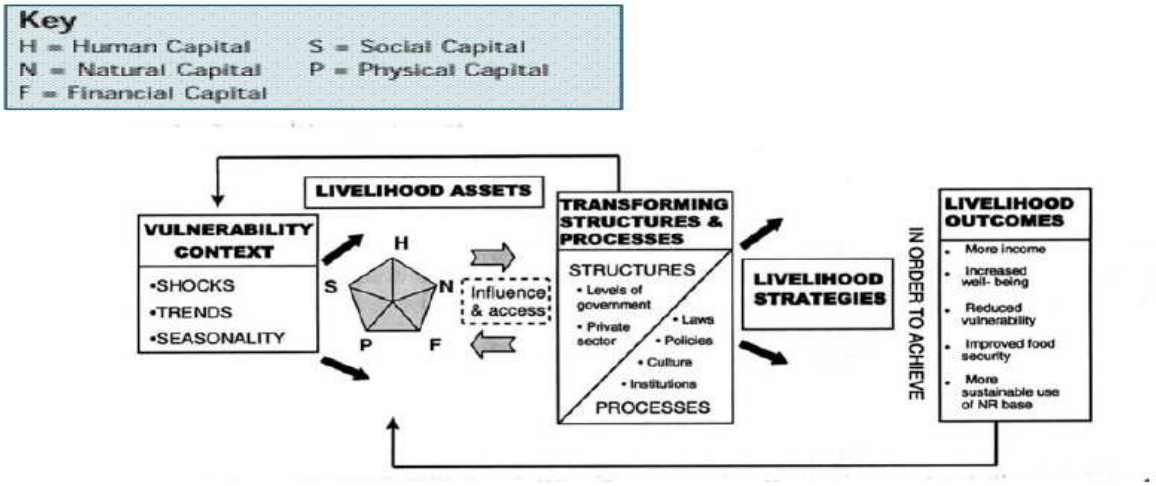

Figure 10: Sustainable Livelihoods framework (Carney, 1998:5)

The following five forms of capital for sustainable livelihoods are typically presented in the shape of pentagon (Carney, 1998:7 and DFID, 1996:6):

Human Capital (skills, knowledge, ability to labour and good health) – The BPP project contributed elements such as new skills, new knowledge and an enhanced ability to take own actions and take a leadership role, i.e. giving farmers the ability to work towards achieving outcomes as already shown above. The increased income further contributed to household members' health due to affordability of better nutritional diets. When human capital is improved, other capital items are used better.

Social Capital (social resources like networks, membership of a group or team, relationships of trust and access to wider institutions of society) – Farmers remained motivated due to 30-60 days networking focus sessions boosting positive results. Establishing networks, relationships, cooperation and connectedness with fellow farmers and service providers improved bargaining power and access to service and information. Social capital improvement is important for social and business reasons (DFID, 1996) but it also provides a social safety net in difficult times.

Financial Capital (financial resources available to people such as savings, supplies of credit, regular remittances or pensions) – The project contributed to: improved prices, marketing cost reduction, high income and improved gross margins (Madzivhandila *et al*., 2007 and Madzivhandila, 2007).

Physical Capital (basic infrastructure, production equipment and enabling resources) – The BPP project improved access to tools and equipment used to support their production and marketing actions, for example mobile cattle weighing scales. Farmers recognized the need to build or improve infrastructure needed for production and marketing purposes. This is a positive sign for sustainability, as farmers are now taking initiatives and actions to improve selling pens and farm fencing.

Natural Capital (the natural resource stocks from which resource flows (land, water and biodiversity) are obtained) – Grazing management improved, leading to increased sale off-take. The main contribution is towards lowering soil degradation that is mainly caused by overgrazing resulting from high stocking rates.

Evaluated against the backdrop of the Sustainable Livelihoods conceptual framework, the BPP project and the use of CI&I transformed structures and processes, clearly demonstrating a positive impact on the five forms of capital. Improvement and expansion on the 5 capitals through this transformation of using CI&I reduced vulnerability of the previously disadvantaged farmers. Other livelihood outcomes improved by the BPP project also include improved income, increased well-being, improved food security and more sustainable use of the natural resource base. To access and influence structures (institutions) and processes (e.g. policies) respectively, the use of CI&I should be embraced to broaden household livelihoods capitals in a sustainable manner.

6. Conclusion

The specific target outcome of the BPP project was "to achieve sustained improvement in profit per beef enterprise, per year, in a growing number of enterprises, communities and regions, in two South African provinces (Limpopo and North West)". The application of an outcome-focused, whole-system CI&I model overcame constraints experienced in previous agricultural R&D projects which produce outputs but fail to achieve outcomes within project timeframes. The CI&I methodology increased the relevance, effectiveness, efficiency and sustainability with which target outcomes are achieved. The elements underpinning CI&I brought together all the current code words of development, namely, capacity building, economic growth and distribution, participation, empowerment, institutional coordination, culture and self reliance.

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