A Conceptual Centralized Clustering Model for Small-Medium Scale Farmers in Fiji[1]

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Abstract

Small to medium scale enterprises (SMEs) play an important role in achieving economic development in developing countries. In Fiji and many Pacific Islands, small-medium scale farmers (SMFs) play an important role in the development of their economies. Consequently, improving the efficiency of this sector has been a major focus of earlier studies. There is a consensus that clustering the operations of these disparate SMF's would seem to be a logical step to create collective efficiencies in their operations. However, very few have looked at the dynamics of forming these clusters and their sustainability in the context of Pacific Islands. This paper formulates a clustering model for SMFs in Fiji.

Introduction

Agriculture is a very important sector of Fiji's economy. It contributes significantly to the national gross domestic product (McGregor and Gonemaituba 2002; Reddy 2006) and accounts for almost half (44%) of national employment (Taylor 2002). Interestingly, this powerful economic driver predominantly comprises small to medium scale farmers (SMFs), with land holdings of between 4-6 hectares (Otanez, et al. 1999; Szmedra 2002), who are often regarded as the 'hidden strength' of Fiji's agriculture sector (McGregor 2006). However, Hailey (1986), Bamford

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(1986) and Tapuaiga (2004) found that these SMF's are not able to compete with large suppliers due to structural restraints such as size of their operation, distance from the market, isolation from major markets and competition from larger players. Chung and Tibben (2006) suggest a solution based on the concept of clustering in order for smaller enterprises to be able to stand against these challenges.

Clustering is defined as a geographic concentration of firms that face common challenges and opportunities and produce and sell a range of complementary products (Schmitz 1992; Richard 1996; Porter 1998; Celgie and Dini 1999). The concept of clustering has been investigated by several scholars and applied in industries as diverse as furniture (Tambunan 2005), salmon farming (Felzensztein 2003), winery (Simpson and Bretherton 2004) and steel fabrication (Uzor 2004). It is found to enhance collective networking and provision of quality-based produce which are so central to the success of market driven commodities. In Fiji, achieving quality products has been a major challenge owing to the costs involved and its viability at the individual small-scale level. A study exploring quality-based issues amongst Fijian SMF's reveals that organizations lag continual improvement in people services, processes and products (Djerdjour and Patel 2000). This is a major hurdle because SMFs require joint actions to meet these standards. This has been a key issue of discussion in a trade referendum extended by hotels in Fiji. Veit (2007) cautions that until the issue of quality is addressed, Fiji's agricultural sector will only be able to satisfy the needs of smaller establishments. With SMF's comprising some 90% of Fiji's agriculture sector, measures to improve the quality of its commodities cannot be overemphasised.

This research proposes a centralized clustering model (CCM) to address measures to improve quality, consistency and marketability of agricultural products in Fiji. The CCM is a concept designed to address challenges SMFs face in achieving cohesive networking and collective efficiency. This conceptual paper builds on a feasibility study of establishing a marketing centre in Fiji by providing a holistic method for interpreting the application of clustering through the CCM (Taulealea 2005). The model builds on the concept of clustering SMEs proposed by Porter (1990) and further enhances it by integrating a centralized marketing intermediary (MI).

Literature Review

The concept of clustering has been widely researched and has taken different approaches in its implementation. Most recently, a large number

of communities around the world have resorted to cluster based economic development to propel their economies to new levels of competitiveness (Reid and Carrol 2006). Clustering is an economic phenomenon defined as agglomerating enterprises that are producing and selling a range of related or complementary products within a geographic proximity for economic benefit (Porter 1990; Richard 1996; Porter 2000). It includes suppliers of inputs, regular buyers or exporters, government institutions, business associations, providers of business services, and agencies that support clustered enterprises (Porter 1998). Empirical results show that collaborative action among small-medium scale enterprises (SMEs) play a key role in the development of the SME's (Kaplinsky 2000; Kaplinsky and Readme 2001), improving commodity quality standard to meet export requirement (Nadvi and Schmitz 1994), and in reducing transaction costs (Brautigam 1997). These results are best achieved through smaller firms clustering together as opposed to addressing them as single entities. In addition the United Nations Development Project recommended clustering as a viable option for addressing the market needs of farmers in the Pacific region (United Nations 2001). This study will look at the concept of clustering SMFs in Fiji and explore its appropriateness for the agricultural sector. Furthermore, this study will also explore the role of a market intermediary as the mediator between SMFs and buyers.

Several papers on clustering provided the foundation for the centralized clustering model. A study by Uzor (2004) analyzed economic dynamics of small to medium scale cluster enterprises in Nigeria. The study probed into the kind of constraints experienced and the role of the state institutions on small scale enterprise development. Uzor's findings showed the importance of SME development. However, the results indicated that there were no effective institutions supporting cluster development in Nigeria. There is a need for partnership building between state, institutions and the private sector for SME development. Such relationship would play an important role in economic development especially in infrastructure and capacity building. Uzor strongly suggested that incentives should be made in order to motivate the growth of SME clusters. This can be seen through opening of new market opportunities and dismantling some trade barriers that negatively affect SME development.

Another approach, investigated by Miller and Besser (2000), examined whether small business owners and managers could be clustered on the basis of their values toward their community and whether cluster designation was significantly related to the kind of business strategies employed. Their arguments suggest that residents, business owners, and managers will engage in socially responsible behaviour in accordance with their own personal values of community attachment and social responsibility. These values in turn are associated with the values of collective action prevailing in the community. The five scope strategies explored were perceived to be significantly different in terms of their importance to cluster formation. They were: (1) working to strengthen the local community; (2) providing wider choices; (3) cooperating with other businesses; (4) professional development for managers, and (5) networking with out of town businesses for mutual benefit. This suggests that small business strategy formation does differ by the level of community values. In addition, it appears that the impact of personal resources such as education, household income and community attachment could be interchangeable in generating business and social responsibility. The study showed that significant relationships existed between business operators regarding their community values, business demographics and strategies for success.

In contrast to the focus on values, Felzensztein (2003) focused on the role of developing joint marketing activities and alliances accruing from firms in close proximity of each other. This research was concerned with the influence of regional clusters in developing marketing externalities. The study focused on the salmon farming industry, a sector that makes substantial contribution to the remote and regional economies of rural Scotland and Chile. The results showed that although companies located in close proximity to each other tended to collaborate in some aspects of the production process, other factors were more instrumental in building collaborative arrangements. These factors included the social elements, cooperation with trade associations, common culture within the region, mutual trust, and commitment among companies (Felzensztein 2003).

Tambunan (2005) evaluated the cluster strategy by exploring why some clusters do better than others. Results concluded that SME cluster development policies should include several elements: efforts to create specialized education and training programs, establish research into cluster-related technologies, support cluster-specific information gathering, and improve specialized transportation, communications, and other infrastructure required by the cluster. The study found that the development of clusters in a region should be supported by policies with a clustering approach which will also promote development.

Through the review of literature on cluster formation, it became apparent that partnership is a significant component in the clustering con-

cept. However, in order to appropriately initiate such strategies the impact of social values on cluster development must be considered. Furthermore, a wide range of influences must also be considered carefully when establishing clustering in a particular region. Based on these findings, the strategy for cluster development of SMFs in Fiji will focus on strategic partnership (Uzor 2004), common culture, values, and trust (Miller and Besser 2000; Felzensztein 2003) and training and implementation of research findings (Tambunan 2005). The CCM has been devised as a strategy to achieve these goals in an effort to improve the economic impact of SMFs in Fiji.

The Centralized Clustering Model

In light of the identified constraints limiting the effectiveness of individual SMFs, the CCM has been designed to create a strategy for farmers to sell their produce; this will provide resources that may serve as a catalyst to improve the standard of living of the individual farmer. In order to address the constraints facing SMFs the CCM proposes a structure based upon clustering that will enable a consistent buyer of the agricultural commodities via the concept of a marketing intermediary. This flow of commodities will be channelled smoothly through the MI to local and export buyers. The three dimensions of the CCM help to explain the strategy in which the CCM operates to accentuate this desired change.

Primary Dimension

The primary dimension deals specifically with the SMFs. It provides the explanation of how the clustering of SMFs is actually implemented and serves to demonstrate the interaction of the clusters with each other and with the Marketing Intermediary. Farm size, location, ownership structure, and contractual agreement play influential roles in defining the means by which SMFs are clustered. In effect this dimension creates boundaries as a business enterprise, and influences how it operates within the agriculture industry and in relative markets. In the CCM, the average number of SMFs per cell cluster will range from 6 to 15, whereby five cells make up a *zone cluster* of 30-75 SMFs. The zone cluster is comparable to an SME which consists of 10-249 employees (Shepherd and Wiklund, 2005). Clusters will be located within the same geographic vicinity for ease of transport costs, communicating market specific information, and machinery sharing. The CCM plans to offer SMFs commission when contractual agreements are maintained in order to provide impetus for

continued productivity.

The zone-cluster aspect of SMFs relates to those individuals working together to achieve the common goal of the business which involves cell leaders, SMF managers and SMFs. Skills, training, cluster conditions, benefits, and rewards influence SMFs' performance. Factors relating to the themes of organisational behaviour become key elements in this dimension. A representative from each zone cluster will serve as the primary liaison between the MI and the zone cluster.

A particularly unique factor in this clustering approach is that the design set up proposes to utilize both a communalistic and an individualistic approach. Communalism is represented through the interaction of the cluster network's common goals toward achieving supply to the marketing intermediary. On the other hand, individualism is also satisfied in the model as each member of the cluster must work diligently and effectively in order to provide produce that meet the standard of the cluster network and marketing intermediary requirements.

Secondary Dimension

The Marketing Intermediary (MI) is the focus of the secondary dimension. The MI controls SMF systems. The MI is responsible for the marketing of commodities and assumes the role of a project manager for the cluster-based organizations to maintain operations, sustain viability and provide good leadership. This is essentially how SMFs are managed in an operational and administrative sense. The core function in the establishment of the MI is to direct financial and resource elements of SMFs. In addition, the MI may also establish greater control of product output and thus aim to meet both regulatory and consumer demands. It defines, establishes, and exemplifies the organizational culture of the cluster-group. This conceptual understanding is fundamental to the CCM as it extends the role taken of the MI by ensuring market access, fair price and rewards.

An important aspect of the MI is to provide sustainability to handle internal and external influences on the model. Three interrelated components are present: management and planning; risk and transformation; and research, technology and partnership. Through effective management and planning, the MI will provide direction and clearly communicate marketing implications to SMFs. The MI will facilitate a strategic partnership with zone clusters aiming to provide benefits that will foster increased quality and production.

Risk and transformation are all about how SMFs deal with risk factors, manage alteration and are willing to engage in a paradigm shift in carrying out tasks. Risks involve factors defining how SMFs are geared towards the future and how they incorporate transformation. The MI facilitates the process of risk and transformation through the provision of systematic procedures guided by the contractual agreement.

The capacity to handle new research and technology is all the more important as change appears to be increasing rapidly. Identifying and implementing research based practice is an important aspect of maintaining quality production. For this reason, the MI will aim to foster research and technology that examines market climates and identify market requirements.

The MI functions out of a self-sustaining agriculture-based project. In this way, the MI and clusters of SMFs would function in a symbiotic relationship, each benefiting the other but neither inherently relying on the other for continuation. In order to be self sustaining the MI will require approximately 200 ha of land (Taulealea, 2005). This will ensure that the model, if applied, will be able to function in scenarios where the cluster is being challenged or fragmented by external forces. Fig 1 shows the fringe of the MI depicting the resource base required for self-sustainability.

Tertiary Dimension

The tertiary dimension is the HEART of the CCM as it provides a vital component for the model. The HEART is an acronym represented by *h*otels, *e*xport market, *a*rea market, *r*esearch, and *t*rade. It is through alliances with HEART that the MI enforces performance standards for SMFs to achieve. The MI ensures that the clustered SMFs are strongly linked to external organisations through this tertiary dimension.

The partnering hotels expect holistic quality from SMFs via the MI. To achieve the requirements for hotels, the MI ought to devise a planting program and infrastructure to meet the holistic quality transportation and consistent supply of produce for each CCM hotel.

The export market will be fostered through strategic alliances with international buyers. The MI will seek out business exchanges grounded in contractual or trade agreements. The MI will aim to address international quarantine regulations and logistics for trade. The area (domestic) market includes business exchanges between the MI and local supermarkets, shopping centres, and the municipal market. The MI will focus on providing reputable quality, service, reliability, and affordable pricing targeted to meet the needs of the area market.

Research organizations are very strong components of the CCM. The MI will negotiate through partnership with national and regional government, private sector, corporate industry and international organizations. For trade services, the MI will negotiate through partnership at the government, regional and international level.

Conclusion

The primary, secondary, and tertiary dimensions explain the unique components of the CCM. Once the cluster networks are established in the primary dimension, they will both work with and be guided by the marketing intermediary. As the secondary dimension, the marketing intermediary plays the important role of regulating the exchange of information and products among the other two dimensions. The tertiary dimension provides an independent consumer opportunity for the cluster networks committed to the CCM.

The CCM provides the basis for the necessary research framework to study the impact of clustering in Fiji. The development of the model shows that links can be established to test the role or suitable points for adoption of clustering in SMFs. The model also addresses gaps between common clustering concepts and cooperative groups; and the important dimensions of the factors influencing SMF performance. The CCM will be used as the basis for a detailed study into its acceptance by Fijian stakeholders. It will also form the basis of longitudinal studies to examine the impacts of clustering methods over time.

The CCM will be used to gain attention to the application of clustering SMFs, arouse interest through testing attitudes, acceptance and culture, and to promote the need for changing how clustering methods are developed and used for SMFs in Fiji. Only through applied research, can the issue of whether clustering has a place in SMFs be brought to the attention of all SMF support interest groups, stakeholders and the State.
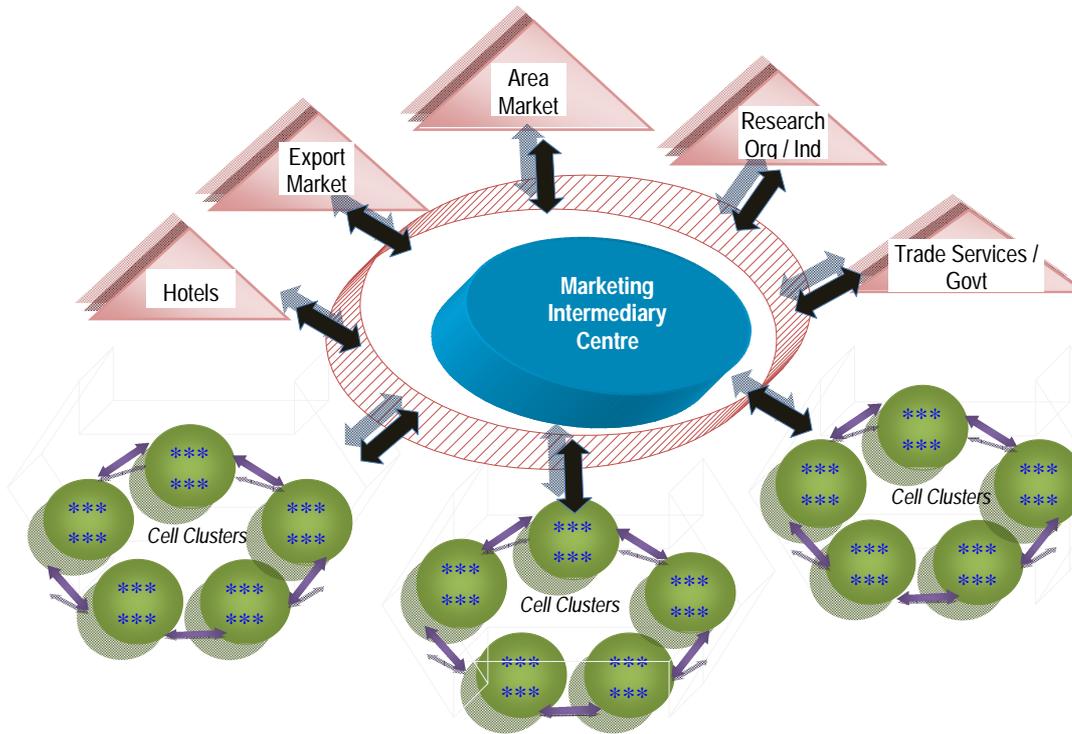
Figure 1. Centralized Clustering Model

Model Description

1. The circles with stars represent cell clusters comprising 6-15 SMFs in each cell. A cluster of 5 cells make up 1 zone cluster.

2. The arrows encircling the cells signify interactive collaborative networking between the cells in the one zone cluster.

3. The encompassing transparent arrow in a cluster represents the zone cluster working together with other zone clusters; and also represents the potential for additional zone clusters to be included.

4. The MI in the is the mediatory between the clustered SMFs and HEART

5. Surrounding the MI is a fringe representing the sustainable resource base for the MI. HEART is labelled in the triangles.

6. Finally, the shadowed dark arrows symbolise a mutual partnership between the MI, Cells and HEART.

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