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Criteria to Monitor the Poverty Alleviation, Empowerment and Institutional Performance of Equity-share Schemes in South African Agriculture

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CRITERIA TO MONITOR THE POVERTY ALLEVIATION, EMPOWERMENT AND INSTITUTIONAL PERFORMANCE OF EQUITY-SHARE SCHEMES IN SOUTH AFRICAN AGRICULTURE

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ABSTRACT

This paper extends a previous study in South Africa aimed at developing methodology for assessing the performance of equity-share schemes. The previous study proposed four broad criteria to measure performance: poverty alleviation; empowerment and participation; institutional arrangements and governance; and financial performance. This paper does not aim to assess the performance of existing equity-share schemes but to develop a methodology for the first three criteria based on empirical analysis of data gathered in 2004 from a land reform project in the Midlands of KwaZulu-Natal and seven established equity-share schemes in the Western Cape. Poverty alleviation is measured using a transition matrix of households grouped by four different symptoms of poverty: current income, wealth, health and a principal component index of housing quality. Eight categories of indicators are recommended for empowerment and participation: control and ownership; skills transfer; understanding; information; outcomes; trust; outreach; and participation. A scorecard applying norms based on empirical evidence gathered at the equity-share schemes in the Western Cape is used to test the indicators. A scorecard approach is also applied to institutional arrangements and governance, which are measured using three categories of indicators: accountability, transparency and property rights. The proposed performance measures are relevant, manageable in number and have feasible norms based on empirical evidence. These indicators and their norms need to be tested on a wider scale and monitored over time. Future research should be undertaken to determine weights for the empowerment and institutional indicators.

1. INTRODUCTION

Equity-share schemes were initiated by the private sector in South Africa (SA) during the early 1990's and have been implemented in a variety of agricultural and eco-tourism enterprises to promote agrarian reform and black economic empowerment (BEE) (Knight & Lyne, 2002). These schemes should be regarded as an instrument of agrarian reform because they transfer rights to benefit from land and a host of complementary assets such as expertise, machinery, liquidity and established markets needed to make efficient use of land. They offer BEE benefits, including poverty alleviation and the redistribution of wealth and income streams to poor people (Knight *et al.*, 2003; Eckert *et al.*, 1996).

Several studies have been carried out on equity-share schemes in South Africa, but to date no single study has measured the success of equity-share schemes in terms of a comprehensive set of criteria. Karaan (2003) also notes that effective monitoring systems are lacking and this may ultimately lead to opportunism. The most common concerns raised by earlier studies related to worker understanding of the scheme, worker participation during establishment, beneficiaries' expectations, power relations, skills transfer, labour relations, gender issues and tenure security (Mayson, 2003; Karaan, 2003; Hall *et al.*, 2001; Fast, 1999; Eckert *et al.*, 1996). A more detailed

discussion of these issues may be found in Gray *et al.* (2004). Knight and Lyne (2002) studied eight equity-share schemes in the Western Cape and showed that many of these concerns had been corrected in the more successful projects. Worker-shareholders at these schemes had purchased net farm assets worth R7 million (in constant 2001 prices) representing 3.5-50 per cent of the total shareholding. They showed that workers did not cite power relations as a problem and that women made up over 50 per cent of shareholders at 63 per cent of the projects.

Based on policy and socio-economic issues raised in previous studies of equity-share schemes, Gray *et al.* (2004) proposed four criteria for objectively monitoring the performance of equity-share schemes but focused their study only on financial criteria. By contrast, this paper focuses on Gray *et al's*. (2004) other three performance criteria, namely: poverty alleviation; empowerment and participation; and institutional arrangements and governance. The aim is not to assess the performance of existing equity-share schemes in South African agriculture but to propose a feasible set of measures to monitor non-financial aspects of their performance. Section 2 reviews literature on the criteria appropriate to this study and defines the indicators proposed to measure them. Section 3 describes the application of these measures to a land reform project in the KwaZulu-Natal (KZN) Midlands and to seven existing equity-share schemes in the Western Cape province. The data are used to propose realistic norms for the empowerment and institutional indicators, and to construct scorecards on which equity-share schemes may be assessed.

2. PERFORMANCE INDICATORS FOR EQUITY-SHARE SCHEMES

2.1 Poverty alleviation

Poverty has been defined as the "denial of opportunities and choices most basic to human development to lead a long, healthy, creative life and to enjoy a decent standard of living, freedom, dignity, self-esteem and respect from others" (Hirschowitz *et al.*, 2000: 54). Symptoms of poverty include low levels of income (Woolard, 2002) and economic wealth (Little, 2002), low levels of health (Southcentre.org, 2003; UNFPA, 2002) and poor standards of housing (May *et al.* cited by Shinns & Lyne, 2004). Equity-share schemes may help to reduce poverty amongst poor beneficiaries like farmworkers and their families as they offer supplemental income in the form of dividend payouts and capital gains realised, empowerment through skills transfer and the ability to influence working conditions. In order to assess the extent to which equity-share schemes enable participants to move out of poverty, it is first necessary to consider the problem of measuring poverty.

2.1.1 Poverty lines

Poverty lines are commonly used to assess poverty at the household level. Money metric poverty lines are usually determined by some level of consumption, expenditure or income that is adequate enough to meet primary human needs (Woolard & Leibbrandt, 1999; Greeley, 1994). The most commonly used determinant of poverty lines is income. Alternatives to using income as the basis for poverty lines include household consumption, per capita food expenditure, budget share of food expenditure (food ratio), average educational level of adult household members, quality of housing, access to clean water and sanitation, employment and wealth (Zeller *et al.*, 2003; Woolard, 2002; Hirschowitz *et al.*, 2000; Woolard & Leibbrandt, 1999). The point at

which a poverty line is drawn is somewhat subjective and often controversial (Barrett, 2003; Woolard & Leibbrandt, 1999). Nevertheless, single dimensional poverty lines are widely used to assess welfare despite their imprecision (Greeley, 1994).

Multi-faceted indexes of poverty also classify households on the basis of poverty lines. Two poverty indexes have been developed by Statistics South Africa (SSA), namely, the household infrastructure index (HII) and the household circumstances index (HCI) (Hirschowitz *et al.*, 2000). Principal component (PC) loadings indicate which variables define the two indexes. Variables with high loadings in the HII include: living in formal housing, access to electricity, tap water inside the dwelling, a flush or chemical toilet, a telephone or cellular telephone, refuse removal at least once a week, level of education of the household head and monthly household expenditure. The HCI is defined by: household unemployment rate, average household size and children under the age of five years (Hirschowitz *et al.*, 2000). SSA applies cut-off points on these indexes to separate their sample into 'developmental groups'. However, these cut-off points are arbitrary as they have no theoretical or empirical basis.

Carter and May (2001) present a dynamic approach to measuring poverty based on underlying household assets. Time gives people the opportunity to escape from poverty, but also increases the possibility of experiencing negative shocks that decrease income or assets. If household *i* at time *t* has a vector of assets A_{it}, then at every period the household chooses consumption (c_{it}) and investment (I_{it}) in order to maximise a discounted stream of expected well-being. Carter and May (2001) begin with the standard money metric poverty line *c* and consider a person poor if $c_{it} \leq c$. Households that are poor due to $c_{it} \leq c$ at each point in time are termed chronically poor, while households that move between poor and non-poor are termed transitorily poor. The structure or asset base of poverty is explored in terms of a poverty line which is interpreted as a cut-off point between households that fall above or below a certain asset base.

Carter and May (2001) then introduce a dynamic poverty line *J*, where *J* is the present value of sequences of poverty lines. Households can then be reclassified as falling above or below the discounted poverty line to indicate which households are in a poverty trap. A household is considered dynamically poor if $J^*(A_{0i}) < J$. This means that the long-term expected stream of well-being is less than the certain equivalence value of a stream of single-period poverty living standards (Carter & May, 2001). By expressing the poverty line in terms of income predicted from observed asset holdings, this approach has more in common with Zeller *et al.*'s (2003) view that poverty is multi-dimensional and has both qualitative and quantitative indicator variables. Expected income is regressed on the asset base of households to obtain an estimate of their permanent income. If there is a good fit, the predicted income is used to classify households above or below an income poverty line. Data on durable assets, such as livestock and vehicles, drawn from panel surveys are used to predict real income per adult equivalent for each household in each year. Absolute poverty is then assessed by comparing these predicted incomes with a poverty line. This method does not take into account that the poverty line chosen has an effect on the classification of households and therefore the resulting poverty profile may be over- or underestimated.

2.1.2 Measures of poverty not based on poverty lines

Shinns and Lyne (2004) studied the poverty status of land reform beneficiaries at Clipstone farm in the KZN Midlands. Symptoms of poverty were analysed using principal components analysis (PCA) and hierarchical cluster analysis (HCA). Poverty symptoms were measured in terms of housing quality, income, health and wealth. PCA was used to create an index of housing quality based on material of the exterior walls, access to safe drinking water and adequate sanitation. This index is similar to the HII discussed in section 2.1.1. Shinns and Lyne (2004) estimated the housing index as follows:

PC_1 = housing quality = 0.65(walls) + 0.81(water) + 0.54(sanitation)
where PC_1 = the first principal component index of housing quality,
walls = standardised value of a dummy variable scoring one for brick or stone walls, and zero otherwise,
water = standardised value of a dummy variable scoring one for protected water source, and zero otherwise, and
sanitation = standardised value of a dummy variable scoring one for adequate, and zero otherwise, where adequate includes ventilated pit latrines and waterborne sewerage.

The study households were then subject to HCA using the housing index and measures of household income, assets and health as grouping variables. Most households were found to be relatively income 'rich' and asset poor (29 per cent) or income poor and asset 'rich' (29 per cent). A significant number (24 per cent) were classified as both income and asset poor, and some (18 per cent) as relatively income and asset 'rich'. Changes in the distribution of poverty over time can be studied by constructing a 'transition matrix' to track the movement of individual households between poverty groups. In essence, the transition matrix shows whether certain groups have grown or shrunk, indicating positive or negative changes in poverty status. In this study, the transition matrix is applied to the multi-dimensional approach used by Shinns and Lyne (2004).

2.2 Empowerment and participation

Empowerment is a process that enables participation. Narayan (2002: 11) defines empowerment as "the expansion of assets and capabilities of poor people to participate in, negotiate with, influence, control and hold accountable institutions that affect their lives". Whereas Narayan (2002) and others (Bartle, 2003; Reid, 1999) treat empowerment and participation as synonymous concepts where empowerment requires active involvement by the community, this study takes the view that empowerment and participation are two distinct concepts, where empowerment is an enabling process and participation focuses on the meaningfulness of participation itself. Empowerment may only impart the right to participate in, and benefit from, an activity. Bartle (2003) lists 16 elements of empowerment, while the World Bank (Narayan, 2002: 14) defines four. These elements have been grouped into four main indicators: empowerment, outreach, trust and participation. Together they provide disadvantaged people with the rights, means, skills and incentives needed to participate in decision-making processes.

Until recently, measures of participation focused on who, how many, how often and the ways in which people participated, but it ignored the quality of participation. Assessing the quality of participation is important because participation has both developmental benefits, such as

promoting new attitudes and skills, and instrumental benefits that influence the outcome of participation schemes (Morrissey, 2000). A discussion of the indicators follows.

2.2.1 Empowerment, outreach and trust

2.2.1.1 Information, skills transfer, understanding, and control and ownership

Empowerment requires access to information, and the transfer of skills, control and ownership. Establishing an equity-share scheme with previously disadvantaged workers requires more than just passive access to information – it requires facilitation. Facilitation refers to the process of actively providing prospective shareholders with information, gaining consensus on institutional arrangements and creating suitable legal entities to represent worker interests. The quality of the facilitation process is therefore indicated by the shareholders' knowledge and understanding of the scheme in terms of their rights and obligations. A South African case study in 1996 showed that very few workers understood the role of the workers' Trust and the management of their funds (Eckert *et al.*, 1996), while case studies from 2001 showed otherwise (Knight & Lyne, 2002). The workers' Trust acts as a 'warehouse' for the workers' shares and becomes the shareholder in the operating entity. Some of the Trustees then represent the workers' interests in the operating entity. General meetings are the main forum for sharing information with shareholders. Worker-shareholders will not be empowered to participate if they are not given adequate notice of meetings, they lack the skills needed to participate, their relative shareholding prevents them from influencing Board decisions, and if records (e.g. minutes) are not circulated amongst members. Low meeting frequency and attendance suggests that workers will become less informed of the operations of the business and unable to raise questions and issues that would aid their participation and understanding.

All prospective worker-shareholders should participate in the process of designing the institutions that will represent their interests in the enterprise and define their rights and obligations. Formal organisations are more likely to give members greater influence over decision-making than informal institutions (Narayan, 2002: 18). Knight and Lyne's (2002) Western Cape case studies showed that extensive workshopping had occurred with prospective beneficiaries on the more successful schemes to select a suitable legal entity and to establish its constitutional and operating rules. Legal entities used to represent the interests of worker-shareholders range from communal property associations (CPA's) to participatory unit Trusts. Whatever legal entity is chosen, the constitutional arrangements should alleviate the free-rider, horizon, portfolio, control and influence problems commonly associated with conventional producer co-operatives (Cook & Iliopoulos, 2000: 335). Knight *et al.* (2003) recommended that these problems are best alleviated if the legal entity is structured as, or like, a company with tradable benefit and voting rights proportional to individual investment.

Skills transfer should be a priority for all equity-share schemes, otherwise workers and their representatives cannot participate meaningfully in decision-making (Knight & Lyne, 2002). The Trustees must administer the Trust and their Board representatives must contribute to policy-making for the farming enterprise. Monitoring is facilitated by tradable shares. Workers, like shareholders in any company, will vote their representatives out if share prices fall. Advanced training is best targeted at the representatives, not ordinary shareholders. While the Surplus People's Project (SPP) (Fast, 1999) reported in 1998 that workers did not acquire new skills or

benefit from capacity building, Knight and Lyne's (2002) study in the Western Cape found that more successful schemes provided general training in literacy and life skills for ordinary worker-shareholders, and that Trustees received higher level training in finance, management and administration. Karaan (2003) criticised worker participation in planning and decision-making at equity-share schemes. To promote participation during the planning phase, initial training should be designed to improve basic life skills of all prospective worker-shareholders. To promote participation in decision-making, training should focus on Trustees and higher-level skills. This training must be ongoing as new Trustees are elected each year. Training programmes that are 'Sectoral Education and Training Authority' (SETA) certified must comply with certain conditions set out by the Skills Development Act, Act 97 of 1998. The purpose of this Act is to develop skills in the workforce, encourage worker participation in training programmes and to promote quality of education and training. Janssens *et al.* (2004) conducted a study on beneficiary perceptions of BEE in South African agriculture. They elicited scores on five training variables using a five-point Likert-type scale. The mean scores for their five indicators ranged from 2.99 to 3.92. They concluded that beneficiaries were "neutral" about skills transfer because the mean score for their training variable was close to a value of three, their assumed norm for all five indicators. Although this study proposes similar indicators to Janssens *et al.* (2004), empirical evidence is used to gauge appropriate norms specific to each indicator.

Even if training programmes are SETA certified, adequate and understood by worker-shareholders, empowerment may be constrained by a small relative shareholding. Norms for meaningful relative worker shareholdings have not yet been developed specifically for equity-share schemes, Fast (1999) recommended that worker-shareholding should be at least 50 per cent to ensure that the balance of power lies with the workers. While the report does note the problem of financing such a large share of firm's equity, it does not recognise that the creditworthiness of a scheme would be seriously undermined if the majority shareholding transferred to people that have no track record of successful business management. This emphasises the need for equity-share schemes to transfer management skills and so maintain their creditworthiness as and when majority ownership passes to the workers.

Karaan (2003) reported problems with control and ownership issues in equity-share schemes where ownership is diversified but control remains in the hands of specialised managers who exert considerable power and influence, and are often not workers. Based on this argument measures of control and ownership should be separated. Ownership is best measured by relative worker-shareholding and control by worker representation on the Board. Control (voting rights) must be proportional to individual investment to alleviate free- and forced-rider problems. Control is also measured by information and skills transfer, which aim to increase the decision-making capabilities of worker-shareholders. A more subjective measure of control is how the workers rate their ability to influence policy on matters such as working conditions.

Poor people seldom have sufficient savings or credit to finance the purchase of equity. Without grants, participation in equity-share schemes would be confined to relatively more wealthy workers. Small grants curtail the relative shareholding of workers, decreasing their ability to influence policy on matters such as working conditions. Improved working conditions alleviate poverty through better housing, healthcare, insurance and leave benefits. Housing is one of the most important benefits cited by worker-shareholders, followed by schooling and clinics (Knight & Lyne, 2002). Beneficiaries studied by the SPP were disappointed with the lack of tangible

benefits and claimed that there had been little improvement in working conditions and land tenure security. Knight and Lyne (2002), however, found that worker-shareholders on more successful schemes perceived that they could improve working conditions if they chose to. In these case studies, workers reported that their influence over decision-making was proportional - or more than proportional - to their shareholding and that communication channels were kept open through regular meetings of shareholders. Worker equity ranged from 3.5-50.0 per cent at these schemes. This contrasts with Karaan's (2003) view that even if the workers are majority shareholders they may be unable to influence decisions.

2.2.1.2 Outcomes

Measures of empowerment reflecting the combined effects of skills transfer, relative shareholding and access to information may best be found in the outcomes of these schemes. If empowerment is successful then positive outcomes of equity-share schemes should include improved working conditions and tenure security, trust amongst worker-shareholders in the scheme and improved labour relations. Half of the worker representatives interviewed in Knight and Lyne's (2002) Western Cape study did not cite tenure security as the most important benefit expected from equity-share schemes. Karaan (2003) criticised the tenure security aspect of equity-share schemes claiming that several schemes have focused on acquiring land for worker-shareholders with little emphasis placed on individual tenure security. Tenure security should rather be examined in the context of what happens to a family's continued access to housing or land when a worker dies or leaves the scheme. If continued access is conditional upon employment then the ability of equity-share schemes to improve tenure security is questionable. Gray *et al.* (2004) reported that positive outcomes of the equity-share schemes they studied, as perceived by the workers, were improved tenure security, the ability to influence wages and working conditions, secure employment, improved sanitation, access to telephones and access to safe drinking water. In this study, tenure security is measured by property ownership, ownership of residential plots and long-term leases. Improved tenure security occurs where worker-shareholders receive land title or long-term leases. Where residential rights are conditional upon employment the ability of equity-share schemes to improve tenure security is compromised.

Positive outcomes of equity-share schemes also include income and wealth redistribution (Knight *et al.*, 2003). Changes in worker income are measured by creating dummy variables for income from dividends, capital gains, interest received and changes in the aggregate wage bill, where one indicated positive changes and zero negative changes. Housing quality is based on the approach of Shinns and Lyne (2004) in their study of symptoms of poverty at Clipstone farm. They measured housing quality in terms of material of the exterior walls, adequate sanitation and access to safe drinking water. In the case of the study schemes data were obtained on whether the benefits of equity-sharing included improved housing, improved sanitation and access to safe drinking water.

Access to basic services is measured by access to electricity, health services, schools, telephones and improved roads. These are scored as dummy variables, where one indicates the presence of an attribute and zero otherwise. Lastly, working conditions are measured by the ability of workers to influence wages and working conditions; security of employment; medical contributions made by the employer as either a contribution to medical bills or a medical aid

scheme; and pension benefits. Benefits included in the Basic Conditions of Employment Act, Act 75 of 1997, such as leave and unemployment rights, were excluded.

2.2.1.3 Outreach

Equity-share schemes are a means of transferring income, in the form of wages and dividends, and wealth through ownership of marketable shares to previously disadvantaged people. Outreach performance depends on the ability of the scheme to increase the incomes and wealth of the poorest people. Equity shareholding by women, unskilled workers and unemployed people is therefore relevant in determining the outreach of these schemes.

According to Mayson (2003), men participate disproportionately more than women in equity-share schemes because participation is linked to employment. Women generally did not participate as equals in the schemes studied by the SPP. Knight and Lyne's (2002) Western Cape study was more positive about female participation, but found that women are discriminated against in terms of wages. This is to be expected for unskilled workers because women cannot undertake the same physical labour as their male counterparts. Skills transfer to women, in particular, may help to bridge the gender divide between salaries. Knight and Lyne (2002) found that the majority of workers' Trust deeds in their sample made special provision for the inclusion of women as Trustees. Female shareholders made up at least 75 per cent of shareholders at the Whitehall scheme studied by Eckert *et al.* (1996) and between 33 per cent and 59 per cent at the schemes studied by Knight and Lyne (2002). With the introduction of the LRAD programme, women can access grant finance as individuals rather than as members of households (Mayson, 2003; Ministry for Agriculture & Land Affairs, 2000: 3) improving their chances of purchasing equity. Objective measures of gender empowerment include provision for women as Trustees, the relative shareholding of women, and female representation at Board level.

2.2.1.4 Trust

An atmosphere of trust and reliability is required for a successful equity-share scheme (Knight & Lyne, 2002). Trust in the potential of the equity-share scheme to perform well is a prerequisite for shareholders to reinvest in the business and grow their equity. Putnam (cited by Karaan, 2003) notes that trust is a key indication of the development of social capital within an organisation and plays a role in limiting opportunism and resolving the problems of collective action. Low worker confidence is likely to lead to increased wage demands and strikes, decreased productivity and decreased reinvestment in the business.

Knight and Lyne (2002) showed that some workers were willing to forego current earnings in order to reinvest, thereby showing an understanding of the project and confidence in management. Improved labour relations also foster trust. Labour relations improved in the majority of equity-share schemes studied by Knight and Lyne (2002) due to attitude changes, worker empowerment and incentives for financial performance. Long-serving workers are more likely to be better judges of trust given their experiences of past and present management. Eckert *et al.* (1996) measured labour relations according to changes in labour productivity (labour/output ratio), labour turnover and rates of absenteeism.

2.2.2 Participation rate

Ndibi and Kay (1999) developed a measure for the participation rate of a community. If the process of establishing and managing an equity-share scheme comprises activities a_1, a_2 … a_n, w_1, w_2 … w_n are weights indicating the importance of those activities, β_i denotes the involvement level of the community and $1-\beta_i$ denotes the involvement of other parties, then the participation rate for any one activity may be represented as follows (Ndibi & Kay, 1999):
$P_i(\%) = \beta_i(w_i/\sum w_i)$
and the overall participation rate is the sum of the different participation rates for each activity:
$P_i(\%) = \sum\beta_i\, w_i/\sum w_i$.

Ndibi and Kay (1999) assigned activities to five participation groups, where the fifth group represented the least community participation ($\beta_5 = 0$ per cent) and the greatest involvement by other parties (e.g. original owners), and the first group represented the highest possible community participation ($\beta_1 = 100$ per cent). For the other groups, Ndibi and Kay (1999) assigned involvement levels of 25, 50 and 75 per cent, respectively. A problem may arise in assigning β_i to certain activities. Respondents should be asked to rate their participation relative to some defined activity so that consistency in their responses is ensured. In addition, the weights are discrete and subjective, bringing into question the reliability of the measure. The w_i denote the relative importance of each activity. To estimate these weights, respondents were asked to rate the importance of each activity on a Likert-type scale (1 = most important and 5 = least important). The estimated β_i and subjective w_i values were then used to compute the overall participation rate.

2.3 Institutional arrangements and governance

2.3.1 Best institutional arrangements for equity-share schemes

Cook & Iliopoulos (2000: 336) identified practices that preserve creditworthiness and which eliminate the problems of free- and forced-riding associated with conventional producer co-operatives. Knight *et al.* (2003) found positive links between sound institutional arrangements, effective worker empowerment, competent management and the successful performance of an equity-share scheme. They recommend that voting and benefit rights be assigned in proportion to individual investment and traded at their audited net asset value to eliminate free- and forced-riding, although some temporary restrictions on the transferability of shares may be necessary to prevent sudden outflows of capital and managerial expertise. Financial accountability and transparency must be maintained, e.g. through annual external auditing of financial statements. The best way of achieving these arrangements is through the use of an operating entity that functions as, or like, a private company. The South African Companies Act, Act 61 of 1973, also entrenches principles of good governance such as accountability and transparency (Knight *et al.*, 2003). Finally, they maintain that good corporate governance is achieved through competent management, incentive schemes, a long-term business plan, procedures to resolve disputes and good labour relations.

2.3.2 Principles of good governance

King (2002) identified governance practices applicable to all business entities and described four 'pillars' of good governance: transparency, accountability, responsibility and fairness. These four categories incorporate the following: provision in the constitution for externally audited financial statements, disclosure and circulation of financial statements to shareholders, notice and conduct of meetings, disclosure and circulation of minutes, sound voting and election procedures, personal liability of negligent directors and penalties for bad management. Benefit and voting rights (i.e. property rights) should be proportional to individual investment by shareholders, and shares should be fully transferable to alleviate free- and forced-riding problems.

Narayan (2002: 2) reports on the linkages between empowerment and good governance and argues that good governance is unlikely if participants have not been empowered with the knowledge and skills needed to exercise their rights. Conversely, empowerment is not possible without the good governance practices of accountability, transparency and well defined property rights.

3. APPLICATION OF METHODOLOGY

3.1 Data collection

3.1.1 Poverty alleviation

Shinns and Lyne (2004) carried out a census survey of all 38 beneficiary households at Clipstone farm in the KZN Midlands during November 2002. The same 38 households were then paneled during August 2004. Respondents were asked questions about housing quality, household wealth, health and income. Wealth was measured in terms of livestock, the only significant non-depreciating and liquid asset identified in the surveys. Clipstone is not an equity-share scheme but is used in this study to demonstrate the application of the transition matrix to measuring poverty because panel data were available over two study periods. The aim of measuring poverty at Clipstone was not to assess the performance of the current CPA and conclusions regarding the performance of this land reform project should not be drawn from this paper.

3.1.2 Empowerment, participation, institutional arrangements and governance

A detailed study of seven established equity-share schemes was conducted in the Western Cape during February 2004 to test performance criteria proposed for empowerment and participation; institutional arrangements and governance; and financial performance. The latter are discussed by Gray *et al.* (2004) and are therefore excluded from this paper. The activities at these farms included cut flowers and fruit (project 1), olives (project 2), fruit and wine grapes (project 3), wine grapes (projects 4 and 7), deciduous and citrus fruit (project 5), and vegetables and wine grapes (project 6). Interviews were held with the farm manager (frequently the previous farm owner), the chair of the workers' Trust and ordinary worker-shareholders. The chair of the Trust and at least one other worker-shareholder were interviewed at each scheme, with four worker-shareholders interviewed at five of the seven schemes. Non-shareholders were not interviewed. Both higher-level employees (such as office staff) and lower-level employees (such as crop sprayers) were interviewed and at least one female worker-shareholder was interviewed at each

scheme. Responses to questions that required workers to rate indicators of empowerment or trust were not unanimous but varied within a relatively small range, usually between the highest point (5 = excellent or very high) and the middle point (3 = average) on a five-point Likert-type scale. In such cases, the mean response was recorded as representing the view of all worker-shareholders employed on the farm. Three different questionnaires were used for these respondents. Worker-shareholders (including the chair of the workers' Trust) were asked questions relating to skills transfer, benefits of the equity-sharing arrangement, trust and participation. The manager and chair of the Trust were asked questions on institutional arrangements and governance relating to the operating entity and workers' Trust respectively. In addition, the manager was asked questions about meetings, communication with worker-shareholders, tenure security and gender equality.

3.2 Results and discussion

3.2.1 Poverty alleviation

3.2.1.1 Dynamic poverty approach

Following Carter and May's (2001) dynamic approach to measuring poverty, observed household income levels were regressed on asset values for the 38 households at Clipstone. This regression yielded very low R^2 values (less than 0.05). Piecewise linear regression (Gujarati, 2003: 317-319) was then used to test the hypothesis that only households with current income levels above some minimum threshold could afford to hold livestock. A threshold of R300/adult equivalent/month provided the best fit, with an R^2 of just 0.055 for the piecewise regression of income on assets. Neither the value of livestock nor the level of adult education (human capital) were found to be statistically significant determinants of current income. As a result, Carter and May's (2001) poverty line was abandoned in favour of Shinns and Lyne's (2004) multi-dimensional measure of relative poverty. Accordingly, the transition matrix was used to detect shifts in group membership between the two surveys, where membership was based on current income, wealth, health and housing quality.

Wealth was measured in terms of the estimated market value of livestock, and health as the number of household members sick enough to consult a doctor during the two months prior to the survey. A new PC index of housing quality was estimated from the pooled panel data. The index was estimated as follows:

PC_1 = housing quality = 0.78 (walls) + 0.82 (water) + 0.14 (sanitation)
where the variables are as defined in section 2.1.2. The first PC was the only component with an Eigen value greater than one and explained 44 per cent of the total variation in the three housing variables. All of the poverty symptoms, apart from housing quality, were expressed in per capita adult equivalent (AE) terms, and all monetary values in 2001 Rands.

3.2.1.2 Transition matrix

Panel data gathered in the census surveys of beneficiary households at Clipstone in 2002 and 2004 were pooled and subject to non-hierarchical CA (Nie *et al.*, 1975). The data were pooled to ensure that the analysis would generate information about changes in relative poverty.

Households were clustered into four poverty status groups: group 1 was intended for income and asset 'rich' households; group 2 for the income poor and asset 'rich'; group 3 for the income 'rich' and asset poor; and group 4 for the income and asset poor households. Weights were applied to emphasise income and assets as more important clustering variables than health and housing quality.

A transition matrix was constructed from the poverty groups after excluding eight missing cases (two in 2002 and six in 2004), and is presented in Table 1. The groups are ranked from the least poverty-stricken households (group 1) to the most poverty-stricken (group 4) according to the group means computed for each clustering variable (Table 2). The transition matrix shows the movement of individual households between poverty groups over the study period (2002-2004). The shaded cells in Table 1 show the number of households that did not change their position over the study period. Those below the diagonal track households whose poverty status improved, while those above the diagonal track households that moved into poorer groups.

Table 1. Transition matrix of 30 households at Clipstone farm for the study period 2002-2004

2002 Poverty groups	**2004 Poverty groups**				
	1	**2**	**3**	**4**	**Total**
1	1	3	1	3	**8**
2	2	2	0	2	**6**
3	1	1	3	3	**8**
4	0	1	2	5	**8**
Total	**4**	**7**	**6**	**13**	**30**

The transition matrix in Table 1 shows that 37 per cent of households did not shift between poverty groups over the study period. For some (23 per cent) welfare improved over time and for the remaining households (40 per cent) it worsened. The largest proportion of households fell into the income and asset poor group (group 4) in 2002 and 2004 (27 and 43 per cent respectively). Although the proportion of households in the poorest (least poor) group appears to have increased (decreased), it is first necessary to test for significant shifts and the direction of these shifts within groups. Following Carter and May (2001), Hout's (1983: 15) L^2 statistic is used initially to test the hypothesis that a household's poverty status in period two is independent of its position in period one. L^2 is estimated using the following formula:

$$L^2 = 2 \sum_i \sum_j nf_{ij} \ln (f_{ij}/F_{ij})$$

where nf_{ij} represents the count in cell ij of the transition matrix, i the rows of the matrix, j the columns of the matrix, and F_{ij} the frequency predicted for that cell under the assumption of perfect mobility. L^2 is distributed χ^2 with $(r-1)^2$ degrees of freedom, where r is the number of rows in the transition matrix, and is not statistically significant if a household's poverty status in period two is independent of its starting position in period one.

In this study L^2 was not statistically significant and the null hypothesis of independence was accepted. In this case the Z-test for equality of proportions (Berenson *et al.*, 2002) can be made for each group to identify significant shifts and the direction of these movements within groups over the time period. The Z-test is computed using the formula:

$$Z = \frac{\hat{P}_{11} - \hat{P}_{21}}{\sqrt{\hat{p}(1-\hat{p})(\frac{1}{n_1} + \frac{1}{n_2})}}$$

where $\hat{P}_{21}$ is the proportion of households in time period 2 in poverty group 1,

$\hat{p}$ is an estimate of the standard error of $\hat{P}_{11} - \hat{P}_{21}$, and

n_1 is the sample size in time period 1.

None of the Z-tests were statistically significant suggesting that the distribution of poverty did not change significantly over the study period. Table 2 highlights changes in absolute poverty over the study period. Only two of the t-tests applied to the group means in Table 2 showed significant differences between 2002 and 2004. In group 3 there were significant improvements in both health and housing quality over time. However, there were no significant changes in levels of income or wealth in any of the poverty groups, nor were there significant changes in health or housing quality in groups 1, 2 and 4. In short, there is no evidence of improvement in relative poverty, and very little evidence of improvement in absolute poverty, at Clipstone.

Table 2. Group means for poverty symptoms at Clipstone farm, 2002 and 2004 (constant 2001 Rands)

Poverty group	Income (per AE[1]) Rand/month		Assets (per AE) Rand		Health (per AE)		Housing index	
	2002	2004	2002	2004	2002	2004	2002	2004
1	332.64	324.05	4002.67	5277.56	0.1724	0.2043	1.6594	-0.3495
2	102.07	113.79	4391.19	3872.04	0.1386	0.1446	0.3182	-0.2654
3	332.42	308.122	1207.39	1383.23	0.0822	0.0000	-0.4336	-0.2654
4	91.60	122.29	1152.49	1261.17	0.1681	0.1096	-0.0698	-0.2654
Overall mean	213.81	180.49	2340.90	2357.23	0.1403	0.1086	0.2781	-0.2760

[1]AE = (adults + (0.5) children)$^{0.9}$

This application of the transition matrix has the advantage of using a multi-dimensional measure of poverty, generates information about changes in both relative and absolute levels of poverty, and avoids the problem of comparing a single dimensional measure of poverty (such as an income poverty line) with a subjective and controversial cut-off point.

3.2.2 Empowerment and participation

A scorecard listing the proposed empowerment and participation indicators is presented in Table 3 and shows the scores computed for each study project. Eight categories of indicators are proposed in the scorecard: control and ownership; skills transfer; understanding; information; outcomes (benefits); trust; outreach; and participation. The indicators were scored as proportions or as dummy variables, where one indicates the presence of a characteristic important for good performance and zero the absence of the characteristic, or proportions. This empirical information was then used to gauge cut-off points or norms for certain indicators. Proportions that exceeded their norms for some of the indicators in the skills transfer, understanding, information and trust categories were then scored as one, and those below the norm as zero.

Simple arithmetic means of proportions were computed for the other categories because their indicators are all continuous variables.

Table 3. Scorecard to measure empowerment and participation at seven equity-share schemes, Western Cape 2004

Indicators	Norm	Project number						
		1	2	3	4	5	6	7
Control & ownership (%)		**21.5**	**8.8**	**13.0**	**27.5**	**41.0**	**36.5**	**50.0**
Relative worker-shareholding (%)		10	3.5	6	5	49	40	50
Workers on the Board of the operating entity (%)		33	14	20	50	33	33	50
Skills transfer (%)		**100**	**100**	**75**	**50**	**100**	**100**	**75**
Initial training through facilitation	Yes	1	1	1	1	1	1	1
Ongoing training	Yearly	1	1	1	0	1	1	1
Certification of courses	Yes	1	1	1	1	1	1	1
All shareholders receive training	Yes	1	1	0	0	1	1	0
Understanding (%)		**50**	**100**	**100**	**50**	**100**	**100**	**100**
Does the chair of the Trust understand the scheme	Yes	0	1	1	0	1	1	1
Proportion of worker-respondents who understand scheme (%)	≥40 = 1	50	75	80	40	80	75	100
Information (%)		**67**	**67**	**67**	**33**	**100**	**100**	**100**
Frequency of general meetings	Yearly	1	1	1	0	1	1	1
Worker attendance at last general meeting (%)	≥80 = 1	DK[1]	DK	DK	N/A[2]	80	100	90
Circulation of minutes	Yes	1	1	1	1	1	1	1
Outcomes (%) See Table 4		**55**	**76**	**54**	**41**	**73**	**62**	**69**
Tenure security (%)		0	0	0	0	100	33	33
Worker income (%)		80	100	50	25	25	50	50
Housing quality (%)		67	100	100	100	100	67	100
Basic services (%)		80	80	60	60	40	80	80
Working conditions (%)		80	100	60	20	100	80	80
Outreach (%)		**67**	**66**	**59**	**69**	**59**	**44**	**63**
Relative female shareholding (%)		50	59	36	56	54	33	39
Female Trustees (%)		50	40	40	50	22	DK	50
Shareholding of unskilled workers relative to their share of enterprise workforce (%)		100	100	100	100	100	100	100
Trust (%)		**100**	**100**	**100**	**80**	**100**	**100**	**100**
Absenteeism rate (%)	≤10 = 1	<5	<5	10	DK	5-7	5	10
Wage demands or strikes	None	1	1	1	1	1	1	1
Trust in management	≥3 = 1	4.25[3]	3.75	4.3	4.4	3.56	3.5	3.67
Worker-management relations	≥3 = 1	4.0[3]	4.1	4.4	4.6	3.0	3.75	5.0
Procedures to resolve conflict	Yes	1	1	1	1	1	1	1
Participation rate (%)		**82.4**	**82.1**	**60.8**	**60.5**	**70.9**	**69.1**	**81.9**
Overall score (%)	50	**67.9**	**75.0**	**66.1**	**51.4**	**80.5**	**76.5**	**79.9**

[1]DK = Do not know
[2]N/A = Not applicable
[3]Average of scores assigned by worker respondents

An overall score was computed for each scheme. Missing values counted negatively in the scorecard as they were attributed to a lack of record keeping. In future studies, questions relating to attendance of meetings and absenteeism should be rephrased to distinguish between instances where respondents are unaware of recorded information and cases where information was not recorded at all. Each category of indicators was then scored as a percentage and the overall score was computed as the simple average of the percentages across all categories. The overall score therefore assigns equal weight to each of the categories in the scorecard. For the outcomes category, scores were taken from the overall score computed in Table 4 (see section 3.2.2.3) so no norms are suggested in Table 3 for these indicators.

Monitoring of these indicators must occur over time to assess the reasons for good or poor project performance and to modify norms. The overall scores for empowerment and participation ranged from 51.4 to 80.5 per cent at the study projects. A score of at least 50 per cent is recommended on the basis that at least half of the indicators are present. The following sections discuss the indicators tested as measures of empowerment, outreach, trust and participation at equity-share schemes.

3.2.2.1 Control and ownership

Ownership is measured by relative worker-shareholding, and control by worker representation at Board level. There is a positive correlation between worker-shareholding and Board representation in the study schemes. The ability of workers to influence decision-making is also indicated by skills transfer and information, as discussed in section 3.2.2.2.

Various sectors of South African business have recently proposed BEE charters dealing with control and ownership issues. The goals proposed by these charters may be subjective but indicate what is practically desirable when assessing worker-shareholding at equity-share schemes. The Minister of Agriculture and Land Affairs, Thoko Didiza, recently outlined a framework for BEE in agriculture in the form of the draft Agri BEE charter. In terms of this draft, targets have been proposed for farmworkers to achieve a ten per cent ownership stake in all farm enterprises by 2008; black representation at executive level of 30 per cent by 2006; and the elimination of illiteracy amongst farmworkers by 2010 (Paton, 2004: 25). Some of the study schemes exceed the requirements proposed by Agri BEE for black ownership, Board representation and literacy training. Three of the seven projects have a relative worker-shareholding above ten per cent; five have more than 30 per cent black representation at executive level (directors that are previously disadvantaged worker-shareholders); and four have provided some form of literacy training. In addition, five have ongoing training programmes to equip workers in subjects such as banking skills, interpretation of financial statements, life skills and farm management.

More than half of the study schemes do not meet the target proposed by Agri BEE for worker-shareholding. Given the modest size of LRAD grants, Agri BEE's proposed target of ten per cent may simply not be attainable at schemes that have substantial equity capital or a small workforce. The targets proposed by Agri BEE are therefore questionable and are not applied as norms for equity-share schemes in this study. In general, the ability of workers to participate in and influence decisions was highest at those schemes with a worker-shareholding of ten per cent or more. However, project 2 had the lowest worker-shareholding (3.5 per cent) but scored 75 per

cent for empowerment and participation (Table 3) compared to the other six schemes where worker equity ranged from five to 50 per cent.

The proportion of worker-directors on the Board of the operating entity was above 33 per cent at five of the seven schemes, and 14 and 20 per cent at the remaining two. At project 2, where worker-shareholding and Board representation was the lowest (3.5 and 14 per cent respectively), scores computed for measures of worker satisfaction and participation, outcomes and understanding were consistently the highest indicating that the majority shareholders were willing to include and empower worker-shareholders despite their small shareholding. These worker-shareholders also felt that they could influence working conditions if they wanted to, trusted management and rated their participation in decision-making as good. While there is clearly room for improvement in the shareholding of workers at this project it has performed very well in many other aspects of empowerment. This unexpected outcome may partially be explained by the fact that worker-shareholders had applied for LRAD grants to finance additional equity in the scheme.

By contrast, project 4 had one of the two highest scores for Board representation (50 per cent) but relatively low scores for skills transfer, understanding, information, outcomes and trust. This is the only project that fits Karaan's (2003) view that workers may be unable to influence policy decisions even if they are well represented on the Board of directors. Nevertheless, exceptions like projects 2 and 4 suggest that the relative shareholding of workers by itself is neither a necessary nor a sufficient indicator of empowerment and participation.

3.2.2.2 Skills transfer, understanding and information

Respondents were given a list of skills training courses and were asked when last training occurred (if at all) and to rate the quality of training. The quality of training was measured using workers' understanding of the scheme and certification of courses. Data were also gathered on whether worker-shareholders had received initial training through the facilitation process. Understanding of the scheme was objectively tested by asking respondents to sketch or explain the ownership structure of the equity-share scheme indicating the groups of the shareholders and their relative shareholding. Access to information was measured by the frequency of general meetings, circulation of minutes and attendance at meetings. The scores awarded to the study projects for indicators of skills transfer, understanding and information highlight some of the positive relationships anticipated between these concepts. At project 4 where there was no ongoing training, most worker-shareholders (including the chair of the Trust) could not describe the ownership structure and no general meetings had been held. This is in contrast with project 6 where there is ongoing training, regular meetings are held and the vast majority of worker-shareholders understand the scheme's organisational arrangements. Ongoing training is defined as training that occurs at least once a year. This was the average frequency of training at the study schemes where regular training did occur.

3.2.2.3 Outcomes

Outcomes of the equity-sharing arrangement were measured by asking respondents to identify what benefits they had received before and after the scheme had been established. Respondents were also asked to rate the importance of each benefit. Unfortunately, the majority of workers

rated every benefit as very important. In future surveys, respondents should rather be asked to rank the relative importance of say the five most important benefits. The outcomes of equity-share schemes were grouped into five categories measuring tenure security, worker income, housing quality, basic services and working conditions (Table 4). Variables within each of these categories were coded as dummy variables (with one indicating the presence of an attribute, and zero otherwise) and then summed to yield a percentage of the maximum possible score. This percentage score contributes to the overall empowerment scores presented in Table 3.

The (unweighted) outcome scores for the study schemes ranged from 41 to 76 per cent. All but one of these schemes scored low for tenure security because worker-shareholders did not acquire residential plots or long-term leases. Project 4 scored lowest on outcomes. Considering the poor performance of this project on other indicators it would seem prudent to suggest a target for outcomes on the next best performing scheme (project 3), which scored 54 per cent.

Table 4. Scores for the outcomes at seven equity-share schemes, Western Cape 2004

Outcome	Project number						
	1	**2**	**3**	**4**	**5**	**6**	**7**
Tenure security (%)	**0**	**0**	**0**	**0**	**100**	**33**	**33**
Residential plots	0	0	0	0	1	0	0
Property ownership	0	0	0	0	1	1	1
Long-term leases	0	0	0	0	1	0	0
Working conditions (%)	**80**	**100**	**60**	**20**	**100**	**80**	**80**
Influence wages	1	1	0	0	1	1	1
Influence working conditions	1	1	1	0	1	1	1
Secure employment	1	1	1	1	1	1	1
Medical contributions	0	1	1	0	1	1	0
Pension benefits	1	1	0	0	1	0	1
Basic services (%)	**80**	**80**	**60**	**60**	**40**	**80**	**80**
Access to electricity	1	1	1	1	1	1	1
Health services	1	1	1	1	1	1	1
Schools	0	0	0	0	0	0	0
Improved roads	1	1	0	0	0	1	1
Access to telephones	1	1	1	1	0	1	1
Worker income (%)	**50**	**100**	**50**	**25**	**25**	**50**	**50**
Dividend income	0	1	0	0	0	0	1
Capital gains on shares	1	1	0	0	0	0	0
Interest received from loans[1]	1	1	1	1	1	1	1
Wage increase	0	1	1	0	0	1	0
Housing quality (%)	**67**	**100**	**100**	**100**	**100**	**67**	**100**
Improved housing	0	1	1	1	1	0	1
Improved sanitation	1	1	1	1	1	1	1
Access to safe drinking water	1	1	1	1	1	1	1
Overall score (%)	**55**	**76**	**54**	**41**	**73**	**62**	**69**

[1]Interest from loans did not count against score if it was not applicable.

3.2.2.4 Outreach

The proportion of female Trustees was chosen as a meaningful and objective measure of female representation rather than female representation on the Board of directors because there are

seldom more than one or two worker representatives on the Board. The relative shareholding of women in the worker's Trust was above the target set by the Financial Sector Charter (banking Council of SA, 2004) (11 per cent) at all seven schemes. Female shareholding in the worker's Trust ranged from 33-59 per cent, and their representation as Trustees from 22-54 per cent with five of the seven schemes recording levels in excess of 40 per cent. Female representation in the workers' Trust is proportional, or more than proportional, to female shareholding in the majority of study schemes and significantly higher than levels of female representation in the wine industry as a whole. Kassier *et al.* (2004) reported that only about one per cent of Board representatives in corporate wine businesses in South Africa are women. A target of 30 per cent female representation in the workers' Trust seems reasonable, but may not apply to agricultural industries characterised by heavy manual work. In these cases female shareholding should at least be proportional to their representation in the workforce of the enterprise.

Likewise, the proportion of unskilled worker-shareholders should be at least proportional to their representation in the total workforce. Two schemes did not employ unskilled workers on a permanent basis and therefore excluded unskilled workers as shareholders. At the remaining five schemes, the shareholding of unskilled workers was proportional to their share of the workforce in the enterprise. All of the unskilled permanent workers owned shares and the proportion of unskilled female shareholders exceeded that of unskilled males. Unskilled workers, male and female, were paid at the minimum wage at all seven projects.

3.2.2.5 Trust

Five of the seven study projects indicated that worker absenteeism was at or below five per cent. At one project the absenteeism rate was ten per cent and at the remaining project the manager did not know what the rate was. In view of these observations it is recommended that the norm for absenteeism should be less than ten per cent. There had been no wage demands at five of the seven projects and at the remaining two projects wage demands were settled through a process of negotiation. At project 6, wage disputes were settled by introducing a system where workers determined standards including an acceptable level of absenteeism and completion of skills training courses to qualify for a wage increase. Formal procedures to resolve disputes were in place at all of the projects. Worker respondents rated participation in these procedures as very important but less than 50 per cent participated in their design. This suggests that although workers have procedures for resolving conflict, their ideas on how conflict should be resolved were not taken into account.

Respondents were also asked to rate their trust in management and worker-management relations on a scale of one to five, where one was very poor and five was excellent. This provided a more subjective indicator of worker confidence. Mean scores for trust in management ranged from 3.5 to 4.4, which implies that trust in management is above average to high. Scores for worker-management relations ranged from average to excellent. Considering the distribution of these scores it is appropriate to assume that schemes that score below average for these two indicators are below the norm and have low worker confidence. Disinvestment was not used in the scorecard (Table 3) as a five-year moratorium had been imposed on the sale of shares by worker-shareholders at all of the study schemes. In future studies, when moratoria are no longer applicable, it may be useful to include this indicator as a measure of worker confidence in the scheme.

3.2.2.6 Participation rate

Ndibi and Kay's (1999) method of measuring participation was applied by asking worker respondents to rate the importance of five activities and the levels of worker participation in those activities. Respondents were asked about the importance of, and levels of worker participation in; deciding on formal procedures to resolve disputes; most recent annual general meeting; workshopping the plans and procedures to create and run the equity-share scheme; establishing a formal organisation and institutions to represent workers' interests; and female representation in the scheme. The importance of each activity was rated from one to five, where five was the most important. For participation, respondents were given a series of statements ranging from no participation at all to 100 per cent participation and were asked to choose the statement that best matched their opinion. These statements were then used to classify participation into quintiles ranging from very high (β_i = 100 per cent) to none at all (β_i =0 per cent). Weighted participation rates were then summed across activities to estimate an overall participation rate for each study project.

The participation rates presented in Table 3 ranged from 60.5 to 82.4 per cent, with the majority achieving levels above 69 per cent. For the activities selected, a minimum participation target of 70 per cent seems reasonable when compared to the empowerment indicators in Table 3. Considering the inherent subjectivity in estimated participation rates, other more objective indicators of participation might be considered; for example, worker attendance at general meetings and voluntary training courses, the proportion of workers who are not shareholders and outcomes realised.

3.2.3 Institutional arrangements and governance

Table 5 presents the institutional arrangements and governance indicators used to score the operating entity at each study scheme. The indicators highlighted in italics were considered to be less important by Ithala Development Finance Corporation (Pringle, 2004) when assessing loan applications. Each indicator was scored as a dummy variable where one indicated the presence of an attribute and zero otherwise. These scores were then summed and expressed as a percentage of the maximum score possible for each category. The (unweighted) overall score was computed as the average percentage across all three categories.

The overall scores at the Western Cape study schemes ranged from 40 to 92 per cent, with most schemes (six) scoring above 69 per cent. Project 4 scored consistently low across empowerment and institutional arrangements, especially those that seek to ensure transparency. These included general meetings, disclosure of audited statements, notice and conduct of meetings, and obligations for directors to declare their shareholdings and transactions with the business. Preliminary findings suggest a positive link between transparency and levels of worker understanding and information (Table 3) as suggested by Narayan (2002: 2) but further research is needed to verify this relationship. Project 4 scores poorly on all three of these indicators whereas the opposite is true of Project 6.

Table 5. Scorecard for institutional arrangements and governance at seven equity-share schemes, Western Cape 2004

Indicator	Project number						
	1	**2**	**3**	**4**	**5**	**6**	**7**
Accountability (%)	**80**	**80**	**60**	**40**	**40**	**100**	**40**
Annual external audit	1	1	1	1	1	1	1
Directors aware of collective liability	1	1	1	1	1	1	1
Penalties for management	0	0	0	0	0	1	0
Incentive scheme for managers	1	1	1	0	0	1	0
Incentive scheme for workers	1	1	0	0	0	1	0
Transparency (%)	**71**	**86**	**100**	**14**	**100**	**100**	**100**
Annual general meeting	1	1	1	0	1	1	1
Disclosure of financial statements	1	1	1	0	1	1	1
Directors declare shareholding & personal transactions	0	0	1	0	1	1	1
Board approval for pledging land as collateral	0	1	1	0	1	1	1
Formal procedures for conflict resolution	1	1	1	1	1	1	1
Notice of meetings	1	1	1	0	1	1	1
Circulation of minutes	1	1	1	0	1	1	1
Property rights (%)	**67**	**75**	**67**	**67**	**75**	**75**	**67**
Formal nominations and elections of directors	0	0	0	0	1	0	1
Nomination of directors in proportion to shareholding	1	1	1	0	0	1	0
Non-shareholders cannot vote	1	1	1	1	1	1	1
Shares cannot be bequeathed to multiple heirs	1	0	0	1	0	0	0
Shares cannot be bequeathed to non-shareholders	0	1	1	1	0	0	0
Shares cannot be bequeathed to outsiders	1	1	1	0	1	1	1
Tradable benefit rights in proportion to shareholding (operating entity)	1	1	1	1	1	1	1
Tradable voting rights in proportion to shareholding (operating entity)	1	1	1	1	1	1	1
Tradable benefit & voting rights in proportion to shareholding (workers' Trust)	1	1	1	1	1	1	1
Restrictions on sale of shares to outsiders	1	1	1	0	1	1	1
Temporary moratorium on sale of shares by original owner	0	0	0	0	1	1	0
Shareholders must sell shares if they leave employment	0	1	0	1	1	1	1
Overall score (%)	**73**	**80**	**76**	**40**	**72**	**92**	**69**

Schemes that scored 69 per cent and above on the institutional and governance scorecard are all characterised by the presence of external audits, annual general meetings, disclosure of financial statements, formal procedures for conflict resolution, and tradable benefit and voting rights in proportion to individual investment in both the operating entity and workers' Trust. These attributes might be considered as fundamental requirements for the operating entity and for any other legal entity used to 'warehouse' worker shareholdings.

4. CONCLUSIONS

Gray *et al.* (2004) proposed four criteria to monitor the performance of equity-share schemes as instruments of agrarian reform and BEE in South African agriculture: poverty alleviation; empowerment and participation; institutional arrangements and governance; and financial health.

This paper focuses on the non-financial criteria. Empirical analysis of data gathered in 2004 from a land reform project in the Midlands of KwaZulu-Natal and seven established equity-share schemes in the Western Cape were used to identify an objective set of indicators for these criteria.

A transition matrix was used to measure changes in the income, wealth, health and housing quality profile of beneficiary households at the land reform project. Although there were no changes in absolute or relative poverty at Clipstone, conclusions regarding the performance of the CPA should not be drawn from this paper. The aim of using data from Clipstone was merely to demonstrate the application of the transition matrix as a suitable method for measuring poverty. This method is recommended over single dimensional poverty lines and does not rely on an assumed relationship between current income and assets. Importantly, it generates information about changes in both relative and absolute levels of (multi-dimensional) poverty over time, and these changes can be tested for statistical significance.

A scorecard approach is recommended for empowerment and participation, based on eight categories of indicators: control and ownership; skills transfer; understanding; information; outcomes; trust; outreach and participation. Empirical evidence was used to suggest norms for each indicator. The overall scores for empowerment and participation ranged from 51.4 to 80.5 per cent at the study projects. A score of at least 50 per cent is recommended on the basis that at least half of the indicators are present. A scorecard approach is also recommended for institutional arrangements and governance. Three categories of indicators are recommended: accountability, transparency and property rights. The indicators show the presence or absence of attributes that alleviate the problems of free- and forced-riding. These problems tend to undermine the performance of conventional co-operatives. The overall scores at the study schemes ranged from 40 to 92 per cent, with most schemes scoring above 69 per cent. Schemes that scored above 69 per cent are all characterised by the presence of external audits, annual general meetings, disclosure of financial statements, formal procedures for conflict resolution, and tradable benefit and voting rights assigned in proportion to individual investment. Dummy variables (or proportions) are used in the scorecards and unweighted overall scores are computed to provide comparisons between schemes and over time.

The performance indicators recommended in this paper are objective. They are relevant, manageable in number, and have feasible norms rooted in empirical evidence. The robustness of these indicators and their norms needs to be tested on a wider scale and monitored over time. Further research is also needed to determine the contribution of each indicator to overall performance in order to attach weights to the categories proposed in the empowerment and institutional scorecards.

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