

# Collaborative Entrepreneurship for Value Additions in Coconut Farming

---

Dr. P.Baba Ganakumar\*

## ABSTRACT

*India occupies the premier position in the world for coconut production overtaking Indonesia and the Philippines, the other two prominent coconut-growing countries. The research explored the integrated entrepreneurial skills needed for the entrepreneurs in coconut farming. The co-integration between self-values and functional values of farmers are studied with an aim of identifying the new tactical skills needed for the evolving coconut farmers. The expectation of the non-cultivators but aggregators in the coconut farming community are also included in the study to find out the optimum skills needed for coconut cultivators in emerging new innovations and technologies.*

*The co-integration among functional and inter-personal skills was identified. The research strongly favours vertical integration in creating skill-based self values. Hence the research can be useful for the policy makers in providing need-based training to the farming community.*

*Keywords: GIPS, Vertical integration*

## Introduction

Coconut is grown in more than 86 countries worldwide, with a total production of 54 billion nuts per annum. India occupies the premier position in the world with an annual production of 13 billion nuts, overtaking Indonesia and the Philippines, the other two prominent coconut-growing countries. The Central and State governments spend crores of rupees for research and development in coconut sector, but the coconut farmers are deprived of a remunerative price all these years except for a limited period at some intervals. As a result, coconut farmers continue to be a distressed lot. For over a year now, the prices of copra are ruling far less than the minimum support price (MSP) of Rs 3,590 a quintal. The open market prices are dwindling between Rs 3,000 and Rs 3,300 a quintal. Direct involvement of farmers in marketing could be viable measure. This will improve farm-market linkage.

The conservative method of farming is changing towards innovative methods. Social farmers and new growers were more successful than other farmers. According to economic theories, they also seemed to meet the "demands" of "real" entrepreneurship better than other farmers because they can be called "movers of the market," innovators," and/or "discoverers of profit opportunities." Integrated farming aims at achieving optimum productivity on an enduring basis by

stimulating the underlying productivity of the soil. The promotion of integrated farming in coconut holdings with emphasis on resource conservation holds promise for the growth of the agricultural economy of the country by generating marketable surplus of organically grown foods which enjoy considerable consumer demand in other countries.

## Review of Literature

Saide (2006) analyzed the role of community building that could establish common values, and to develop collective goals and actions. Such strengthening of organizational leadership and entrepreneurship capacities and skills could significantly contribute to attaining economic self-reliance, poverty alleviation and sustainable development, if the community building approach were to be adequately applied. Mary (2004) research revealed that there is a significant differences in the views of institutions and entrepreneurs as to whether the developmental programmes were responsive to the needs of the entrepreneur; whether they encouraged entrepreneurship and helped in the success of a firm. The analyses also revealed that the programmes had indeed encouraged entrepreneurship and helped in the success of the firm. Wolf (2007) examined the socio-economic and cultural factors hindering or stimulating the development of entrepreneurial skills of farmers in Europe. The functional entrepreneurial skills needed by the coconut farming community are discussed in the present study. The co-integration between self-values

---

\*Head, Department of Commerce Sri Krishna Arts and Science College, Coimbatore, Tamil Nadu, India

and functional values of farmers are studied with an aim of identifying the new tactical skills needed for the evolving coconut farmers. The expectation of the non-cultivators but aggregators in the coconut farming community are also included in the study to find out the optimum skills needed for coconut cultivators in emerging new innovations and technologies.

**Objectives of the Study**

The primary objectives of the study is to identify the integrated entrepreneurial skills needed to achieve following criteria,

- ? To create opportunities for enhancing on-farm income of the cultivators and producers of coconut and its allied products.
- ? To strengthen marketing infrastructure for domestic and export marketing,
- ? To enhance information access and dissemination of research information.
- ? To promote efficient product and by product utilization &

- ? To implement and make aware of research on various improvement for higher output of primary products from coconut and technology.

**Methodology**

The average productivity of coconut in India is 6898 nuts per ha. Among the four major coconut growing states, Tamil Nadu has the highest productivity (11 620 nuts/ha), Andhra Pradesh has a productivity of 8296 nuts/ha, followed by Kerala (5793 nuts/ha) and Karnataka (5204 nuts/ha). Hence the primary data were collected from 300 coconut cultivators a in Tamil nadu. Cluster analysis is done to group the respondents according to their functional skills. To filter the variables, factor component analysis was done and only five factors were identified. Analysis of variance is used to find out the variations among the inter-personal skills and functional skills. MDS procedure is used to find out the co-integration between the inter-personal skills and functional skills. In the second stage, based on the findings from the cultivators' responses, interview schedule was

**Table 1.**  
**Input-Process-Output Chart**

Stage	Purpose	Input	Process	Output
I	To identify the variables need to measure entrepreneurial activities	Secondary Data, Pilot Study	Review of literature	Functional variables and Inter-personal variables.
ii	To stratify the functional and inter-personal skills	Primary data – Attitude Scaling	Cluster Analysis	Five groups were established under each variables
III	To find out the entrepreneurial skills needed	Stratification results of the Cluster analysis	Factor Component analysis	Five skills were identified
IV	To identify the variations among the functional values and inter-personal skills	Five entrepreneurial Variables and two interpersonal variables	One Way ANOVA	There is a significant variation.
V	To identify the perceived entrepreneurial values	Factor loadings for functional variables	MDS	Tactical positioning needs experience and high self value.
VI	To find out the relative importance for entrepreneurial values	Primary data collected from 100 Non-cultivators	Conjoint Analysis	Geographical positioning is a vital one
VII	To integrate the cultivators and non-cultivators functional values	Output of above stages	Mapping	GIPS.

prepared for collecting the data from non-cultivators but engaged in coconut farming/marketing activities. Conjoint analysis was done to find out the expectations from the non-cultivators. Then cultivators and non-cultivators opinion were integrated. The gap in skills was identified. Table 1 shows the tools used in the research.

#### Functional Values

##### Enhancing On-Farm Income

The coconut palm exerts a profound influence on the rural economy of the many states where it is grown extensively and it provides sustenance to more than 10 million people. The export earnings derived by India from coconut are around Rs.3000 million, mainly through the export trade in coir and coir goods. The processing and related activities centred on the crop generate employment opportunities for over two million people in India. The contribution of coconut oil to the national edible oil pool is 6 %. In addition, the crop contributes Rs.7000 crores annually to the Gross Domestic Product (GDP). On an average, a coconut farmer has in possession 50 cents of land. The yield would at best be 200 coconuts. Of these, 20 to 30 coconuts are taken by the farmer for his own use. What is remaining is abysmally low for entering a competitive market.

##### Marketing Infrastructure

India, which accounted for 22.34 per cent of the world's coconut production, was facing tough competition in the global market from Sri Lanka, Malaysia, Ivory Coast and Philippines. The domestic coconut market was influenced by the price behaviour of coconut oil and, hence, the price of coconut oil determined the prices of the coconut and its products. In recent years, the coconut oil market had suffered a setback following availability of palm oil and groundnut oil at lower prices.

##### Information Accessibility

The research on coconut in India is being carried out by the institutions under the Indian Council of Agricultural Research and the State Agricultural Universities located in different coconut growing states. Research on post harvest processing of coconut is also undertaken by the institutions under the CSIR. Coconut development programmes in India are mainly carried out by the Coconut Development Board, which was established in 1981.

The board's schemes are either implemented directly or through the Department of Agriculture/Horticulture of the states and union territories.

##### Efficient Product and By-Product Utilization

Of the total production of coconuts, about 5 % is consumed in the tender form for drinking purposes. The rest is utilised as mature nuts for household and religious purposes and for the production of edible copra, milling copra and desiccated coconut. Coconut oil production in the country is nearly 4.5 lakh tonnes. Of this 40 % is consumed for edible purposes, 46 % for toiletry uses and 14 % for industrial uses. It also produces coconut cream, coconut milk, spray dried coconut milk powder, tender coconut water, shell charcoal, coconut water based vinegar and coir.

##### Technology

The awareness and adoption of improved coconut farming technologies among farmers in other coconut-growing countries such as the Philippines, Vietnam and Sri Lanka are comparatively high when compared to Indian farmers. The diverse coconut-based products in these countries enhance the farm income, and farmers should take the lead from them. The technology mission initiated by the Coconut board two years ago has started showing results with 24 integrated processing units across the country, some even coming out with four products, having a capacity to absorb nearly 95 million nuts.

##### Collaborative Venturing

Union Ministry of Agriculture and Cooperation, has appealed to coconut growers to opt for contract farming through tie-ups with agribusiness firms to increase yield and income. However, no firm had engaged in contract farming for coconut cultivation in the country so far. The Calicut district in Kerala has come up with a comprehensive integrated coconut development project to give boost to the coconut production. An outlay of Rs 52 lakh has been earmarked in the district budget for the project during 2006-07. It was introduced in 600 hectares in the district and 44 clusters with 25 hectares each will be formed in each village.

##### Variables Identified in the Research

To identify the attitudinal values affecting the coconut farming entrepreneurship, ten variables were identified based on the objectives of the study. To

match the functional relationship two independent variables were identified in the research. Table 2 portrays the variables used in the research.

Table 2. Variables List

Sl.No	Objectives	Variables
<b>Functional variables</b>		
1	Enhancing on-farm income	Strategic planning
2	Marketing infrastructure	Marketability, Price, Promotion, Place
3	Dissemination of research	Knowledge factor
4	Product utilization	Supply chain, Customisation
5	Technology orientation	Technology
6	Linkage	Collaboration
<b>Independent variables</b>		
7	Inter-personal relationship	Self-values, Experience

**Cluster Procedure**

Since the size of the sample is large, cluster analysis was done to stratify the respondents (customers) who are relatively homogeneous in terms of the entrepreneurship proposition values. Ten basis of stratification was determined to establish

entrepreneurship variables. The bases of cluster are based on knowledge, technology adoption, marketability, promotion, pricing, place, supply chain networking, collaborative venturing, customisation and business strategy formulation. The clustering criterion was the Akaike's Information Criterion (AIC). The number of clusters was determined based on the minimum five-cluster solution. The comparison of cluster centroids is measured to formulate the results. The interview schedule was designed to measure these variables with fifty questions. Agglomerative clustering method is used to group the respondents views based upon the different entrepreneurship values. Based upon the group centroid five clusters are established for each values. The highest group centroid cluster is named as the impressive cluster and lowest group centroid is named as unimpressive cluster. The reliability test was carried out to find the inter-item covariance matrix. The variation among the functional values is 12.39 and it is significant at 5% level. Table 3 shows the entrepreneurship variables clusters.

Table 3. Entrepreneurship Variables

Sl.No	Entrepreneurship Value	Cluster Combination Percentage				
		1	2	3	4	5
		Impressive	Stirring	Striking	Modest	Unimpressive
1	Knowledge	28.00	14.70	17.30	24.70	15.30
2	Technology adoption	15.70	27.00	14.70	21.60	21.00
3	Marketability	19.70	21.30	22.70	19.30	17.00
4	Promotion	21.00	30.00	14.70	20.00	14.30
5	Pricing	20.00	21.30	17.70	20.00	21.00
6	Place	12.70	16.30	36.00	18.70	16.30
7	Supply chain networking	17.30	29.00	27.70	14.00	12.00
8	Collaborative Venturing	19.30	24.30	19.30	21.00	16.10
9	Customisation	21.70	16.30	20.70	20.70	20.60
10	Strategic Planning	14.30	35.70	20.70	17.70	11.60

**Inter-personal Skills**

Since the entrepreneurial activities are based on the self characteristics of an individual, the self values of the cultivators are included in the research. The positive personal characteristics (self-criticism, leadership, creativity, perseverance, and initiative) affected agricultural entrepreneurship positively, and negative personal characteristics (love of ease and passivity) are studied in this research. Semantic differential scaling with five points was constructed to measure the self values of the cultivators. Then the results are grouped with cluster analysis. Exhibit 1 shows the cluster combination created for the inter-personal skills.

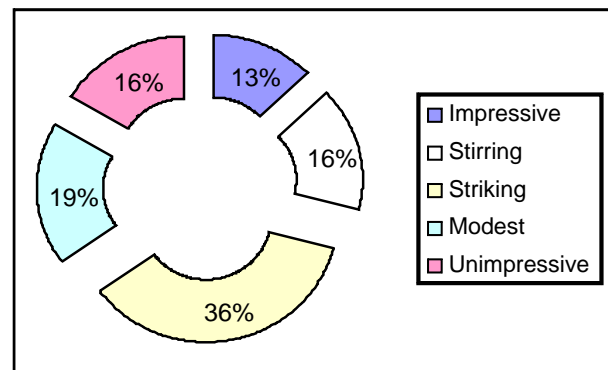


Exhibit 1. Self-Values-Cluster Combination

**Factor Analysis**

To identify the factors that contribute significantly to the entrepreneurship values in coconut farming, the variables clustered are filtered through factor-component analysis. The variables are appropriately measured through cluster values. The null hypothesis, that the population correlation matrix is an identity matrix, is rejected by the Bartlett's test of sphericity. The approximate chi-square statistic is 83.035 with 45 degrees of freedom, which is significant at the 0.05 level. The value of Kaiser-Meyer-Olkin statistic (0.682) is also large (> 0.5).

Thus factor analysis may be considered an appropriate technique for analyzing the correlation matrix. Principal component analysis is used to determine the four factors. It can be revealed that the communality for each variable, V1 to V 10, is 1.0 as unities were inserted in the diagonal of the correlation matrix. The number of factors is determined based on percentage of variance and eigen values. Only factors with eigen values greater than 1.0 are retained. The cumulative percentage of variance extracted by four factors is 64.231 and these factors have eigen value greater than one.

Table 4. Factor loading

F.No	Factor	Factor Loadings	Variables	Variable Loading
1	Innovation	21%	Knowledge	0.700
			Technology adoption	0.634
2	Push Strategy	11%	Marketability	0.734
			Promotion	0.626
3	Tactical Positioning	12%	Pricing	0.742
			Strategy formulation	0.675
4	Shared Values	13%	Supply chain networking	0.751
			Collaborative venturing	0.644
5	Geographical positioning	12%	Customization	0.846
			Place utility	0.347

Based on the variable combinations, the factors are named. The factor 'innovation' accounted for 21% variance. The entrepreneurial values needed for coconut farming are filtered to five variables i.e., innovation, push strategy, tactical positioning, shared values and geographical positioning. All these values are needed for the successful entrepreneur.

Self values and Entrepreneurial values

The co-integration between the individual values and functional values (created by factor analysis) are studied through the variance analysis. ANOVA tables are prepared. Table 5 shows the significance of 'f' values between independent variables and functional variables at 95% confidence limits at degrees of freedom 4/ 295.

Table 5. ANOVA Table-Functional Values Vs Interpersonal Values

Functional Values	Experience		Self-values	
	F-Statistic	Significance	F-Statistic	Significance
Innovation	24.721	Significant	6.08	Significant
Push Strategy	13.726	Significant	0.86	Not-significant
Tactical Planning	8.525	Significant	53.01	Significant
Shared Values	1.782	Not-significant	12.80	Significant
Geographical Positioning	0.425	Not-significant	2.03	Not-significant

The result clearly indicates that there is a significant variation between 'innovation', 'tactical planning', 'shared values' and 'self values'. There is a significant variation between 'innovation', 'push strategy', and 'tactical planning'. However there is no significant variation between 'geographical positioning' and functional values. The results are displayed in Exhibit 2.

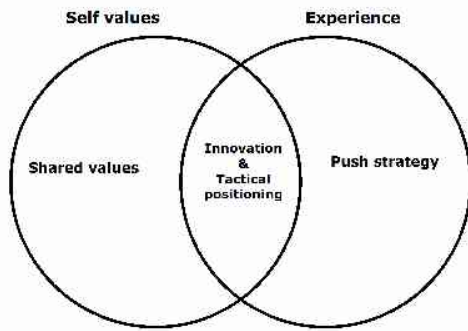


Exhibit 2 Co-integration of functional Values

Hence it may conclude that the functional relationships between different values are not horizontal, but vertical and integrated with interpersonal variables.

Multi Dimensional Scaling (MDS)

To study the nature of dimensions of value propositions of cultivators used to perceive different entrepreneurial values, multidimensional scaling procedure (MDS) was adopted. The perception data about the entrepreneurial values were collected by inputting the factor values. The reliability of the analysis was measured by stress value and R- square. The stress index is 0.0103, which indicates a perfect fit. The R-square is 0.934, which indicates the desirable level of fit.

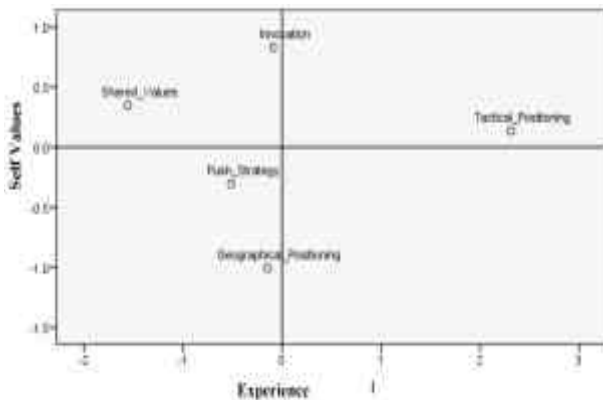


Exhibit 3 Euclidean distance model

Two dimensions were established with the MDS procedure. Dimension 1 is named as 'self values'. Dimension 2 is named as 'experience'. Based upon the results of the variance analysis, the dimensions were named. The labeling of two dimensions was tested with the variation among the functional variables and attitudinal variables. If self values and experience are high for the entrepreneur, he is able to position their product well. This supports the conservative theory. However, the persons having high self values and little experience are able to identify innovative practices. To have collaborative ventures (shared values) there is no need for high experience. This is a major deviation from the conservative theory.

Non-cultivators Values

After getting the conclusion from the data collected from the cultivators, primary data were collected from non-cultivators involved in marketing the coconut products. The sales volume is considered as the independent variable. The functional variables are 'innovation', 'push strategy', 'tactical positioning', 'shared values' and 'geographical positioning'. Attitude scaling technique is used to measure the functional variables. To determine the comparative importance of attributes among the five entrepreneurial values, conjoint analysis was carried out. The reliability of using conjoint analysis was measured by R square. Since R-square was 0.666, conjoint analysis was appropriate one. Exhibit 4 shows the relative emphasis on entrepreneurial values to be given by cultivators.

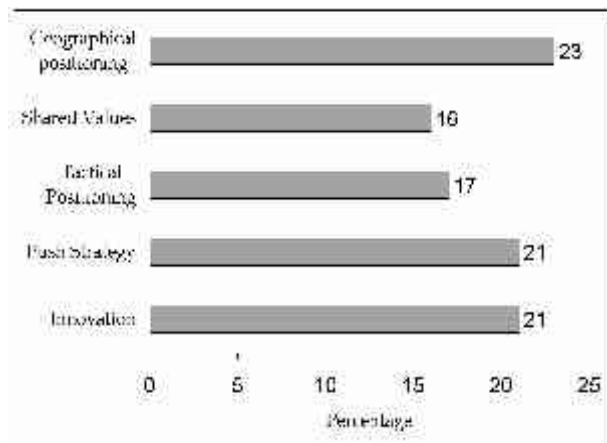


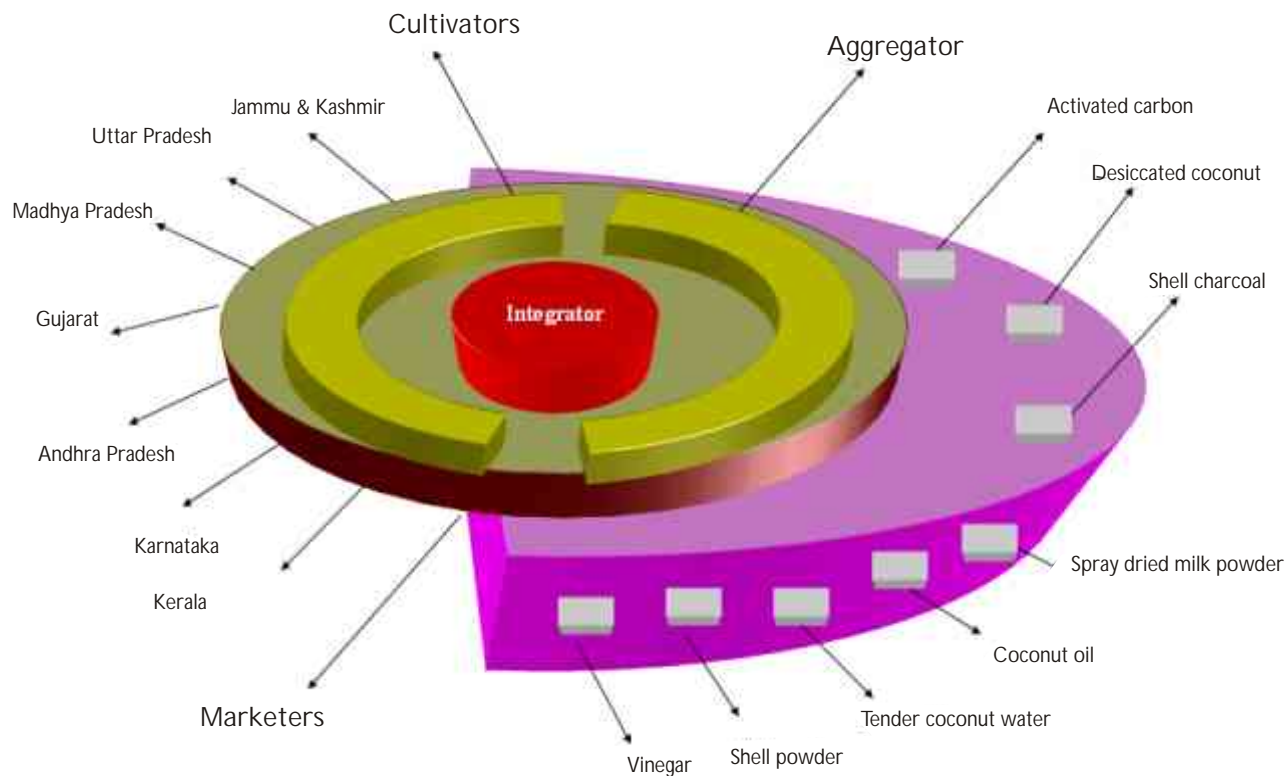
Exhibit 4. Relative Importance factors (Non-cultivators)

The non-cultivators are giving much more importance to geographical positioning of coconut products.

### Integrating the Need Based Values

There is a wide gap between the expectation of non-cultivators and cultivators values. This phenomenon leads to de-motivate the entrepreneurial skills of the cultivators. The non-cultivators expect

'geographical positioning' as a strategic variable, whereas cultivators are not giving importance to geographical positioning. Hence, the integrating strategy should focus on 'geographical positioning'. The functional values such as innovation, push strategy, tactical positioning and shared values should aim for geographical positioning. Otherwise, there will be a miss-match between demand and supply. The supply chain process of value added products



*Exhibit 4 Geographical Indication Positioning System (GIPS)*

from coconut should be positioned according to the demands in different geographical location. The integration needed for the cultivators from Tamil Nadu is depicted in Exhibit 5.

Under the Geographical Indication and Positioning System, three layers of management information system were established. The bottom layers are integrated between the value added products of coconut with place utility. Hence the manufacturers of value added products in the state of Tamil Nadu have to be position their product with other states. The second layer was established by the marketers/intermediaries. The top level layers were integrated by the cultivators and aggregators of

coconut products. The integrator ie, entrepreneur has to establish vertical link with all the persons involved in the entire process of cultivation to end usage. Based on the research findings, the vertical integration is proposed for the farm-based entrepreneurship.

### Findings and Conclusion

Innovation, push strategy, tactical positioning, shared values and geographical positioning are the functional entrepreneurial skills needed for the integrated coconut farmers. High self skills and experience leads achieve the functional goals such as innovation and tactical positioning of value added products from coconut. Shared values are related with

the self values of the entrepreneurs. Experience is needed to push the value added coconut products to the markets. Most of the cultivators need not worry about the geographical positioning of the value added products from coconut. But the aggregators of coconut products are giving importance to geographical positioning. Hence, if the cultivators themselves take the risk in geographical positioning of the coconut products, they are able to achieve the integrated farming objectives. Input management has become vital to make the coconut sector more competitive. The strategy suggested is to go in for cluster approach or group farming. Groups of farmers can involve in cultivation and generate a surplus (marketable supply in value chain of the coconut). If group farming is followed with vertical integration among different activities, the entrepreneur is able to position their product in different geographical locations and create a societal equilibrium.

References:

- ? Agrawal, R C (2000): "Perspectives for Small Farmers in Developing Countries: Do they have a Future?" Forum zur Gartenkonferenz 2000, <http://userpage.fu.berlin.html>. Retrieved on October 15, 2009.
- ? Batugal, P, Serdang, Coronel, R.E, (2004) Poverty reduction in coconut growing communities, Volume II: mobilizing for action, <http://agris.fao.org/agris-search/search/display.do?f=2008/QJ/QJ0801.xml;QJ2005000066>.
- ? Bayes, A and M. S Ahmed (2003): 'Agricultural diversification and self-help group', [http://www.visionri.net/cv\\_detail.asp?cvid=113](http://www.visionri.net/cv_detail.asp?cvid=113).
- ? Dash, M (2004): "Political Economy of Contract Farming", *Mainstream*, 42(52), Dec, 2004.
- ? Deshingkar, P, U Kulkarni, L Rao and S Rao (2003): "Changing Food Systems in India: Resource Sharing and Marketing Arrangements for Vegetable Production in Andhra Pradesh," *Development Policy Review*, 21(5-6): 627-639.
- ? Eaton, C and A W Shepherd (2001): Contract Farming: Partnerships for Growth, FAO, Initiatives in Bangladesh', Paper presented at the IFPRI-FICCI Workshop on <http://hdl.handle.net/10019/1187> Retrieved on 1st September, 2009
- ? Mary Jesselyn Co (2004), The Formal Institutional Framework of Entrepreneurship in the Philippines: Lessons for Developing Countries, Vol. 13, No. 2, 185-203.
- ? Pieter De Wolf A1, Gerard McElwee A2, Herman Schoorlemmer A3(2007), The European farm entrepreneur: a comparative perspective, *International Journal of Entrepreneurship and Small Business*, Volume 4, Number 6, 679-692.
- ? Pieter De Wolf, Gerard McElwee, Herman Schoorlemmer (2007); The European farm entrepreneur: a comparative perspective, *International Journal of Entrepreneurship and small business*, Volume 4, Number 6, pp 679 - 692 Rome.
- ? Saïde, Eusébio. M(2006), Community building for economic empowerment in rural Mozambique: An exploratory study in the Maganja da Costa District, Vertical Integration in Agriculture in South Asia, Nov 3, New Delhi/ <http://etd.sun.ac.za/handle/10019/1187>
- ? Winson, A (1990): "Capitalist Coordination of Agriculture: Food Processing Firms and Farming in Central Canada", *Rural Sociology*, 55(3), 376-394.