

Tobacco and Alternate Crops in Karnataka - A Management Perspective

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ABSTRACT

Flue-Cured Virginia (FCV) tobacco is the major commercial crop in Southern Transitional Zone (STZ) 7 of Karnataka. FCV tobacco is being grown in kharif as rainfed crop with more institutional support and sustained demand in the international market. The various crops cultivated include Ragi, maize, Paddy, Jowar (Cereals), Red gram, Cowpea, Field bean, Horse gram, Sesamum, Niger (Pulses and Oil seeds), FCV tobacco, Cotton, Sugarcane, Turmeric, Chillies, Ginger, Potato (Commercial Crops), Coconut, Areca nut, Banana, Mango, Tamarind, Sapota (Horticulture and plantation crops). India is a signatory to the Framework Convention on Tobacco Control and is under obligation to halve tobacco cultivation in the country by 2020. The present communication deals with various management initiatives involved in the process of finding an alternate or substitute to tobacco in some pockets with demand driven crops. The present paper deals with various factors and issues to be studied for substituting tobacco in micro-zones. An attempt is to identify domains for developing protocols to study the agro-system and priorities for stakeholders for joining hands with Government of India's initiative to halve the crop size from 100m.Kg by 2020. As a precursor to sustain the rural development possible areas for CSR activity have also been discussed. The protocols developed help in the management initiatives for substituting the crop in pockets.

Keywords: Flue-Cured Virginia tobacco; Alternatives; Agro-ecosystem; CSR-matrix

Agriculture is the predominant occupation of people in Mysore district. Out of the total geographical area of 676382 ha. in the district, about 342852 ha. is cultivable area. Totally, there are 379670 Land holdings in the district; of them, 86763 are small (less than 2 ha.), 237060 are marginal (< 1 ha) and others are medium (2-10ha.) and large (>10 ha.) holdings. Besides, the district has about 1.65 lakh agricultural labourers. Based on rainfall, soils and crops grown, the district is classified into two agro-climatic zones viz., Southern Dry Zone (Krishnarajanagar, Mysore, T.Narasipur and Nanjangud) and Southern Transitional Zone (H.D.Kote, Hunsur and Periyapatna) Tobacco Board).

FCV tobacco is an important Commercial crop grown under rain fed conditions in the STZ 7 of Karnataka, Cultivated in > 1.0 lakh ha in KLS covering around 1000 villages and 42,000 farmers (mostly small and marginal). Mysore district alone contributes for more than 80% followed by Hassan District (16%). Exported to around 50 countries annually the crop generates >1000 crores of rupees as foreign exchange. Known in the international market as “Mysore style” is classified as ‘Superior quality filler’ in the international market (CTRI). Excellent physical qualities (light to medium body, rich lemon to orange color, ripe, pliable, opens graininess, Ideal chemistry (low to medium nicotine, high reducing sugars, low chlorides). Very low pesticides level, low levels of heavy metals, TSNA, a carcinogen below detectable level, besides less tar content and carbon monoxide, the produce is considered as ‘Value for Money’ tobacco in international market (Anonymous, 2007). In the backdrop of Government of India’s initiative to reduce crop size an attempt has been made to study the zone to explore the possible role of corporate social responsibility (CSR) in the changing scenario.

METHODOLOGY

The study was conducted during 2014 with an aim of analyzing the cropping pattern to look at opportunities for viable substitute crop by summarizing existing information and data, to identify important factors to be assessed for crop substitution, to derive protocols to study agro-system, the study also, aimed at finding possible areas for CSR activity. The location of the study is Mysore district which lies in light soil region of Karnataka where Tobacco is the major commercial crop with better economic gains to growers. The area covered in the study includes four taluks viz., Hunsur, Periyapatna, K.R.Nagar and H.D.Kote taluks accounting 82% tobacco. The study is carried out by analysing the data available, personal interviews and personal visit. Data was pooled and indexing was done to analyse the cropping pattern (Catherine Liston-Hayes, Alan Pilkington, 2004)

Herfindhal index = Sum of squares off all the proportions of the acreage

Location quotient =

$$\frac{\sum \text{Total area under } X^1 \text{ crop in the district} / \text{Total area under } x^1 \text{ crop in the Tq}}{\sum \text{Total area under } X^n \text{ crop in the district} / \text{Total area under } X^n \text{ crop in the Tq}}$$

RESULTS AND DISCUSSION

The review of data and reports on the cropping pattern suggest that the zone is having unique features for better farm income in a sustainable manner. The area is spread over four taluks viz., Hunsur, Periyapatna, K.R.Nagar and H.D.Kote taluks accounting 82% tobacco. The area accounts 2.7 lack ha excluding area

Table 1: Crops cultivated in different seasons and the area in hectare

S. No.	Taluk	Crops-Kharif	Kharif	Rabi	Summer
1	H.D.Kote	Cereals	16333 (25.0)	142 (2.5)	625 (41.0)
		Pulses	7228 (11.1)	4750 (83.8)	-
		Oil seeds	1660 (2.5)	95 (5.0)	175 (11.5)
		Commercial crops	39871 (61.4)	680 (12.0)	726 (47.5)
		Total	65092	5667	1526
		Herfindhal index	0.4	0.632	0.403
2	Hunsur	Cereals	36111 (41.5)	9150 (45.6)	1109 (68.0)
		Pulses	20987 (24.0)	9684 (48.2)	185 (11.4)
		Oil seeds	4731 (5.5)	995 (5.0)	55 (3.4)
		Commercial crops	25354 (29.0)	240 (1.2)	280 (17.2)
		Total	87183	20069	1629
		Herfindhal index	0.09	0.252	0.247
3	K.R.Nagar	Cereals	34525 (58.1)	2192 (25.2)	1365 (48.5)
		Pulses	12691 (21.3)	4711 (54.3)	332 (11.8)
		Oil seeds	2463 (4.1)	468 (5.5)	10 (0.4)
		Commercial crops	9740 (16.5)	1300 (15.0)	1104 (39.3)
		Total	59419	8671	2811
		Herfindhal index	0.019	0.237	0.320
4	P.Patna	Cereals	20201 (35.8)	11175 (84.2)	429 (79.9)
		Pulses	4782 (8.5)	1815 (13.7)	68 (12.7)
		Oil seeds	578 (1.0)	180 (1.4)	-
		Commercial crops	30819 (54.7)	88 (0.7)	40 (7.4)
		Total	56380	13258	537
		Herfindhal index	0.342	.070	0.338

Figures in parenthesis are% out of total area of the taluk

under horticultural crops. Different crops like cereals (40%), pulses (20%), oil seeds (5%) and commercial crops including tobacco, cotton and sugarcane (35%) constitute the major agricultural spectrum of the area. While, *kharif* is dominated by cereals and tobacco with 40%, *rabi* constituted cereals (55%) and pulses (45%).

The various crops cultivated include Ragi, maize, Paddy, Jowar (Cereals), Red gram, Cowpea, Field bean, Horse gram, Sesamum, Niger (Pulses and Oil seeds) FCV tobacco, Cotton, Sugarcane, Turmeric, Chillies, Ginger, Potato (Commercial Crops), Coconut, Areca nut, Banana, Mango, Tamarind, Sapota (Horticulture and plantation crops) (Fig. 2). Among the commercial crops tobacco is major crop sustaining the farm income and employment opportunities. Location quotient of crops, which is an index comprising the value according to the crop area in the

Table 2: Location Quotient of different Crops in Mysore district

S. No.	Taluk	Crops-Kharif	Kharif	Rabi	Summer
1	H.D.Kote	Cereals	2.6 (15.2)	76 (0.6)	3.1 (17.7)
		Pulses	1.1 (15.8)	1.9 (22.7)	-
		Oil seeds	0.2 (17.6)	0.7 (5.5)	0.05 (72.9)
		Commercial crops	1.1 (37.70)	0.2 (29.5)	1.0 (33.8)
		Total area (ha)	65092	20069	1526
2	Hunsur	Cereals	1.2 (33.8)	1.2 (40.4)	1.8 (31.4)
		Pulses	0.5 (45.9)	0.9 (46.2)	0.2 (56.8)
		Oil seeds	0.1 (50.1)	0.6 (57.2)	0.9 (51.3)
		Commercial crops	1.7 (24.0)	0.5 (10.4)	0.6 (51.3)
		Total area (ha)	87183	20069	1629
3	K.R.Nagar	Cereals	1.2 (32.2)	4.9 (9.7)	1.4 (38.7)
		Pulses	0.6 (27.8)	5.0 (22.5)	0.2 (56.8)
		Oil seeds	0.1 (9.2)	0.1 (26.9)	0.9 (51.3)
		Commercial crops	4.3 (9.2)	0.09 (56.3)	0.6 (51.3)
		Total area (ha)	59419	8671	2811
4	P.Patna	Cereals	2.2 (18.8)	0.9 (49.3)	4.6 (12.2)
		Pulses	1.6 (10.5)	5.0 (8.6)	0.8 (11.6)
		Oil seeds	0.6 (29.1)	0.3 (10.4)	-
		Commercial crops	1.4 (29.1)	1.3 (33.8)	17.9 (1.9)
		Total area (ha)	56380	13258	537

Figures in parenthesis are% out of total

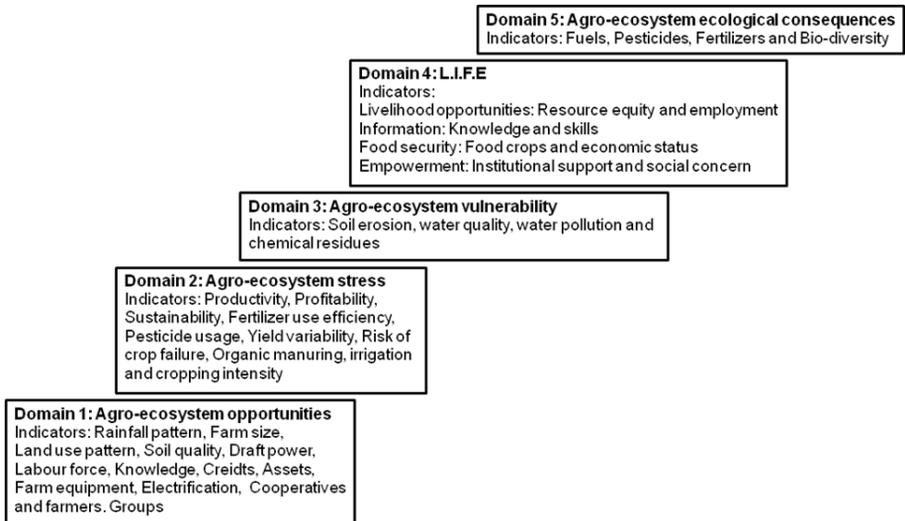


Fig. 1: Domains for studying the Agro-ecosystem

taluk, overall area in the district for that crop and overall cropped land in the district suggested diversification of crops. Herfinahl index which accounts the sum of squares of all the proportions of acreage suggested diversification. The actual impact of crop diversification reflected on more farm employment and income. During *kharif* commercial crops followed by cereals generated 82.5 and 44.4% farm employment. Pulses occupied major area in providing employment during *rabi*, while cereals in summer due to irrigated area in the district (Tables 1, 2 and 3).

Table 3: Economic considerations for different crops

Crops	Yield /ha	Market Rate	Gross Returns (₹)	Cost of Cultivation (₹)	Net returns (₹/ha)
Maize	40-50q	₹ 1000/q	40,000-50,000	15,000	25-35,000
Ragi	20-25q	₹ 900/q	18,000-20,000	10,000	8 -10,000
Field bean	25-30q	₹ 10/kg	25,000-30,000	8,000	17-25,000
Chillies	60-75q	₹ 8/kg	50,000-60,000	22,000	28-38,000
cotton	15-17 q	₹ 3000/q	45,000-50,000	15,000	30-35,000
Ginger	100-120q	₹ 1000/q	1,00,000-1,20,000	50,000	50-70,000
potato	100-120 q	₹ 600/q	60,000-70,000	27,000	33-43,000
Paddy	35-40q	₹ 900/q	30,000-35,000	12,000	18-23,000
Sugarcane	100-120 t	₹ 1800/t	1,80,000-2,00,000	90,000	90-1.10lac
Banana	25-30 t	₹ 7000/t	1, 75, 000-2, 10,000	75,000	1.0-1.25lac
Tobacco	1250-1500 kg	₹ 110/kg	1,37,500-1,65,000	75,000	62-90,000

Since, India is a signatory to the Framework Convention on Tobacco Control it is under obligation to halve tobacco cultivation in the country by 2020. The seminar on Alternative tobacco crop held in 2011, has supported the view there is every need to continue to support tobacco farmers as they shift to alternative crops. There is a need to reduce tobacco cultivation and look at providing rehabilitation and compensation in a phased manner. According to Tobacco Board that a package under which tobacco farmers would be given ₹ 5 lakh each for opting to shift to alternative crops was pending before the Government. However, growers are sceptical in getting the same benefits if they switch to an alternative crop. Tobacco is the livelihood for umpteen families and if tobacco cultivation is reduced, families will be left in the lurch. The government should make strategy before actual suggesting any alternative to tobacco.

The steps needed in this direction can be crop diversification to slowly reduce tobacco cultivation bringing down the area drastically. The option could be integrated farming, developed by CTRI comprising different cropping systems including animal component which is a self sustained one. Similar models have to be developed ideal for different micro zones in the area. There is a need for lot of extension activity by stakeholders in the larger interest of farmers and nation as a whole. Non-governmental organizations have a greater role in this direction.

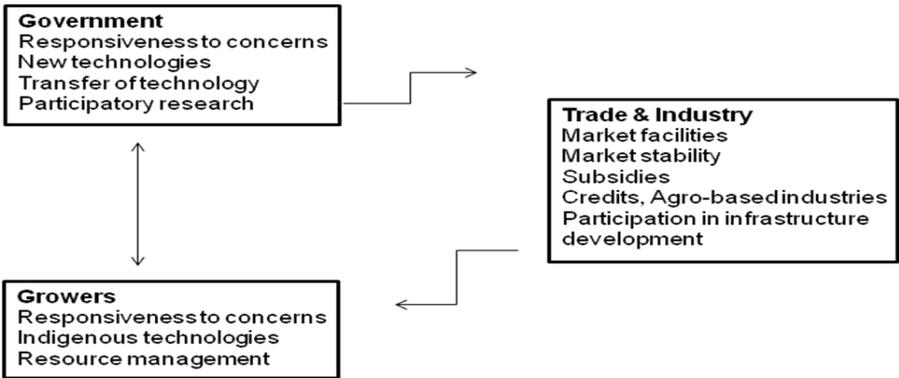


Fig. 2: Priority Issues for Stakeholders

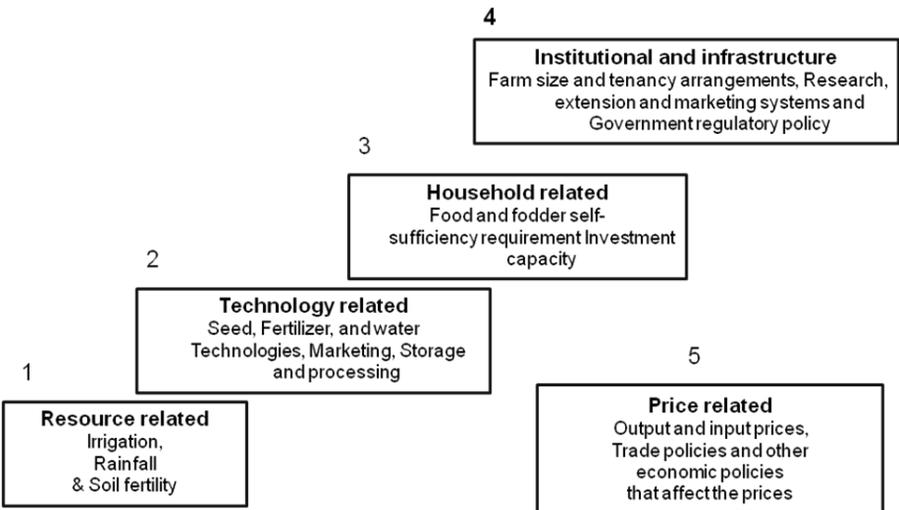


Fig. 3: Issues in the Crop Substitution

Constraints seen are total dependence on rainfall, over-use of land-water resources, and fragmentation of land holdings leading to less mechanization, poor infrastructure for storage and services like roads and agro-based industry for value-addition. The advantages and disadvantages of the crop are also encouraging

for crop substitution. The various advantages seen from the SWOT analysis are Institutionalization, more profits, more employment, international demand and more opportunities for higher income. While, the disadvantages on the other side are lack of food security as crop size is increasing over the years. More institutional support results in debt-trap of growers and more dependence on the crop is major ecological and health concern.

A holistic approach is needed to replace tobacco crop with an alternative crop or cropping system in the backdrop of “WHO-Framework Convention for Tobacco Control” and Government of India’s policy decision on reducing the crop size by 2020 (Tobacco Board). The ways and means are to be worked out by analysing various possible domains in the process (Sreenivas, S.S, 2008). A protocol describing various domains and indicators is very much useful to understand the cropping system and for right substitute to any agricultural system (Swamynadhan, 1989; 1995) (Fig.1). There is a need to set priorities to bring the change (Fig. 2). The present scenario can be studied by applying different parameters encountered in changing the system. The various issues in the area should be studied to set priorities for Management strategies (Fig.3 and 4). The technical actions to be organized are specific crops/varieties, crop calendar, transfer of technology, capacity building/skill training, resource mobilization and funds (DFDI, 1999).

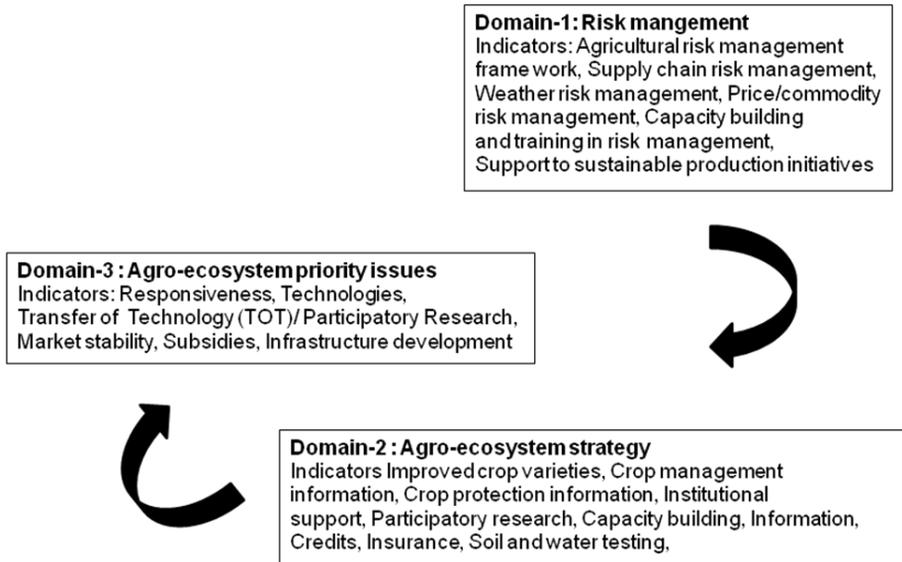


Fig. 4: Management Initiatives for crop substitution

Role of Corporate Social Responsibility in the efforts of looking for an alternative to tobacco is very much in the present situation. The scenario demands lot of CSR

activities from the stakeholders (Sanjay Pradhan and Akhilesh Ranjan, 2010). The major areas that are very demanding are Information, infrastructure development, community development to sustain changed scenario. Stakeholders can bring change in the mind set of farmers with the helping hand. The need of the hour is support to the growers to sustain the intermediate period change. The priority areas in changing the crop for diversification can be Knowledge, information, credits and infrastructure development for making growers to look for change. The involvement of NGOs and corporate help boost the farmer’s participation, by doing way their fears of loss of farm economy, stability of yields and marketing aspects. The situation demands lot of developmental activities opening opportunities for corporate social responsibilities (CSR) and a proactive role by all stakeholders (Fig. 5).

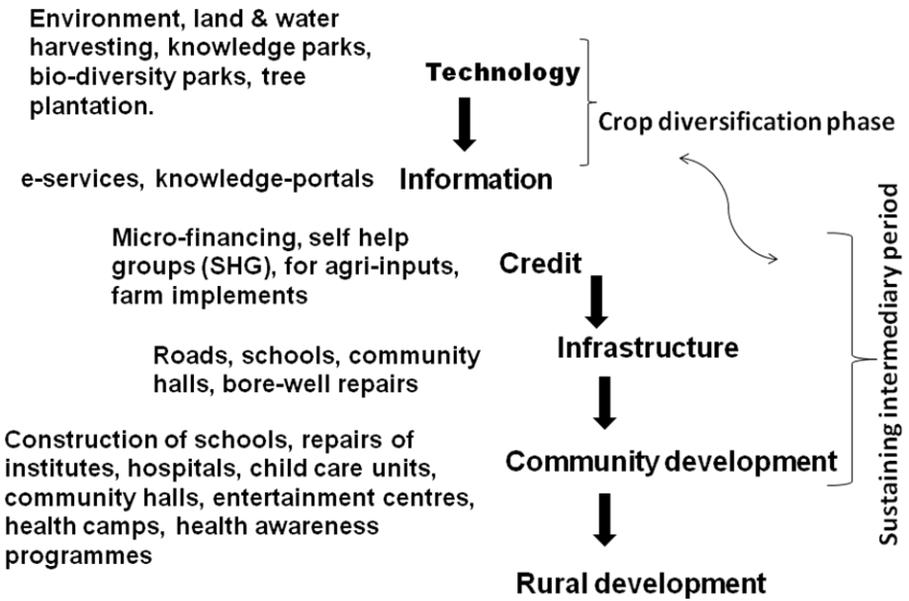


Fig. 5: Matrix for possible areas of CSR activities

Study of the area revealed among the stakeholders, ITC-ILTD has made significant beginning with its CSR activities. The various activities include watershed development, biodiversity parks, e-services under “Namma sandesh, cattle development, animal husbandry service, social forestry, supporting educational institutes (ITC Limited).

CONCLUSION

At present there is no other alternative crop which is able to support the rural community on a sustainable basis. It is seen from the information available, that none of the crops are near to tobacco in either economic, employment or guaranteed market in the area where the farming system is rainfed and mostly small and marginal farm holdings. In view of India being signatory of the “WHO-Framework Convention for Tobacco Control”, there is a need look into the possible pockets for alternative crops. It is seen that some micro-zones which can be perfected with newer crops replacing tobacco with augmented farm income through technology intervention combined with management perspectives. The domains identified along with indicators, can be best studied to fit best management strategy. There is an every need to address issues like micro-zone imbalances in productivity, soil degradation, soil erosion, depleted water table, untapped rain water resources, raising cost of inputs and high cost of cultivation. A comprehensive management strategy is required to boost farm income by introducing demand driven production of crops, adding new enterprises at the farm i.e animal components, apiculture and fisheries. A scientific intervention is need of the hour to enhance the efficiency of resource use, land, water, fertilizer by adopting improved technology post harvest value addition. A management strategy results in securing food security, avoiding risk by changing mono cropping to multi cropping for more economic returns and rural employment. This is possible by adopting farming system concept involving shift in cropping pattern towards crops which are more in demand like oilseeds, pulses, horticulture, floriculture, medicinal and aromatic plants etc. along with animal components. This helps in augmenting the per unit income generation. Also, there is a need for ways to capture the new markets by giving value addition to the farm produce.

The determining factors to be assessed from farmers’ angle are high farm income from new crops with newer markets and storage facilities. A management intervention is required to establish scientific information, data on various crops suitable to the zone, inputs with credit system for switching over to alternate crops and market support for new farm produce. The ways and means for introducing alternate crops are development of area specific programmes, linkages, introduction of incentives for alternate crops through policy initiatives. Thus technology intervention is to develop economically viable crops/cropping system data base in on-farm trials under pilot project in different tobacco growing area through tapping potential oil seed crops like Castor, Groundnut, Sunflower etc., energy plantation and bio fuel crops in poor lands, developing and demonstrating integrated farming system for sustainable farm income and food security, allied enterprises like Dairy, Sericulture, sheep/goat farming, horticulture.

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