

Promoting Effective Collective Marketing in the Context of Integrated Agricultural Research for Development in Sub Saharan Africa

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Abstract

Recent changes in world markets, trade liberalisation and price decontrol have left smallholder farmers more vulnerable to the vagaries of market forces. Constraints such as poor technology, weak organisational structures and high transaction costs due to long and inefficient supply chain means that smallholders cannot compete with large corporations. Collective action which has been successfully applied within natural resources management if properly institutionalised among smallholder farmers can improve their marketing in a number of ways. It can reduce transaction costs of taking produce to the market; increase the smallholders' bargaining power and enable them to access services that private sector or government are not readily willing to investigate. This paper uses the Sub Saharan Africa Challenge Programme panel data to investigate enabling factors for collective marketing. Based on these factors the paper discusses how Integrated Agriculture Research for Development (IAR4D) can be fashioned to improve upon collective marketing among smallholder farmers in Sub Saharan Africa.

Keywords: Collective marketing; Sub Saharan Africa; Agriculture; Smallholders; Farming

INTRODUCTION

The structural adjustment policies implemented by governments within Sub Saharan Africa and the general global economic developments brought significant changes in the national and global food markets. For example, trade liberalization and price de-control resulted in the importation of cheap foods. Also increased quality consciousness (of consumers) and expanding agribusiness brought a new culture in the agricultural market that smallholder farmers are not familiar with (Dash and Purohit 2006). Smallholder farmers are ill-equipped to take advantage of these developments in national and global markets. Unlike their counterparts – large corporations, smallholder still lack appropriate technology, investment and information. Besides, smallholders have small landholdings and therefore cannot produce huge surpluses for sale. The middlemen and small traders face huge transaction costs of dealing with many sellers each selling small quantities. Their inability to produce larger volumes of surpluses means that they receive much lower prices from traders who would pay for bigger quantities. Consequently, most Sub Saharan Africa smallholder farmers are caught up in a vicious cycle of poverty with low output, low incomes, low savings and low investments as no single buyer is willing to incur transaction costs of dealing with many sellers each selling small quantities. To survive in this new economic environment, smallholders must seek new ways of competing in the market.

Literature suggests that collective marketing as one of the institutional

arrangement that can increase the competitive advantage of smallholder farmers in an increasingly commercialized and integrated world market (Dash and Purohit 2006). The institutional arrangement enables smallholder farmers to produce the required quantity and quality for a specified market. Collective marketing reduces cost of getting the product to the markets and improves the bargaining power of farmers. According to Meinzen-Dick et al (2002), collective marketing reduces transaction costs and enable smallholders to access services that private sector or government would not provide for.

Collective action is a necessary but not a sufficient condition that allows smallholders to fully take advantage of their competitive position in the global market. Royal Tropical Institute, (2008) argues that smallholders are less attentive to market signals and on their own they may not be able to take advantage of changes in markets. Figure 1 below suggests that smallholder farmers do not have a direct control over factors driving market changes (such as globalisation, urbanisation – see Box 4 in Figure 1). However, it's in their choice and control to establish institutions of collective action which enables them to acquire market information, create new markets opportunities, attain economies of scale, make consistent supplies to a given market at lower production and transaction costs.

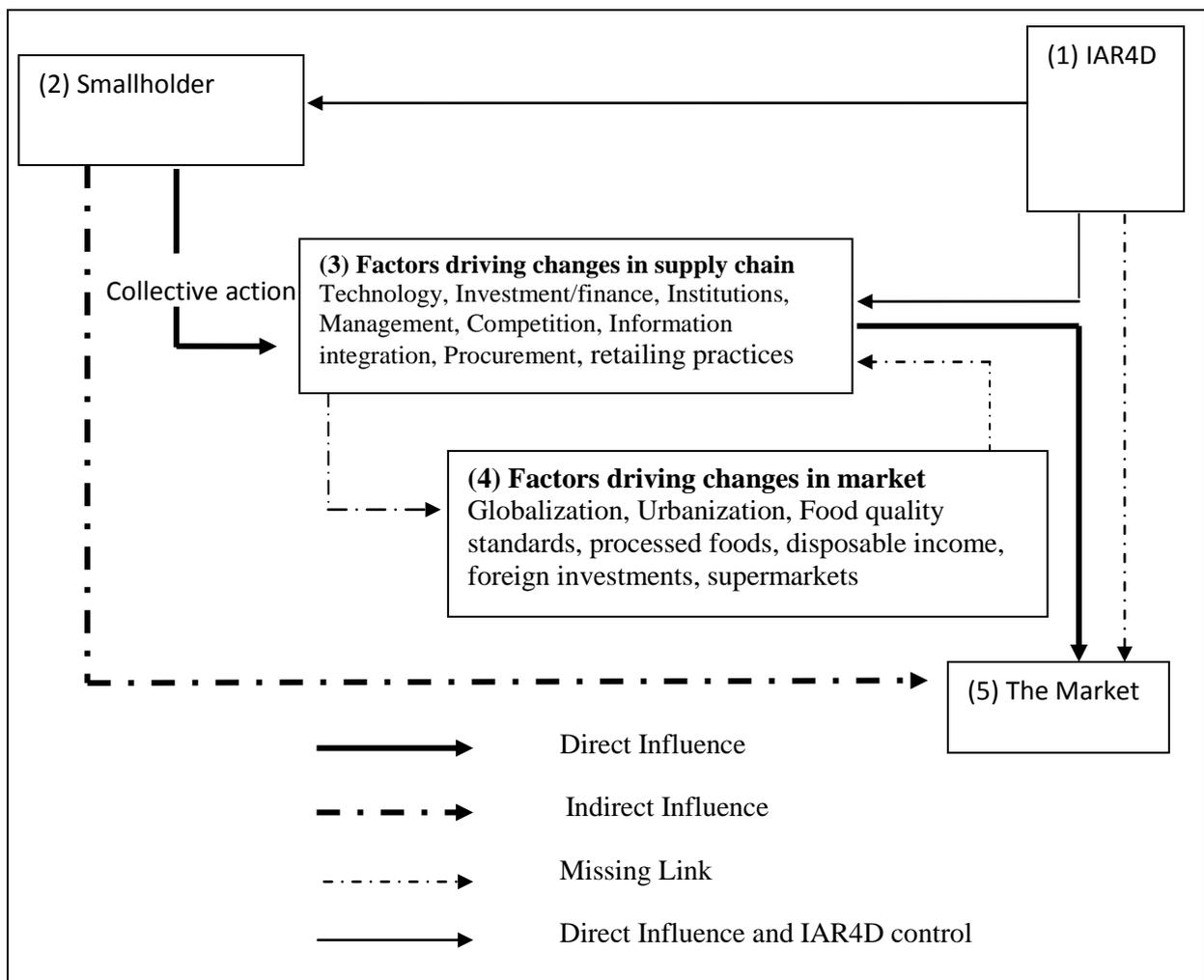
Integrated Agricultural Research for Development (IAR4D), a concept promoted under the auspices Sub Saharan African Challenge Programme, seeks to

improve the competitiveness of smallholders in the market. IAR4D does not claim to have an influence on the factors driving changes in the market (Box 4). It however seeks to influence market indirectly through a number of activities. IAR4D seeks to promote adoption of relevant technological innovations that will increase production at least cost. To achieve these broad objectives, IAR4D promotes institutional innovations such as collective marketing that reduces transaction costs of dealing with several uncoordinated production units. It promotes the interaction of smallholder farmers, farmer organisations, researchers and other service providers, NGOs, market chain actors in identifying and developing potential business opportunities for smallholders and private sector. IAR4D seeks to build networks that will continuously seek ways of overcoming limiting factors in policy, markets and territorial contexts and valorise enabling factors in these domains through applied research. IAR4D put emphasis on Johnson *et al's* (2002) proposition which argues

that 'farmers must produce for the market rather than market what they produce'. It argues that research and concerted efforts must be put in easing factors driving changes in supply (Box 3 in Figure 1) and mobilise farmers to market collectively – to benefit from changes in market. However, unless factors that enable collective marketing are known and addressed properly, IAR4D will not benefit smallholder farmers.

This paper uses the institutional perspective to identify the social, economic, cultural and political factors that limit/enable the formation and development of collective marketing initiatives. Once these factors are identified, the paper explores institutional innovations that are necessary to position smallholders such that they benefit from factors driving changes in the market. It seeks, from theory and empirical studies, to show how IAR4D can promote collective action through enhancing factors that explain collective marketing.

Figure 1: How IAR4D can promote collective marketing



Modified from Dash and Purohit, 2006

Theoretical Framework

Literature has attempted to explain factors that affect collective action. Several authors have explained enabling conditions for successful collective action outcomes in the area of natural resources management. Uphoff and Wijayaratha (2000) highlight how structural forms of social capital (roles, rules, procedures, social networks) enable participants to act together more effectively to pursue shared objectives. Pretty and Ward (2001) have shown how human and social formations – often represented as community based groups, have been pivotal in solving many community developmental problems particularly in the area of natural resources management. According to Markelova and Meinzen-Dick, (2009) marketing groups that are built upon experiences of working together in the past for other purposes have an advantage in terms of trust and cohesiveness. Ostrom (1995), adds that prior involvement in groups and networks is an important contributing factor in building trust and changing perceptions, behaviour and attitude towards collective action. Most successful collective action initiatives show that group size is the single most important variable that affects collective action (Ostrom, 1995). Homogeneous groups with the same socio-economic status are more stable and effective. The relevance of factors enhancing collective action in natural resources management in explaining collective marketing particularly of agricultural produce has received limited attention. Studies by Njuki (2009) have

shown that collective marketing is enabled where farmers participate in deciding on the terms of trade, setting prices.

Markelova and Meinzen-Dick (2009) identified characteristic of the markets and products as another determinant of collective action. They note that collective marketing is less common with staple food crops than with high value products such as cotton, cocoa and tobacco. Markelova and Meinzen-Dick (2009) argue that staples are relatively easy to store and transport. A large volume of such crops are destined for local market and for local consumption. Therefore they may not be an incentive for farmers to organise around the marketing. Perishables carry higher risk, and require sophisticated and costly storage facilities thus precluding individual smallholder from successfully marketing due to lack of funds, capital and technical expertise (Markelova and Meinzen-Dick 2009). Cash crops such as coffee, cocoa require processing, so smallholders often have little choice but to sell to larger farmers and agribusiness who can afford processing equipment. The authors show how collective action enabled smallholders to acquire processing equipment and successfully market to domestic and international markets collectively.

The role of some of the household socio-economic characteristics, institutional context and biophysical constraint in explaining collective action has received little attention. In the final analysis, it is the individual who is responsible for

making the decision to either market collectively or individually. Individual variables such as education, farming experience, age, and gender marital status, and size of household influence the decision to market collectively or individually. Catacutan et al (2006) also noted that community's wealthiest members may be able to opt out of collective action because their need to pool resources is very low. They also argue that participation in collective action is usually greatest among those who possess minimum level of asset or skills useful to the project.

Research Methods

Data used in this research was collected through the SSA CP programme. Participating districts, villages and households were selected using randomisation procedures in Niger, Nigeria, Rwanda, DRC, Uganda, Zimbabwe, Malawi and Mozambique. A sample of 2186 households that were interviewed reported that they marketed cereal in the 2008/9 agricultural season. Data were analysed using STATA. The descriptive analysis covers means and standard deviations to provide distribution across contextual variables. For hypothesis testing, t test was used. Logit regression analysis was used to identify the factors

that affect farmers' decision to participate in a marketing cooperative. Before running the analysis test multi-collinearity was conducted to determine if there were highly correlated independent variables. For those that were correlated, one of them was dropped from the model. The default cut off correlation value of 0.7 was used. Next a forward stepwise selection with maximum likelihood ratio (LR) test criterion for variable selection was applied to determine the set of independent variables that explain most of the variance in the logit model. The technique proceeds the same as in a multiple regression stepwise procedure, but a change in log likelihood is examined after estimating the model when each variable was either entered or deleted. At each step, the variable with the smallest significance level for the score statistics, provided it was less than the chosen cut off value (default = 0.05) was entered into the model. Similarly, variables with the largest significance level for the score statistics, provided it exceeds the cut-off value (default = 0.05) was removed from the model. This continued until no more variables were eligible for entry and removal. The estimated model contains only variables that are statistically significant ($p < 0.05$) as is presented in Table 2 below.

Conceptual /Empirical Framework

Dependent Variable

How did you sell (0 if individually, 1 if otherwise)

Independent Variables

Variable	Description and type of variable	Expected sign
Age	Age of the respondent (years)	+
Household size	Number of family members in a household	+
Education	Highest level of education (years of schooling)	+
Asset	Household asset index	+
Farming experience	How long has the household been farming?	+
Land	Total size of land holding	+
Wealth index	A score based on type of household	-
Social capital index	An index of social capital	+
Empowerment index	An index of empowerment	+
Agent	Visited by an extension agent(1 yes, 0 if not)	+
Research	Participated in research activities (1 yes, 0 if not)	+
Times	Number of times visited by an extension agent	+
Distance	Distance to the nearest cereal market	+
Information flow	Information flow	+
membership	member of farmer organisation (1 if member, 0 if not)	+
Manure	Used animal manure (1 yes, no)	+
chemical fertiliser	Used chemical fertiliser (1 yes, 0 no)	+
improved storage	Used improved storage (1 yes, 0 no)	+

EMPIRICAL RESULTS

Table 1: Characterisation of participants and non participants of collective marketing

Variables	Collective marketers	Non collective marketers	t-statistics	Significant level
Age	49.0784 (-14.8995)	45.1599 (-14.4011)	-3.2286	0.0013
Household size	8.6710 (-4.4969)	7.1359 (-3.6684)	-4.9349	0.0001
Education Level	5.5248	5.9123	1.0107	0.3123

	(-3.8147)	(-3.7512)		
Farming experience	30.3919	23.3974	-5.5718	0.0001
	(-13.5499)	(-14.5536)		
Farm size	7.5444	4.9204	-2.9414	0.0033
	(-13.9359)	(-10.41924)		
Agent	0.0968	0.1142	0.6614	0.5084
	(-0.2966)	(-0.3182)		
Research	0.0659	0.0964	-2.9939	0.0028
	(-0.4652)	(-0.3517)		
social capital index	0.2116	0.1932	0.1549	0.8769
	(-1.5919)	(-1.4086)		
Empowerment index	0.4848	-0.3667	-6.5023	0.0000
	(-1.7144)	(-2.6725)		
Membership to a group	0.1355	0.2398	2.9681	0.0030
	(-0.3433)	(-0.4271)		
Use of animal manure	0.6065	0.6741	1.7247	0.0847
	(-0.4901)	(-0.4688)		
Use of chemical fertiliser	0.5548	0.5244	-0.7320	0.4642
	(-0.4986)	(-0.4995)		
Distance to the markets	12.9252	6.6372	-3.8091	0.0001
	(-35.2914)	(-18.10293)		

Level of Significance: ***= 1%; ** =5% ; * =10%

From Table 1 above, variables that increase the probability of farmers marketing collectively include the age, education level and farming experience of the household head. The probability of farmers marketing collectively also increases with an increase in land size and distance to the market. Being a member of a group and participation in research also increases the probability of smallholder marketing collectively.

Results of binary logit regression model

Table 2 below shows the result of logit. The model has a good fit and 62% of the variation in mode of marketing arrangement is explained by explanatory.

Table 2: Logit regression models

Collective cereal marketing	Coef.	Std.	Z	P> z	[95%]	interval
Use of animal manure	-0.7538	0.2778	-2.7100	0.0070	-1.2984	-0.2093
Farming experience	0.0342	0.0091	3.7500	0.0000	0.0163	0.0521
Membership	-1.4760	0.3677	-4.0100	0.0000	-2.1966	-0.7553
Land size	0.0222	0.0074	3.0200	0.0030	0.0078	0.0366
Social capital index	1.1708	0.0709	16.5100	0.0000	1.0318	1.3098
_cons	-5.2667	0.4092	-12.8700	0.0000	-6.0686	-4.4647

N = 2186, Pseudo R2 = 0.6193 Prob Ch2 =0000

Household level variables that were dropped by the stepwise selection procedure include age, education level marital status, and wealth status of the household head. And these do not have an influence on the individual's decision to market collectively. Structural variables such as distance to the market, and technological innovations such as use of NRM technologies and post harvest technologies were also dropped through the attrition process. Variables that influence the smallholders' decision to market collectively include size of cultivated land, social capital, and experience in farming. Surprising use of animal manure and membership to group are significant with a negative sign. That is, those that use manure do not sell their produce collectively. The possibility is high that those who use manure have cattle. If this is true it therefore confirms theory that says the wealthiest members of society opt out of collective marketing as their need to pool resources is low.

Implications of IAR4D in Improving Collective Marketing

Discussions in this section are based on theoretical and empirical evidence to recommend how IAR4D can improve upon the variables that significantly explain collective marketing identified in

Table 2 above. Variables that IAR4D can influence to effect collective marketing include farming experience, land size (which implies more produce) and social capital.

Land size: The land size under cultivation increases the probability of smallholder marketing collectively. Farmers with larger areas under cultivation (implies more produce) tend to prefer collective marketing. IAR4D where possible can influence government policies where land allocation is still possible. In most cases land is in serious shortage and there is very little that IAR4D can do to increase the size of land holdings. Possibility of increasing area under crop cultivation is very low. On average, the baseline data shows that only 5% of the land was not under cultivation in 2008/9 agricultural season. Another alternative that IAR4D can use to increase household surplus is the promotion of intensification. However, intensification comes with threats to sites and habitants. It is important that this option be backed by research designed to guard against degradation of biodiversity as a result of heavy chemical use. This option calls for actors such as public health specialists on the platform. From the baseline data, over 50% of the respondents do not market their produce citing low surpluses as the land sizes do not allow them to grow enough for food and sale. However, IAR4D can encourage

smallholder to produce as individuals on the individual plots. There are considerable economies of scale that be gained through bulk producing for specific grade and type to meet the need of a buyer.

Each individual farmer may only produce one bag of surplus maize but if 1000 farmers gather together all their surpluses in one location there will be enough to make it possible to hire a truck and sell the thousand bags at the higher bulk price in/outside the immediate location to a specified buyer. This will be more easily accomplished if farmers agree to plant the same variety of crop, to sow it at the same time and to adopt the same growing, harvesting and post-harvest techniques. The most successful strategies for collective marketing include co-operation with the task of selling the goods and a high degree of collective activity right through the farming process. IAR4D can help in coordinating several independent decision makers engaged in small scale production, help reorganise production schedules to avoid seasonal glut and subsequent decrease in demand and price. Collective action in production has to provide tangible benefits necessary to build sustainable level of commitment. The challenge is to reduce hidden costs such as compliance costs (costs that individual incur from loss of autonomy ie selling produce of any quality to whom they want when they want), opportunity cost (time spent in meetings and communications with other group members), and cost of enforcing agreed upon behaviour on group members.

However, Morales (2006) notes that economic coordination risk (failure to

produce when expected to) and risk of opportunism (self interest seeking with guile) may make it difficult for smallholder to collectively produce the required quality and quantity for a given market. Findings from Table 2 support literature in arguing that there are some features of social life (networks, norms, and trust) that reduce transaction costs by generating expectations, flow of information and a common understanding that enable smallholders to act together more effectively to pursue shared objectives. If the existing institutions are working as well as they should, then it is appropriate for IAR4D to look for institutional innovations that reduce transaction cost and risks. The above discussion suggests that collective action should be promoted at production stage.

Social Capital : The significance of social capital in explaining smallholders' decision to market collectively stresses the importance of having shared norms among participants. Therefore collective marketing mobilised within a small political unit such as a village has more chances of succeeding. Individuals in such small groups can work collaboratively to establish and maintain both trust and networks of contracts.

How IAR4D can enhance collective action in production and Marketing

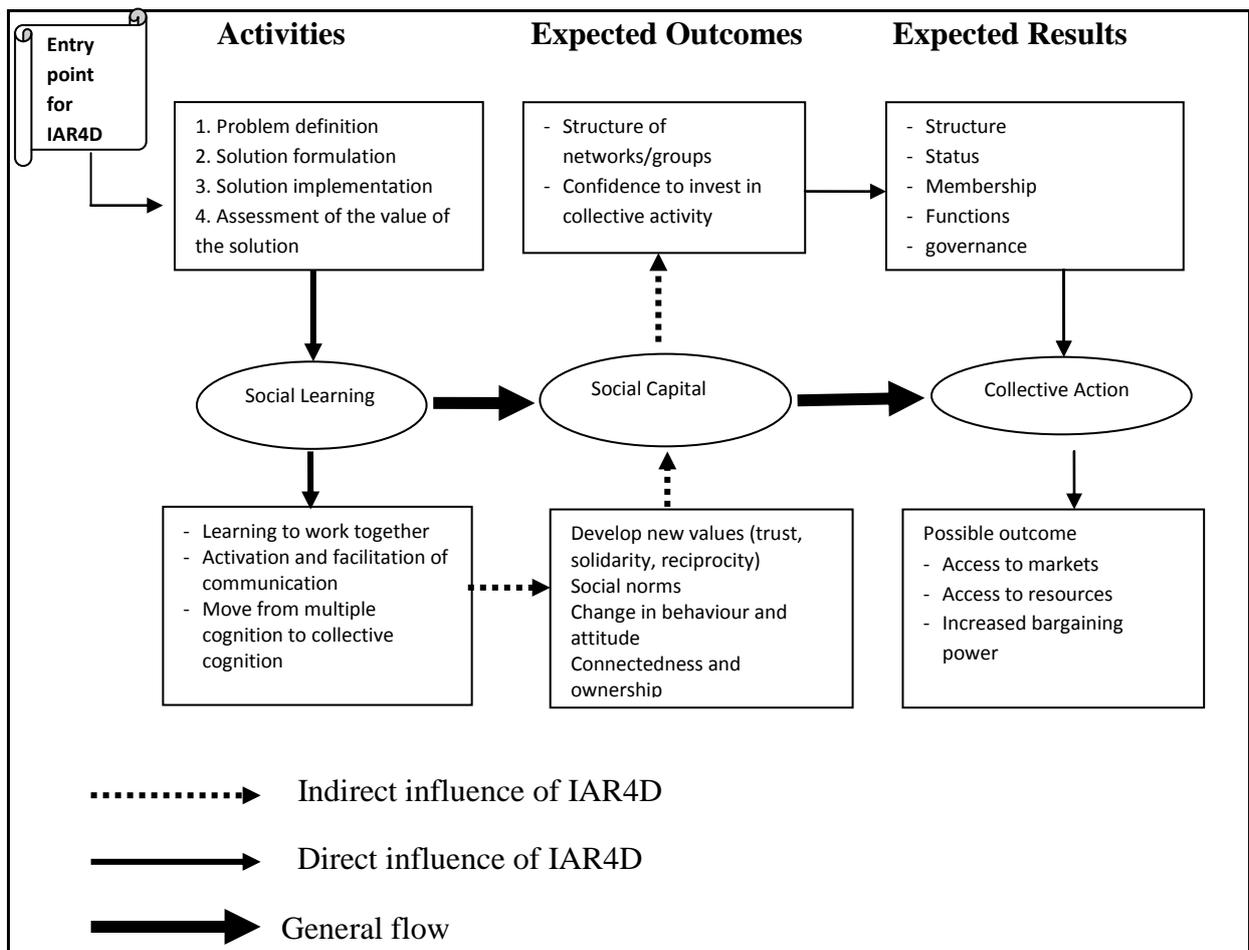
Social capital has a positive influence on whether an individual would choose to market collectively or not. This stresses the point that a collective is not the result of simply bringing smallholder farmers together to supply a given market. A collective is a single individuality and to understand it we need to look at it as a

functioning unit. It is the unit or the collective which determines the characteristics of the constituents (individual smallholder farmers). According to Guiliani (2006) individuals in a collective reach insights that none could have reached alone, and that cannot be traced back to one particular individual's contribution. Unsurprisingly therefore, all characteristics of the individual smallholders (age, education wealth status) are not statistically significant in determining the collective as discussed earlier. This emphasises that a collective is not an aggregation of individual farmers and not merely the sum of qualities of individual members. This could explain the negative and insignificance of membership in the model displayed in Table 2 above. In fact, Sanginga et al (2004) say that farmer

groups that are hastily formed with little reference to building mutual trust fail through lack of benefits.

Habermass suggests social learning through practical reasoning can be an important engine for collective cognition. The process of social learning allows hypothesis of truth claims to be examined through argumentation and then rejected, revised or accepted. This process gives space to an individual in the collective to shift from being a totally different cognitive agent with multiple perspectives to having group shared attributes such as common values necessary for collective action (Koelen and Das 2002 in Guiliani 2006). Figure 2 below shows how IAR4D can build the smallholder farmers' social capital through the process of social learning.

Figure 2: Entry point for IAR4D in promoting Collective Marketing



Modified from Guiliani , 2006

IAR4D's entry point can be at promotion of social learning. In this context, farmers become part of the learning process rather than recipients of information and guidance. The process should be iterative so that farmers learn by doing. It should allow them to test new ideas and react to positive and negative outcome. This calls for joint effort of problem identification, solution formulation and plan implementation. In the process of social learning, smallholders move from multiple cognition to collective cognition. Morales (2006) argues that with repeated successful transactions come relationships built on trust. It is unsurprising that at this stage smallholders would have built confidence to invest in collective activities (production and marketing) having acquired the necessary social capital. It's unsurprising therefore that farmers who have learnt to work together through experience engage in collective marketing.

Through the promotion of social learning, IAR4D can raise the level of empowerment (that is set price, enacting contracts set terms of the contract with traders) of the collective and make information on commodity demand readily available. To improve their bargaining power, Komarudin (2006) suggested that smallholders need access to information about pricing structure, availability of substitutes quality requirement and consumer preferences which actors in IAR4D can promote.

Conclusion

This study is based on the premise that collective marketing is only way smallholders can position themselves to compete in highly commercialised and competitive agricultural market. The model in this study has shown that variables such as land size (implies more produce) social capital and farming experience are the most important variables that promote collective marketing. It therefore means that for collective marketing to be successful, it has to start at production and even possibly at input procurement. For this to be successful, IAR4D has to improve upon social capital through social learning. People will invest in a collective once they have confidence that others will also do so. Where social capital is already strong, collective marketing has a greater chance of succeeding if IAR4D maximises on the leadership and managerial abilities that pre-exist within the community rather than construct new ones. It is important to create an enabling environment that facilitates shared learning (not only among stakeholders) but between and among farmers and buyers and other supporting agents. Social learning creates joint realities by bringing multiple realities. To deconstruct the multiple realities through joint analysis and reflective learning takes time. This process cannot be short circuited as lessons are learnt by doing and sometimes through error.

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