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Comparative Economics of Coffee Growing and Extension in Visakhapatnam and Koraput Districts

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COMPARATIVE ECONOMICS OF COFFEE CULTIVATION IN VISAKHAPATNAM AND KORAPUT DISTRICTS

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Preface

The coffee growing in India has become the best source of income for the cultivators of the hilly area, and it has the potential for a part of exports and the earning of the foreign exchange. There is a thriving extension of coffee development in the Visakhapatnam district, whereas the adjacent Koraput district does not show any stride in this direction. Therefore, Government of India, Ministry of Agriculture and Farmers Welfare, Department Agriculture, Cooperation and Farmers Welfare has assigned this study to find the factors which are responsible for the lagging in the development of coffee growing in Koraput district and the conditions and the better implementation of the coffee extension in Visakhapatnam district. In this regard, it is collected the information from the peasants and the official data of the study districts and estimated prevailing conditions, and it is given the recommendations for a policy formulation.

The results of the study have shown the exact scenario of the study area and enabled to infer the policy prescriptions. There is a wide gulf between the crops cultivated, and net incomes of the peasants and the coffee plantation is observed as the best crop among the cultivated in the study area for the highest income. Further, it supports ecological balance in the study area, and it plays a predominant role to convert denuded hills into a vegetation one. The coffee plantation development programme (CPDP) has brought a new life to the thousands of tribal peasants in Visakhapatnam district with a substantial and visible sea change in the vicinity of tribal villages in the socio-economic life of the farmer, while the same CPDP is reaching every year 100 acres and 100 beneficiaries in Koraput district. It is found that there is no proper coordination among the five departments which are instrumental for the execution of this programme. There is a need for the single nodal agency under the All-India Services officer for CPDP in Koraput district. It may be coupled with the geospatial technique to verify the area, and the online transactions linked with the administrative hierarchy for the improved functionality in Koraput district. There is an urgent need for the starting of a single ‘Auction-hall’ to address some of the market maladies in the study area. There is a requirement of the ‘Authorised Market Controlling Agency' to avoid the market imperfections in the study area and to curtail the unlawful transactions in the coffee market. However, the ‘Authorised Marketing Mandies' are to be established to facilitate the farmer in the weekly shandies to sell his produce and to become free from distress sale of his produce. Though there has been a market safeguarding role of the Girijan Cooperative Corporation, still it is to eliminate the market problems in the

tribal area. The ‘Organic Certification Centres' and 'Value Addition Training' are to be provided in the area to get a great deal of high premium in the selling of the produce of the coffee grower in the study area. It leads to the enhanced use of the government and non-government financial and material resources in the area. In Koraput district, based on the present condition of CPDP, it would be better to apply ‘Mission Mode Intervention' to achieve the targets given by the Government of Odisha. Though there are many endeavours in the CPDP, still there are certain deficiencies in the use of inputs, pulping, drying yard and marketing by the coffee growers and these could be removed through the ‘Community Coffee Growing Counselling Centres’. May the farmers and the Extension Staff march together for a grand triumph in the transformation of the area in the coming years.

I am profusely grateful to Sri Sobhan Kumar Patnaik, I.A.S., Secretary, Ministry of Agriculture and Farmers Welfare, Government of India for the inciting discussion in the Technical Advisory meeting and for the given suggestion to undertake this study. Sri Ravi Prakash, A.S.P.S., Vice-Chairman and Managing Director, Girijan Cooperative Corporation (CCC), Visakhapatnam for the cooperation rendered in the data collection. I thank Sri Anupam Saha, I.A.S. District Collector, Koraput District, Koraput for arranging the needy information. I thank Sri Ravi P., I.A.S., Project Officer, ITDA, Paderu for providing the official data. I am heartily thankful to Dr Raghuramulu, Y., Director of Research, Central Coffee Research Institute, Chikmagalur, for permitting to get the data from the offices of the Coffee Board in Minumuluru, and Koraput, and for the resourceful discussions.

I express my gratitude to Dr Anantha Kumar, Joint Director, Coffee Board, Visakhapatnam for continuing the cooperation and given valuable suggestions for the successful study over the coffee extension programme. I express my hearty thanks to Dr Babu Reddy, D.R., Coffee Board, Bangalore for providing the latest secondary data and the relevant literature over the present study. I thank Sri Gopal Krishna, Deputy Director, Coffee Department, Koraput and Sri Ramesh, i/c Deputy Director, Coffee Board, Paderu for permitting to get the official data. I thank Sri Radhakrishna Asst. Director of Horticulture, in-charge of Coffee Extension programme, ITDA, Paderu for helping the pilot survey and in the selection of mandals and villages of the sample of the study. I extend my hearty thanks to Sri Ajit Kumar Routh, Senior Liaison Officer, Coffee Board, Koraput for arranging the valuable data and other needy inputs like the selection of blocks and villages of the sample of the study. I convey my thanks to Sri

Radhakrishna, Consultant, GCC, Visakhapatnam for the suggestions given. I convey my hearty thanks to Sri Krishan Rao, V., Kovel Foundation, Visakhapatnam for the information provided. I express my gratitude to the peasants who have spared their valuable time during the field study.

I convey my thanks to Dr K. Giribabu, Senior Research Investigator, and Sri B. Krishna, Research Fellow, of our Centre for collecting the primary data and generating the tables in the good format. I appreciate the effort of Smt. P. Malathi, Senior Asst. for neat typing and other secretarial work for this project.

(**G. Gangadhara Rao)**

Director

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Background:

It could hardly be found the relevant studies over the present problem through the review of literature done. It has become a visible problem of the extension of coffee growing in Koraput district, Odisha, though the area has developed to a large extent in the adjacent Visakhapatnam district, Andhra Pradesh (A.P.). Hence, Directorate of Economics and Statistics, Department of Agriculture, Cooperation and Farmers Welfare, Ministry of Agriculture and Farmers Welfare, Government of India (GOI) has assigned this study with specific objectives.

Analysis of Trends in Growth of Coffee Area, Production and Yields for all-India, States and Selected Districts:

In the coffee total growing area, Karnataka stood the first and A.P. emerged as second by 2017. However, A.P. does not demonstrate share in production (18 percent) as well as in area share (30 percent), and it projects the need of the increase of production in A.P. for arabica coffee. There is no increase of production level in NER, as its production remains the same nearly in the study period (1997-17). The robusta coffee is growing in Karnataka (58 percent) and Kerala (declined from 47 to 38 percent), whereas it is absent in other two regions. It can be observed that the area shift is not there in Tamil Nadu due to non-suitability of robusta coffee. Interestingly, Karnataka has the major share in total area and production, as it has 70 percent share of coffee production at national level except in the recent past. Tamil Nadu shows the lower share of production 6 percent (2012-17) compared to its share of an area with 13 percent in the same period. For Kerala, the scenario is different, as it shows two percent share of the area at the national level, but it has 21 percent in the production. The policy formulation is to be in tune with the backward regions of the coffee growing. In the selected districts, there is a requisite of the increase of area and yields rapidly.

Profile of the Coffee Growing Area in Visakhapatnam and Koraput Districts:

Having introduced in 1898, coffee has historical growing in Gudem in Visakhapatnam district and since then it has been growing due to the efforts of ITDA and Coffee Board spreading across 11 mandals/blocks with the planted area–67089 ha, bearing area-54777 ha, No.of holdings: 153885, production -9800 MTs and productivity-178 kgs/ha mainly by tribal farmers along with A.P.Forest Development Corporation. Chinatapalli mandal comes first in population among the 11 mandals, and the tribal area population stands 14 percent in the Visakhapatnam district. All the mandals/blocks are with more than 90 percent ST population with the density ranging from 67 to 173 in different mandals against the 384 of the district and the literacy rates in mandals are low

compared to the district. With the initiation of Maharaja of Jeypore in 1930 at Bicholkota near Jeypore, the Soil Conversation Department of GoO has been rendering service to the development of coffee in Koraput district during the post-independence period with the coordination of other departments. There are now eight blocks in Koraput district for the coffee development programme, and the departments of GoO and Coffee Board are rendering service for the coffee extension programme for the tribal and non-tribal coffee growers in the district. There are nearly four departments of GoO, and the Coffee Board are instrumental in whatever the coffee development has taken place in the region as area 2925 ha production 553 MTs and yield-225 kgs/ha. The eight selected blocks population contributes 50 percent in the district population.

Socio-Economic Profile of the Sample Villages in Visakhapatnam and Koraput Districts:

In Visakhapatnam district, there is no scope for cultivation by other communities other than STs, (as the area is STA notified), whereas Koraput shows STs and non-STs. The gender base for the head of the household is male dominated in both districts for coffee sample farmers. Among the STs, the heads of families are 66 percent by males and 10 percent females, and in the age group of 16-40 years, the many farmers appear in Visakhapatnam district, wheres in Koraput district, the age group 41-60 years shows a higher number of farmers. The educational background is very low for the sample farmers in Koraput district compared to its parallel study district except for medium and large farmers. The sample farmers show 39 percent and 50 percent illiteracy in Koraput and Visakhapatnam districts, respectively. For agricultural labour, Visakhapatnam district shows 69 percent of the sample farmers, while it is only 10 percent in the corresponding study district.

Cost of Cultivation and Incomes for Coffee Cultivation: Part A-Landholdings, Cropping Pattern and Crop wise Costs:

In the sample villages, the irrigated area is meagre, and it does not give impact on the cultivation of the sample farmers. A significant fact is that the average net operated area is high in total for all landholding groups in Koraput district by two times except for small farmer group.There is a Kharif crop under irrigated area for only paddy cultivation in Visakhapatnam district, whereas it is absent in Koraput district. In the case of rainfed area, Visakhapatnam shows higher cultivated area (102 acres) of the sample farmers compared to the area (93 acres) of Koraput district. In perennial, coffee and black pepper are the principal crops in this season for cultivation. It would lead to a variation in the income levels and living standards of these farmer groups of the two districts. There is farming activity for all the farmer groups in the rainfed area for three crops, i.e. coffee, black pepper and mango in both regions. The production level is higher for the tribal farmers of Visakhapatnam district. There is backwardness in the farming activity of the tribal farmers of both districts compared to large farmers of Koraput district. Under rainfed

area, the total value of the main production shows the higher amount for all the farmer groups of Visakhapatnam district compared to Koraput district. There is a lot accrual of the value of the main output for eight crops in Visakhapatnam district, whereas there are four crops in the Koraput district. Further, the total value of the main output is more than two times higher in Visakhapatnam district.

Cost of Cultivation and Incomes for Coffee Cultivation-Part-B-Comparative Costs & Incomes of Coffee Growing and the Other Main Crops:

The significant fact is that there is no material cost incurred by tribal farmers for the cultivation of coffee in the gestation period in the sample villages of Visakhapatnam district due to the support of Government of A.P. and Coffee Board. In Koraput district, large farmer group has much higher material cost among the farmer groups, and the small farmers have the lowest out of all farmer groups in incurring the material costs in the coffee growing. In Koraput district, there are labour costs under fertilisers and plant protection, while these costs are not noticed in the parallel study district. Moreover, these costs show at a higher level for all landholdings in Visakhapatnam district rather than in the corresponding district. The costs under jungle clearance and digging a pit for planting are high for marginal farmer group compared to other groups in Visakhapatnam district. It is noticed that gingelly comes first with the total net income by 15 thousand in Kharif followed by long pepper. Turmeric shows the third position in the overall average net income to all the farmers and next place is found with paddy. It informs significantly that the cash crops gingelly, long pepper and turmeric have shown significant role in the income generation to the peasant community Viakhapatnam district out of eight major crops cultivated in Kharif. Mango shows the second position in the perennial season with Rs. 15 thousand. Out of the 13 crops grown by farming community in a year (including perennial crops), coffee divulges a vibrant and substantial fact to the policy formulators. It is because of its growing the volte-face on the socio-economic conditions of the people in the study area by the higher-shift of the rapid standard of living in the entire area. Compared to Visakhapatnam district, the corresponding district reports deficient farming activity since the sample farmers are cultivating eight crops in a year.

Marketing Conditions of Coffee Produce of Sample Farmers and Income Levels in Visakhapatnam and Koraput Districts:

The total processing costs per acre are the lowest to small farmers in Koraput district compared to other groups, and the highest costs appear to the medium group of Visakhapatnam district out of all farmer groups in the study area. The marginal farmer has the highest yield per acre in Visakhapatnam district, whereas the large farmer shows the highest yield per acre in Koraput district. However, the medium and large farmers nearly 80 to 90 percent sell their produce

in the ‘Hassan Market’ to realise the higher price. Therefore, the market price of marginal and small farmers has been low around 13 to 17 percent in the study period (2015-17) compared to medium and large farmers of this district.The middlemen fix the price at a lower level compared to other markets in the country. The farmers maintain cash dealings with these middlemen during crop season, and they give advances to the farmers to meet the household or cultivation expenditure. Therefore, the farmers, especially, the marginal and small farmers are dependent on the advances of the middlemen to meet their exigencies. The GCC fixes reasonable prices, but it delays the payment. Some farmers blamed the GCC for the lowering once set the price.

Comparison of Governmental Implementation of Coffee Development Programme in Visakhapatnam and Koraput Districts:

The MGNREGA has become a good source of the coffee development programme, as it has taken place in 61.6 thousand ha and 2.6 thousand ha in Visakhapatnam and Koraput districts (2007-16), respectively, against the expenditure of 154 crores and 8.5 crores, in that order, for the study districts. The per acre expenditure for the programme for the entire study period (2007-15) is Rs 25 thousand in Visakhapatnam district, while it is Rs. 32 thousand in Koraput district (28 percent high). The total per beneficiary expenditure for the 2007-16 is Rs 25 thousand in Visakhapatnam district, whereas it is Rs 60 thousand in Koraput district (118 percent high compared to Visakhapatnam district). These figures indicate that there is some wastage in the expenditure or lack of coordination among the departments who are responsible for the coffee development programme in Koraput district. The total area was extended by 64 thousand ha in 1998-2015 in Visakhapatnam district, while it was 1175 ha in Koraput district and the beneficiaries were reported as 81 thousand in Visakhapatnam district and three thousand in Koraput district. Some imbalances in the public expenditure made during the study period are per ha total outlays Rs.5900/- in Visakhapatnam district and Rs. per 14809/- in Koraput district during 1998-15. It shows that there is no ‘economy' and ‘proper distribution' in the public expenditure incurred for the same coffee development programme in Koraput district. The spending took place at Rs 643 per ha in 2002-06 in Visakhapatnam district, while it was Rs.12581/- in Koraput district and there were double and three times more expenditure incurred in Koraput district per ha compared to its counterpart.

Coffee Growers Opinion over the Coffee Plantation Development Programme in Visakhapatnam and Koraput Districts

For the ‘Capacity building programmes', all the farmers are happy with the style and functioning of the programmes implemented in both districts. The Coffee Board has been conducting the major training programmes. But the absence of the training programmes of the State Horticultural Departments (SHDs) has been felt the need of the hour for further understanding and success of the coffee plantation programme in Odisha. In Visakhapatnam

district, both the Coffee Board and SHD has been rendering service in the capacity building. Of course, the participation is at the lower level of all the farmer groups. In support of the government, the farmer groups of both districts viewed with 100 percent over the excellent role.

Policy Measures:

1. Single Nodal Agency in Koraput district for CPDP : It is compatible **'***Single Nodal Agency in Koraput district'* for the successful and extensive long-run and effective governance without wastage, misdirection and non-execution of the CPDP in Koraput district and this hierarchy of administration is to be executed by the officer from 'All-India Services', instead of coordination of the five Departments of the GoO.

2. A Single Platform Auction Hall in NTA: *A single Platform auction Hall in NTA* is the basic redressal measure for the relieving from some of the market maladies of the coffee growers, as the national market centre, 'Hassan Market' is far distant nearly more than 1200 km. away. Hence, GoAP may arrange the building and other infrastructure to conduct the auction of the coffee produce by the Coffee Board. This auction hall could be provided either in Visakhapatnam or in Araku which is proximate to the coffee growing area of Odisha. Otherwise, GoO may provide the required infrastructure in Koraput for the same purpose to facilitate the auction activity by the Coffee Board.

3. Authorised Market Controlling Agency: The '*Authorised Market Controlling agency'* from the Department of Agricultural Marketing is to be arranged in the coffee growing area to observe the purchases of the middlemen or traders by the respective State Governments in Visakhapatnam and Koraput districts. It will certainly curtail the malpractices in the market: a) taking the extra weight, b) fixation of low price c) unwarranted and unreliable fixing of high moisture condition during the coffee produce purchase.

4. Authorised Marketing Mandies in NTA: The *Authorised Marketing Mandies in NTA* are due for a long time since the tribal farmers are selling their products in the weekly shandies which are the places for the exploitation of the peasants through the several mismanagement and malpractices. Despite the GCC presence and its service in Visakhapatnam district, there have been the erratic methods in the shandies of the area. Therefore, the dependable system of shandy is need of the hour in the study districts to get a reasonable price to the cultivators in general and in particular the coffee growers in the study districts.

5. Wide Role of GCC in Coffee Market in Visakhapatnam district: The GCC is to play a wide role in coffee market in the tribal area of Visakhapatnam district and it is still to rise in removing the coffee market imperfections. To achieve this: 1) covering all the tribal coffee growers 2) advances to the coffee growers at 70 percent of the farmer's produce (currently very limited), 3) functional integrity of some of the personnel 3) opening of the coffee purchasing shops in the weekly shandies to remove the distress sale of the farmers and the village level procuring

especially in coffee plantation area to reduce the traders role and 4) online transactions for payments, price and quality fixation, 5) starting own curing unit, though expensive (Rs.15 crores around), to realise higher prices to the production and 6) dissemination of market information along with the generating of post-harvest production practices and quality awareness among the coffee growers.

6. Organic Certification Centre and Value Addition Training :

There is a demand for the organic certification centres, as there is a great deal of the organic produce taking place in the study districts. The Coffee Board may take the initiative in this direction and facilitate all the peasant community in both districts, and this will enable the coffee growers to get the premium prices for their organic production. It would be better for the value addition training and infrastructural support to the coffee growers, and this will enable the farmers to receive the additional income to their produce. Moreover the geo indicator 'Araku Coffee' enhances certainly the organic certification and value addition endeavours of the coffee growers.

7. Mission Mode Intervention: The coffee extension programme is lagging behind the requirement in Koraput district compared to Visakhapatnam district. It is highly essential to cover the vast potential area of 98 percent in the district, as the present programme and its past achievement (discussed earlier) entails the 'Mission Mode Intervention' in the execution of the CPDP. The GoO may look into the geospatial technique for the extension of the coffee programme and the removal of wastage and red-tapism in the administration. It could be replicated the programme of the ITDA, Paderu, Visakhapatnam for the greater success in the district.

8. Community Coffee Counselling Growing Centres: Majority of the coffee growers in the NTA are native tribes and hailing from the marginal and small landholding sizes and these lack of financial and the knowledge of the coffee growing. It would be better to establish 'Community Coffee Growing Counselling Centres' with the support of the local self-help groups in the villages to run them properly and for the optimum utilization of the centres. These centres may stand as the guiding sources in the vicinity of the coffee growing area for the pre and post-harvest practices and training programmes, arranging common pulping centres, average drying yards, guidance during the marketing of the produce. Already Kovel Foundation with the support of Rythu Sadhikara Santha (Famers' Empowerment Organisation), GoAP, has done through the establishment of these centres on the pilot basis in some villages in Visakhapatnam district and they got success in increasing the production at 33 percent through the Zero-Based Natural Farming Budget (ZBNFB).

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CHAPTER – I

Introduction, Review of Literature, Problem, Objectives of the Study Methodology and Organization of Study

1.1 Introduction:

India is the fifth largest coffee producer in the world. Indian coffee is the most important among the beverages in the world due to its taste and aroma. First, Saint Baba Budan brought coffee into India in Karnataka area. The vast area appears in the traditional areas consisting of Karnataka (51%), Kerala (2%) and Tamil Nadu (7%) (2016-17) and later, the coffee growing has taken place in non-traditional areas of Andhra Pradesh (A.P.) (30%) and Odisha (2%). The North Eastern States have 2.5% area share in the country. In the production of coffee, the traditional areas have the share of 94% followed by the non-traditional areas (A.P. and Odisha) with 8%, as the coffee yields have the very lower yields in A.P and Odisha. India exports 70% of total production to other countries and is earning a lot of foreign exchange (Rs.1320 crores, December 2016) through the total coffee area of 4.2 lakh ha (2015-16). The major varieties of coffee cultivation in the nation are Arabica and Robusta along with the other sub-varieties, and it also supports the spice crops cultivation in the country. The average daily employed persons are 6.3 lakh in coffee plantations across the nation (2015-16).

1.2.Survey of Literature:

The weather conditions are significant for successful coffee cultivation. Jayakumar, M and M. Rajavel (2017) developed an agro-meteorological model to estimate the yields of Arabica and Robusta in Kerala, and they got positive results during the season January- February in their study through the data January to December for the period 1991-13. The agro-meteorological model showed the working in forecasting the yield at Chundale in Wayanad district in Kerala, and the similar study was done by Jayakumar, M. et al. (2016) in Kerala for the period 1980-2009 and got the same results. It is observed the catalyst role of the Tribal Development Agencies in India. It was examined the role of 'Integrated Tribal Development Agency (ITDA), Paderu, Visakhapatnam, A.P. in the development of tribals in agriculture by Rajendra Prasad, B. (2016). He observed that there was a lot of vital role of ITDA especially for the non-commercial crops, while, as the author indicated, there was a lot of ITDA's work for the extension of coffee cultivation. He suggested technical support, the production of organic manures basing on the suitable local conditions for the development of coffee. Further, it was recommended for the farmer training programmes, manuals and hand-outs and interactive sessions with the advanced farmers and extension staff. Further, How much the women employment could be affected due to the variance in climatic conditions was examined by Kavya

Shree. K. (2016) during 1995-2011 and it was pertinent to know the variety which was very much suitable and gave much yield.

Chengappa, P.G. et al. (2016) estimated the certified coffee and organic production in Kodagu district and it would be the better choice to have the access of quality conscious consumers in the world market to get higher prices. Many a time, there had been the existence of imbalance of supply and demand and it led to lower prices compared to farm-gate price of the coffee production. The authors argued for the whole area of Kodagu district should adopt the organic production and the certification to get the better returns and socio-economic and natural ecosystem. Sabina Khatri Karki, Pradyot Ranjan Jena, and Ulrike Grote (2016) analysed the impact of fair-trade certification in Araku valley, Visakhapatnam district, using panel data for 183 households and found the positive effect on income. The certified farmers had 17 percent higher income on average than the uncertified coffee growers in the study area. However, the certification was at the bottom of the pyramid and their coverage appeared in the lower quartile. Many studies are available for the coffee area of Kodagu district of Karnataka, and some selected studies are here reviewed to know the similar socio-economic scenario for coffee cultivation and its risks especially for small farmers. Small farmers are very much prominent in the socio-economic and democratic set-up in India. Upendranadh, C., C. A. Subbaiah and P. Rajesh (2014) studied two critical issues: a) mechanisation and b) certification of coffee cultivation in Kodagu district in Karnataka for marginal and small farmers. Through the field study, it was found that these producer groups sought the support of government for mechanisation, technical know-how and the labour skill up gradation in the cultivation. The farmers of the study area requested for the linking of MGNREGS to meet some part of the job work. In the case of certification problem, the planters expressed the need for the Coffee Board to act as an intermediary in the lines of indigenous and profitable native certification to achieve a place for the ‘Coorg Coffee' in the world market. To this end, it was inferred the use of the ‘Landscape approach'.

Sushil Mohan et al. (2014) made a study of the price volatility of coffee production of the Indian farmers. Through the empirical estimates of the relative risk, they found that the coffee farmers had 4.8% welfare gain by the elimination of the price risk to their produce. It gave the results against the existing information of the coffee price volatility. It was equivalent to the one month’s income of the coffee producer. Therefore, they argued for the better access provision to the coffee growers for the hedging mechanisms or price-risk management. Narayana, M.R. (2014) examined the inclusiveness of subsidies in Chikmagalur, Hassan and Kodagu districts by the field survey of 575 households and the inclusiveness was analysed through individual indicators and a composite index. The findings inform that the inclusiveness of subsidy for

coffee replantation and clean planting appeared very positively, though the other grants showed some variance in the intensity of the inclusiveness across regions.It was suggested for further inclusiveness and more responsiveness for small farmers in the subsidy design and policy in the study region. It could be found through the study, Ashoka, N. et al. (2013), the trends in the area, production and yields of Arabica and Robusta for Karnataka, Kerala, Tamil Nadu and all India during 1995-12. The variety of Robusta showed the higher growth rate than that of Arabica at the national level. They found that the change in the area led to change in the yield change in the study period due to the non-traditional area's influence at the national level.

The risks of the small farmers and the needy measures are to be known for better redressal in this area. Deepika M. G. and Amalendu Jyotishi (2013) made a study of the risks of the small growers of coffee in Kodagu District. These were identified as different plant diseases, the problem of wild animals, high labour costs, imperfect market conditions and the absence of the cooperatives which would nullify some risks arising from the exploitation by markets. Some needy measures were suggested: 1) Research and Development by Coffee Board and Spices Board towards the better pest redressal through the good extension services, 2) Forest officials intervention to avoid wild animal menace, 3) Specific crop based required level of mechanisation in the cultivation and the linking of MNREGS labour, 4) A seller driven supply chain to avoid the price related risks to the small farmers through cooperative market auctions at the local level 5) crop diversification to minimise the yield risks in the cultivation and 6) all coffee, spices and horticulture boards and departments are to be in tandem to do away all the risks faced by the small growers in the study area. The growth of the coffee area and production are important against the backdrop of its demand and its price/value in the world. Gholam Abbas Darvish and M. Indira (2013) examined the area, production and yields of coffee and tea for all India for the pre and post liberalisation periods. The analysis showed the increase for oil seeds and plantation crops in the pre-liberalisation period, while the stagnancy appeared for the food grains.Among the plantation crops, cashew displayed much increase, whereas coffee and tea reported a marginal rise in the area. Against to this backdrop, coffee and tea increased much in the post-liberalisation period, and it reduced the variance of the previous period.

Samaya Gairhe and S Vijayachandra Reddy (2012) estimated the trends in area production and yield of the coffee crop for the period 1995-2010 along with the exports of coffee. Markov chain Approach was used to estimate the trade direction. The area and production were growing at the rates of 2.92% and 2.81%, respectively and the growth of area and production was less than the rate of exports taken place during the period. The realised price of coffee showed per unit was 4.45%. It indicates the good prices prevailed in the study period to

the coffee exports and the extension of the coffee area and production will be beneficial to the farmers. Shrinidhi Ambinakudige (2011) studied the economic conditions of the Adivasis in Kodagu district in Karnataka. He made that these groups were vulnerable due to the dependence on the volatile market economy. These groups had two main sources of livelihood: 1) working on coffee plantations and 2) the collection of non-timber forest products(NTFP). The deregulation of the coffee market made them more susceptible, and they faced risks from the market and the disadvantages arisen due to the National Park establishment in the study area and received the relief through the existing social relations with the local farming communities. Chethanaa, A.N. et al. (2010) examined the growth of coffee under high shade and native tree cover in Kodagu district in Karnataka through Geographical Indications (GI) and found the low level of coffee production. They observed that the cost of cultivation had no much difference. The net loss to the farmers would be Rs. 10.50 per kg. Therefore, the authors argued for the compensation of these farmers with a price premium to their products due to growing under rich biodiversity, and it would fulfil the GI.

Nagoor, B.H. (2010) studied the status of trade in plantation crops viz. black pepper, tea, coffee and cardamom in India and he identified certain issues. Vietnam and European countries were in the front-run to give good competition and India used to lose its competitiveness in the international market. However, India had the opportunity to export the value-added pepper, tea and coffee in the international market. ASEAN countries were the better source of low priced pepper, tea and coffee to India and these goods could be re-exported after value adding. In this direction, the author recommends the policy interventions and the development of infrastructure. It was made an all India study regarding the trade and production for the coffee with the focus on small farmers (Upendranadh, C. 2010). His analysis exposed the need for certain conditions to be fulfilled in the interest of large chunk of the coffee growers. There should be vertical integration of small farmers to increase the value of production of these farmers group. He suggested product diversification, selected operations of cultivation through mechanisation, technical inputs by professional management, post-harvest processing and supplementary income earning to these small farmers. He argued that these measures would enable them to remain in the production activity facing the cost competitiveness along with certification. Ambinakudige, S. and J. Choi (2009) studied the spacing patterns of land use and land cover in the Western Ghats. The international coffee market fluctuations led to being the primary cause of landscape change in the study region. Its failure in the coffee market forced farmers to short-period commercial crops like ginger. The land degradation in paddy fields happened due to the international market conditions for coffee production.

Kamala Bai, S., et al., (2009) studied and compared the costs in the production of the organic and conventional production of robusta coffee in Chikmagalur area. They conducted field survey for 15 growers of practising organic cultivation and 15 growers of traditional cultivation in Koppa region. They found the organic growing costly due to high input costs compared to conventional one, whereas the received price to the product was low to the organic due to lack of demand. The pests and diseases problem was low in the growing of organic coffee. However, the growers felt that the certification procedure was cumbersome and expensive. Joy, C.V. (2004) examined the problems of coffee cultivation of Waynad, Kerala and gave the suggestions: 1) inter-cropping by vanilla, medicinal plants, etc to get additional income. 2) robusta variety might be replaced by arabica since the demand was not there in the international market. 3) organic farming would give good income to marginal farmer groups.4) storing of coffee production and waiting for the good price 5) curtailing the imports from Vietnam and Indonesia and 6) the development of tourism in Wayanad as it had many suitable factors. Praveena, P.L.R.J., N.RamachandraRao and Y.S. Prasad (2004) examined the participation of women in coffee growing in Paderu tribal area in Visakhapatnam district. It was found the women participation in all activities, of course, they worked in high percentage in planning weeding and harvesting activities. The study estimated tribal women participation at 48 percent and 28 percent in processing and marketing activities of coffee growing, in that order. In the decision making, tribal women involved 31 percent and the 17 percent never took part, whereas the age of the women had a negative relationship in the work participation in coffee growing.

Reddy Babu, D.R.(2004) examined the cost of production for 31 arabica coffee estates in Coorg region in Karnataka through field study. The study results showed the acceleration of cost of production by the increase in the farm size due to rise in overhead expenditure and the realised low yields in the study area, and the lowest cost of production appeared for below 4 ha farm size.The similar study was done by Babu Reddy, D.R., P.Shiva Prasad and R.Nadidu (2003) and they estimated the cost of production in 63 arabica coffee estates for all farm sizes and found the labour cost accounting 54 percent followed by input cost 30 percent. They noticed the similar findings of the above study and suggested for the stabilisation of costs of production based on the proper combination of labour and inputs in the arabica coffee growing. The economic viability of the coffee crop cultivation is to be known in the area in question. Uma Devi, k. and A. Pandurangarao (2003) examined the question of the economic viability of coffee cultivation in Paderu area in Visakhapatnam district, A.P. To achieve this end, the authors entirely were dependent on primary data from the 90 small tribal coffee crop growers. They estimated the parameters, namely, simple rate of return, payback period, net present value, benefit-cost ratio, internal rate of return, profitability index and average annual margin. Finally, the authors

concluded that the coffee cultivation was economically viable in the study area. Robert Rice (2003) estimated the area of coffee occupying by 10 million ha and the dependence of small producers and their families as a significant source of income. However, their livelihood was threatened due to overproduction. He argued for the lifting of these producers through innovative market initiatives linking with the social equity and conversation concerns. This aspect could be fulfilled by both the Governments and private sector to solve the price crisis and saving the vast chunk of the coffee growers.

Muralidhara, H. R., et al. (2002) made an analysis of micro sprinkler irrigation system for robusta coffee through field study at Central Coffee Research Institute (CCRI) during 1996-2000.The micro sprinkler irrigation was viable and more beneficial compared to the sprinkler irrigation at the rate of 12 percent per ha. Further, the analysis found that there was a benefit-cost ratio of micro sprinkler irrigation by 1.39 with NPV of Rs.43,711 compared to the benefit-cost ratio of sprinkler irrigation of 1.23 and NPV of Rs. 27,196. Therefore, it was suggested for the better use of micro-sprinkler irrigation for a good income in the coffee growing. Reddy Babu, D.R. (2001) estimated trends of coffee in the traditional area during 1950-2000 and found the contribution of expansion in area and increase in yield rates for the rapid change in production. Further, it was analysed that the production hike in the 1950s was due to yield growth and the area and yields made the production increase in 1960s and 1990s. There was a decline in the growth of productivity during the 1970s. It was estimated the rate of growth of India's exports ranging from 15 percent to 70 percent in the study period and analysed the impact of falling prices over the small farmers and the need of generating the market in north India. Reddy Babu, D.R., U. Gopala Krishna and Y. Raghuramulu (2001) estimated costs in the Coffee Demonstration Farm (CDF), Minumuluru, Andhra Pradesh (A.P.) during 1996-99 and they found the proper inputs use and income derived. It was traced the labour share 80 percent and fertiliser share 14 percent of the total costs and the benefit-cost ratio as 1.45 for the study period. The estate was on efficient lines, and it accrued 43 percent of income from inter-cropping viz. pepper and orange and suggested for crop diversification for the better sustainable incomes from the coffee plantations in this area through CDF study. Reddy Babu, D.R. did the similar study, et al. (2001) and they studied the performance of Coffee Demonstration Farm (CDF) Arisinaguppe, Chikmagalur and found the opposite results of the preceding study. The high utilization of inputs led to high cost of production in CDF by labour costs 65 percent followed by input costs 28 percent. It was suggested for better performance in CDF through the optimum utilization of the factors of production.

Venkatram, R. and Satish Y. Deodhar (2000) analysed the price fluctuations of the coffee in the international market during the post-reform period and inferred the decreasing unit value realisation to the coffee grower. They suggested that the domestic market should not be neglected against the backdrop of the global market based on the analysis of dynamic error-correction methodology (ECM). They found the in-elastic demand nature for the coffee produce across the nation and suggested the programme with the focus of the non-price factors instead of price incentives by the Coffee Board. Indira, M. and S.Girriappa (1993) examined the trends in coffee and they found that the area effect increase with large variation in the long term, whereas the productivity did not show variation at the significant level for the decrease. During 1954-65, there was yield effect over Arabica coffee. The area effect was there in 1965-75 over Arabica and yield effect over Robusta and in 1975-85 the yield effect was there on both coffee varieties. Kantharaju. V. , Veerabhadhariah, and P.G. Chengappa, (1992) examined the knowledge level of the farmers and the problems faced by coffee and cardamom farmers through field survey of 60 farmers from each crop in Belur and Sakaleshpur taluks in Hassan district in Karnataka and they found that the cardamom farmers had higher knowledge rather than that of coffee. The farmers of both coffee and cardamom faced with the problems of pest menace, failure of rainfall, lack of good planting material, lack of time for repayment of the loan, non-availability of credit in time, high tax rates and transportation costs and the absence of transportation facilities in the study area.

Chengappa, P.G. (1981) analysed the trends of coffee in India. He identified that the coffee production had increased at a faster rate than its area and the growth rate was decelerated in the 1960s, while it was opposite and visible in 1970s particularly for robusta coffee due to its prices in the market. Of course, the yield rates had been decreasing for arabica especially in the non-traditional area and there was a need of follow up action. Madappa, P.P.(1970) analysed the cost of production for coffee of Aldur, Chickmagalur district, Karnataka. He found that there was no relationship between the size of the plantation and the cost of production and the per acre cost of production was Rs.900 with the shares: cultivation cost 55%, marketing cost 10% and other costs 35%. Input-wise, the shares were 40% to labour and to material 20% in the cultivation and the profit per acre was Rs. 275. Debnath, N. and G K Sarkar (1967) examined the size, yield and cost of production of coffee estates and recommended for the bigger estates to achieve efficient and higher level of production. On the other side, they suggested for the improved techniques of cultivation on cooperative basis especially for smaller estates which fell under 5 acres as these were with 67% of the total coffee estates.

1.3.The Problem:

It could hardly be found the relevant studies over the present problem through the review of literature done. Despite the Maharaja of Jeypore introduced coffee in Odisha long back 1930, there is no high sustainability for the coffee cultivation in Odisha, and the total grown coffee area stands at 4000 ha in 2016-17 and the major part is reported in Koraput district (2900 ha), whereas the extendable area in Odisha is 1,45,170 ha (Survey of the Coffee Board, 1978) and the present covered area is only 1% and with the yield of 225 kgs per ha in Koraput dsitrict. On the other side, the socioeconomic aspect appears very bleak in Koraput district, as the area under scheduled tribes is 1777 ha with the total farmers engaged in the coffee cultivation is 3145, and it shows 0.57 ha per farmer. Against to this scenario, the neighbouring district of Visakhapatnam, A.P. reports a successful coffee cultivation in 67,000 ha across 11 mandals/blocks with the same climatic conditions. A confronting fact appears that the productivity of Koraput district is 225 kgs per ha, whereas the Visakhapatnam district reports 178 kgs per ha (2016-17). It has become a visible problem in the plantation of coffee in this area in the recent decades, though the Coffee Board and other state government departments have been rendering services to extend the area under coffee cultivation in Odisha. Hence, Directorate of Economics & Statistics, Department of Agriculture, Cooperation and Farmers Welfare, Ministry of Agriculture & Farmers Welfare, Government of India (GOI) has assigned this study to our centre with the following objectives:

1.4 Objectives of the study:

1. To estimate the trends in the growth of the area, production and yields in coffee cultivation for all India and states during 1997-2017 and the selected districts in 2007-17,
2. To examine the profiles of the chosen coffee growing areas and the socio-economic conditions of the sample farmers,
3. To compare the cost of cultivation and incomes for the coffee cultivation of the sample farmers in the selected districts,
4. To examine the marketing conditions for the coffee production in the selected area,
5. To compare the implementation of ‘Coffee Plantation Development Programme' (CPDP) in Visakhapatnam and Koraput districts and
6. To recommend the policy measures for the better CPDP in Koraput and Visakhapatnam districts.

1.5 Methodology:

The primary and secondary data will be collected. The secondary data will be obtained from the Coffee Board, the concerned district handbooks, ITDAs, the Departments of Agriculture, Horticulture and District Chief Planning Offices of both districts. For the primary

data, out of the eight blocks in Koraput district, two blocks from the high cropped area and two blocks from the low-cropped area could be selected with one sample village selecting from high and low regions cropped from the sample blocks. From each village, the sample farmers will be 20 with the distributing among the marginal, small, semi-medium and medium and large farmer groups from every sample village. Similarly, out of the 11 mandals/blocks of coffee growing in Visakhapatnam district, the same method will be applied. Thus, sample farmers will be 80 from each district, and the total sample of the study would be 160. The primary data schedule will be prepared based on a structured and pre-tested questionnaire with the reference year 2016-17. The 'Compound Annual Growth Rate' will be run to find out trends in area, production and yields for all-India, states and the selected districts. It is collected the data for the expenditure of Coffee Plantation Development Programme (CPDP) from the IDTA, Paderu and the Office of Deputy Director, Coffee Board and the Office of Deputy Director, Coffee Development, Koraput and the Office of the Senior Liason Officer, Coffee Board, Koraput. The details of the selected mandals/blocks and further, the relevant selected villages from the mandals/blocks is given below.

Selected Districts, Mandals/Blocks Relevant Villages of the sample of the Study

Name of the District	Name of the Mandal/Block	Name of the villages
Visakhapatnam District	Lowest Cropped Area	
	Paddabayalu	Kothapolipalli
	Ananthagiri	Beesupuram
	Highest Cropped Area	
	G. Madugula	Godugurai
	Chinthapalli	Lambasingi
Koraput District	Lowest Cropped Area	
	Similiguda	Sondiput
		Noupuda
	Koraput	Koraput
	Highest Cropped Area	
	Nandapur	Kiramba
		Kosampotor
		Battisil
	Dasamanthapur	Chindarrouthput
		Rajuguda
		Punjisil

1.6.The Organisation of the Study:

The first chapter gives the introduction, review of the literature, the problem, objectives and methodology of the study, while the second chapter estimates the trends in growth in the area, production and yields of coffee cultivation for all India, states and selected districts. The third chapter Part-A examines the profile of the coffee study area of selected districts and the part-B presents the socio-economic profile of the sample farmers in the selected districts, whereas the IV chapter gives the cost of cultivation and incomes for coffee cultivation into two parts. The first part analyses the landholdings, cropping pattern and crop wise cost of cultivation

and incomes and the latter one analyses the costs of coffee and comparative incomes of coffee and other main crops in the selected districts of A.P. and Odisha. The V chapter provides the marketing conditions of the coffee production of sample farmers and their suggestions for a better market in Visakhapatnam and Koraput Districts. The sixth chapter is in two parts. The first one examines the relative coffee development programme implementation in the selected districts and the second one analyses the beneficiaries opinion on the 'Coffee Plantation Development programme' in their area and their suggestions for the success of the coffee scheme in the study region and finally, the summary, conclusions and policy measures are presented in the VII chapter.

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CHAPTER II

Analysis of Trends in Growth of Coffee Area, Production and Yields for all-India, States and Selected Districts

In this chapter, the trends in the growth of the coffee area, production and yields are analyzed during 1997-2017. Coffee has been growing in few states which are suitable for plantation. There are three regions identified by the Coffee Board of India: 1) Traditional Area (TA) with Karnataka, Kerala and Tamil Nadu, 2) Non-Traditional Area with A.P. and Odisha and 3) North Eastern Region (NER) with all the North Eastern States. It is run the Compound Annual Growth Rate (CAGR), and it gives a geometric progression ratio of the analysed data. It generates the constant growth rates in the analysis for the period in question. Further, these growth rates could be compared to different regions. In this analysis, the selected period is divided into the four quinquennials to estimate the growth rate for the area, production and yields of coffee. The formula run refers to CAGR= (EV/BV)^(1/n)-1, where EV: Ending Value, BV: Beginning Value and n: number of years.

The triennium arrived figures are run in the formula to avoid the volatiles in the data. There are two major varieties viz. arabica and robusta of coffee plantations in India and these are separately estimated along with the total of the clubbing of these two varieties. In the case of Non-Traditional Area (NTA), the data for A.P. and Odisha is available separately for the area only, and the production and yields are available in combined, and the same is carried in this analysis. Of course, the district level analysis of Visakhapatnam and Koraput districts will serve the better part of the fulfilling the study of NTA.

2. 1 Quinquennial Average Share of Arabica Coffee Area for states and all-India:

The quinquennial average share of arabica coffee area for states and all-India is shown in Table 2.1. Karnataka stood the first with 67 percent among the states for arabica coffee area in 1997-02 followed by Tamil Nadu with 16 percent area across the nation. This picture was changed later by 2013-17, and A.P. came as the second one with 30 percent of the coffee area. There is a rapid change in the study period in A.P. in the coffee cultivation for arabica coffee growing. It may lead to a lot of change in the production level due to NTA in the national production (Ashoka, N. et al., 2013). Other states viz. Kerala and Odisha did not show any significant increase in the arabica coffee area, whereas North Eastern Region (NER) showed 4 to 2 percent during 2007-12. Tamil Nadu shows a little extent of stagnancy in the arabica coffee area.

Table 2.1-Quinquennial Average Share of Arabica Coffee Area for states and all-India

Year	Karnataka	Kerala	Tamil Nadu	A.P.	Odisha	NER	all-India
	Arabica Area						
1997-98 To2001-02	66.85	2.48	15.55	9.52	1.13	4.29	100(161325)
2002-03 To 2006-07	62.81	2.31	14.46	14.93	1.31	4.86	100(174523)
2007-08 To 2011-12	56.79	1.95	13.31	24.09	1.75	2.12	100(193385)
2012-13 To 2016-17	51.00	1.95	12.70	29.93	1.91	N.A.	100(214763)
	Arabica Prduction						
1997-98 To2001-02	83.08	1.57	12.82	2.46*		0.12	100 (108150 MTs)
2002-03 To 2006-07	81.37	1.26	13.96	3.24*		0.13	100 (100235 MTs.)
2007-08 To 2011-12	78.47	1.65	14.35	5.44*		0.11	100 (92448 MTs.)
2012-13 To 2016-17	67.38	2.08	13.13	18.07*		0.10	100 (99460 MTs.)

Parentheses refer to absolute quinquennial average figures. Source: Coffee Board of India
*combined production share of A.P. and Odisha.

When compared to the share of the area, Karnataka has more share in the production of all-India, whereas Kerala and Tamil Nadu show a lower level of production shares compared to the area shares in all-India. In the case of A.P., the percentage of the area (30 percent) is high, but production shows 18% percent, and it indicates the need for the increase in output in the arabica coffee growing. There is no increase of production level in NER, as its output remains the same nearly in the study period (1997-17). It may be observed that the yield rates are to be increased in A.P.

2.2 Quinquennial Average Shares of Robusta Coffee area and Production of states and all-India:

The shares of robusta coffee area and production of states in all-India is given in Table 2.2. The robusta coffee is growing in Karnataka, Kerala and Tamil Nadu and the other two regions do not show robusta. In these three states, Karnataka has a higher share in all the study period, and the share of robusta coffee area has increased from 48 percent to 58 percent, and the next comes to Kerala. However, the share of the area of Kerala in all-India has declined from 47 percent to 38 percent in the study period. It can be observed that the area shift is not there in Tamil Nadu due to non-suitability of robusta coffee. There is no stability of robusta in A.P., Odisha and NER.

Karnataka has had the lead for robusta coffee not only in the area but also in the production, and it shows much rise in the production share across the nation. It increased from 61 percent to 68 percent during 1997-17. In the case of Kerala, it is noticed that the share of the area is high rather than the share of production in all-India. In the post-liberalization period, the level of production has increased much and compensated the previous downtrend (pre-liberalisation) Gholam Abbas Darvish and M. Indira (2013), and further, there had been a decline in the share of production in 1997-17.Tamil Nadu shows only two percent in the entire study period for production along with its share of the area across the nation. Other two regions,

NTA and NER, have no robusta coffee growing. Parentheses refer to absolute quinquennial average figures. Source: Coffee Board of India

Table 2.2 Quinquennial Average Shares of Robusta Coffee area and Production of states in all-India

Year	Karnataka	Kerala	Tamil Nadu	A.P.	Odisha	NER	All India
	Robusta Area						
1997-98 To2001-02	48.19	46.46	3.20	0.10	0.00	1.71	100 (172507 ha.)
2002-03 To 2006-07	54.83	42.04	2.92	0.14	0.00	0.79	100 (192031 ha.)
2007-08 To 2011-12	57.16	39.36	2.73	0.13	0.00	0.53	100 (205928 ha.)
2012-13 To 2016-17	58.44	38.11	2.70	0.13	0.00	0.70	100 (213512 ha.)
	Robusta Production						
1997-98 To2001-02	61.22	35.93	2.76	0.03		0.09	100 (169270 MTS.)
2002-03 To 2006-07	64.53	33.25	2.15	0.02		0.03	100 (176420
2007-08 To 2011-12	67.63	30.00	2.31	0.04		0.03	100 (193532 MTS.)
2012-13 To 2016-17	67.47	32.78	2.24	0.06		0.04	100 (222480 MTS.)

2.3 Quinquennial Average Shares of Total Coffee area and Production of states and all-India:

Table 2.3 presents shares of total coffee area and production of states and all-India during 1997-17. In the total area of coffee, Karnataka stands the first and A.P. comes as the second. Karnataka has shown a gradual decline in the share of area and A.P has picked up and it shows the share 30 percent in the all-India coffee growing area. There has been no increase of coffee area either in Kerala or Tamil Nadu, and the share in the area by little amount has displayed decrease during the study period. A.P. showed the phenomenal increase in the area, as it had 9 percent in 1997-02 and shifted to 30 percent by 2012-17. Tamil Nadu had shown a little decrease in between 2007-17. Though NER is with the low-level share of an area, it has not shown any increase in the coffee growing.

Table 2.3: Quinquennial Average Shares of Total Coffee area and Production of states in all-India

Year	Karnataka	Kerala	Tamil Nadu	A.P.	Odisha	NER	All India
	Total Area						
1997-98 to 2001-02	66.85	2.48	15.55	9.52	1.13	4.29	100 (333831 ha.)
2002-03 to 2006-07	62.81	2.31	14.46	14.93	1.31	2.60	100 (366554 ha.)
2007-08 to 2011-12	56.79	1.95	13.31	24.09	1.75	2.12	100 (399313 ha.)
2012-13 to 2016-17	51.00	1.95	12.70	29.93	1.91	2.37	100 (428276 ha.)
	Total Production						
1997-98 to 2001-02	69.99	22.13	6.81	1.01		0.10	100 (277420 MTs.)
2002-03 to 2006-07	70.67	21.62	6.42	1.19		0.07	100 (276655 MTs.)
2007-08 to 2011-12	71.14	20.83	6.21	1.77		0.05	100 (285980 MTs.)
2012-13 to 2016-17	66.95	20.52	6.32	8.03		0.06	100 (321940 MTs.)

Parentheses refer to absolute quinquennial average figures. Source: Coffee Board of India

Interestingly, Karnataka has the major share in total area and production, as it has 70 percent share of coffee production at national level except in the recent past (2012-17), and in

this period, it shows a decline for three percent. Kerala shows the second position in the share of coffee production followed by A.P. and Odisha. Of course, the A.P. should have contributed through its large area rather than with the below two percent area of Odisha. Tamil Nadu shows the lower share of production 6 percent (2012-17) compared to its share of the area with 13 percent in the same period. For Kerala, the scenario is different, as it shows two percent share of an area at the national level, but it has 21 percent in the production, and it indicates its high-level productivity in the coffee growing. There is hardly good increase either in the area or production in Odisha and NER. The policy formulation is to be in tune with the backward areas in the coffee growing. Both the concerned state governments and the Coffee Board are to extend the necessary programmes in these regions.

2.4 **CAGR of Coffee Area for States and all-India-1997 -17:**

The growth rate of the coffee area for states and all-India-1997-17 is presented in Table .4. It is noticed that A.P. reports a stable and continuous higher growth rate for arabica area in the entire study period and it is remarkably higher than that of the growth rates of all-India. Of course, it has started the extension of coffee programme in the recent past, and therefore, it is appreciable of the role played by Government of A.P. and the Coffee Board for rigours extension programme in A.P. Next, Odisha comes with a consistent growth rate for arabica, as it has maintained 3 to 5 percent in the study period with an increase in the coffee area. The change in the area led to change in the yield change in the study period due to the non-traditional area's influence at the national level (Ashoka, N. et al. 2013). Though there was a decline in 2002-12, NER has shown a rise in the arabica area by the recent period (2012-17). In NTA and NER, there are higher growth rates of arabica compared to the rates of all-India. For arabica coffee area, Karnataka has reported an unabating decrease in the area except in 1997-02. Tamil Nadu and Kerala exhibit the quite lower growth rate in the comparing period for arabica coffee area.

In the case of robusta coffee area, Karnataka reports a continuous rising growth rate in the study period, which is opposite to the rate of arabica coffee area. The analogous trend appears in Kerala and Tamil Nadu. At the national level, the robusta area has its share and influence in the production of coffee. In A.P. there is a negative trend, and there is no reference to the growth rate in Odisha. For NER, we may notice a different trend, as it informs four percent growth in the first quinquennial followed by a sharp decline in the two sub-periods and the last sub-period with the five percent growth rate. All-India growth rate has been declining in the study period for robusta from two percent to 0.74 percent in the reference period which is lower compared to the arabica's growth rate in the same period.

Table 2.4: CAGR of Coffee Area for States and all-India-1997-17

Period	Karnataka	Kerala	Tamil Nadu	A.P.	Odisha	North Eastern Region	all-India
Arabica							
1997-98 to 2001-02	2.70	1.00	-0.57	11.02	2.96	7.64	3.02
2002-03 to 2006-07	-0.15	-0.72	0.21	9.31	4.29	-8.74	1.09
2007-08 to 2011-12	-0.03	-0.71	0.16	9.04	5.06	-6.00	1.86
2012-13 to 2016-17	-0.11	1.40	1.81	4.29	2.64	5.86*	1.78
Robusta							
1997-98 to 2001-02	3.55	0.44	0.15	-	-	4.26	2.00
2002-03 to 2006-07	4.37	0.00	0.03	-1.04	-	-4.84	1.77
2007-08 to 2011-12	0.84	0.10	-0.04	0.00	-	-10.18	0.43
2012-13 to 2016-17	1.15	0.06	0.85	-0.07	-	4.92	0.74
Total							
1997-98 to 2001-02	3.07	0.47	-0.44	11.36	2.96	6.53	2.22
2002-03 to 2006-07	1.99	-0.04	0.18	9.18	4.29	-7.72	1.41
2007-08 to 2011-12	0.42	0.06	0.13	8.99	5.05	-7.07	1.11
2012-13 to 2016-17	0.66	0.12	1.64	4.27	2.64	5.50	0.99

***** NER refers CAGR period from 2012-13 to 2015-16 for four years. Source: Coffee Board of India, 2018.

In the estimation of the total coffee area, we can find the analogous trend of arabica for A.P., Odisha and NER, while it is traced the same trend of the area of robusta for Karnataka, Kerala and Tamil Nadu. A.P. Odisha and NER show more than that of the growth rate of all-India for the total coffee area, whereas it is lower for Karnataka and Kerala. It appears that there is a lot of scope for extension in the area in A.P., Odisha (NTA area) and NER. For both arabica and robusta areas, there appears a good level of expansion for coffee in Tamil Nadu.

2.5 CAGR of Coffee Production for States and all-India-1997-17:

Table 2.5 gives details of growth of coffee production for states and all-India for 1997-17. There is a continuous increase in the growth rate of arabica in A.P and Odisha, and it is high compared to all-India level and other states, and NER also gives the same trend except for 2007-12 period. There has been an oscillation in growth rate in Karnataka and Kerala for arabica production, of course, the elevation in growth rate is greater than that of the rates of all-India. Tamil Nadu shows an increasing trend except for 2007-12. It is observed that all the states except Karnataka demonstrated the higher growth rate for arabica during 2012-17. It is very much high compared to the growth rate of all-India for arabica coffee production. The extension in the area has shown a positive effect on the output (Reddy Babu D.R., 2001) and it could be due to the favourable weather conditions in these states (Jayakumar, M and M. Rajavel, 2017). For the robusta, a dissimilar trend appears for Karnataka, Kerala and Tamil Nadu and there has been a positive and increasing trend in growth rate in these states except for the second quinquennial in Kerala and Tamil Nadu. In A.P, Odisha and NER, it is found a negative and no production during 1997-07, however, the high positive growth rate appears in 2012-17 and it might be based on rainfall and other good conditions (Jayakumar, M. et al., 2016) and the area is very low in

these areas and level of production is low compared to other regions. There has been a declining trend in the growth rate for all-India except for 2002-07, and it is traced that the growth rates of robusta are high compared to arabica.

A.P. shows higher growth rates in the study period except for 2002-07 out of all states for total production, and it has exhibited a continuous positive growth rate across the nation, Of course, it may be because of the recent development of arabica coffee in the area and starting with the limited area. The similar scenario appears to NER for total coffee production, as it shows 68 percent growth rate with the limited and initial area expansion. The large growing states viz. Karnataka and Kerala report the declining growth rate from 7 percent to 2 percent in the study period, and these rates are high compared to all-India growth rates. Tamil Nadu reported the lower growth rates during 2002-12 compared to the major players. There is no suitable growth rate for all-India in coffee production and shows declining trend in the study period. It should be due to unfavourable weather conditions on one side and the other, national and international market conditions, which influenced the coffee growers.

Table 2.5: CAGR of Coffee Production for States and all-India-1997-17

Period	Karnataka	Kerala	Tamil Nadu	A.P. & Odisha	North Eastern Region	India
Arabica						
1997-98 to 2001-02	3.44	-3.43	2.59	14.43	-	3.29
2002-03 to 2006-07	-2.54	-1.27	1.21	0.26	1.03	-1.93
2007-08 to 2011-12	-0.02	4.10	-0.97	14.42	-5.43	0.28
2012-13 to 2016-17	2.34	8.48	6.90	36.97	76.78	0.15
Robusta						
1997-98 to 2001-02	9.64	7.02	4.07	-16.74	-	8.62
2002-03 to 2006-07	1.32	-3.34	-1.59	-	-13.37	-0.33
2007-08 to 2011-12	2.79	3.23	2.10	4.14	-3.77	2.73
2012-13 to 2016-17	1.48	2.15	0.44	14.13	48.27	1.53
Total						
1997-98 to 2001-02	6.52	6.67	2.95	14.29	-	6.37
2002-03 to 2006-07	-0.33	-3.29	0.56	0.43	-5.07	-0.92
2007-08 to 2011-12	1.73	3.26	-0.22	14.23	-4.86	1.91
2012-13 to 2016-17	1.78	2.32	5.33	36.80	67.99	1.11

Source: Coffee Board of India, 2018.

2.6 CAGR of Coffee Yields for States and all-India-1997-17

The growth of coffee yields for states and all-India-1997-17 is presented in Table 2.6. The growth rate for coffee yield was negative for both arabica and robusta in all regions during 2002-07, and the same was carried for the total coffee in the same period. There should be some specific factors led to this downfall in the yields viz. inclement weather conditions, untimely rainfall and negative market conditions. In the other quinquennials, it is not found this trend. A.P. and Odisha and NER exhibit the highest growth rates out of all states for arabica coffee

yield followed by Tamil Nadu. Karnataka and Kerala have shown oscillation in the growth in different sub-periods of the analysis for arabica coffee yields. At all-India level, the growth rate shows negative rates in the study period except for 1997-02. It indicates that the return has not been improving over the long run and there is an urgent need for the yield enhancing programme in the nation for arabica coffee.

The contrary picture for growth rates appears for robusta coffee for all-India, as there are higher and steady growth rates in the long run except for 2002-07. In Karnataka and Kerala, there are better growth rates compared to the rates of arabica in the different quinquennials, whereas Tamil Nadu shows the similar picture of the arabica. A.P. and Odisha and NER demonstrate a reasonable growth rate during 2007-17 for robusta coffee yields.

There are fluctuations in the total growth rate with positive and negative rates during 1997-17 for all-India. Except for 2003-07, the remaining periods report positive growth rates in all the states or regions for the yield of total coffee yield. A.P. and Odisha and NER areas inform higher rates compared to other states. It should be the lower base in the initial years and the successful extension and implementation of the schemes along with the good weather conditions in the study period. Next comes Kerala with good growth for total coffee. Karnataka shows the decline in the study period from one period to another period. It might be because of several factors in the growing area- stagnancy in some pockets, delayed replantation across the area and due to the suitability of new cultivars. It could be solved by the Coffee Board and the concerned State Government through the suitable extension programme. Tamil Nadu shows a similar trend in the yield growth rate for the total area, as it shows similar rates nearly in the sub-periods examined.

Table 2.6: CAGR of Coffee Yields for States and all-India-1997-17

Year	Karnataka	Kerala	Tamil Nadu	A.P. & Odisha	North Eastern Region	India
Arabica						
1997-98 to 2001-02	0.68	-4.44	3.18	7.96	-	0.29
2002-03 to 2006-07	-2.41	-0.56	1.00	-7.75	10.66	-2.94
2007-08 to 2011-12	0.01	4.81	-1.14	5.27	1.10	-1.55
2012-13 to 2016-17	2.24	7.04	5.44	32.18	68.05	-1.26
Robusta						
1997-98 to 2001-02	5.92	6.57	3.89	-	-	6.49
2002-03 to 2006-07	-2.97	-3.34	-1.59	-	-7.60	-2.07
2007-08 to 2011-12	1.93	3.13	2.13	4.12	5.58	2.29
2012-13 to 2016-17	0.27	2.09	-0.31	14.15	44.07	0.75
Total						
1997-98 to 2001-02	3.35	6.18	3.41	9.03	-	3.80
2002-03 to 2006-07	-2.28	-3.26	0.37	-7.49	2.92	-2.29
2007-08 to 2011-12	1.31	3.20	-0.34	5.15	2.16	0.77
2012-13 to 2016-17	1.11	2.20	3.96	32.10	60.93	-0.04

Source: Coffee Board of India, 2018.

2.7 Area, Production and Yields of the Visakhapatnam district, A.P. and Koraput district, Odisha and Growth Rates in CAGR-2007-17:

It is given the details of the area, production and yields of the Visakhapatnam district, A.P. and Koraput district, Odisha and Growth Rates -2007-17 in Table 2.7. The absolute figures and its growth rates are given, as these two districts are the selected area in this study. The planted area has increased much in the sub-period at 8 percent in Visakhapatnam district, and later it appears 4 percent in the second sub-period, and it is a half of the first sub-period. The analogous trend with the acceleration appears for the bearing area in Visakhapatnam district, while it is different for the production growth. It reports 6 percent in first sub-period and 7 percent in the second sub-period. The yield rate appears very discouraged, as it shows declining trend in the first period, while in the second period it is positive growth rate at a very lower level. In Koraput district, the planted area has increased at 3 percent in first sub-period, and in the later period, the growth rate appears at a lower level and the bearing area also shows similar trend as 4 percent and 2 percent in first and second sub-periods, respectively, nevertheless production has maintained the same level growth in both the sub-periods. However, the growth of yield has increased much compared to the planted area, bearing area and production in Koraput district. It could be due to the non-tribal coffee production in the area.

Table 2.7: Area, Production and Yields of Visakhapatnam district, A.P. and Koraput district, Odisha and Growth Rates in CAGR-2007-17

Year	Visakhapatnam district				Koraput district			
	Planted Area In-ha	Bearing Area in ha	Production MTs	Yield in kgs.	Planted Area In-ha	Bearing Area in ha	Production in MTs	Yield In Kgs.
2008	37773	21965	4481	204	3142	1988	170	85
2009	42679	27038	4945	183	3317	2163	230	106
2010	47377	29977	5478	183	3408	2255	100	44
2011	52081	32940	5966	181	3548	2395	260	109
2012	55051	37756	5910	157	3605	2452	360	147
2013	58131	42661	7319	172	3934	2621	310	118
2014	61343	47366	7427	157	4065	2752	440	160
2015	64956	52074	9200	177	4139	2826	550	195
2016	67356	55044	9800	178	4190	2877	600	209
2017	71356	58124	10100	174	4238	2925	650	222
	CAGR for area Production and Yields							
2008-12	7.82	11.44	5.69	-5.10	2.79	4.28	16.19	11.58
2013-17	4.18	6.38	6.65	0.23	1.50	2.22	15.96	13.47

Source: 1) Office of the Senior Liason officer, Coffee Board, Minumuluru and 2) Office of the Senior Liason officer, Coffee Board, Koraput.

Summary:

In the coffee total growing area, Karnataka stood the first and A.P. emerged as second by 2017. However, A.P. does not demonstrate share in production (18 percent) as well as in area share (30 percent), and it projects the need of the increase of production in A.P. for arabica coffee. There is no increase of production level in NER, as its output remains the same nearly in

the study period (1997-17). The robusta coffee is growing in Karnataka (58 percent), Kerala (declined from 47 to 38 percent), whereas it is absent in other two regions. It can be observed that the area shift is not there in Tamil Nadu due to non-suitability of robusta coffee. In the case of Kerala, it is noticed that the share of the area is high. In the total area of coffee, Karnataka stands the first and A.P. comes as the second. There has been no increase of coffee area either in Kerala or Tamil Nadu, and the share in the area by little amount has displayed decrease during the study period. A.P. has shown a phenomenal increase in the area, as it had 9 percent in 1997-02 and shifted to 30 percent by 2012-17. Interestingly, Karnataka has the significant share in total area and production, as it has 70 percent share of coffee production at national level except in the recent past. Tamil Nadu shows the lower share of production 6 percent (2012-17) compared to its percentage of the area with 13 percent in the same period. For Kerala, the scenario is different, as it shows two percent share of the area at the national level, but it has 21 percent in the production, and it indicates its high-level productivity in the coffee growing. The policy formulation is to be in tune with the backward areas in the coffee growing. Both the concerned state governments and the Coffee Board are to extend the necessary programmes in these regions.

A.P. reports a suitable and continuous higher growth rate for arabica coffee growing, and it is very higher than that of the growth rates of all-India. In NTA and NER, there are higher growth rates of arabica compared to the rates of all-India. For arabica coffee area, Karnataka has reported an unabated decrease in the area except in 1997-02. Tamil Nadu and Kerala exhibit the quite lower growth rate in the comparing period for arabica coffee area. All-India growth rate has been declining in the study period for robusta from two percent to 0.74 percent in the reference period which is lower compared with the arabica's growth rate in the same period. It appears that there is a lot of scope for extension in the area in A.P., Odisha (NTA area) and NER. The planted area has increased much in the sub-period at 8 percent in Visakhapatnam district, and later it appeared 4 percent in the second sub-period. The analogous trend with the acceleration appears for the bearing area in Visakhapatnam district, while it is different for production growth. The yield rate appears very discouraged, as it shows declining trend in the first period, while it is positive in the second period at very lower level. In Koraput district, the planted area has increased at 3 percent in first sub-period, and the later period, the growth rate appears at lower level, and the bearing area also shows similar trend as 4 percent and 2 percent in first and second sub-periods, respectively.

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CHAPTER III
Part-A
Profile of the Coffee Growing Area in Visakhapatnam and Koraput Districts

3A.1 Coffee in Visakhapatnam district:

Coffee was first introduced in A.P. in 1898 by Mr Brodi, a Britisher in Pamuleru Valley of East Godavari district and later, the coffee growing took place in Pullangi, East Godavari district and Gudem in Visakhapatnam district. Gradually, it was spread to Ananthagiri, Araku and Chintapalli areas in Visakhapatnam District. Based on the weather conditions, it has been growing in the hilly regions of Visakhapatnam district consisting of 11 mandals/blocks which are notified as Scheduled Tribal area (STA). The Forest Department started in large scale in the 1960s, and the same area was taken over by Andhra Pradesh Forest Development Corporation (APFDC) in 1985. It grows 10 thousand acres and is famous for the quality coffee growing in the national market. Due to the initiation of the Coffee Board, Girijan Cooperative Corporation (GCC) took the development of 4000 ha for the tribal farmers in the STA and maintained, and later, the present Integrated Tribal Development Agency (ITDA) was assigned this extension programme in 1997. The ITDA has been appreciated for its wonderful execution of the coffee plantation development programme in STA.

3A.2 Role of the Coffee Board:

Having the rousing interest-survey by Sri W. Raghavendra Rao, Coffee Board started an extension office in 1970 for the benefit of public in Paderu. Consequently, the Regional Coffee Research Station was started in 1976 at Chintapalli to serve the needs of development of newer selection materials and to study the zone-specific problems. The Coffee Board is the catalyst in the development of coffee growing through its subsidy support to the growers and the technical support for the better extension of coffee growing area. It has started several offices for delivering good service to the coffee growers such as: Senior Liaison Office with Technology Evaluation Centre, Minumuluru in 1971, Junior Liaison Office, Chintapalli (East) 1980, Junior Liaison Officer, Chintapalli (West)1990, Junior Liaison Office, Arakuvalley,1980,Ofiice of the Deputy Director (Extension), Visakhapatnam/Paderu 1976/2006, Joint Director (Extension), Visakhapatnam 2006.

3A.3 Area Suitability:

The general **Eco-climatic and edaphic factors** prevailing in these agency tracts could be referred: Elevation-2500 to 4500 feet above MSL, Rainfall-1000 to 1700 mm, Slope Gentle to steep, Soil-

Sandy loam to clay, pH-5.5 to 6.5 Temperature-02 to 43 degree Celsius and Humidity-28% to 95%. **Shade:** The forest in the Eastern Ghats is classified as 'Dry deciduous'. Through planting fast-growing and evergreen tree species, the existing podu areas might be afforested to take up coffee cultivation in the successive years. The major drawback of the volatility in temperature is to be minimised by the selective and judicious planting of mixed shade trees in this area for successful plantation. Conditions in Paderu Agency: Paderu-3400' MSL, Chinthapalli-2700' MSL, Arakuvalley-3200' MSL. Area under coffee (2016-17): Planted Area (ha)- 67089, Bearing Area (ha)- 54777, No.of holdings: 153885, Production in MTs-9800, Productivity : 178 kgs/ha.

3A.4 Profile of Paderu Agency Area:

▪ Geographic area of Visakhapatnam District	:	11,167 Sq. Kms
▪ Area of the I.T.D.A	:	6,293 Sq.Kms.
▪ % Agency area to the total district area	:	56.38 %
▪ District Population	:	42,90,589
▪ Population of Paderu division	:	6,04,047
▪ Population of Scheduled Tribes:	:	5,47,951
▪ Households	:	1,34,233
▪ % of Agency Population to the Dist. Population	:	14.08 %
▪ Density of Population per Sq. Km. in the district	:	384
▪ Density of Population per Sq. Km. in the agency:	:	96
▪ Major Tribal Groups:	:	
▪ PvTGs:	:	Khond, Gadaba, Poorja
▪ Other ST Groups:	:	Bhagatha, Valmiki, Kondadora, Kotia, Kammara, Nookadora

3A.5 Scheduled Tribal Area Mandals and No. of Villages and Habitations:

No. of Mandals: 1.Ananthagiri, 2.Arakuvalley,3. Dumbriguda, 4. Hukumpeta, 5.Pedabayalu, 6. Munchingput, 7. Paderu, 8. G.Madugula, 9. Chinthapalli, 10. G.K.Veedhi and 11. Koyyuru. Gram No.of Panchayats: 244, No.of revenue villages: 2312, No. of Tribal habitations: 3574, No.of PvTG Habitations: 1093 and No.of other ST habitations: 2481.

3A.6 Demographic and Work Participatory Profile of Coffee Growing Area by Mandal/Block in Visakhapatnam district:

It is presented in table 3.1 the demographic and work participatory profile of coffee area by mandal/ block in Visakhapatnam and Koraput districts. There are 11 mandals in the coffee growing area and these mandals are notified as STA as referred earlier, and under this norm, the land of this area can not be purchased by a non-tribe within these 11 mandals. The population of this area is 14 percent in the

district. Chintapalli comes the first in the highest population followed by G.K. Veedhi, while Munching Puttu shows the lowest population among tribal mandals and the Dumbriguda and Annathagiri follow it. All the mandals are highly populated with ST population more than 90 percent except in two mandals, whereas the STs are at 14 percent at the district level. The literacy rate of STs of these mandals is low compared to STs' rate at the district level. The density of population is very low ranging from 67 to 173 in different mandals against the 384 of the district. The sex ratio is higher in eight mandals compared to the district. The SC population is low in these mandals compared to the district level, and their literacy is high compared to STs. All mandas show lower literacy rates compared to the district one. The work participation rates are high in all mandals ranging from 54 percent to 63 percent compared to the district rate 44 percent. The share of cultivators is high from two times to three times in all the mandals.It reports that the mainstay of the area is cultivation to eke out the livelihood with the available limited sources of cultivation in the hill slopes. The work participation rates of agricultural labour are low compared to the cultivators, and it confirms the role of cultivation in the lives of the people of this hilly area. The area basically agro-economy depending completely on the cultivation as the major source of income to the households.

3A.7 Coffee in Koraput district:

Maharaja of Jeypore introduced Coffee plantation in 1930 at Bicholkota near Jeypore. After independence, the Soil Conservation Department planted coffee in Machkund area to avoid siltation to the soil in 1958 and later, it expanded the coffee plantation in other districts in the area of 1,321 ha. Though the programme was successful in the early stage, it was not successful in the following phases due to several reasons. Based on the poor performance of coffee under Govt. sector and land reforms prevailed, Coffee Board gave a thought to expand coffee in tribal sector on the line of success achieved in tribal holdings of A.P. As suggested by Coffee Board all the neglected plantations belonging to Soil Conservation Department were distributed to the local tribals as the beneficiaries. The good beginning in favour of tribal people in the coffee growing has been taken place in Koraput district, and the same system has been in force. There has also been the non-tribal coffee plantation in Koraput district (identified by Coffee Board as Private Sector).

3A.8 Demographic Information of Koraput district:

Brief demographic information is given in next page to get an overview of the district which is suitable for coffee plantation.

North latitude	:	17.4^0 to 20.7^0	%
East longitude	:	81.24^0 to 84.2^0	-
Geographical Area	:	8,807.00 sq.km	-
Area under Forest	:	1879.53 sq.km	21
Total Population	:	13,79,647	-
Males	:	6,78,809	49.2
Female	:	7,00,838	50.8
Scheduled Caste	:	1,96,540	14.25
S C Male	:	96,789	49.25
SC Female	:	99,751	50.75
Scheduled Tribe	:	6,97,583	50.56
ST Male	:	3,37,373	48.36
ST Female	:	3,60,210	51.64
Rural population	:	11,53,478	83.61
Urban population	:	2,26,169	16.39
Population Density :	:	157 (Per sq.km)	
Sex Ratio	:	1046 (rural)	
Total Literates	:	5,68,090	41.18
Literates Male	:	3,40,843	60
Literates Female	:	2,27,247	40
Total Households	:	3,37,677	-
Rural Households	:	2,82,783	83.74
Urban Households	:	54,894	16.26

3A.9 Coffee Extension Programme Implemented by the following Departments in Koraput District:

The Government of Odisha (GoO) has given the responsibilities to the different departments for the taking care of coffee plantation programme in the state. The expansion of coffee plantation has been taking care of by the Department of ST & SC Development Department, and it is the Nodal Dept. for the project, whereas Directorate of Watershed Mission is the Nodal Officer for the entire state. The ITDA Koraput is the fund sanctioning authority for the district. The Deputy Director, Coffee Development, Koraput is the Executing Officer for coffee extension in the district. The Coffee Board has arranged the Senior Liaison Office, Coffee Board, Koraput to take care of the support of Technical/Financial support for the entire programme in the district (opened in 1978). The Coffee growing area in the district (2016-17) informs us as area-2925 ha, bearing area-2452, Non-bearing area: 473 ha, No. of holdings-3280, Production- 553 MTs and yield 225 kgs/ha.

3A.10 Administrative Units in Koraput district:

No of Revenue Divisions: 2, No. of Tahasils:14, No. of Blocks: 14, No. of Municipalities: 3, No. of Gram panchayats: 226, No. of Inhabited villages: 1922, No. of Police stations: 23, **Blocks Identified for Coffee Plantation Development Programme:** 1)Semiliguda, 2) Dasmantpur, 3) Laxmipur, 4) Nandapur, 5) Lamataput, 6) Koraput, 7) Potangi and 8) Baipariguda.

3A.10 Area Suitable for Coffee in Koraput:

Factor	:	Suitable for Arabica Coffee	Koraput district
Soils	:	Deep, fertile, rich in organic matter, well drained and slightly acidic (Ph6.0-6.5)	Fertile/rich Organic/PH 6.0 to 6.5
Shade	:	Needs medium to light shade (Two tire Filter shade of 40-50%),	Mono/Natural shade
Slopes	:	Gentle to moderate slopes	Moderate
Elevation	:	2500-4000 ft	1800 ft to 4200 ft
Aspect	:	North, East and North- East aspects	
Temperature	:	15.0 C – 25 0 C ; cool, equable	Min: 60C – 10oC; Max: 20oC - 40 0C
Relative humidity	:	70-80%	30 %-90%
Annual rainfall	:	1600-2500 mm	1200 to 1800 mm
Blossom showers	:	March- April (25-40mm)	Assured
Backing showers	:	April-May (50-75 mm) well distributed	Assured

3A.11 Demographic and Work Participatory Profile of Coffee Growing Area by Block in Koraput district :

The demographic and work participatory profile of coffee growing Area by Block in Koraput district is given in Table 3A.1. In Koraput district, eight blocks are identified for coffee plantations. The whole population of these blocks together show more than 50 percent of the district population for persons, males and females. The SC population reports low in four blocks and high or equivalent in four blocks and the literacy rates are high in as many as five blocks compared to the district literacy rate. In the coffee-growing blocks, the half of the population is STs, and their share is 57 percent in the district, and it indicates that the ST population is concentrated in the coffee growing blocks. Four blocks divulge higher literacy and density rates compared to the district rates. The gender ratio shows for six blocks greater than the rate of the district, and it indicates the no existence of gender discrimination in the coffee growing area. For literacy, as many as seven blocks inform the less literacy compared to the district level and the work participation rates are high in seven blocks. Interestingly, Koraput block shows low work participation rate with 46 percent, where the Koraput town is proximate to this block area. The cultivation is the major source of income in the coffee growing blocks, as these report the higher share of cultivators in the total work force. The agricultural labour participation rates are low against the rate of the district.

Table 3A.1: Demographic and Work Participatory Profile of Coffee Area by Mandal/Block in Visakhapatnam and Koraput districts :2011

S. No	Nmae of the mandal/block	Total Population			SC total population	% of SCs in total population	% of SC literacy	ST population	% of ST in total population	% of ST literacy	Density	Gender Ratio	Literacy	% of workers in population	% of cultivators in total workers	% of Agricultural labour in total workers
		Persons	Males	Females												
		Coffee Area of Visakhapatnam district														
1	Munchingi Puttu	47418	22937	24481	65	0.14	70	44538	94	39	98	1067	39	59	54	30
2	Peda Bayalu	51890	25542	26348	26	0.05	33	49937	96	39	120	1032	39	61	49	24
3	Dumbriguda	49029	23801	25228	102	0.21	62	46479	95	41	153	1060	42	61	45	19
4	Araku Valley	56674	27492	29182	497	0.88	72	51876	92	51	173	1061	54	54	40	25
5	Ananthagiri	49019	24427	24592	821	1.67	52	44190	90	37	83	1007	39	62	44	27
6	Hukumpeta	51697	25137	26560	57	0.11	76	49594	96	43	125	1057	43	60	59	29
7	Paderu	58983	28644	30339	563	0.95	83	48694	83	58	130	1059	60	56	48	27
8	G.Madugula	53884	26966	26918	93	0.17	54	49970	93	37	97	998	39	63	62	17
9	Chintapalle	71640	35217	36423	600	0.84	60	64703	90	40	106	1034	43	63	40	35
10	G. K.Veedhi	63174	30486	32688	784	1.24	72	56757	90	40	67	1072	43	58	52	26
11	Koyyuru	50639	25047	25592	546	1.08	55	41213	81	47	81	1022	49	58	16	33
	% in district	14	14	14	-	8	59	13	14	42	384	1025	67	44	17	31
		Coffee Area of Koraput district														
1	Dasamantapur	81693	39585	42108	9497	12	56	46656	57	34	123	1064	42	52	34	51
2	Lakshmipur	66621	32550	34071	9656	14	59	46745	70	32	214	1047	42	50	38	39
3	Pottangi	69401	34077	35324	4207	6	51	46243	67	28	269	1037	32	55	53	39
4	Semiliguda	81314	39920	41394	8856	11	52	41494	51	38	212	1037	45	54	43	38
5	Koraput	57501	27912	29589	8494	15	53	26853	47	41	145	1060	49	46	24	30
6	Boipariguda	110746	54133	56613	14717	13	42	65842	59	28	104	1046	36	53	29	50
7	Lamtaput	59873	29227	30646	11569	19	45	27284	46	35	183	1049	42	58	53	33
8	Nandapur	91496	44388	47108	15058	16	49	48056	53	35	141	1061	41	59	59	30
	% in district	54	54	54	-	14	49	50	57	34	147	1046	49	50	30	42

Source: Census of India, 2011

Summary:

Having introduced in 1898, coffee has historical growing in Gudem in Visakhapatnam district and since then it has been growing due to the efforts of ITDA and Coffee Board spreading across 11 mandals/blocks with the planted area–67089 ha, bearing area-54777 ha, No.of holdings: 153885, production -9800 MTs and productivity-178 kgs/ha mainly by tribal farmers along with A.P.Forest Development Corporation. Chinatapalli mandal comes first in population among the 11 mandals, and the tribal area population stands 14 percent in the Visakhapatnam district. All the mandals/blocks are with more than 90 percent ST population with the density ranging from 67 to 173 in different mandals against the 384 of the district and the literacy rates in mandals are low compared to the district. However, the work participation rates are high in all mandals ranging from 54 percent to 63 percent compared to the 44 percent of the rural district. And the cultivators in the total work force is very high compared to the district level, while the agricultural labour is low when compared to cultivators in the study area.

With the initiation of Maharaja of Jeypore in 1930 at Bicholkota near Jeypore, the Soil Conservation Department of GoO has been rendering service to the development of coffee in Koraput district during the post-independence period with the coordination of other departments. There are now eight blocks in Koraput district for the coffee development programme, and the departments of GoO and the Coffee Board are rendering good level service for the coffee extension programme for the tribal and non-tribal coffee growers in the district. There are nearly four departments of GoO, and the Coffee Board are instrumental in whatever the coffee development took place in the district as: area 2925 ha production 553 MTs and yield-225 kgs/ha. The eight selected blocks population contributes 50 percent in the district population. There is deficient SC population in these blocks. The literacy rate and the density of four blocks are high compared to the rates of the district. The STs population of the coffee growing area is 57 percent of the total district population. The gender ratio shows for six blocks greater than the rate of the district, and it indicates the no existence of gender discrimination in the coffee growing area. For literacy, as many as seven blocks inform the less literacy compared to the district level and the work participation rates are high in seven blocks compared to the district. The cultivation is the major source of income in the coffee growing blocks, as these report the higher share of cultivators in the total workforce.

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CHAPTER III
Part-B
Socio-Economic Profile of the Sample Villages in Visakhapatnam and Koraput Districts

In this chapter, an attempt is made to study the socio-economic profile of the selected villages of the study districts-Visakhapatnam from A.P. and Koraput from Odisha. The coffee growers of the villages are examined based on the surveyed data in October and November 2017. In Visakhapatnam district, all the farmers of the coffee plantation are from Scheduled Tribes (STs), whereas in the case of Koraput district, we may find the presence of other communities along with the STs in the cultivation of coffee. Both districts are adjacent geographically, and the communal and socio-economic transactions are at the high turn. Basing on this background, we will find the socio-economic profile of the coffee growers in the sample villages.

3B.1 Distribution of Sample Farmer Households:

Table 3B.1 presents the distribution of sample farmer households. It is found that all the coffee farmers in the sample in Visakhapatnam district are from STs, while Koraput district shows the cultivation of 'Other castes' in the coffee plantation by medium farmers (20%) and large farmers (16%) from the sample of farmers. There is no possibility of the cultivation of crops in Visakhapatnam district, as the coffee growing area is notified as 'Scheduled Tribal Area'. In Koraput district, there is a scope for the non-tribal farmers to grow coffee in certain land pockets which are not notified under the tribal act.

Table 3B.1: Distribution of Sample Farmer households in the selected districts

Farm Size	ST	SC	OBC	Others	Total
Visakhapatnam District					
Marginal	24 (30.00)				24 (30.00)
Small	24 (30.00)				24 (30.00)
Semi-medium	16 (20.00)				16 (20.00)
Medium	16 (20.00)				16 (20.00)
Large					
Total	80 (100.00)				80 (100.00)
Koraput District					
Marginal	24 (30.00)				24 (30.00)
Small	24 (30.00)				24 (30.00)
Semi-medium					
Medium	13 (16.75)			3 (3.25)	16 (20.00)
Large				16 (20.00)	16 (20.00)
Total	61 (76.25)			19 (23.75)	80 (100.00)

Source: Primary Date 2017

3B.2 Gender Base of the Sample Farmers of the Selected Districts:

Gender base of the head of the household of the sample farmer families of the selected districts is given in Table 3B.2. The gender base for the head of the household is male-dominated in both districts for coffee sample farmers. In Visakhapatnam district, there is no scope for

cultivation by other communities other than STs, as the area is STA notified. The total head of the households is divided as 91 percent and 9 percent for males and females. Among the farmer groups, marginal farmers show the highest and followed by small farmers, and there is no representation to the semi-medium farmer group in Visakhapatnam district. In Koraput district, there is no STA norm to the all study blocks. Hence, there are other communities in this district in the sample farmers. Among the STs, the heads of households are 66 percent by males and 10 percent females. The small farmer group shows the highest and the next comes marginal farmer group. There are medium and large farmers are there in this district, and the males show a high number of households for the headship.

Table 3B.2: Gender Base of the Head of the Household of the Sample Farmer

Farm Size	ST		SC		OBC		Others		Total	
	No. of males	No. of females	No. of males	No. of females	No. of males	No. of females	No. of males	No. of females	No. of males	No. of females
	Visakhapatnam District									
Marginal	22 (27.50)	2 (2.50)							22 (27.50)	2 (2.50)
Small	20 (25.00)	4 (5.00)							20 (25.00)	4 (5.00)
Semi-medium	16 (20.00)								16 (20.00)	
Medium	18 (18.75)	1 (1.25)							15	1 (1.25)
Large										
Total	73 (91.25)	7 (8.75)							73 (91.25)	7 (8.75)
	Koraput District									
Marginal	19 (23.75)	5 (6.25)							19 (23.75)	5 (6.25)
Small	24 (30.00)								24 (30.00)	
Semi-medium										
Medium	10 (12.50)	3 (3.75)						3 (3.75)	10 (12.50)	6 (7.50)
Large							11 (13.75)	5 (6.25)	11 (13.75)	5 (6.25)
Total	53 (66.25)	8 (10.00)					11 (13.75)	8 (10.00)	64 (80.00)	16 (20.00)

Source: Primary data 2017

3B.3: Age Distribution of the Sample Farmers in the Selected Districts:

Table 3B.3 shows the age distribution of the sample farmers in the selected districts. In the age distribution, there is a variation between study districts. In the age group of 16-40 years, the higher farmers appear in Visakhapatnam district, whereas in Koraput district, the age group 41-60 years shows a higher number of farmers. The lowest farmers seem in the age group of more than 60 years in both districts for sample farmers. However, Visakhapatnam district shows 25 percent under the age group of more than 60 years, while it is only 6 percent of its counterpart. Marginal and small farmers inform the first and second places for the age group of 16-40 years in Visakhapatnam district, while the same farmer group show very lower share for

the farming profession in Koraput district and the vice versa appears for the age group of 41-60 years.

Table 3B.3: Age Distribution of the Sample Farmers in the Selected Districts (%)

Farm Size	<16	16-40	41-60	>60	Total
Visakhapatnam District					
Marginal		83.33	12.50	4.17	100.00
Small		58.33	37.50	4.17	100.00
Semi-medium		56.25	37.50	6.25	100.00
Medium		43.75	31.25	25.00	100.00
Large					
Total		62.50	28.75	8.75	100
Koraput District					
Marginal		41.67	58.33	0.00	100.00
Small		25.00	75.00	0.00	100.00
Semi-medium					
Medium		50.00	37.50	12.50	100.00
Large		6.25	75.00	18.75	100.00
Total		31.25	62.50	6.25	100

Source: Primary Data collected: 2017

3B.4 Educational Background of the Sample Farmers in the Sample Villages:

The educational background of the sample farmers in the sample villages is shown in Table 3B.4. The educational background is very low for the sample farmers in Koraput district compared to its parallel study district except for medium and large farmers. The sample farmers show 39 percent and 50 percent illiteracy in Koraput and Visakhapatnam districts, respectively. In primary, secondary and intermediate courses, Visakhapatnam reports higher educational level than that of the Koraput district. But, the 'Graduation and above' shows the high number in Koraput district and this is due to the large and medium of farmers who hail from 'other castes' community of the sample farmers.

Table 3B.4: Educational Background of the Sample Farmers in the Sample Villages

Farm Size	Illiterates	Primary	Secondary	Inter	Graduation and above
Visakhapatnam District					
	No.	No.	No.	No.	No.
Marginal	9 (37.50)	5 (20.83)	7 (29.17)	3 (12.50)	-
Small	8 (33.33)	4 (16.67)	8 (33.33)	3 (12.50)	1 (4.17)
Semi-medium	8 (50.00)	2 (12.50)	6 (37.50)		
Medium	6 (37.50)	2 (12.50)	4 (25.00)	2 (12.50)	2 (12.50)
Large	-	-	-	-	-
Total	31 (38.75)	13 (16.25)	25 (31.25)	8 (10.00)	3 (3.75)
Koraput District					
Marginal	11 (29.17)	7 (29.17)	6 (25.00)	-	-
Small	20 (83.33)	2 (8.33)	2 (8.33)	-	-
Semi-medium	-	-	-	-	-
Medium	9 (56.25)	3 (18.75)	1 (6.25)	-	3 (18.75)
Large				-	16 (100.00)
Total	40 (50.00)	12 (15.00)	9 (11.25)		19 (23.75)

Note: Parentheses refer to percentages. Source: Primary Data collected: 2017

3B.5: Occupational Distribution of the Head of Household of the Sample Farmers in Selected Districts.

Table 3B.5 gives details of the occupational distribution of the head of household of the sample farmers in the sample villages. All the farmer sizes in both districts report 100 percent in agriculture and allied activities. For agricultural labour, Visakhapatnam district shows 69 percent of the sample farmers, while it is only 10 percent in corresponding study district. In the case of non-agriculture labour, Koraput district informs 59 percent of the sample farmers, where it is only 9 percent in the relevant district. Self-employment is there for three persons in Visakhapatnam district out of the sample farmers, and it is not there in its counterpart. However, salaried employment is there for one person in Koraput district, and it is absent in Visakhapatnam district. Pensioners and household workers are not present among the sample farmers in both districts. Under 'others' category there is the source of employment for four persons in Visakhapatnam district, and it is absent this category in the parallel district. Finally, it could be inferred that both the sample farmers are very much dependent on the occupation of agriculture and allied activities and agriculture labour is high in Visakhapatnam district.

Table 3B.5: Occupational Distribution of the Head of Household of the Sample Farmers in Selected Districts.

Farm Size	Agri& Allied	Agri Labour	Non-Agri Labour	Self-Emp.	Salaried	Pensioners	Household work	Others
Visakhapatnam District								
	No. (%)	No. (%)	No. (%)	No. (%)	No. (%)	No. (%)	No. (%)	No. (%)
Marginal	24 (100)	21 (87.5)	2 (8.33)					1 (4.17)
Small	24 (100)	17 (70.83)	3 (12.50)	3 (12.50)				1 (4.17)
Semi-medium	16 (100)	9 (56.25)						2 (12.50)
Medium	16 (100)	8 (50.00)	2 (12.50)					
Large								
Total	80 (100)	55 (68.75)	7 (8.75)	3 (3.75)				4 (5.00)
Koraput District								
Marginal	24 (100)	5 (20.83)	14 (58.33)					
Small	24 (100)	3 (12.50)	20 (83.33)					
Semi-medium	16 (100)		13 (81.25)		1 (1.25)			1 (6.25)
Medium								
Large	16 (100)							
Total	80 (100)	8 (10.00)	47 (58.75)		1 (1.25)			1 (1.25)

Source: Primary Data: 2017.

3B.6: Family Members Engaged in Farming and Farming Experience of the Sample Farmers in Selected Districts:

Table 3B.6 presents the family members engaged in farming and farming experience of the sample farmers in the sample villages. The percent of the family involved in agriculture is 59 percent 58 percent in Visakhapatnam and Koraput districts, in that order, and it indicates a similar trend in both districts. The average members of the family and the members in farming are slightly high in Koraput district compared to its counterpart. Medium and large farmer groups show a higher number of members in the family among the farm sizes in Visakhapatnam and Koraput districts, in that order. Small farmers show the highest participation in the farming out of all groups in Koraput district, whereas medium and semi-medium report the higher participation of the family members in Visakhapatnam district.

Table 3B.6: Average Family Members Engaged in Farming of Sample Farmers in Selected Districts.

Farm Size	Visakhapatnam District			Koraput District		
	Average members of the family	Average of family members in farming	% of the family engaged in farming	Average members of the family	Average of family members in farming	% of family engaged in farming
Marginal	3.92	2.25	57.45	4.71	2.79	59.29
Small	4.54	2.67	58.72	5.08	3.54	69.67
Semi-medium	4.94	3.13	63.29			
Medium	5.56	3.13	56.18	4.38	2.56	58.57
Large				5.31	2.06	38.82
Total	4.64	2.73	58.76	4.88	2.83	57.95

Source: Primary Data : 2017

Summary:

In Visakhapatnam district, there is no scope for cultivation by other communities other than STs, (as the area is STA notified), whereas Koraput shows STs and non-STs. The gender base for the head of the household is male-dominated in both districts for coffee sample farmers. Among the STs, the heads of families are 66 percent by males and 10 percent females, and in the age group of 16-40 years, the higher farmers appear in Visakhapatnam district, whereas in Koraput district, the age group 41-60 years shows a higher number of farmers. However, Visakhapatnam district shows 25 percent under the age group of more than 60 years, while it is only 6 percent of its counterpart. Marginal and small farmers inform the first and second places for the age group of 16-40 years in Visakhapatnam district, while the same farmer group shows very lower share for the farming profession in Koraput district. The educational background is very low for the sample farmers in Koraput district compared to its parallel study district except for medium and large farmers. The sample farmers show 39 percent and 50 percent illiteracy in Koraput and Visakhapatnam districts, respectively. In primary, secondary and intermediate courses, Visakhapatnam reports higher educational level than that of the Koraput district. But,

the ‘Graduation and above' shows the high number in Koraput district and this is due to the large and medium of farmers who hail from ‘other castes' community of the sample farmers. All the farmer sizes in both districts report 100 percent in agriculture and allied activities. For agricultural labour, Visakhapatnam district shows 69 percent of the sample farmers, while it is only 10 percent in corresponding study district. In the case of non-agriculture labour, Koraput district informs 59 percent of the sample farmers, where it is only 9 percent in the corresponding district. Finally, it could be inferred that both the sample farmers are very much dependent on the occupation of agriculture and allied activities and the agriculture labour is high in Visakhapatnam district. The percent of the family engaged in farming is 59 percent and 58 percent in Visakhapatnam and Koraput districts, in that order, and it indicates a similar trend in both districts. Medium and large farmer groups show a higher number of members in the family among the farm sizes in Visakhapatnam and Koraput districts, in that order. Small farmers show the highest participation in the farming out of all groups in Koraput district, whereas medium and semi-medium report the higher participation of the family members in Visakhapatnam district.

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CHAPTER IV
Cost of Cultivation and Incomes for Coffee Cultivation
Part : A
Landholdings, Cropping Pattern and Crop wise Costs

In this chapter part-A, it is examined the average landholding and cropping pattern of the sample farmers and analysed the main and by-production the of the sample farmers. The material and labour costs are examined by farmer landholding groups. However, there is no larger farmer group in Visakhapatnam district and no semi-farmer group in Koraput district. There is no cropping for summer and it is not referred here. In the cropping pattern, the important crops which have reasonable share in the total income of the farmers are selected in the analysis. It is made an attempt to estimate the borrowings of the farmers and the equipment and assets base of the farmers with reference to their landholding sizes. All the farmers from Visakhapatnam district are tribal farmers, whereas except for large and medium farmer groups (non-tribal farmers), the remaining groups are tribal farmers in Koraput district.

4A.1a Average Landholding of the Sample Farmers:

Table 4A.1a presents Average landholding of the sample farmers of the sample villages in Visakhapatnam district in A.P. In the sample villages, the irrigated area is meagre and it does not give impact on the cultivation of the sample farmers as the rainfed area is 4.33 acres out of the average net operated area 4.50 acres. There is no uncultivated area under either operating group, and the lower level of transactions appear for leased-in and leased-out, and these are observed at a little high under irrigated area compared to rainfed area.

4A.1b Average Landholding of the Sample Farmers in Koraput District

Average landholding of the sample farmers of the sample villages in Koraput district is shown in Table 4A.1b. There is no cultivation under irrigated area, and there are no transactions either in leased-in or leased-out, whereas we can notice that these are in Visakhapatnam district. A significant fact is that the average net operated area is high in total for all landholding groups in Koraput district by two times except for small farmer group.

4A.2 Cropping Pattern in Kharif of the Sample Farmers in Visakhapatnam and Koraput districts:

The cropping pattern in Kharif of the sample farmers of the sample villages in Visakhapatnam and Koraput districts is presented in 4A.2. There is Kharif crop under irrigated area for only paddy cultivation in Visakhapatnam district, whereas it is completely absent in Koraput district. The cultivation under irrigated area is very less for the farmer groups in

Table 4A.1a Average Landholding of the Sample Farmers in Visakhapatnam district in A.P.

Farm size	Average own land	Average leased-in	Average leased-out	Average uncultivated land	Average rental value of leased-in in Rs.	Average rental value of leased-out in Rs	Average net operated area in acres
Irrigated							
Marginal							
Small	0.02						0.02
Semi-medium	0.094	0.23			1875		0.33
Medium	0.094	0.40			3813		0.49
Large							
Total	0.04	0.13			1138		0.17
Rainfed							
Marginal	1.83						1.83
Small	3.51						3.51
Semi-medium	5.55						5.55
Medium	8.12	0.16	0.19				8.09
Large							
Total	4.33	0.03	0.04				4.33
Total							
Marginal	1.83						1.83
Small	3.53						3.53
Semi-medium	5.64	0.23			1875		5.87
Medium	8.22	0.55	0.19		3813		8.58
Large							
Total	4.38	0.16	0.04		1138		4.50

Source: Primary Data 2017

Table 4A.1b Average Landholding of the Sample Farmers in Koraput District

Farm size	Average own land	Average leased-in	Average leased-out	Average uncultivated land	Average rental value of leased-in in Rs.	Average rental value of leased-out in Rs	Average net operated area in acres
Irrigated							
Marginal							
Small							
Semi-medium							
Medium							
Large							
Total							
Rainfed							
Marginal	2.02						2.02
Small	3.48						3.48
Semi-medium							
Medium	7.49						7.49
Large	40.13						40.13
Total	11.17						11.17
Total							
Marginal	2.02						2.02
Small	3.48						3.48
Semi-medium							
Medium	7.49						7.49
Large	40.13						40.13
Total	11.17						11.17

Source: Primary Data 2017.

Table 4A.2 Cropping Pattern in Kharif of the Sample Farmers in Visakhapatnam & Koraput Districts.

(in acres)

Farm size	Visakhapatnam district									Koraput district				
	Paddy	Maize	Little millets	Ragi	Gingelly	Turmeric	Red kidney beans	Long pepper	Total cropped area	Paddy	Little millets	Ragi	Niger	Total cropped area
Irrigated														
Marginal														
Small	0.50 (50.00)								0.50 (50.00)					
Semi-medium	3.20 (50.00)								3.20 (50.00)					
Medium	7.85 (50.00)								7.85 (50.00)					
Large														
Total	11.55 (50.00)								11.55 (50.00)					
Rainfed														
Marginal	4.75 (6.22)			0.50 (0.65)		2.65 (3.47)			7.90 (10.34)					
Small	6.15 (5.22)	2.00 (1.70)	2.00 (1.70)	3.25 (2.76)		6.75 (5.73)	0.25 (0.21)	3.55 (3.01)	23.95 (20.33)	26.50 (40.83)		3.50 (5.39)		30.00 (61.86)
Semi-medium	15.30 (12.14)	1.00 (0.79)	0.50 (0.40)	4.50 (3.57)	0.50 (0.40)	4.50 (3.57)	2.00 (1.59)	0.20 (0.16)	28.50 (22.60)					
Medium	12.30 (7.04)	3.00 (1.72)	4.00 (2.29)	8.50 (4.87)	2.00 (1.15)	8.30 (4.75)	2.55 (0.27)	1.00 (0.57)	41.65 (23.85)	32.30 (27.14)	7.00 (5.88)	17.50 (14.71)	6.00 (5.04)	62.80 (96.76)
Large														
Total	38.50 (7.78)	6.00 (1.21)	6.50 (1.31)	16.75(3.38)	2.50 (0.51)	22.20(4.49)	4.80 (0.97)	4.75 (0.96)	102.00 (20.61)	58.80 (4.85))	7.00 (0.58)	21.00 (1.73)	6.00 (0.49)	92.80 (7.69)
Total														
Marginal	4.75 (6.22)			0.50 (0.65)		2.65 (3.47)			7.90 (10.34)					
Small	6.65 (5.60)	2.00 (1.68)	2.00 (1.68)	3.25 (2.74)		6.75 (5.68)	0.25 (0.21)	3.55 (2.99)	24.45 (20.58)	26.50 (40.83)		3.50 (5.39)		30.00 (61.86)
Semi-medium	18.50 (13.96)	1.00 (0.75)	0.50 (0.38)	4.50 (3.40)	0.50 (0.38)	4.50 (3.40)	2.00 (1.51)	0.20 (0.15)	31.70 (23.93)					
Medium	20.15 (10.59)	3.00 (1.58)	4.00 (2.10)	8.50 (4.47)	2.00 (1.05)	8.30 (4.36)	2.55 (1.34)	1.00 (0.53)	49.50 (26.00)	32.30 (27.14)	7.00 (5.88)	17.50(14.71)	6.00 (5.04)	62.80 (96.76)
larrge														
Total	50.05 (9.66)	6.00 (1.16)	6.50 (1.25)	16.75(3.25)	2.50 (0.48)	22.20(4.29)	4.80 (0.93)	4.75 (0.92)	113.55 (21.92)	58.80 (4.85)	7.00 (0.58)	21.00 (1.73)	6.00 (0.49)	92.80 (7.69)

Source: Primary Data 2017 Note: figures in parentheses are per cent to gross cropped area (Khariff+Rabi +Perennial)

Visakhapatnam district, and it ranges from 0.50 acre to 7.85 acres, and the marginal farmer group do not have farming in the Kharif season. This scenario is very different from the plains due to its hilly area, as the Kharif cultivation is the predominant season in the plain area of Visakhapatnam district. In the case of rainfed area, Visakhapatnam shows higher cultivated area (102 acres) of the sample farmers compared to the area (93 acres) of Koraput district. Out of the rainfed area, paddy has the highest share followed by turmeric in Visakhapatnam district for the sample farmers, while in Koraput district, paddy has the highest share followed by ragi. Under rainfed, there are eight crops in Visakhapatnam district, whereas in Koraput district there are only four crops. It could be noticed that there is a vast variation in the cropping pattern in Kharif season in the selected districts

4A.3 Cropping Pattern in Rabi of the Sample Farmers:

The cropping pattern in Rabi of the sample farmers of the sample villages is given in Table 4A.3. For Rabi season, the similar trend of irrigated area under Kharif for paddy appears in

Visakhapatnam district, while it is traced a different picture for the rainfed. In both districts, red gram appears under rainfed, but the extent of the area is very much high in Visakhapatnam district with 25 acres with two crops-paddy and red gram, whereas it is only half acre with the red gram in Koraput district for the sample farmers. The Rabi season has the higher level of cultivation in Visakhapatnam district compared to Koraput district by 36 acres among farmer groups.

Table 4A.3 Cropping Pattern in Rabi of the Sample Farmers in Visakhapatnam & Koraput Districts

(in ac.)

Farm size	Visakhapatnam district			Koraput district	
	Paddy	Red gram	Total cropped area	Red gram	Total cropped area
Irrigated					
Marginal					
Small	0.50(50.00)		0.50(50.00)		
Semi-medium	3.20(50.00)		3.20(50.00)		
Medium	7.85(50.00)		7.85(50.00)		
Large					
Total	11.55(50.00)		11.55(50.00)		
Rainfed					
Marginal		1.50(2.57)	1.50(2.57)		
Small		5.50(4.67)	5.50(4.67)	0.50(0.77)	0.50(0.77)
Semi-medium		4.00(0.03)	4.00(0.03)		
Medium		14.00(0.08)	14.00(0.08)		
Large					
Total		25.00(0.05)	25.00(0.05)	0.50(0.04)	0.50(0.04)
Total					
Marginal		1.50(2.57)	1.50(2.57)		
Small	0.50(50.00)	5.50(4.67)	6.00(5.05)	0.50(0.77)	0.50(0.77)
Semi-medium	3.20(50.00)	4.00(0.03)	7.20(5.43)		
Medium	7.85(50.00)	14.00(0.08)	21.85(11.48)		
Large					
Total	11.55(50.00)	25.00(0.05)	36.55(7.06)	0.50(0.04)	0.50(0.04)

Source: Primary Data 2017 Note: figures in parentheses are percent to gross cropped area (Kharif+Rabi +Perennial)

4A.4 Cropping Pattern in Perennial of the Sample Farmers:

There is no cultivation under irrigated in perennial season in both sample villages of the selected districts, while rainfed shows a lot of area in both districts. Coffee and black pepper are the major crops in this season for cultivation, though mango crop is found a little extent in Visakhapatnam district. All the farmer groups are much engaged in the coffee and black pepper cultivation, while the large farmer group is the dominant landholding in Koraput district. The landholding is under cultivation of marginal, small and semi and medium groups in Visakhapatnam district with 100%, whereas Koraput district shows only 17% of landholding under these groups and 83% of the landholding under large farmer group. Moreover, in Visakhapatnam district in the STA, there is no scope for the cultivation by non-tribal farmers,

while the Koraput district shows the cultivation of non-farmers too. Black pepper is much cultivated as a mixed crop in Visakhapatnam district in the coffee cultivation by all the farmer groups, and it is found in less area in the coffee cultivation in Koraput district. The lower farmer groups are with 158 acres of coffee cultivation Koraput district, and out of this area, black pepper is only 40 acres, while it could be found 142 acres out of 210 acres in Visakhapatnam district. This would lead to a big variation in the income levels and living standards of these farmer groups of the two districts.

Table 4A.4 Cropping Pattern in Perennial of the Sample Farmers in Visakhapatnam & Koraput Districts (in ac.)

Farm size	Visakhapatnam district				Koraput district			
	Coffee	Black pepper	Mango	Total cropped area	Coffee	Black pepper	Mango	Total cropped area
Irrigated								
Marginal								
Small								
Semi-medium								
Medium								
Large								
Total								
Rainfed								
Marginal	35.50 (46.47)	31.50 (41.23)		67.00 (87.70)	48.50 (100.00)			48.50 (100.00)
Small	53.45 (45.37)	34.90 (29.63)		88.35 (75.00)	52.90 (81.51)	8.00 (12.33)		60.00 (93.84)
Semi-medium	52.29 (41.47)	37.29 (29.58)	4.00 (3.17)	93.58 (74.22)				
Medium	69.00 (39.51)	38.00 (21.76)	12.00 (6.87)	119.00 (68.14)	57.00 (47.90)	31.50 (26.47)		88.50 (74.37)
Large					557.00 (57.19)	357.00 (36.65)	60.00 (6.16)	974.00 (100.00)
Total	210.24 (42.48)	141.69 (28.63)	16.00 (3.23)	367.93 (74.34)	715.40 (58.96)	396.50 (32.68)	60.00 (4.95)	1171.90 (97.14)
Total								
Marginal	35.50 (46.47)	31.50 (41.23)		67.00 (87.70)	48.50 (100.00)			48.50 (100.00)
Small	53.45 (45.37)	34.90 (29.63)		88.35 (75.00)	52.90 (81.51)	8.00 (12.33)		60.00 (93.84)
Semi-medium	52.29 (41.47)	37.29 (29.58)	4.00 (3.17)	93.58 (74.22)				
Medium	69.00 (39.51)	38.00 (21.76)	12.00 (6.87)	119.00 (68.14)	57.00 (47.90)	31.50 (26.47)		88.50 (74.37)
Large					557.00 (57.19)	357.00 (36.65)	60.00 (6.16)	974.00 (100.00)
Total	210.24 (42.48)	141.69 (28.63)	16.00 (3.23)	367.93 (74.34)	715.40 (58.96)	396.50 (32.68)	60.00 (4.95)	1171.90 (97.14)

Source : Primary Data 2017

4A.5 Average Main Production in Kharif of Sample Farmers:

There is no main production in Kharif in Koraput district under irrigated area, and only for paddy crop it is noticed the main production in Visakhapatnam under irrigated area, and there are no other crops cultivated in the selected districts. Under rainfed, there is higher main production for small and medium farmer groups in Koraput district compared to the same groups of

Visakhapatnam district. As discussed earlier, we can find that there are eight crops for the main production under rainfed in Visakhapatnam district, whereas there are only four crops in Koraput district. There is no diversification in the farming activity in Koraput and the average level of production to these four crops is less when compared to its counterpart. It is observed that lower level of total average production of the crops in Koraput district comparatively. The crop production diversification and the level of the average output per acre is also low in Koraput district compared to its parallel study district.

Table 4A.5 Average Main Production in Kharif of the Sample Farmers in Visakhapatnam & Koraput districts

Farm size	Visakhapatnam district									Koraput district				
	Avg. main Production of paddy	Avg. main production of maize	Avg. main Production of little millets	Ave. main production of ragi	Avg. main production of gingelly	Avg. main production of turmeric	Avg. main production of red kidney beans	Avg. main production of long pepper	Avg.total main production	Avg. main production of paddy	Avg. main production of little millets	Avg. main production of ragi	Avg. main production of niger	Avg.total main production
Irrigated														
Marginal														
Small	0.21								0.21					
Semi-nedium	4.06								4.06					
Medium	5.13								5.13					
Large														
Total	1.90								1.90					
Rainfed														
Marginal	1.92			0.08		0.44			2.44					
Small	3.33	0.75	0.25	0.56		0.72	0.04	0.34	6.21	9.92				9.92
Semi-nedium	6.31	0.50	0.09	0.94	0.50	0.59	0.25	0.06	13.31			0.33		0.33
Medium	8.75	2.50	0.69	1.38	0.63	1.01	0.27	0.06	20.41	16.13	0.47	1.94	0.53	19.07
Large														
Total	4.59	0.83	0.23	0.66	0.23	0.67	0.12	0.13	9.34	6.20	0.09	0.49	0.11	6.89
Total														
Marginal	1.92			0.08		0.44			2.44					
Small	3.54	0.75	0.25	0.56		0.72	0.04	0.34	6.21	9.92				9.92
Semi-nedium	10.38	0.50	0.09	0.94	0.50	0.59	0.25	0.06	13.31			0.33		0.33
Medium	13.88	2.50	0.69	1.38	0.63	1.01	0.27	0.06	20.41	16.13	0.47	1.94	0.53	19.07
Large														
Total	6.49	0.83	0.23	0.66	0.23	0.67	0.12	0.13	9.34	6.20	0.09	0.49	0.11	6.89

(in Qtls.)

Source : Primary Data 2017

4A.6 Average Main Production in Rabi of the Sample Farmers:

Average main production in Rabi of the sample farmers of the sample districts in A.P. and Odisha is shown in Table 4A.6. There is no primary production in Rabi in Koraput district under irrigated area, and only paddy cultivation is there in Visakhapatnam district, while Semi and medium group farmers show high output than other groups in paddy cultivation. Under rainfed, red gram is cultivated in both sample villages but the area is high in Visakhapatnam district. The

area in Koraput under Rabi season is very meagre, and it indicates the very low level of farming activities.

Table 4A.6 Average Main Production in Rabi of the Sample Farmers in Visakhapatnam and Koraput Districts

(in Qtls.)

Farm size	Visakhapatnam district			Koraput district	
	Average main production of paddy	Average main production of red gram	Average total main production	Average main production of red gram	Average total main production
Irrigated					
Marginal					
Small	0.21		0.21		
Semi-medium	2.75		2.75		
Medium	5.31		5.31		
Large					
Total	1.68		1.68		
Rainfed					
Marginal		0.13	0.13	0.04	0.04
Small		0.67	0.67		
Semi-medium		0.53	0.53		
Medium		1.44	1.44		
Large					
Total		0.63	0.63	0.01	0.01
Total					
Marginal		0.13	0.13	0.04	0.04
Small	0.21	0.67	0.88		
Semi-medium	2.75	0.53	3.28		
Medium	5.31	1.44	6.75		
Large					
Total	1.68	0.63	2.31	0.01	0.01

Source: Primary Data 2017

4A.7 Average Main Production in Perennial of the Sample Farmers:

The average main production in perennial of the sample farmers of the sample villages is given Table 4A.7. In the perennial season, there is no farming activity under the irrigated area in the selected sample villages of A.P. and Odisha. There is farming activity for all the farmer groups in the rainfed area for three crops, i.e. coffee, black pepper and mango in both districts. It could be noticed that the higher production appears in Koraput district for coffee production, as it is 28 Qtls compared to 6.17 QTLs for Visakhapatnam district and this higher main production is derived from the large farmer group with 113 Qtls. However, marginal and medium farmer groups show the high amount of average main production in Koraput district for coffee production. In the case of black pepper, Koraput district shows higher amount of the primary output due to medium and large farmer groups production, whereas for mango the high production appears in Visakhapatnam district due to semi-medium groups' main production. The total output looks three times high in Koraput district with 37 Qtls compared to 12 QTLs in Visakhapatnam district. Therefore, we can conclude that the non-tribal farmers, being the large farmers, have shown much main production for coffee and black pepper. However, this level of production is not observed for the tribal

farmers in the sample villages of Koraput district. The production level is higher for the tribal farmers of Visakhapatnam district compared to the tribal farmers of Koraput district and there is a reasonable level of backwardness in the farming activity of the tribal farmers compared to large farmers of Koraput district and the tribal farmers of Visakhapatnam district.

Table 4A.7 Average Main Production in Perennial of the Sample Farmers in Visakhapatnam and Koraput districts

(in Qtls.)

Farm size	Visakhapatnam district				Koraput district			
	Average main production of coffee	Average main production of black pepper	Average main production of mango	Average Total main production	Average main production of coffee	Average main production of black pepper	Average main production of mango	Average total main production
Irrigated								
Marginal								
Small								
Semi-medium								
Medium								
Large								
Total								
Rainfed								
Marginal	3.92	1.28		5.20	5.75			5.75
Small	5.35	0.21		5.56	4.27	0.11		4.38
Semi-medium	7.23	0.45	21.88	29.56				
Medium	9.72	1.03	2.75	13.50	10.27	1.09		11.36
Large					112.94	33.47	9.69	156.09
Total	6.17	0.75	4.93	11.84	27.65	6.95	1.94	36.53
Total								
Marginal	3.92	1.28		5.20	5.75			5.75
Small	5.35	0.21		5.56	4.27	0.11		4.38
Semi-medium	7.23	0.45	21.88	29.56				
Medium	9.72	1.03	2.75	13.50	10.27	1.09		11.36
Large					112.94	33.47	9.69	156.09
Total	6.17	0.75	4.93	11.84	27.65	6.95	1.94	36.53

Source: Primary Data 2017

4A.8 Average By-production in Kharif of the Sample Farmers:

Table 4A.8 presents average by-production in Kharif of the sample farmers of the sample villages in A.P. and Odisha. Except for paddy by-production, no other crop stands for by-production in the selected districts. Only paddy crop shows by-production for both irrigated and rainfed areas. It indicates the possibility of the by-production through only paddy cultivation in the study districts. The higher amount of by-production is found with small and medium farmer groups of Koraput district compared to the same group of farmers of its corresponding study district. Of course, the total by-production is high in the rainfed area for the farmers of Visakhapatnam district.

Table 4A.8 Average By-production in Kharif of the Sample Farmers in Visakhapatnam and Koraput districts

(in Qtls.)

Farm size	Visakhapatnam district						Koraput district					
	Irrigated		Rainfed		Total		Irrigated		Rainfed		Total	
	Average by-production of paddy	Total Average by-production	Average by-production of paddy	Total Average by-production	Average by-production of paddy	Total Average by-production	Average by-production of paddy	Total Average by-production	Average by-production of paddy	Total Average by-production	Average by-production of paddy	-Total Average by-production
Marginal			2.03	2.03	2.03	2.03	--	--				
Small	0.02	0.02	0.26	0.26	0.02	0.02	-	-	1.06	1.06	1.06	1.06
Semi-medium	0.44	0.44	0.63	0.63	1.13	1.13	-	-				
Medium	0.47	0.47	0.75	0.75	1.22	1.22	-	-	2.00	2.00	2.00	2.00
Large							-	-				
Total	0.19	0.19	0.96	0.96	1.15	1.15	-	-	0.72	0.72	0.72	0.72

Source: Primary Data 2017.

4A.9 Average By-production in Rabi of the Sample Farmers of Visakhapatnam district:

The average by-production in Rabi of the sample farmers of in Visakhapatnam District in A.P. is presented in Table 4A.9. There is no by-production of any crop in Koraput district, while Visakhapatnam district shows the by-production from paddy crop in Rabi season. It is noticed that this by-production appears under irrigated area for paddy crop. The reasonable amount of by-production is with medium farmer group in this district. Other groups show the very insignificant amount of by-production in the paddy production.

Table 4A.9 Average By-production in Rabi of the Sample Farmers of in Visakhapatnam District

(in Qtls.)

Farm size	Irrigated		Rainfed		Total	
	Average by-production of paddy	Total average by-production	Average by-production of paddy	Total average by-production	Average by-production of paddy	Total average by-production
Marginal						
Small	0.02	0.02			0.02	0.02
Semi-medium	0.20	0.20			0.20	0.20
Medium	0.47	0.47			0.47	0.47
Large						
Total	0.14	0.14			0.14	0.14

Source: Primary Data 2017

4A.10: Average Value of Output of Main Production in Kharif of the Sample Farmers in Visakhapatnam and Koraput districts:

It is presented the average value of the output of the main production in Kharif of the sample farmers of the sample districts in A.P. and Odisha in 4A.10. Under irrigated, it is found the value of the main output in Visakhapatnam district, and it is absent in its counterpart. Under rainfed area, the total value of main production shows higher amount for all the farmer groups of

Visakhapatnam district compared to Koraput district, while, if it is observed individual crops, the value of main-production of paddy is high for all the farmer groups. The total value is higher in Koraput district compared to Visakhapatnam district. There is a lot accrual of the value of the main production for eight crops in Visakhapatnam district, whereas there are four crops in the Koraput district. Further, the total value of the main output is more than two times higher in Visakhapatnam district. It is noticed that all the farmer groups of Visakhapatnam district have a higher value of the main production compared to the farmer groups of Koraput district. There is a proper approach of the value of the main product from various crops in the cultivation of Visakhapatnam district, while the Koraput has constrained with the limited crop cultivation.

4A.11 Average Value of Output of Main Production in Rabi of the Sample Farmers in Visakhapatnam and Koraput districts :

The average value of the output of the main production in Rabi of the sample farmers of the sample villages in Visakhapatnam and Koraput districts is shown in Table 4A.11. Visakhapatnam district has the value of an output of the main production for paddy under irrigated area and the value of the production for the Koraput district is absent there in Rabi. The medium farmer group shows the higher value of output out of all the farmer groups in the average value of output of paddy in the irrigated area. In the rainfed area, only red gram has the value of the output of the main production in both districts, and its value of main output is very high in Visakhapatnam district for all the farmer groups. There is a meagre amount of value of the main production of red gram in Rabi in Koraput district.

4A.12: Average Value of Output of Main Production in Perennial of the Sample Farmers:

Average value of the output of the main production in perennial of the sample farmers of the sample villages in A.P. and Odisha is shown in Table 4A.12. In the perennial, there is no value of main output in either district under irrigated area. In the rainfed area, there are three crops viz. coffee, black pepper and mango in both study districts. For all three crops, the value of main output is high in Koraput district. For coffee, the value of output is high for all farmer groups except for small farmer group in Koraput district compared to Visakhapatnam district. The total value of coffee output is four times high in Koraput district due to the large and medium farmer groups and the double net income appears for black pepper for same district. In the case of mango, the value of output is very high for large farmer group out of all farmers in Koraput district, and it is five times high compared to the value of the main output of total value of the mango of Visakhapatnam district.

Table 4A.10: Average Value of Output of Main Production in Kharif of the Sample Farmers of Visakhapatnam and Koraput districts

(in Qtls.)

Farm size	Visakhapatnam district									Koraput district				
	Average value of main output of of paddy	Average value of main output of of maize	Average value of main output of little millets	Average value of output of ragi	Average value of main output of gingelly	Average value of main output of turmeric	Average value main output of red kidney beans	Average value of main output of long pepper	Average total value of main output	Average value of main output of paddy	Average value main output of little millets	Average value of lain output of ragi	Average value of main output of niger	Average total value of main output
Irrigated														
Marginal														
Small	229								229					
Semi-medium	4369								4369					
Medium	5363								5363					
Large														
Total	2015								2015					
Rainfed														
Marginal	2367			208		2313			4888					
Small	3867	900	438	1179		3875	250	2563	13071	9917		646		10563
Semi-medium	6159	563	156	2219	300	2125	1250	313	13084					
Medium	10125	3141	1406	3688	3125	7188	1650	938	31259	14719	1438	4625	1625	2407
Large														
Total	5127	1011	444	1598	685	3719	655	1019	14256	5919	288	1119	325	7651
Total														
Marginal	2367			208		2313			4888					
Small	4096	900	438	1179		3875	250	2563	13300	9917		646		10563
Semi-medium	10528	563	156	2219	300	2125	1250	313	17453					
Medium	15488	3141	1406	3688	3125	7188	1650	938	36622	14719	1438	4625	1625	2407
Large														
Total	7142	1011	444	1598	685	3719	655	1019	16271	5919	288	1119	325	7651

Source: Primary Data 2017

Table 4A.11 Average Value of Output of Main Production in Rabi of the Sample Farmers in Visakhapatnam and Koraput districts (in Qtls.)

Farm size	Visakhapatnam district			Koraput district	
	Average value of output of paddy	Average value of output of red gram	Average total value of output	Average value of output of red gram	Average total value of output
Irrigated					
Marginal					
Small	229		229		
Semi-medium	3044		3044		
Medium	5550		5550		
Large					
Total	1788		1788		
Rainfed					
Marginal		833	833		
Small		2042	2042	167	167
Semi-medium		2438	2438		
Medium		4500	4500		
Large					
Total		2250	2250	50	50
Total					
Marginal		833	833		
Small	229	2042	2341	167	167
Semi-medium	3044	2438	5482		
Medium	5550	4500	10050		
Large					
Total	1788	2250	4038	50	50

Source: Primary Data 2017

Table 4A.12: Average Value of Output of Main Production in Perennial of the Sample Farmers in Visakhapatnam and Koraput districts (in Qtls.)

Farm size	Visakhapatnam district				Koraput district			
	Average value of main output of coffee	Average value of main output of black pepper	Average value of main output of mango	Average value of main output of total production	Average value of main output of coffee	Average value of main output of black pepper	Average value of main output of mango	Average value of main output of total production
Irrigated								
Marginal								
Small								
Semi-medium								
Medium								
Large								
Total								
Rainfed								
Marginal	60995	10763		78617	91577			86500
Small	91667	10750		99508	91498	4500		68563
Semi-medium	124409	24819	4063	152157				
Medium	160829	25563	12500	179776	182710	45688		202094
Large					1807928	1473313	96875	3276876
Total	103050	16530	3313	119824	452917	305150	19375	742313
Total								
Marginal	60995	10763		78617	91577			86500
Small	91667	10750		99508	91498	4500		68563
Semi-medium	124409	24819	4063	152157				
Medium	160829	25563	12500	179776	182710	45688		202094
Large					1807928	1473313	96875	3276876
Total	103050	16530	3313	119824	452917	305150	19375	742313

Source: Primary Data 2017

4A.13: Average Value of Output of By-production in Kharif of the Sample Farmers in Visakhapatnam and Koraput districts:

The average value of the output of by-production in Kharif of the sample farmers of Visakhapatnam and Koraput districts is shown in Table 4A.13. There is no value of the output of by-production in Koraput district for the irrigated area, while it is a very low amount in the Visakhapatnam district. Compared to the rainfed value of the output of by-production of Visakhapatnam district, its counterpart shows the higher amount for all the farmer groups and the amount is very low for marginal and small farmer groups in Visakhapatnam district.

Table 4A.13: Average Value of Output of By-production in Kharif of the Sample Farmers in Visakhapatnam and Koraput districts (in Qtls.)

Farm size	Visakhapatnam district						Koraput district					
	Irrigated		Rainfed		Total		Irrigated		Rainfed		Total	
	Average production of paddy	Average total production	Average production of paddy	Ave. total production	Average production of paddy	Ave. total production	Average production of paddy	Ave. total production	Average production of paddy	Ave. total production	Average production of paddy	Ave. total production
Irrigated												
Marginal			333	333	333	333	-	-				
Small	42	42	563	563	605	605	-	-	3188	3188	3188	3188
Semi-medium	1281	1281	1844	1844	3125	3125	-	-				
Medium	1375	1375	2094	2094	3469	3469	-	-	5688	5688	5688	5688
Large							-	-				
Total	544	544	1056	1056	1600	1600	-	-	2094	2094	2094	2094

Source: Primary Data 2017

4A.14 Average Value of Output of By-production in Rabi of the Sample in Visakhapatnam and Koraput districts:

The average value of the output of by-production in Rabi of the sample farmers of the sample villages in Visakhapatnam district is shown in Table 4A.14. The value of the output of by-production is not there for Koraput district for the whole season, and therefore, Visakhapatnam district is shown only. The lower amount of value of output appears for all landholding groups for the irrigated area, and there is no value of output for the rainfed area in the district. The total value of output indicates at very bottom level.

Table 4A.14 Average Value of Output of By-production in Rabi of the Sample Farmers of Visakhapatnam District (in Qtls.)

Farm size	Irrigated		Rainfed		Total	
	Ave. production of paddy	Ave, total production	Ave. production of paddy	Ave, total production	Ave. production of paddy	Ave, total production
Irrigated			Rainfed		Total	
Marginal			-	-		
Small	42	42	-	-	42	42
Semi-medium	594	594	-	-	594	594
Medium	1375	1375	-	-	1375	1375
Large			-	-		
Total	406	406	-	-	406	406

Source: Primary Data 2017

4A.15: Average Material Cost in Kharif of the Sample Farmers of in Visakhapatnam and Koraput districts:

The average material cost in Kharif of the sample farmers of of Visakhapatnam and Koraput districts is shown in Table 4A.15. There is no material cost reference under the irrigated area in Koraput district, whereas it is there for Visakhapatnam district with quite high amount for semi medium group. There are eight crops and four crops respectively, in Visakhapatnam and Koraput districts in the rainfed area. The material cost is very low in Koraput district for the comparable crops. In Visakhapatnam district, the material costs of paddy, little millets and ragi crops have the double when compared to the material cost of Koraput district. It clearly indicates that the cost of material or incurred material cost is high in Visakhapatnam district rather than in Koraput district. The total average material cost of crops stands as 11 thousand and 2.2 thousand in that order, for Visakhapatnam and Koraput districts, and the material cost has the double of the cost of the Koraput district. All the farmer groups of Visakhapatnam district report five to six times high of the material cost for the total average material cost with comparison of the farmer groups of the Koraput district. It indicates the lower use of material in the cultivation in Korput district.

4A.16 Average Material Cost in Rabi of the Sample Farmers in Visakhapatnam and Koraput districts:

The average material cost in Rabi of the sample farmers of the sample districts in A.P. and Odisha is presented in Table 4A.16. The material costs of small farmer group are high for red gram in Koraput district in Rabi season compared to all the farmer groups in Visakhapatnam district. The cost is high for semi-medium farmer group for paddy cultivation in the irrigated area in Visakhapatnam district and the material costs of paddy, as expected, are high with comparison of the costs of red gram. The material cost is not there in Koraput district for irrigated area in Rabi season.

Table 4A.15 : Average Material Cost in Kharif of the Sample Farmers in Visakhapatnam and Koraput districts

(Per acre.)

Farm size	Visakhapatnam district									Koraput district				
	Average production of paddy	Average production of maize	Average production of little millets	Average production of ragi	Average production of gingelly	Average production of turmeric	Average production of red kidney beans	Average production of long pepper	Average total production	Average production of paddy	Average production of little millets	Average production of ragi	Average production of niger	Average total production
Irrigated														
Marginal														
Small	2000								2000					
Semi-medium	4469								4469					
Medium	2866								2866					
Large														
Total	3273								3273					
Rainfed														
Marginal	2000			400		1472			3872					
Small	2163	2500	750	985		1481	2000	1465	11344	1000		457		1457
Semi-medium	1340	1500	1000	1000	1200	667	1500	2500	10707					
Medium	2317	2667	625	706	2500	1446	1176	1000	12437	1130	343	377	417	2267
Large														
Total	1865	2417	692	830	2240	1302	1354	1411	10811	1071	343	390	417	2221
Total														
Marginal	2000			400		1472			3872					
Small	4163	2500	750	985		1481	2000	1465	13344	1000		457		1457
Semi-medium	1809	1500	1000	1000	1200	667	1500	2500	15176					
Medium	5183	2667	625	706	2500	1446	1176	1000	15303	1130	343	377	417	2267
Large														
Total	5138	2417	692	830	2240	1302	1354	1411	14084	1071	343	390	417	2221

Source: Primary Data 2017

Table 4A.16 Average Material Cost in Rabi of the Sample Farmers in Visakhapatnam and Koraput districts

(per acre)

Farm size	Visakhapatnam district									Koraput district					
	Irrigated			Rainfed			Total			Irrigated		Rainfed		Total	
	Average material cost of paddy	Average material cost of red gram	Average total material cost	Average material cost of paddy	Average material cost of red gram	Average total material cost	Average material cost of paddy	Average material cost of red gram	Average total material cost	Average material cost of red gram	Average total material cost	Average material cost of red gram	Average total material cost	Average material cost of red gram	Average total material cost
Marginal	-	-	-	-	800	800	-	800	800	-	-	-	-	-	-
Small	3200		3200	-	691	691	3200	691	3891	-	-	1000	1000	1000	1000
Semi-medium	4406		4406	-	875	875	4406	875	5281	-	-	-	-	-	-
Medium	2866		2866	-	379	379	2866	379	3245	-	-	-	-	-	-
Large				-						-	-				--
Total	3307		3307	-	552	552	3307	552	3859	-	-	1000	1000	1000	1000

Source: Primary Data 2017

4A.17 Average Material Cost in Perennial of the Sample Farmers in Visakhapatnam and Koraput districts:

The average material cost in perennial of the sample farmers of the sample villages in Visakhapatnam and Koraput districts is given in Table 4A.17. Interestingly, we find that though there is cropping under coffee cultivation, there are no material costs for the marginal, small and semi-groups of farmers in Visakhapatnam district, while it is found the material costs to all groups of farmers in Koraput district. The large farmer group shows the highest material costs and all the other farmer groups show material costs at lower level. There is a necessity of the stabilization of costs of production based on the proper combination of labour and inputs in the Rabi of the coffee growing (Reddy Babu, D.R., P.Shiva Prasad and R. Naidu, 2003). The significant fact is that the farmer groups of Visakhapatnam show nearly no costs. It means that the coffee development programme of the Coffee Board and Government of A.P. has been taking place in large scale and the covering of the all tribal coffee and black pepper growers. In Koraput district, the large farmers are with high material costs out of all the farmer groups. The average total material cost is Rs 164/- for the Visakhapatnam district and it is Rs.3500 in Koraput district. It signifies the cost difference in the production of coffee and black pepper in the districts. And, therefore, the farmers or the beneficiaries under coffee and black pepper are at large and the covered area has been much as discussed earlier.

Table 4A.17: Average Material Cost in Perennial of the Sample Farmers in Visakhapatnam & Koraput districts

(per acre)

Farm size	Visakhapatnam district				Koraput district			
	Average material cost of coffee	Average material cost of black penner	Average material cost of mango	Average total material cost	Average material cost of coffee	Average material cost of black pepper	Average material cost of mango	Average total material cost
Irrigated								
Marginal								
Small								
Semi-medium								
Medium								
Large								
Total								
Rainfed								
Marginal					856			856
Small					1059	1000		2059
Semi-medium								
Medium	435	79		514	1719	1079		2798
Large					2361	1406		3767
Total	173	21		164	2111	1372		3483
Total								
Marginal					856			856
Small					1059	1000		2059
Semi-medium								
Medium	435	79		514	1719	1079		2798
Large					2361	1406		3767
Total	173	21		164	2111	1372		3483

Source: Primary Data 2017.

4A.18: Average Labour Cost in Kharif of the Sample Farmers in Visakhapatnam and Koraput districts:

The average labour cost in Kharif of the sample farmers of the sample districts in A.P. and Odisha is shown in Table 4A.18. Under irrigated area, the labour cost is not there for Koraput district. However, we can find labour costs in Visakhapatnam district for the paddy crop only and these costs are high for semi-medium farmer group compared to medium and small farmers. In the rainfed area, eight crops have labour costs in Visakhapatnam district, and only four crops have labour costs in Koraput district. The labour costs are high for paddy, little millets and ragi cultivation in Koraput district rather than the costs of Visakhapatnam district. The total average labour costs are high in Visakhapatnam district (Rs.19,175 per acre), whereas it is low in its counterpart (Rs.5,009). This clearly tells that there are higher labour costs in Visakhapatnam district compared to Koraput district for the cultivation, as it is noticed the fact through ten crops and four crops in the study districts. Hence, it could be concluded that the cost of labour for farming is high in Visakhapatnam district.

Table 4A.18: Average Labour Cost in Kharif of the Sample Farmers in Visakhapatnam and Koraput districts

(per acre.)

Farm size	Visakhapatnam district									Koraput district				
	Average labour cost of paddy	Average labour cost of maize	Average labour cost of little millets	Average labour cost of ragi	Average labour cost of gingelly	Average labour cost of turmeric	Average labour cost of red kidney beans	Average labour cost of long pepper	Average total labour cost	Average labour cost of paddy	Average labour cost of little millets	Average labour cost of ragi	Average labour cost of niger	Average total labour cost
Irrigated														
Marginal														
Small	2000								2000					
Semi-medium	6875								6875					
Medium	2994								2994					
Large														
Total	4026								4026					
Rainfed														
Marginal	2421			1000		4906			8327					
Small	3366	2500	750	1231		2341	3000	2113	15301	2075		1000		3075
Semi-medium	1471	4000	1000	1111	3000	1778	2500	2500	17360					
Medium	2805	3500	1375	641	5000	2169	1961	2000	19451	2229	871	874	1083	5057
Large														
Total	2317	3250	1154	1041	4600	2468	2240	2105	19175	2160	871	895	1083	5009
Total														
Marginal	2421			1000		4906			8327					
Small	5366	2500	750	1231		2341	3000	2113	17301	2075		1000		3075
Semi-medium	8346	4000	1000	1111	3000	1778	2500	2500	24235					
Medium	5799	3500	1375	641	5000	2169	1961	2000	22445	2229	871	874	1083	5057
Large														
Total	5343	3250	1154	1041	4600	2468	2240	2105	23201	2160	871	895	1083	5009

Source: Primary Data 2017

4A.19 Average Labour Cost in Rabi of the Sample Farmers in Visakhapatnam and Koraput districts:

The average labour cost in Rabi of the sample farmers of the sample districts in A.P. and Odisha is shown in Table 4A.19. There is no cultivation in irrigated area in Rabi season in Koraput district, whereas we can find labour costs to paddy in the same season for Visakhapatnam district. Semi-medium farmer group shows higher labour costs in the paddy cultivation in the irrigated area out of all farmer groups in Visakhapatnam district. In the rainfed area, both selected districts have only one crop red gram, and the labour costs are high in Visakhapatnam district compared to Koraput district for all the farmer groups and the marginal farmer group reports high labour costs for red gram production in Rabi out of all farmer groups in the district. The total average labour costs are high in Visakhapatnam district with Rs. four thousand compared to Rs. one thousand in its corresponding study district.

Table 4A.19: Average Labour Cost in Rabi of the Sample Farmers in Visakhapatnam and Koraput districts

(per acre.)

Farm size	Visakhapatnam district			Koraput district	
	Average labour cost of paddy	Average labour cost of red gram	Average total labour cost	Average labour cost of red gram	Average total labour cost
Irrigated					
Marginal					
Small	2000		2000		
Semi-medium	4375		4375		
Medium	3121		3121		
Large					
Total	3420		3420		
Rainfed					
Marginal		1667	1667		
Small		1182	1182	1000	1000
Semi-medium		1125	1125		
Medium		714	714		
Large					
Total		940	940	1000	1000
Total					
Marginal		1667	1667		
Small	2000	1182	3182	1000	1000
Semi-medium	4375	1125	5500		
Medium	3121	714	3835		
Large					
Total	3420	940	4360	1000	1000

Source: Primary Data 2017

4A.20 Average Labour Costs in Perennial of the Sample Farmers in Visakhapatnam & Koraput districts:

The average labour costs in perennial of the sample farmers of the sample villages in Visakhapatnam and Koraput districts is presented in Table 4A.20. In the perennial season, there is no cultivation under irrigated area in both study districts. Only rainfed area shows the labour costs in the sample villages in both districts. The total average labour costs are high in Koraput district compared to its corresponding study for all farmers. The labour costs of coffee of marginal and small farmers are low in Visakhapatnam district, while the marginal farmer group of Koraput district shows the highest labour costs out of all farmers groups in the study area. In the case of black pepper, the opposite trend of coffee crop appears in the comparing districts. For the mango, the labour costs are high in Koraput district than in the parallel district. It informs that the labour costs are high for the higher farmer groups in Koraput district in the cultivation of perennial crops. The study results show the acceleration of cost of production by the increase in the farm size due to rise in overhead expenditure and the realised low yields in the study area, and the lowest cost of production appeared for below 4 ha farm size (Reddy Babu , D.R., 2004).

Table 4A.20 Average Labour Cost in Perennial of the Sample Farmers in Visakhapatnam & Koraput Districts (in Qtls.)

	Visakhapatnam district				Koraput district			
Farm size	Average labour cost of coffee	Average labour cost of black pepper	Average labour cost of mango	Average total labour cost	Average labour cost of coffee	Average labour cost of black pepper	Average labour cost of mango	Average total labour cost
Irrigated								
Marginal								
Small								
Semi-medium								
Medium								
Large								
Total								
Rainfed								
Marginal	2915	1546		4461	4228			4228
Small	2666	1479		4145	2853	3188		6041
Semi-medium	2257	1716	1500	5473				
Medium	2797	1868	1500	6165	3965	3968		7933
Large					2924	2356	6167	11447
Total	2649	1661	1500	5810	2860	2501	6167	11528
Total								
Marginal	2915	1546		4461	4228			4228
Small	2666	1479		4145	2853	3188		6041
Semi-medium	2257	1716	1500	5473				
Medium	2797	1868	1500	6165	3965	3968		7933
Large					2924	2356	6167	11447
Total	2649	1661	1500	5810	2860	2501	6167	11528

Source: Primary Data 2017

4A.21 Distribution of Borrowings of the Sample Farmers in Visakhapatnam and Koraput districts:

The distribution of borrowings by source and farmer size of the sample farmers of the selected districts of A.P. and Odisha is presented in Table 4B.21. Interestingly, we do not find any borrowings from the marginal, small and semi-medium farmer groups in the Koraput district from the institutional credit sources due to the land assigned to them by Government of Odisha, while the large farmer group shows the highest borrowings out of all the farmer groups in the study districts. Contrary to this, we find the borrowings with the marginal, small and semi-medium farmers in Visakhapatnam district from institutional credit sources. The farmers of the Koraput district may be given crop loans for the investment of cultivation rather than for the land development to the lower farmer groups who are distributed with the land from the Government of Odisha. Because of this reason, the cropping is at lower level among the lower farmer groups in Koraput district. The loans of the farmer groups of Visakhapatnam are at ideal level as the outstanding amounts show at lower level for the whole sample farmers, while it is noticed the higher outstanding amounts for the large and

Table 4A.21 Distribution of Borrowings by Source and Farmer Size of the Sample Farmers of Visakhapatnam and Koraput districts

(in Rs.)

Source of borrowing	Marginal	Small	Semi-medium	Medium	Large	Rate of interest %	Out-standing amount
	Visakhapatnam district						
Cooperative Credit Society	-	30000	-	-	-	4	45,000
Land Development Bank	-	-	-	-	-	-	-
Commercial Banks	35,000	65,000	2,05,600	1,90,000	-	8	4,95,600
Regional Rural Banks	-	-	-	-	-	-	-
Money lenders	-	-	-	10,000	-	24	10,000
Relatives and friends	-	4,000	10,000	1,50,000	-	24	1,14,000
Traders/Commission Agents	-	-	25,000	55,000	-	24	83,000
Others	1,15,600	71,000	97,000	1,53,000	-	24	4,61,200
Total Outstanding amount	1,50,600	1,95,000	3,81,200	5,52,000	-	-	12,78,800
Purpose of loan	Crop	Crop	Crop	Crop			
	Koraput district						
Cooperative Credit Society							
Land Development Bank							
Commercial Banks	-	-	-	1,80,000	1,12,70,000	8	95,80,000
Regional Rural Banks	-	-	-	-	-	-	-
Money lenders	-	-	-	50,000	11,80,000	24	12,50,000
Relatives and friends	-	-	-	70,000	30,80,000	24	34,70,000
Traders/CommissionAgents	-	-	-	30,000	14,70,000	24	16,40,000
Others	-	-	-	-	-	-	-
Total Outstanding amount	-	-	-	3,10,000	1,56,30,000		1,59,40,000
Purpose of loan				Crop	Crop		

Source: Primary Data 2017

medium farmer groups in Koraput district at the higher rates of interest. Still there is a lot of requirement of loans from institutional sources to marginal, small and semi-medium farmers in Visakhapatnam district, as these farmers have derived borrowings more than 50% from non-institutional sources and the same groups of farmers in Koraput district are in feeble situation of taking loans neither from institutional sources nor from non-institutional sources. Therefore, their conditions are vulnerable in the cultivation and to eke out livelihood.

4A.22: Distribution of Equipment and Assets by Farm Size in Visakhapatnam and Koraput districts:

The distribution of equipment and assets by farm size across sample villages of the study districts in A.P. and Odisha is given in Table 4A.22. Marginal, small and semi-medium farmer groups do not possess any modern equipment for the cultivation, despite they have cattle and livestock in both study districts. Of course, the large farmer group shows all types equipment under all the referred categories at large numbers and the high value of assets. Among the farmer groups, medium farmer group has the highest possession and value of

Table 4A.22: Distribution of Equipment and Assets by Farm Size in Visakhapatnam and Koraput districts (in Rs.)

S.No.	Name of the asset	Marginal		Small		Semi-Medium		Medium		Large	
		No.	Value	No.	Value	No.	Value	No.	Value	No.	Value
		Visakhapatnam District									
1	Tractors										
2	Trolleys										
3	Baby Pulpers										
4	Cutters										
5	Pump Sets										
6	Bullock Carts										
7	Animals(cows/ buffaloes)	16	2,08,000	13	1,60,000	15	1,67,000	29	2,70,000		
8	Calves	4	18,000	6	26,000	3	11,000	14	75,000		
9	Goats/sheep	8	25,000	11	43,000	2	8,000	14	63,000		
10	Any other	7	1,25,000	14	2,55,000	19	2,12,360	29	4,11,120		
11	Total	35	3,76,000	44	4,84,000	39	3,98,360	89	8,19,120		
		Koraput District									
1	Tractors									11	50,00,000
2	Trolleys									11	12,10,000
3	Baby Pulpers							5	1,85,000	22	27,15,000
4	Cutters									73	6,30,000
5	Pump Sets							6	6,00,000	85	83,25,000
6	Bullock Carts										
7	Animals(cows/ buffaloes)	36	4,22,000	40	4,81,000			28	2,50,000	31	4,90,000
8	Calves	7	31,000	2	8000			18	53,000	12	63,000
9	Goats/sheep	48	2,22,000	49	2,48,000			42	3,62,000	4	8,000
10	Any other										
11	Total	91	6,75,000	91	7,37,000			99	14,50,000	249	1,84,41,000

Source: Primary data 2017

cattle and livestock in Visakhapatnam district. The large farmer group stands the highest for cattle and livestock and its value among the farmer groups in Koraput district and this is also high compared to all the farmer groups of the parallel study district. When compared to the lower landholding sizes viz. marginal, small and semi-medium, the peasants of Koraput district report the high number of cattle and livestock and its value than that of the same farmer groups of Visakhapatnam district.

Summary:

In the sample villages, the irrigated area is meagre and it does not give impact on the cultivation of the sample farmers. A significant fact is that the average net operated area is high in total for all landholding groups in Koraput district by two times except for small farmer group. There is Kharif crop under irrigated area for only paddy cultivation in Visakhapatnam district, whereas it is completely absent in Koraput district. In the case of rainfed area, Visakhapatnam shows higher cultivated area (102 acres) of the sample farmers compared to the area (93 acres) of Koraput district. Out of the rainfed area, paddy has the highest share followed by turmeric in Visakhapatnam district for the sample farmers, while in Koraput district, paddy has the highest share followed by ragi. Under rainfed, there are eight crops in Visakhapatnam district, whereas in Koraput district there are only four crops. In perennial, coffee and black pepper are the major crops in this season for cultivation. The landholding is under cultivation of marginal, small and semi and medium groups in Visakhapatnam district with 100%, whereas Koraput district shows only 17% of landholding under these groups and 83% of the landholding under large farmer group. The lower farmer groups are with 158 acres of coffee cultivation in Koraput district, and out of this area, black pepper is only 40 acres, while it could be found 142 acres out of 210 acres in Visakhapatnam district. This would lead to a variation in the income levels and living standards of these farmer groups of the two districts. The non-tribal farmers, being the large farmers, have shown much main production for coffee and black pepper, but this level of production is not observed for the tribal farmers in the sample villages of Koraput district. The production level is higher for the tribal farmers of Visakhapatnam district. There is a reasonable level of backwardness in the farming activity of the tribal farmers of both districts compared to large farmers of Koraput district.

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CHAPTER IV

Cost of Cultivation and Incomes for Coffee Cultivation
Part-B
Comparative Costs & Incomes of Coffee Growing and the Other Main Crops

It is examined the costs of the coffee growing and net incomes in 2016-17 in detail in this chapter Part-B. The input fixed, and variable costs of production are analysed taking into account the material and labour costs in gestation and bearing periods of the sample farmers of Visakhapatnam and Koraput districts. An attempt is made for the comparison of the net incomes of the coffee plantation and the other main crops of the sample farmers in both selected districts to find the relative merit of the coffee growing in the tribal area of Visakhapatnam and Koraput districts.

4B.1a: Input variable Material Cost in Gestation Period of Coffee Cultivation for Sample Farmers in Visakhapatnam and Koraput districts-2016-17:

The input variable material cost in gestation period of coffee cultivation in the sample villages of the selected districts in A.P. and Odisha during 2016-17(Table 4B.1a). The significant fact is that there is no material cost incurred for the cultivation of coffee in the gestation period in the sample villages of Visakhapatnam district due to the support of Government of A.P. and the Coffee Board. The lower farmer groups of marginal, small and semi-medium are much driven for coffee cultivation, and therefore, the large extent of coffee cultivation has by leaps and bounds become possible in Visakhapatnam district. In Koraput district, large farmer group has much higher material cost among the farmer groups, and the small farmers have the lowest out of all farmer groups in incurring the material costs in the coffee growing.

Table 4B.1a: Input variable Material Cost in Gestation Period of Coffee Cultivation for Sample Farmers in Visakhapatnam and Koraput districts-2016-17: (in Rs. / per acre)

Farm Size	Fertilisers	Water resource	Inter-cultural operations	Plant protection	Weeding	Topping/ pruning	
	Visakhapatnam District						
Marginal							
Small							
Semi-Medium							
Medium							
Large							
Total Average							
	Koraput District						
Marginal	1298.97						
Small	1143.67						
Semi-Medium							
Medium	2014.04						
Large	1719.93						
Total	1672.21						

Source: Primary Data 2017

4B.1b Input variable Labour Cost in Gestation Period of Coffee Cultivation for Sample Farmers in Visakhapatnam and Koraput districts-2016-17:

The input variable labour cost in gestation period of coffee cultivation in the sample villages of the selected districts in A.P. and Odisha during 2016-17 is given in Table 4B.1b. In Koraput district, there are labour costs under fertilisers and plant protection, while these costs are not noticed in the parallel study district. These labour costs for the fertiliser use and plant protection are high for large farmer group in Koraput district, and the marginal and small farmer groups are with lower labour costs under these heads. In the case of inter-cultural, weeding and the topping and pruning, we find the high total costs per acre in Koraput district, but the marginal and small farmer groups have lower costs compared to its counterpart and the large farmers have the highest costs out of all the groups in both study districts.

Table 4B.1b: Input-Variable Labour Cost in Gestation Period of Coffee Cultivation for Sample Farmers in Visakhapatnam and Koraput districts-2016-17:

(in Rs. / per acre)

Farm Size	Fertilisers	Water resource	Inter-cultural operations	Plant protection	Weeding	Topping/ pruning	Other costs
	Visakhapatnam District						
Marginal			4177.46		594.37	594.37	
Small			4164.64		460.24	458.37	
Semi-Medium			4176.71		487.66	487.66	
Medium			3569.57		336.23	307.25	
Large							
Total			3974.51		449.01	439.02	
	Koraput District						
Marginal	480.41		4123.71	432.99	416.49	416.49	
Small	463.14		3181.47	351.61	347.83	347.83	
Semi-Medium							
Medium	684.21		4522.81	470.18	456.14	456.14	
Large	655.30		5204.67	637.34	567.32	567.32	
Total	631.53		4927.45	589.04	532.01	532.01	

Source: Primary Data 2017

4B.2a Input Variable Material Cost in Bearing Period of Coffee Cultivation for Sample Farmers in Visakhapatnam and Koraput districts-2016-17:

The input variable material cost in bearing period of coffee cultivation in the sample villages of the selected districts in A.P. and Odisha during 2016-17 is shown in Table 4B.2a. It is noticed that there are no material costs during gestation period in Visakhapatnam district due to the support of Government of A.P. and the Coffee Board, while Koraput district has the total material costs by Rs.23 hundred per acre. Out of all the farmer groups, large farmer group has the highest costs with Rs. 24 hundred, which is higher to the total costs per acre of all farmers. Marginal farmers have high costs compared to small farmers in the same district.

Table 4B.2a: Input-Variable Material Cost in Bearing Period of Coffee Cultivation for Sample Farmers in Visakhapatnam and Koraput districts-2016-17:

(in Rs. / acre)

Farm Size	Fertilisers	Water resource	Inter-cultural operations	Plant protection	Weeding	Topping/ pruning	
	Visakhapatnam District						
Marginal							
Small							
Semi-Medium							
Medium							
Large							
Total Average							
	Koraput District						
Marginal	1670.10						
Small	1436.67						
Semi-Medium							
Medium	2540.35						
Large	2441.65						
Total	2322.90						

Source: Primary Data 2017

4B.2b Input variable Labour Cost in Bearing Period of Coffee Cultivation for Sample Farmers in Visakhapatnam and Koraput districts-2016-17:

The input variable labour cost in bearing period of coffee cultivation in the sample villages of the selected districts in A.P. and Odisha during 2016-17 is shown in Table 4B.2b. In Koraput district, labour variable costs are found under fertilisers, and plant protection heads and these are not there in the corresponding district. These costs are the highest to the large farmer group out of all farmers in Koraput district, and marginal and small farmers display lower costs compared to other groups of farmers. For inter-cultural operations, all the farmer groups show the lowest costs compared to the same groups of farmers in Koraput district, and the total cost is also meager at the half of the cost. In the case of the costs weeding and the topping and pruning, Koraput district reports lower costs and the marginal, small and medium groups have a better edge under the same heads of the expenses in Koraput district. As well as in the other aspects, the large farmers in Koraput district report high costs for all the costs under study. The labour costs under fertiliser head are not there in Visakhapatnam district, and marginal farmers do not find any better edge compared to other groups of farmers in the costs of weeding and topping and pruning in the same district.

4B.3a: Fixed Material Cost in the Coffee Cultivation for Sample Farmers in Visakhapatnam and Koraput districts-2016-17:

The fixed material cost in the coffee cultivation in the sample villages of the selected districts in A.P. and Odisha 2016-17 is shown in Table 4B.3a. The fixed material cost is there under four items in both study districts, and these total average costs are high in Visakhapatnam district. Moreover, these costs show at a higher level at landholding wise in Visakhapatnam district rather than in the corresponding district. The costs under jungle clearance and digging a pit for planting are high for marginal farmer group compared to other groups in Visakhapatnam

Table 4B.2b: Input-Variable Labour Cost in Bearing Period of Coffee Cultivation for Sample Farmers in Visakhapatnam and Koraput districts-2016-17:

(in Rs. / acre)

Farm Size	Fertilisers	Water resource	Inter-cultural operations	Plant protection	Weeding	Topping/ pruning	Other costs
	Visakhapatnam District						
Marginal			2005.63		608.45	633.80	
Small			2097.29		519.66	559.40	
Semi-Medium			2097.92		562.25	772.61	
Medium			1686.96		789.86	615.94	
Large							
Total			1947.30		633.92	643.55	
	Koraput District						
Marginal	639.18		3146.39	435.05	404.12	404.12	
Small	538.75		2431.00	344.05	340.26	340.26	
Semi-Medium							
Medium	684.21		3838.60	554.39	554.39	554.39	
Large	942.55		4210.05	626.57	556.55	556.55	
Total Average	871.54		3976.80	586.94	530.05	530.05	

Source: Primary Data 2017

district, and further, it is very high when compared to total costs of these heads. For the costs of saplings into polythene bags, we can notice the more costs to marginal and small farmer groups. It indicates that the marginal and small farmers are to give additional support to the fixed material costs of the coffee growing by the government. In Koraput district, the large farmers have a better edge in the attached material costs under all four heads, while the medium farmer group displays the highest cost for all the four costs out of all landholdings. Small farmer group shows lower costs rather than the costs of marginal farmer group in Koraput district. Though the fixed costs are low in Koraput district, the coffee growing is lagging, and it shows at the very bottom level.

Table 4B.3a: Fixed Material Cost in the Coffee Cultivation for Sample Farmers in Visakhapatnam and Koraput districts-2016-17:(in Rs. /acre)

Farm Size	Seed and bed raising	Saplings into polythene bags	Transport cost	Jungle clearance cost	Digging a pit for planting	Other costs
	Visakhapatnam District					
Marginal	1069.01	1032.39		760.56	788.73	
Small	1507.95	1075.77		416.76	413.02	
Semi-Medium	1430.48	982.98		554.60	545.04	
Medium	2137.68	891.30		313.04	318.84	
Large						
Total Average	1621.24	984.83		475.06	478.39	
	Koraput District					
Marginal	985.57	985.57		793.81	783.51	
Small	937.62	937.62		661.63	661.63	
Semi-Medium						
Medium	1526.32	1526.32		1073.68	1073.68	
Large	962.30	962.30		114.90	114.90	
Total Average	1006.99	1006.99		277.75	277.05	

Source: Primary Data 2017

4B. 3b: Fixed Labour Cost in the Coffee Cultivation for Sample Farmers in Visakhapatnam and Koraput districts-2016-17:

The fixed labour cost in the coffee cultivation in the sample villages of the selected districts in A.P. and Odisha during 2016-17 is presented in Table 4B.3b. The transport cost for all farmer groups appears high in Koraput district compared to the same farmer sizes of its counter study district, while the total average costs of all other four heads report at the very higher amount in Visakhapatnam district compared to its parallel district. It indicates that the labour wages are high in this district. All these costs are high for all landholdings in Visakhapatnam district compared to its counterpart. As discussed earlier, the material costs and labour costs are high in Visakhapatnam district, but the extension of coffee growing in this district is very large, and the thousands of beneficiaries are covered under the coffee extension programme by Government of A.P. and Coffee Board. Surprisingly, the marginal farmers have had higher costs compared to the other landholdings in Koraput district under all four heads labour costs and these costs are even high compared to the costs of large farmers. There is an urgent need for the support of the government to these farmer groups in Odisha.

Table 4B.3b: Fixed Labour Cost in the Coffee Cultivation for Sample Farmers in Visakhapatnam and Koraput districts-2016-17:

(in Rs. / acre)

Farm Size	Seed and bed raising	Saplings into polythene bags	Transport cost	Jungle clearance cost	Digging a pit for planting	Other costs
	Visakhapatnam District					
Marginal	600.00	535.21	150	523.94	543.66	
Small	664.17	521.98	150	460.24	559.40	
Semi-Medium	552.69	459.93	150	501.05	567.99	
Medium	969.57	530.43	150	865.22	1300.00	
Large						
Total Average	725.84	511.56	150	614.06	801.94	
	Koraput District					
Marginal	505.15	494.85	175	414.43	414.43	
Small	444.23	444.23	175	325.14	325.14	
Semi-Medium						
Medium	431.58	431.58	600	400.00	400.00	
Large	457.81	457.81	600	371.63	371.63	
Total Average	457.93	457.23	400	373.36	373.36	

Source: Primary Data 2017

4B.4a Comparative Net Income Between Coffee and Other Main Crops of Sample Farmers in Visakhapatnam District in A.P. :

It is examined the comparative net income between coffee and other main crops of sample farmers in the sample villages of Visakhapatnam District in A.P. (Table 4B.4a). It is noticed that gingelly comes first with the total net income by 15 thousand in Kharif followed by long pepper. Turmeric shows the third position in the overall average net income to all the farmers and next place is found with paddy. It informs significantly that the cash crops gingelly,

long pepper and turmeric have shown significant role in the income generation to the peasant community in the study district out of eight major crops cultivated in Kharif. However, there are only two crops viz. paddy (eight thousand) and red gram (six thousand) in the Rabi. Against this backdrop, we find a sea change in the incomes of the peasant community by the introduction of coffee growing, as it gives the highest net income Rs. 32 thousand in addition to the mixed crop of black pepper 7.7 thousand. Mango shows the second position in the perennial season with Rs. 15 thousand. Out of the 13 crops cultivated by farming community in a year (including perennial crops), coffee divulges a vibrant and substantial fact to the policy formulators, it is because of its growing the volte-face on the socio-economic conditions of the people in the study area by the higher-shift of rapid standard of living in the entire area, i.e. the Scheduled Tribal Area in Visakhapatnam district.

It could be found that the marginal farmers report the highest net income from coffee growing (Rs. 34 thousand), though they cultivate three crops in Kharif, one crop in Rabi and the two perennial crops (black pepper as a mixed crop). Similarly, small farmers inform the highest net income in coffee cultivation (Rs. 35 thousand), despite this group engages 11 crops in a year. The similar trend appears to the other farmer groups like semi-medium and medium groups. This fact enables to infer the place and commanding height of the coffee cultivation in the Scheduled Tribal Area of Visakhapatnam district. This simple comparison shows a clear role for the coffee cultivation in the highest net income generation to the farmers.

4B.4b Comparative Net Income Between Coffee and Other Main Crops of Sample Farmers in Koraput District:

The competitive net income between coffee and other main crops of sample farmers in the sample villages of Koraput district in Odisha is presented in Table 4A.4b. When compared to Visakhapatnam district, the corresponding district reports very low farming activity and diversification of agriculture since the sample farmers are cultivating eight crops in a year. Marginal, medium and large farmers have no cultivation in Kharif, while only small farmers have farmed for red gram in Rabi. In the case of perennial, except for semi-medium group, all the farmers are farming coffee and black pepper in Koraput district. It indicates the relatively low level of farming activities in this district compared to its parallel study district. Further, the net incomes of the coffee farmer groups of Koraput district are small compared to the net incomes of the farmer groups of Visakhapatnam district in Kharif and Rabi. However, the peasants of Koraput district have better net incomes for coffee cultivation under perennial cropping. Net income from black pepper and mango is high in Koraput district rather than in the corresponding district for all the farmers. However, these farmers are from medium and large landholdings.

Table 4B.4a: Comparative Net Income Between Coffee and Other Main Crops of Sample Farmers in Visakhapatnam District. (in Rs. / acre)

Farm size	Total value of output	Cost of cultivation	Net Income	Total value of output	Cost of cultivation	Net income	Total value of output	Cost of cultivation	Net income	Total value of output	Cost of cultivation	Net income
	Kharif											
	Paddy	Paddy	Paddy	Maize	Maize	Maize	Little millets	Little millets	Little millets	Ragi	Ragi	Ragi
Marginal	13642	4421	9221							10000	1400	8600
Small	16962	5414	11549	10800	5000	5800	5250	1500	3750	8708	2215	6492
Semi-medium	11808	4595	7214	9000	5500	3500	5000	2000	3000	7889	2111	5778
Medium	15052	5409	9643	16750	6167	10583	5625	2000	3625	6941	1647	5294
Large												
Total	13973	5015	8958	13475	5667	7808	5462	1846	3615	7630	1875	5755
	Gin-gelly	Gin-gelly	Gingelly	Turmeric	Turmeric	Turmeric	Red kidney beans	Red kidney beans	Red kidney beans	Long pepper	Long pepper	Long pepper
Marginal			0	20943	6377	14566			0			0
Small			0	13778	3822	9956	24000	10000	14000	17324	3578	13747
Semi-medium	9600	4200	5400	7556	2444	5111	10000	4000	6000	25000	10000	15000
Medium	25000	7500	17500	13855	3615	10241	10353	3137	7216	15000	3000	12000
Large												
Total	21920	6840	15080	13401	3770	9631	10917	3854	7063	17158	3726	13432
	Rabi											
	Paddy	Paddy	Paddy	Red-gram	Redgram	Redgram						
Marginal			0	13333	2467	10867						
Small	13000	5200	7800	8909	1873	7036						
Semi-medium	18188	8781	9406	9750	2000	7750						
Medium	14115	5987	8127	5143	1093	4050						
Large												
Total	15195	6727	8468	7200	1492	5708						
	Perennial											
	Coffee	Coffee	Coffee	Black Pepper	Black Pepper	Black Pepper	Mango	Man-go	Man-go			
Marginal	41236	6854	34382	8200	1546	6654			0			
Small	41160	6184	34976	7393	1479	5914			0			
Semi-medium	38067	5932	32135	10649	1716	8933	16250	1500	14750			
Medium	37294	7237	30057	10763	1947	8816	16667	1500	15167			
Large												
Total	39212	6613	32599	9333	1682	7651	16563	1500	15063			

Source: Primary Data 2017

Table 4B.4b: Comparative Net Income Between Coffee and Other Main Crops of Sample Farmers in Koraput District (in Rs. / acre)

Farm size	Total value of output	Cost of cultivation	Net Income	Total value of output	Cost of cultivation	Net Income	Total value of output	Cost of cultivation	Net Income	Total value of output	Cost of cultivation	Net Income for
	Kharif											
	Paddy	Paddy	Paddy	Little millets	Little millets	Little millets	Ragi	Ragi	Ragi	Niger	Niger	Niger
Marginal												
Small	11868	3076	8792				4429	1457	2971			
Semi-medium	10108	3359	6749	3286	1214	2071	4229	12513	2977	4333	1500	2833
Medium												
Large												
Total	8013	2375	5638	288	106	181	1119	338	781	325	113	213
	Rabi											
	Red-gram	Red-gram	Red-gram									
Marginal												
Small	8000	2000	6000									
Semi-medium												
Medium												
Large												
Total	8000	2000	6000									
	Perennial											
	Coffee	Coffee	Coffee	Black pepper	Black pepper	Black pepper	Mango	Mango	Mango			
Marginal	45317	9128	36189									
Small	41512	6777	34735	13500	4188	9313						
Semimedium												
Medium	51287	9644	41643	23206	5048	18159						
Large	51933	9465	42468	66031	28157	37874	25833	3333	22500			
Total	50648	8833	41815	61569	25837	35731	25833	3333	22500			

Source: Primary Data 2017

Summary:

The significant fact is that there is no material cost incurred by tribal farmers for the cultivation of coffee in the gestation period in the sample villages Visakhapatnam district due to the support of Government of A.P. and Coffee Board. In Koraput district, large farmer group has much higher material cost among the farmer groups, and the small farmers have the lowest out of all farmer groups in incurring the material costs in the coffee growing. In Koraput district, there are labour costs under fertilisers and plant protection, while these costs are not noticed in the parallel study district. The labour costs for the fertiliser use and plant protection are high for large farmer group in Koraput district, and the marginal and small farmer groups are with lower labour costs under these heads. In the case of inter-cultural, weeding and the topping and pruning, we find higher the total costs per acre in Koraput district, but the marginal and small farmer groups have lower costs compared to its counterpart and the large farmers have the higher costs out of all the groups in both study districts. The labour costs under fertiliser head are not there in Visakhapatnam district, and marginal farmers do not find any better edge compared to other groups of farmers in the costs of weeding and topping and pruning in the same district. The

fixed material cost is there under four items in both study districts, and these total average costs are high in Visakhapatnam district. Moreover, these costs show at a higher level at landholding wise in Visakhapatnam district rather than in the corresponding district. The costs under jungle clearance and digging a pit for planting are high for marginal farmer group compared to other groups in Visakhapatnam district, and further, it is very high when compared to total costs of these heads. It indicates that the marginal and small farmers are to give additional support to the fixed material costs of the coffee growing by the government. In Koraput district, the large farmers have a better edge in the attached material costs under all four heads, while the medium farmer group displays the highest cost for all the four costs out of all landholdings. Though the fixed costs are low in Koraput district, the coffee growing is lagging, and it shows at the very bottom level. All these costs are high for all landholdings in Visakhapatnam district compared to its counterpart. Surprisingly, the marginal farmers have had higher costs compared to the other landholdings in Koraput district under all four heads labour costs and these costs are even high compared to the costs of large farmers. There is an urgent need for the support of the government to these farmer groups in Odisha.

It is noticed that gingelly comes first with the total net income by 15 thousand in Kharif followed by long pepper. Turmeric shows third position in the total average net income to all the farmers and next place is found with paddy. It informs significantly that the cash crops gingelly, long pepper and turmeric have shown major role in the income generation to the peasant community in the study district out of eight major crops cultivated in Kharif. However, there are only two crops viz. paddy (eight thousand) and red gram (six thousand) in the Rabi. Against this backdrop, we find a sea change in the incomes of the present community by the introduction of coffee growing, as it gives the highest net income Rs. 32 thousand in addition to the mixed crop of black pepper 7.7 thousand. Mango shows the second position in the perennial season with Rs. 15 thousand. Out of the 13 crops cultivated by farming community in a year (including perennial crops), coffee divulges a vibrant and substantial fact to the policy formulators, it is because of its growing the volte-face on the socio-economic conditions of the people in the study area by the higher-shift of rapid standard of living in the entire area, i.e. the Scheduled Tribal Area in Visakhapatnam district. When compared to Visakhapatnam district, the corresponding district reports very low farming activity and diversification of agriculture since the sample farmers are cultivating eight crops in a year. Marginal, medium and large farmers have no cultivation in Kharif, while only small farmers have farmed for red gram in Rabi. In the case of perennial, except for semi-medium group, all the farmers are cultivating coffee and black pepper in Koraput district. It indicates relatively the low level of farming activities in this district compared to its parallel study district. Further, the net incomes of the coffee farmer groups of Koraput district are small compared to the net incomes of the farmer groups of Visakhapatnam district in

Kharif and Rabi. However, the peasants of Koraput district have better net incomes for coffee cultivation under perennial cropping. Net income from black pepper and mango is high in Koraput district rather than in the corresponding district for all the farmers. However, these farmers are from medium and large landholdings.

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CHAPTER V

Marketing Conditions of Coffee Produce of Sample Farmers and Income Levels in Visakhapatnam and Koraput Districts

This chapter gives the role of processing activities and its share in the total costs, and it is examined the market conditions prevailed in the study area for the sample farmers. It is estimated the net income of the farmers per acre against the available market sources in the area, and the per household income of the sample farmers, and further, the farmer's opinion over the market defects and its needy changes for a better market is discussed.

5.1 Costs of Processing Activities in the Coffee Cultivation of Sample Farmers of Visakhapatnam & Koraput districts- 2016-17:

The costs of processing activities in the coffee cultivation in the sample villages of the selected districts in A.P. and Odisha 2016-17 are shown in Table 5.1. The coffee grower finds that the major and significant part of his cultivation to sell his produce of coffee is the processing of the raw produce, and it enables the farmer to get a reasonable price in the market and successful selling of his produce. The processing activity takes much effort along with some machinery support in this phase. The processing of coffee production is completed finally with the curing and grading. Of course, nearly all the farmers, except few large growers, sell their produce after the parchment. In this analysis, we do not find any curing and grading of the produce in the stage of processing activities either in Visakhapatnam district or in Koraput district. There are pulping, washing and drying processing activities in the study area, and out of these, pulping has the major share more than 55 percent in both districts followed by washing activity with more than 26 percent in the study area per acre. Drying activity takes the small share of the total processing activities per acre. The percentage of ‘pulping' and ‘drying' is high in Koraput district per acre. The pulping cost per acre is high to semi-medium and medium farmers in Visakhapatnam district, while it is low for small peasants in Koraput district. The drying costs are the lowest to large farmers out of all groups in Koraput district. The total processing costs per acre are the lowest to small farmers in Koraput district compared to other groups, and the highest costs appear to the medium group of Visakhapatnam district out of all farmer groups in the study area. If it is observed the per Qtl. processing cost, it is found the highest cost with the small farmer group of Koraput district and the highest with the medium group of Visakhapatnam district. It indicates the lowest output with the small farmer group in Koraput district by 1.87 Qtls out of all the farmer sizes in both regions. This group has to increase the yield per acre in the study area, and the extension services are also to be aimed at this group for alleviation. The higher costs of the medium group of Visakhapatnam district is to be examined further for the high cost of cultivation. Against this backdrop, the marginal farmer

has the highest yield per acre in Visakhapatnam district, whereas the large farmer shows the highest yield per acre in Koraput district.

Table 5.1: Costs in Processing Activities in the Coffee Cultivation of the Sample Farmers of Visakhapatnam & Koraput districts- 2016-17

Farm Size	Cost or produce	Pulping cost(under parchment)	% of total costs	Cherry	Washing cost (under parchment)	% of total costs (under parchment)	Drying costs (under parchment)	% of total processing costs	Grading	Curing	Total cost or produce
	Visakhapatnam district										
Marginal	Processing cost in Rs. Per ac.	2392	63		1000	26	397	10			3789
	Final Produce in Qtls. Per Ac.										2.87
	Per Qtl processing cost	832	63		348	26	138	10			1318
Small	Processing cost in Rs. Per ac.	2123	63		874	26	370	11			3367
	Final produce in Qtls										2.40
	Per Qtl processing cost	888	63		365	26	155	11			1408
Semi-medium	Processing cost in Rs. Per ac.	2333	66		838	24	354	10			3525
	Final produce in Qtls										2.21
	Per Qtl. processing cost	1059	66		380	24	161	10			1600
Medium	Processing cost in Rs. Per ac.	2333	60		1052	27	480	12			3865
	Final produce in Qtls										2.25
	Per Qtl. processing cost	1035	60		467	27	213	12			1715
Large	Processing cost in Rs. Per ac.	0	0		0	0	0	0			0
	Final produce in Qtls	0	0		0	0	0	0			0
	Per Qtl processing cost	0	0		0	0	0	0			0
Total	Processing cost Rs. Per ac.	2290	63		945	26	407	11			3642
	Final produce in Qtls										2.38
	Per Qtl. processing cost	962	63		397	26	171	11			1530
	Koraput district										
Marginal	Processing cost in Rs. Per ac.	1742	57		845	28	480	16			3067
	Final produce in Qtls. Per Ac.										2.86
	Per Qtl. processing cost	610	57		296	28	168	16			1074
Small	Processing cost Rs. Per Ac.	1423	53		803	30	463	17			2689
	Final produce in Qtls.										1.87
	Per Qtl. processing Cost	761	53		429	30	247	17			1437
Semi-medium	Processing cost in Rs. Per ac.	0	0		0	0	0	0			0
	Final produce in Qtls.	0	0		0	0	0	0			0
	Per Qtl Processing Cost	0	0		0	0	0	0			0
Medium	Processing cost in Rs. Per ac.	1877	56		1018	30	465	14			3360
	Final produce in Qtls. Per Ac.										2.88
	Per Qtl processing cost	651	56		353	30	161	14			1165
Large	Processing cost in Rs. Per ac.	2050	57		1020	28	510	14			3580
	Final produce in Qtls. Per Ac.										2.89
	Per Qtl. processing cost	711	57		353	28	177	14			1241
Toal	Processing cost in Rs. Per ac.	1969	57		992	29	501	14			3462
	Final produce in Qtls. Per Ac.										2.81
	Per Qtl. processing cost	701	57		353	29	178	14			1232

Source: Primary Data 2017

5.2 Coffee Produce and its Marketed Pattern of Sample Farmers of Visakhapatnam & Koraput districts- 2015-17:

The coffee produce and its marketing pattern of the sample farmers in the study districts during 2015-17 in A.P. and Odisha is given in Table 5.2. In the study districts, the market for

coffee produce varies in between Visakhapatnam and Koraput districts, as the Government of A.P. started long ago Girijan Co-operative Corporation (GCC) for the buying of the produce of the tribal farmers, and which plays a useful catalyst role in the market of the prices of different produce of the tribal farmers in STA and it plays a positive role in the market in the price fixation and enables the tribal farmer to receive the high price to his produce in general. But in some odd or other adverse market conditions, it may not be possible to work out the desired level of fixing of the price to various products in the tribal area. In the case of Koraput district, it is not found this type of organisation working for the tribal farmers. In the recent past some Non-Governmental Organisations have entered the market for purchasing the coffee production in Visakhapatnam district, for example, Nandi Foundation, Araku, Visakhapatnam district. Though it has been buying coffee produce in the tribal area of Visakhapatnam district, the sample farmers did not happen to sell their commodity to this organisation and hence, there is no reference of the price or analysis here. There are two sources in the market for coffee, and these are GCC and middlemen in Visakhapatnam district, while in Koraput district, there is only one source of demand, i.e. intermediaries. However, the medium and large farmers of Koraput district have been marketing their produce in the far-off markets like Hassan. With this backdrop, the market analysis of the sample farmers of the selected areas is presented here for the sample farmers of the both selected districts based on the size of the landholdings.

The GCC participated in the market and made purchases in 2015-16, while it did not make purchases from the farmers in 2016-17 as per the sample farmers. During 2015-16, the coffee grower received a high price from GCC rather than from the middlemen. Therefore, the upper average price received appears for GCC in 2015-16 for all the farmer groups in Visakhapatnam district, and it cloud be easily infer that the GCC played a proper role in the marketing of coffee in Visakhapatnam district, whereas intermediaries did not show any good price to all the farmers in Visakhapatnam district. Moreover, the farmer groups of semi-medium and medium groups received little rate compared to the other groups of farmers. Out of all the farmer groups, medium and semi-medium farmers sold much coffee produce to the GCC on average, while the price received is low to these groups compared to other groups by GCC in 2015-16 in Visakhapatnam district. The similar picture comes for the purchases in the market by intermediaries in 2015-16. Though the price fixed was low, the middlemen gave payments without any delay, whereas the GCC delayed the payment ranging from 2.10 months to 2.80 months among the different farmer groups. The best source for the sound average price offered in the market was GCC in 2015-16, of course, with a different rate to each farmer group. During 2016-17, there was no role of GCC in the market and the farmer sold his produce to the middlemen only and price fixed by them is low compared to the existing price in the Bangalore market (Rs.20,000 per Qtl.). There is a lot of variation of the price paid by the middlemen and

the rate in the Bangalore market, and this fact could be described from the amount received in Koraput district by the large and medium farmers, who sold their produce to the middlemen in Hassan in Karnataka. The GCC made less delay in the payment to the medium farmers compared to the marginal and small farmers during 2015-16.

Table5.2: Coffee Produce and its Marketed Pattern of Sample Farmers of Visakhapatnam & Koraput districts- 2015-17

Farm Size	Name of the Market	Average Marketed produce in Qtls.		Average price received in Rs.		Average Time taken for payment (months)		Which source has given good price (Average)	
		2015-16	2016-17	2015-16	2016-17	2015-16	2016-17	2015-16	2016-17
	Visakhapatnam District								
Marginal	Middlemen	1.44	3.88	15000	16900		0		16900
	GCC	4.23		15895		2.38		15895	
	NGOs								
Small	Middlemen	1.65	5.35	15200	17150		0		17150
	GCC	5.62		15545		2.75		15545	
	NGOs								
Semi-medium	Middlemen	1.20	7.23	14500	17225		0		17225
	GCC	7.50		15467		2.81		15467	
	NGOs								
Medium	Middlemen	3.00	9.72	14000	16575		0		16575
	GCC	10.23		14631		2.19		14631	
	NGOs								
Large	Middlemen								
	GCC								
	NGOs								
Toal	Middlemen	1.88	6.16	14700	16975		0		16975
	GCC	6.52		15452		2.54		15452	
	NGOs								
	Koraput District								
Marginal	Middlemen	5.54	5.77	14428	15845	0	0	14428	15845
	GCC								
	NGOs								
Small	Middlemen	4.23	4.27	14626	15966	0	0	14626	15966
	GCC								
	NGOs								
Semi-medium	Middlemen								
	GCC								
	NGOs								
Medium	Middlemen	10.27	10.2	16446	17808	0	0	16446	17808
	GCC								
	NGOs								
Large	Middlemen	100.44	100.	16869	17970	0	0	16869	17970
	GCC								
	NGOs								
Toal	Middlemen	25.07	25.1	16559	17709	0	0	16559	17709
	GCC								
	NGOs								

*GCC: Girijan Co-operative Corporation, ^: NGOs: Non-governmental Organisations. Source: Primary Data 2017.

In the case of Koraput district, there is no GCC or other agency as quoted earlier and all the farmers are dependent on the purchases of middlemen who come from either Araku or from Vijayawada. However, the medium and large farmers nearly 80 to 90 percent sell their produce after parchment in the 'Hassan Market' to realise the higher price. Therefore, the market price of

marginal and small farmers has been low around 13 to 17 percent in the study period (2015-17) compared to medium and large farmers of this district. In the payment for the products sold, all the farmers have no problem of delay in the payments. There are specific problems with the middlemen in the study area along with the low price fixation, and these are discussed below under another sub-topic. The marginal farmer received the lowest price in the district out of all groups in both study years (2015-17) followed by small farmers.

5.3 Coffee Growing Costs in Production & Marketing of the Produce of Sample farmers: 2016-17 (As per the responses of Sample Farmers):

The coffee growing costs in production and marketing produce of sample farmers for 2016-17 (as per the answers of sample farmers) is shown in Table 5.3. In the nature of costs of coffee growing, processing costs have dominant share in the total costs followed by labour costs in Visakhapatnam district, whereas labour costs are the major part in the aggregate costs in Koraput district. The second place comes from processing costs in Koraput district. In both districts, material costs are low. The transport costs are high in Koraput district, and these are very high for medium and large farmers among the landholding groups. The total cost per ac is Rs.6613 in Visakhapatnam district, while it is Rs.8833 in Koraput district. There are no material costs to marginal and small farmers due to the support of the ITDA, Paderu and the Coffee Board of India in Visakhapatnam district and the same level of the support could not be found in Koraput district. Hence, the material costs are born by the native tribes. The transport costs are four times high for medium and large farmers in Koraput district since these farmers are transporting and selling the coffee production in Hassan Market, Karnataka and the share in total costs appear 6 percent to these farmer groups. However, these farmer groups are realising the higher net income that is shown in Table 5.4 and discussed in another sub-heading.

5.4 Coffee Growing Costs, Price Received & Net Income of Sample Farmers-2016-17 (As per the responses of Sample Farmers):

Table 5.4 presents the coffee growing costs, the price received and net income of sample farmers 2016-17 (as per the responses of sample farmers). The coffee growers of marginal and small farmers of both study districts appear nearly on the same net come level, though there are some variations: higher area and yields in Koraput district and higher price per qtl. and lower cost of cultivation in Visakhapatnam district. On the other, large farmers of Koraput district have the highest per ac. net income out of all farmer groups in both districts, though their cost of

Table 5.3 Coffee Growing Costs in Production & Marketing of Sample farmers: 2016-17 (As per the responses of Sample Farmers)

(in Rs./Ac.)

Farmer Size	Material Cost	Labour cost	Processing Cost	Transport Cost	Total Cost
Visakhapatnam					
Marginal	0	2915 (42.53)	3789 (52.28)	150 (2.19)	6854 (100)
Small	0	2666 (43.11)	3368 (54.46)	150 (2.43)	6184 100)
Semi Medium	0	2257 (38.05)	3525 (59.42)	150 (2.53)	5932 (100)
Medium	435 (6.01)	2787 (38.51)	3865 (53.41)	150 (2.07)	7237 100)
Total	173 (2.62)	2649 (40.06)	3641 (55.06)	150 (2.27)	6613 (100)
Koraput					
Marginal	856 (9.38)	4228 (46.32)	3869 (42.39)	175 (1.92)	9128 (100)
Small	1059 (15.63)	2853 (42.10)	2690 39.69)	175 (2.58)	6777 (100)
Medium	1719 (17.82)	3965 (41.11)	3360 (34.84)	600 (6.22)	9644 (100)
Large	2361 (24.94)	2924 (30.89)	3580 (37.82)	600 (6.34)	9465 (100)
Total	2111 (23.90)	2860 (32.38)	3462 (39.19)	400 (4.53)	8833 (100)

Parentheses refer to percent to total cost. Source: Primary Data 2017.

cultivation is high. The large farmers from Koraput district reports the highest output value though its highest price per qtl. and the highest yield per ac out all the farmers in the study area. Medium farmers from Visakhapatnam district show the lowest per ac. net income compared to all landholding groups in the study area followed by semi-medium farmers from the same district. It is because of lack concentration on the coffee growing and the involvement of cultivation of other crops as per the cropping pattern discussed earlier.

Table 5.4 Coffee Growing Costs, Price Received & Net Income of Sample Farmers 2016-17 (As per the responses of Sample Farmers)

Farmer size	Area in ac.	Yield per ac. in Qtls.	Price received per Qtl.	Total value of output per ac. in Rs.	Cost of cultivation per ac.in Rs.	Net income per ac. in Rs.
Visakhapatnam district						
Marginal	35.50	2.44	16900	41236	6854	34382
Small	53.45	2.40	17150	41160	6184	34976
Semi-Medium	52.29	2.21	17225	38067	5932	32135
Medium	69.00	2.25	16575	37294	7237	30057
Total	210.24	2.31	16975	39212	6613	32599
Koraput district						
Marginal	48.50	2.86	15845	45317	9128	36189
Small	52.90	2.60	15966	41512	6777	34735
Semi-Medium	-	-	-	-	-	-
Medium	57.00	2.88	17808	51287	9644	41643
Large	557.00	2.89	17970	51933	9465	42468
Total	715.40	2.86	17709	50648	8833	41815

Source: Primary Data 2017.

5.5: Average Annual Agricultural and Non-Agricultural Incomes Per Household of Sample Farmers in Visakhapatnam and Koraput Districts:

The average annual agricultural and non-agricultural incomes per household of the sample farmers in Visakhapatnam and Koraput districts is given in Table 5.5. The analysis shows that all farmer groups of Visakhapatnam district have higher incomes per household compared to the same groups of Koraput district, while the vast farmer group displays the

highest level of income per family out of all farmer groups in the study area in Koraput district. The large farmer group is not there in Visakhapatnam district. The small farmer group of Visakhapatnam district has the highest per household total income compared to all the groups in both districts except for large farmer group in Koraput district. When the total income per household of the Koraput district is examined, the variance with the same groups is high. Comparatively, the agriculture per household income of small farmers of Visakhapatnam district shows the highest difference out of all the farmer groups except larger farmer group in Koraput district. In both study districts, marginal and small farmers are indigenous tribes, and the tribals from Visakhapatnam district have shown a better household income either in agriculture or non-agriculture income. This better situation or alleviation has been possible due to the significant contribution of the coffee growing in the 11 tribal mandals of Visakhapatnam district. There is a lot of scope for enhancing the income levels through proper establishment of a coffee market in the area, as there are much price variation and the vulnerability of the coffee growers in the market in the getting a reasonable price.

Table 5.5: Average Annual Agricultural and Non-Agricultural Incomes of Household of Sample Farmers in Visakhapatnam and Koraput Districts

Farm Size	Visakhapatnam district			Koraput district			% of high total income in Visakhapatnam district compared to Koraput district	%of high total income in Koraput district compared to Visakhapatnam district	% of high of Visakhapatnam district		% of high of Koraput district	
	Average annual income per hh from agriculture	Average annual income per hh from non-agricultural sources	Total annual income	Average annual income per hh from agriculture	Average annual income per hh from non-agricultural sources	Total annual income			Agri	Non-agri	Agri	Non-agri
Marginal	76566	20000	96566	75104	18000	93104	3.59	-3.72	1.91	10.00	-1.95	-11.11
Small	103049	18000	121049	71017	18000	89017	26.46	-35.98	31.08	0.00	-45.11	0.00
Semi-medium	157047	22000	179047	-	-	-	-	-	-	-	-	-
Medium	194866	25000	219866	190756	20000	210756	4.14	-4.32	2.11	20.00	-2.15	-25.00
Large				1888313	20000	1908313	-	-	-	-	-	-
Total	124267	21250	145517	459650	19000	478650	-228.93	69.60	-269.89	10.58	72.96	-11.84

Source: Primary Data 2017

5.6: Opinion of Sample Farmers over the Marketing Sources of Sample Farmers of Visakhapatnam & Koraput districts- 2017:

The opinion of sample farmers over the marketing sources in A.P. and Odisha-2017 is shown in Table 5.6. In the market arena of study districts, the dominant market source is middlemen who purchase the coffee produce in the study districts and sell it in the Hassan Market, and these middlemen come from Araku and Vijayawada. Another source is GCC which

bought in 2015-16 in Visakhapatnam district only. The opinion of the farmers over these sources is discussed in detail based on the collected information. All the farmer groups show 100 percent that the merit of the middlemen is the immediate payment in cash to the buying commodity from the farmer. Of course, they fix the price at a lower level compared to other markets in the country. The farmers maintain cash dealings with these middlemen during crop season and the middlemen give advances to the farmers to meet the household or cultivation expenditure. Therefore, the farmers, especially, the marginal and small farmers are dependent on the advances of the middlemen to meet their exigencies in their everyday lives, as these peasant groups are much feeble in the financial stability. This scenario shall lead them to sell their coffee produce to the middlemen in the season in question, and this is a vicious cycle, and they cannot come out of this without any support of the government. All the farmers do agree 100 percent with the low price fixation to their coffee produce by middlemen in the study area. The GCC purchased the coffee produce in 2015-16 in Visakhapatnam district, which stood as the best price fixer to the farmer, and of course, it fixed higher prices to semi-medium and medium groups rather than that of the lower farmer sizes.

The payment from GCC took the delay in months as it is discussed above, and all the farmers in Visakhapatnam district informed 100 percent the same. And no other governmental agency is available to the farmers in the coffee market in the study area. Why the middlemen were preferred to GCC in 2015-16, was disclosed during the field study. Some farmers blamed the GCC for the lowering once fixed the price, and the payment was made to the farmers by the GCC at less amount rather than the original price fixed during the lifting or buying of coffee produce from the farmers in the market during 2015-16. However, the coffee peasants in Visakhapatnam district view that the GCC offered an excellent price to their produce by 100 percent.There may be several problems in the GCC 1) lack of working capital, 2) lack of well-qualified personnel 3) Age-old purchasing practices 4) Missing of up to date business management skills to the lower staff and 5) the lacunae in the business transactions. However, there is a broad opinion that the GCC has not made any mark in the coffee market in Visakhapatnam district. The farmers point out that the lower grade was not purchased in 2015-16, and moreover, the offered price earlier when the product purchased was not given somewhat lower rate was paid. The GCC has not reached all the farmers. The staff colludes with the local traders and show indifferent attitude to marginalise the farmer community in the coffee market. (Report of the Commission of Inclusive and Sustainable Agriculture Development of A.P., Government of A.P., 2017) and further, the report made recommendations for the payment of 75 percent of the purchase of the product to the coffee grower when the buying takes place, and within the two months, the remaining payment may be completed.

Under all the prevailing conditions and the opinion of the coffee farmers examined, it would be better to launch a separate wing with special provisions in the GCC to meet the coffee market requirement. The GCC may be provided the required working capital, qualified personnel, hamlet level procurement/purchase of coffee, public and open system of fixing the quality of the produce with the help of 'self-help groups' of the coffee farmers, publicity of the current market price of the coffee at national level. The purchases of coffee in the shandies will be much useful to the tribal coffee farmers and they can avoid 'distress sale'.

Table 5.6: Opinion of Sample Farmers over the Marketing Sources of Visakhapatnam & Koraput districts- 2017:

S. No.	Reasons	Visakhapatnam District						Koraput District					
		Marginal	Small	Semi-medium	Medium	Large	Total	Marginal	Small	Semi-medium	Medium	Large	Toal
1	Immediate payment from middlemen	100	100	100	100		100	100	100		100	100	100
2	Good price from middlemen	0	0	0	0		0	0	0		0*	0*	0*
3	Immediate payment from GCC	0	0	0	0		0						
4	Good price from GCC	100	100	100	100		100						
5	Immediate payment from any other Govt. agency	0	0	0	0		0						
6	Good price from any other Govt. agency	0	0	0	0		0	0	0		0	0	0
7	Selection of Middlemen due to problems from other market sources:												
	a)Delay payment	100	100	100	100		100						
	b) Low price	0	0	0	0		0						
	c) Good price but delay payment	100	100	100	100		100						
8	Problems from middlemen												
	a) low price fixation	100	100	100	100		100	100	100		100	100	100
	b) weighing	100	100	100	100		100	100	100		100	100	100
	c) moisture and other problems	100	100	100	100		100	100	100		100	100	100
	d) low-grade fixing of produce	100	100	100	100		100	100	100		100	100	100
	e) vulnerable in the bargaining	100	100	80	80		90	100	100		10	10	55

*Medium and large farmers nearly 80 to 90 percent sell in Hassan Market. Source: Primary Data 2017

Surprisingly, all the farmer groups from both districts report by 100 percent almost the number of problems with the purchases of the middlemen in the coffee marketing and they inform five major problems. They express the fixing of low prices at the rate of 12 percent to 20

percent compared to the national market. They report that the middlemen take two to three kgs. extra per every Qtl., while weighing of produce taking place and it is informed the pretext of the high moisture in the coffee production and therefore to recover the exact proper saleable commodity, this practice is there as per the sample farmers. However, this extra taking of produce is to the purchases of all the farmers without any discrimination in the study area. For the moisture problem, the farmers inform unanimously the reduction of price or the extra taking the produce. Further, the peasants report the fixing of the lower grade of the coffee produce and it has been a regular method in the market for price fixation for all the farmers. Therefore, the innovative market initiatives linking with the social equity and conversation concerns of the coffee growers is to be considered by the governments or social organisations (Robert Rice, 2003). It will solve the price crisis and saves the considerable chunk of the coffee growers.

The farmers except for medium and large groups of Koraput district view that they are vulnerable in the market before middlemen in getting a reasonable market price to them. Based on the above market elements, the bargaining of the coffee grower of the marginal and small farmers in the study area is null and void. Consequently, the farmer remains as the 'Price Receiver' in the market in the study districts. There is a lot of price volatility in the study area as and when the prices changed in national and international markets, the local market prices are much affected to decline steeply. If this could be avoided, there would be a benefit to the farmers. The empirical study (Sushil Mohan et al., 2014) found that the coffee farmers had 4.8% welfare gain by the elimination of the price risk to their produce by avoiding price oscillations during the selling of the produce. In this regard, Coffee Board and the concerned state governments may consider the non-price factors for the welfare of the coffee growers (Venkatram, R. and Satish Y. Deodhar, 2000) and these may be like the authorised market, low priced inputs, an arrangement of the public weighing machine, quality testing and certification and others and these will reduce the vulnerability of the farmers, especially marginal and small farmers in the market.

Summary:

Without curing and grading, the raw produce of coffee after the parchment is sold in the study area and the pulping processing has the major share more than 55 percent in both districts. The total processing costs per acre are the lowest to small farmers in Koraput district compared to other groups, and the highest costs appear to the medium group of Visakhapatnam district out of all farmer groups in the study area. The marginal farmer has the highest yield per acre in Visakhapatnam district, whereas the large farmer shows the highest yield per acre in Koraput district. Out of all the farmer groups, medium and semi-medium farmers sold much coffee produce to the GCC on average, while the price received is low to these groups compared to

other groups by GCC in 2015-16 in Visakhapatnam district. The similar picture comes for the purchases in the market by middlemen in 2015-16. Though the price fixed was low, the middlemen gave payments without any delay, whereas the GCC delayed the payment ranging from 2.10 months to 2.80 months among the different farmer groups. However, the medium and large farmers nearly 80 to 90 percent sell their produce in the 'Hassan Market' to realise the higher price. Therefore, the market price of marginal and small farmers has been low around 13 to 17 percent in the study period (2015-17) compared to medium and large farmers of this district.

The small farmer group of Visakhapatnam district has the highest per household total income compared to all the groups in both districts except for large farmer group in Koraput district. When the total income per household of the Koraput district is examined, the variance with the same groups is high. Comparatively, the agriculture per household income of small farmers of Visakhapatnam district shows the highest variance out of all the farmer groups except larger farmer group in Koraput district. In both study districts, marginal and small farmers are indigenous tribes, and the tribals from Visakhapatnam district have shown a better household income either in agriculture or non-agriculture income. This better situation or alleviation has been possible due to the major contribution of the coffee growing in the 11 tribal mandals of Visakhapatnam district. There is a lot of scope for enhancing the income levels through the proper establishment of the coffee market in the area, as there are much price variation and the vulnerability of the coffee growers in the market in the getting a reasonable price. There is a lot of price volatility in the study area as and when the prices changed in national and international markets. The empirical study (Sushil Mohan et al., 2014) found that the coffee farmers had 4.8% welfare gain by the elimination of the price risk to their produce by avoiding price oscillations during the selling of the produce. In this regard, Coffee Board and the concerned state governments may consider the non-price factors for the welfare of the coffee growers (Venkatram, R. and Satish Y. Deodhar, 2000).

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CHAPTER VI

Part-A

Comparison of Governmental Implementation of Coffee Plantation Development Programme in Visakhapatnam and Koraput Districts

The role of public expenditure is enormous in the socio-economic development in the developing nations. There are certain canons of public spending for the governing of the nature of public spending in the economic analysis: as *Growth, Social Welfare, Prior Permission, Economy, Elasticity, Proper Distribution and Balanced Budget*. In this chapter in Part-A, it is examined the comparative public expenditure incurred for the 'Coffee Plantation Development Programme (CPDP) in Visakhapatnam and Koraput districts and has been attempted to show how much the CPDP is lagging behind in the latter district.

6A.1 Comparative Coffee Development Programme through MGNREGA in Visakhapatnam and Koraput districts- 2008-16:

The comparative coffee development programme through MGNREGA in Visakhapatnam and Koraput districts during 2008-16 is shown in Table 6.1. The only combined expenditure of coffee plantation and shade plantation data is given by the Deputy Director, Coffee Development, Koraput and therefore, the data about shade plantation is not shown in the analysis to this district. The expenditure received from the MGNREGA is not available with the ITDA, Paderu, and hence, based on the unit cost, the expenditure is estimated to the extended area of coffee development in the study period. The MGNREGA has become a good source of the coffee development programme, as it has taken place in 61.6 thousand ha and 2.6 thousand ha in Visakhapatnam and Koraput districts (2007-16), respectively, against the expenditure of 154 crores and 8.5 crores, in that order, for the study districts. The per acre expenditure for the programme for the entire study period (2007-15) is Rs 25 thousand in Visakhapatnam district, while it is Rs. 32 thousand in Koraput district (28 percent high). The total per beneficiary expenditure for the 2007-16 is Rs 25 thousand in Visakhapatnam district, whereas it is Rs 60 thousand in Koraput district (118 percent high compared to Visakhapatnam district). These figures indicate that there is some wastage in the expenditure or lack of coordination among the departments which are responsible for the coffee development programme in Koraput district. Without hesitation, it may be inferred that the programme has been implemented without any proper planning or without any concern with the ground realities which exist in Koraput district. If the figures of 2015-17 are observed in Koraput district, the per beneficiary expenditure shows Rs.1,20,144 and the per acre expenditure shows Rs.89 thousand for 2015-16 and Rs. 37 thousand for 2016-17. Hence, the relevant changes in the work plan and the tasks assigned could be recast and relocated, and the regular functionality of concerned departments may be vested in

the Group I officer of the State Services or the officer from the All India Services, as the 'Nodal Officer' to the entire programme to manifest a lot of sea change in the execution of CPDP in Koraput district. There is 145170 ha (98 percent) of potential area for coffee extension programme. The e-governance will be much useful and could be considered for the entire programme execution from farmer to the nodal officer to avoid red-tapism and defunct functionality in the administrative hierarchy.

Table 6A.1 Comparative Coffee Development Programme through MGNREGA in Visakhapatnam and Koraput districts-2008-16

Year	Visakhapatnam district									
	Coffee plantation					Shade Plantation				
	Achievement in acres	#Probable Expenditure as per unit cost (Rs. In lakhs)	No.of beneficiaries	Per acre expenditure in Rs.	Per beneficiary Expenditure in Rs.	Achievement in acres	#Probable Expenditure as per unit cost (Rs. In lakhs)	No.of beneficiaries	Per acre expenditure	Per beneficiary expenditure
2009-10	11746	2936	11183	24996	26254	6391	569	6228	8903	9136
2010-11	11760	2939	11740	24991	25034	6662	593	6246	8901	9494
2011-12	7424	1856	7356	25000	25231	13121	1168	12758	8902	9155
2012-13	7700	1925	7636	25000	25210	20917	1862	16671	8902	11169
2013-14	8031	2007	7791	24991	25760	0	0.00	0	0	0
2014-15	9023	2256	9322	25003	24201	6100	543	5546	8902	9791
2015-16	6000	1500	5864	25000	25580	8240	733	7612	8896	9630
TOTAL	61684	15420	60892	24998	25324	61431	5468	55061	8901	9931
	Koraput district									
2007-08	803	105	1302	13055	55268	N.A.	N.A.	N.A.	N.A.	N.A.
2008-09	309	83		26838		N.A.	N.A.	N.A.	N.A.	N.A.
2009-10	161	90		55963		N.A.	N.A.	N.A.	N.A.	N.A.
2010-11	235	65		27660		N.A.	N.A.	N.A.	N.A.	N.A.
2011-12	119	124		104126		N.A.	N.A.	N.A.	N.A.	N.A.
2012-13	403	71		17618		N.A.	N.A.	N.A.	N.A.	N.A.
2013-14	272	71		26251		N.A.	N.A.	N.A.	N.A.	N.A.
2014-15	145	110		76148		N.A.	N.A.	N.A.	N.A.	N.A.
2015-16*	103	91	112	88689	120144	N.A.	N.A.	N.A.	N.A.	N.A.
2016-17*	118	43		36620		N.A.	N.A.	N.A.	N.A.	N.A.
Totals	2668	853	1414	31971	60325	N.A.	N.A.	N.A.	N.A.	N.A.

the sanctioned expenditure is estimated based on the norms of the programme *refers to the fund from ACA to TSP. Source: ITDA, Paderu, Deputy Director, Coffee Development, Koraput.

In the shade plantation, Visakhapatnam shows the similar trend of the coffee plantation, as discussed earlier. During 2009-16, the total achievement was 61 thousand acres with Rs.55 crores, and it reached farm-gates of 55 thousand coffee growers in this district. The expenditure is Rs.9 thousand per acre and Rs.10 thousand per beneficiary during the study period. In the entire period, the expenditure has not shifted rapidly either for per acre or for per beneficiary except for the year 2012-13, where the expenditure appears Rs.17 thousand and Rs. 11 thousand for per acre and beneficiary, in that order. There was no implementation of shade plantation scheme in 2013-14.

6A.2 Comparative Public Expenditure for Coffee Development Programme of Coffee Board in Visakhapatnam and Koraput districts during-1998-15:

Table 6.2 presents the comparative public expenditure for coffee development programme of Coffee Board in Visakhapatnam and Koraput districts during 2001-15. In the study period, the CPDP has been extended in Visakhapatnam and Koraput districts under different plans. It is observed that the programme has been implemented in giant strides in Visakhapatnam district compared to its parallel study district. The total area was extended by 64 thousand ha in 1998-2015, while it was 1175 ha in Koraput district and the beneficiaries were reported as 81 thousand in Visakhapatnam district and three thousand in Koraput district. If we peep into the expenditure incurred in the coffee extension programme in both districts, it may be noticed some imbalances in the public expenditure made during the study period. The per ha total expenditure was Rs.5900/- in Visakhapatnam district and Rs. per 14809/- Koraput district during 1998-15. It shows that there is no ‘economy' and ‘proper distribution' in the public expenditure incurred for the same coffee development programme. The expenditure took place at Rs 643 per ha in 2002-06 in Visakhapatnam district, while it was Rs.12581/- in Koraput district and there were double and three times more expenditure incurred in Koraput district per ha compared to its counterpart. The total per beneficiary expenditure was Rs.4698/- and Rs. 5235 in Visakhapatnam and Koraput districts, respectively. It obviously shows that the ‘Coffee Extension Programme’ is very much costly in Koraput district. Further, it is noticed that there was Rs. 22 and 19 thousand in 2012-15 and 1998-01, in that order, in Koraput district, whereas, it was Rs. Five and four thousand in the same periods in Visakhapatnam district.

Further, it is tried to compare the area and beneficiaries against the expenditure incurred for the coffee extension programme in the districts. Out of the sub-periods, it can be noticed the lowest expenditure versus the high coverage of area and beneficiaries in 2002-06 in Visakhapatnam district and the similar trend appears in the remaining sub-periods. It is estimated the total covered area and total beneficiaries against the total expenditure made in the study districts through the ratio of the two study districts and it reports the relatively low-level expenditure and high-level achievement in the coverage of the area and the beneficiaries. It is observed that the total expenditure was 22 times high during 1998-2015 for the extension of a coffee programme in Visakhapatnam district, while the coverage was 55 times more for the area and 25 more times for the beneficiaries compared to the same in Koraput district. It confirms that the expenditure incurred in Koraput district has been at large extent and it leads to rendering the programme thriving one at the lower level. It should be because of the conditions prevailing in Koraput district, especially in the administrative hierarchy and the loopholes in the functional

approach of the programme along with the lack of coordination from the administration of Government of Odisha (GoO).

Table 6A.2 Comparative Public Expenditure for CPDP of Coffee Board in Visakhapatnam and Koraput districts during 1998-15

Period	Visakhapatnam district			Koraput district			Per ha expenditure in Visakhapatnam district	Per beneficiary expenditure in Visakhapatnam district	Per ha expenditure in Koraput district	Per beneficiary expenditure in Koraput district	No. of times more in area covered Visakhapatnam	No. of times more in beneficiaries covered by Visakhapatnam	No. of times more in amount spent by Visakhapatnam
	* Area covered in ha.	*No beneficiaries	*Allotted amount in Rs. in lakhs	*Area covered in ha.	*No beneficiaries	*Allotted amount in Rs. in lakhs							
1998-01 (IX Plan)	9067	10569	480	246	144	28	5294	4542	11382	19444	37	73	17
2002-06 (X plan)	18351	22217	118	620	1553	78	643	531	12581	5023	30	14	1.51
2007-2011 (XI-Plan):	22094	22094	2268	303	1618	65	10265	10265	21452	4017	72	14	35
2012-2015 (XII-Plan)	15302	26508	957	6	9	2	6254	3610	33333	22222	2550	2945	479
Total	64814	81388	3824	1175	3324	174	5900	4698	14809	5235	55	25	22

* refers the figures after adding under the consolidation of the programme. Source. Office of the Deputy Director, Coffee Board, Paderu.

6A.3 Comparison of Capacity Building Programme in Coffee Plantation Development Programme in Visakhapatnam & Koraput Districts:2008-15:

The comparison of capacity building programme in CPDP in Visakhapatnam and Koraput Districts during 2008-15 is presented in Table 6.3.There are three sub-heads for capacity building in coffee development programme in the study districts. Comparatively, the per head expenditure is examined between two study districts. The ‘One day programme' discloses that there is a high amount of expenditure per head at Rs 14/- in Koraput district compared to its counterpart, whereas, in the case of ‘Resource persons training' the expenditure per head is Rs.1,003/- for Koraput district and Rs.477/- for Visakhapatnam district. It shows more than double of the expenditure incurred for this capacity building item in Koraput district. The similar trend appears for the ‘study tour', as the amount spent per head is Rs 5,859 and Rs.5113/- in Koraput district and Visakhapatnam district. The fact enables us that there should be some wastage in the running the programmes or the local costs are high to run the programmes in Koraput district.

Table 6A.3 Comparison of Capacity Building Programme in CPDP Visakhapatnam & Koraput Districts:2008-15

Nature of programme	Visakhapatnam District			Korput district		
	No. of participants attended	Amount spent	Per head spent in Rs.	No. of participants attended	Amount spent	Per head spent in Rs.
One Day Training Programme	7400	440500	60	1612	118500	74
Resources persons Training	640	305138	477	83	83259	1003
Study Tour	194	991950	5113	84	492191	5859

Source:1) Deputy Director, Coffee Board, Paderu, 2) Office of the Coffee Board, Koraput.

6A.4 Comparative Expansion Programme in Visakhapatnam & Koraput Districts 2007-16:

Table 6A.4 presents the comparative expansion programme in Visakhapatnam and Koraput districts 2007-16. Here an attempt is made to bring to the sharp focus of the policy makers and the other interested researchers that how much the public expenditure met towards the CPDP in the side-by-side districts and how much the variation appears towards the programe implemented. To this end only, the figures are referred, and it is expected this analysis may lead to understanding the situation of the ground level reality. The expansion programme is 85 times higher in ITDA, Paderu during 2007-16 compared to the programme implemented in Koraput district. It is discussed earlier that the 'baby pullers and drying yards basic minimum for the processing of the coffee produce to fit for sale, and these show 45 times and 11 times,

Table 6A.4 Comparative Expansion Programme in Visakhapatnam & Koraput Districts 2007-16

S. No.	Name of the expansion programme	Expenditure in Visakhapatnam district	Expenditure in Koraput district	No. of times high Visakhapatnam district compared to Koraput district
1	Expansion	400298163	4726110	85
2	Drying yards	84020364	7361475	11
3	Baby Pulpers	18381510	410940	45
4	Godowns	-	225800	-
5	Mixed shade saplings	1480393	92082	16
6	Mechanization subsidy	434533	259693	2
7	Labour welfare measure	14855250	-	-
8	Market Support	7706970	-	-
9	Total amount spent in the period	526777683	13076100	40

Source:1) Deputy Director, Coffee Board, Paderu, 2) Office of the Coffee Board, Koraput.

respectively, higher in ITDA Paderu. It is known the fact that mixed shades are required for coffee growing, and these are at 16 times higher in ITDA Paderu. The total programme expenditure spent is high at 40 times compared to the programme implemented.

6A.5 Block wise Potential for Coffee Development Programme in Koraput District:

The block-wise potential yet to be developed in Koraput District is in Table 6.A5. The Coffee Board of India conducted two surveys in the recent past, one in 1978 and the another one in 2014-15. These surveys have shown the suitable area for coffee plantations in Koraput district and the block-wise area shows how much area is yet to be developed in the study district. There would not be a second opinion in the development of coffee, and the extension programme is to be taken place in the district. The indigenous tribes could hardly be successful without the support of the government/s. As mentioned, “Coffee cultivation is a laborious and costly process. Beginning with the selection of a site for a plantation, to choosing the right variety of coffee suitable to the climatic and topographical features of the selected location, to preparation of the land for cultivation and maintaining the soil properties ideal for coffee; there are several requirements that must be fulfilled precisely in order to obtain a successful harvest.”, United Nations COP-11 CBC Ed**.,** 2012). A large-scale programme is to be launched, and it gives a new life to the people of the district, especially the government will be appreciated by all.

Let us have a peep into the data. The district is yet to be developed 98 percent, and the Pottangi Block shows nearly 100 percent. The other remaining blocks are showing 98 per cent yet to be developed based on the suitable area in the respective blocks. The Government may implement as early as possible by allotting reasonable funds, which are to be properly utilised for the welfare of the people of the concerned area, where the hilly areas are to be grown with coffee. The Government may use the information technology to avoid wastage and functional loopholes in the administration. It will bring widely laurels and name and fame to the GoO. The deforested hills will be grown with the coffee and mixed shade plantations, and it will lead to removing ecological imbalance in the area, and it would establish a great deal of impact in the remaining part of the area in Odisha state. The total area available for coffee plantations is 1,45,170 ha or 3,58,723 acres in Koraput district. The policy formulators may have a fresh look over this area and to open the new portals in the lives of the people of the district, especially native tribes who are in need of the alleviation of poverty. “Farm management should be guided by the famous quote "only change is permanent", (Jean Nicholas Wintgens, 2004). It is well-known fact that the funds are very precious and scarce to all the state governments in India, and therefore, the expansion and extension programme and the area implemented may be verified by geospatial technique, (Raghuramulu, Y., 2014) with the cooperation of Indian Space Research Organisation (ISRO) or the Coffee Board. May be to look forward to the change in the coffee growing in the study area.

Table 6A.5 Block wise Potential for Coffee Development Programme

in Koraput District

Sl No.	Block Name	Area Develped in ha	Potential Area in ha	% area yet to be deveped
1	Semiliguda	341	14130	97.59
2	Dasmantpur	697	29835	97.66
3	Laxmipur	406	13950	97.09
4	Nandapur	535	30825	98.26
5	Lamataput	585	25920	97.74
6	Koraput	299	18900	98.42
7	Potangi	31	11610	99.73
8	Baipariguda	31	N.A.	-
	Total	2925	145170	97.99

Source: Office of the Senior Liaison Officer, Coffee Board, Koraput

6A.6 Existing & Proposed Coffee Development Programme Mandal wise in ITDA Paderu in Visakhapatnam District:

It is given the existing and proposed coffee development programme mandal wise area under Paderu in Visakhapatnam district in Table 6.A6. The total current area was 1.66 lakh acres by 2015-16 in the tribal area in Visakhapatnam district. The coffee growing has a lot of viability and generates more income to the farmers in the Paderu area (Uma Devi, k. and A. Pandurangarao, 2003). G.K. Veedhi mandal shows the highest coffee area followed by Chintapalli mandal and Munchingpattu mandal, respectively. Koyyuru mandal has the lowest coffee area among the mandals. The whole coffee development programme is planned for 2018-19 as 10,000 acres for coffee, 15,000 acres shade and rejuvenation of coffee plantations in 15000 acres in the entire ITDA area. It shows how the development activity is going to knock the doors of tribals and to alleviate poverty in the area. G. Madugula, Chintapalli and G.K Veedhi are showing 1200 acres each followed by Araku valley and Koyyuru with 1000 acres each for a new coffee. In the shade plantation, all the mandals/blocks are given equal weight by allotting 1500 acres, whereas, for the rejuvenation, there is a variation from one mandal/block to another mandal/block. It might be due to depending on the requirement of the coffee plantations in the mandal/block in question. However, the programme shows the rapid strides in the CPDP for a year. This should be replicated in Koraput district by the GoO to bring a sea change in the lives of the tribals in the district.

Table 6A.6: Proposed CPDP Mandal/Block wise Area under ITDA, Paderu in Visakhapatnam District during 2018-19

Sl. No.	Mandal/block	Existing coffee Area in acres by 2015-16	New coffee in acres for 2018-19	New Shade in Acres 2018-19	Coffee Rejuvenation in acres for 2018-19
1	Ananthagiri	7456	900	1500	900
2	Arakuvalley	7812	1000	1500	800
3	Dumbriguda	10994	800	1500	1500
4	Hukumpeta	13757	800	1500	1500
5	Pedabayalu	15517	500	1500	800
6	Munchingput	25412	500	1500	800
7	Paderu	10656	900	1500	1500
8	G.Madugula	7365	1200	1500	2000
9	Chinthapalli	28622	1200	1500	1200
10	G.K.Veedhi	36170	1200	1500	3000
11	Koyyuru	2679	1000	1500	1000
	Total	**166440**	**10000**	**15000**	**15000**

Summary:

The MGNREGA has become an excellent source of the coffee development programme, as it has taken place in 61.6 thousand ha and 2.6 thousand ha in Visakhapatnam and Koraput districts (2007-16), respectively, against the expenditure of 154 crores and 8.5 crores, in that order, for the study districts. The per acre expenditure for the programme for the entire study period (2007-15) is Rs 25 thousand in Visakhapatnam district, while it is Rs. 32 thousand in Koraput district (28 percent high). The total per beneficiary expenditure for the 2007-16 is Rs 25 thousand in Visakhapatnam district, whereas it is Rs 60 thousand in Koraput district (118 percent high compared to Visakhapatnam district). These figures indicate that there is some wastage in the expenditure or lack of coordination among the departments who are responsible for the coffee development programme in Koraput district. Without hesitation, it may be inferred that the programme has been implemented without any proper planning or without any concern with the ground realities which exist in Koraput district. If the figures of 2015-17 are seen in Koraput district, the per beneficiary expenditure shows Rs.1,20,144 and the per acre expenditure shows Rs.89 thousand for 2015-16 and Rs. 37 thousand for 2016-17. Hence, the relevant changes in the work plan and the tasks assigned could be recast and relocated and the regular functionality of concerned departments may be vested in the Group I officer of the State Services or the officer from the All India Services, as the ‘Nodal Officer' to the entire programme to manifest a lot of sea change in the execution of ‘Coffee Plantation Development Programme' in Koraput district, as the potential area for coffee extension programme is 145170 ha (98 percent).The e-governance will be much useful and could be considered for the entire programme execution from farmer to the nodal officer to avoid red-tapism and defunct functionality in the administrative hierarchy.

The total per beneficiary expenditure was Rs.4698/- and Rs. 5235 in Visakhapatnam and Koraput districts, respectively. It obviously shows that the ‘Coffee Extension Programme' is very much costly in Koraput district. Further, it is noticed that there was Rs. 22 and 19 thousand in 2012-15 and 1998-01, in that order, in Koraput district, whereas, it was Rs. Five and four thousand in the same periods in Visakhapatnam district. The expansion programme is 85 times higher in ITDA, Paderu during 2007-16 compared to the scheme implemented in Koraput district. It is known the fact that mixed shades are required for coffee growing, and these are at 16 times higher in ITDA Paderu. The total programme expenditure spent is high at 40 times compared to the programme implemented in Koraput district. Therefore, it is better to understand the programme, where it is and how it is, in Koraput district and the policy formulators could recast and reschedule for the better and large-scale execution of the programme for welfare of the tribals and other communities who live in the hilly areas of the Koraput district. There would not be a second opinion in the development of coffee, and the extension programme is to be taken place in Koraput district. The indigenous tribes could hardly be successful without the support of the government/s. “Farm management should be guided by the famous quote "only change is permanent", (Jean Nicholas Wintgens, 2004). It is well-known fact that the funds are very precious and scarce to all the state governments in India, and therefore, the expansion and extension programme and the area implemented may be verified by geospatial technique, (Raghuramulu, Y., 2014) with the cooperation of Indian Space Research Organisation (ISRO) or the Coffee Board.

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CHAPTER VI
Part- B
Coffee Growers Opinion over the Coffee Plantation Development Programme in Visakhapatnam and Koraput Districts

The coffee cultivation is new to the farmers of the selected districts in A.P. and Odisha. Though the area is suitable and having the historical reference to the starting long ago, the peasant community of the study area has received the development programme roots in the recent past. Therefore, there has been a lot of the need of the hour to educate the farmers and support them for the coffee plantation in the Visakhapatnam and Koraput districts. Based on the necessity of the area development and the alleviation of poverty of the weaker sections, the GoAP and GoO have been implementing coffee plantation development programme in the selected study areas along with the support of the Coffee Board of India, Ministry of Commerce and Industry, GoI. In this chapter Part-B, it is analysed the different schemes and the support given by the concerned states and the Coffee Board to the farmer community as per the opinion of the beneficiaries.

6B.1a. Subsidy/Cost born by Government as per the Beneficiaries in Visakhapatnam District in A.P.: 2016-17:

It is presented the support of the Government through Coffee Plantation Development Programme (CPDP) as per the beneficiaries in Visakhapatnam District in A.P. in 2016-17 in Table 6B.1a. Though the 15 government supporting items are taken for the analysis, there are only six items referred by the coffee growers regarding the support of the government and these are briefly seeding, planting, shade trees, saplings of black pepper, coffee processing and training to farmers. Although the average expenditure spent towards various farmer size groups differs one to another among farmer sizes, the support is given or the subsidy distributed to them is 100 percent as per the beneficiaries of STs, and no other category is there in this district. It indicates that the coffee development in the plantation stage is being implemented at very successful and systematic level. Because of this reason, all the farmers have expressed 100 percent received the subsidy for respective items of the coffee cultivation, and there is no deviation from either farmer in the opinion of the plantation development in this district. The very significant fact is that the marginal farmers received the lowest average subsidy compared to other farmers groups for all sub-items under study, and correspondingly, the highest landholding received the highest average subsidy. It is to be discontinued this type of imbalanced subsidy distribution in the programme implementation to establish social parity.

Table 6B.1a: Subsidy/Cost born by Government through Coffee Plantation Development Programme as per the Beneficiaries in Visakhapatnam District in A.P.: 2016-17 (in Rs.)

Farm Size	Cost/Subsidy	1*	2*	3*	4*	5*	6*	7*	8*	9*	10*	11*	12*	13*	14*	15*
Marginal:	Average total Cost incurred	1560	3521	3521	855								425	425		
	Average total subsidy given	1560	3521	3521	855								425	425		
	% of cost covered	100	100	100	100								100	100		
Small:	Average total Cost incurred	2221	4958	4958	1125								433	433		
	Average total subsidy given	2221	4958	4958	1125								433	433		
	% of cost covered	100	100	100	100								100	100		
Semi-medium:	Average total Cost incurred	3406	7625	7625	1807								469	469		
	Average total subsidy given	3406	7625	7625	1807								469	469		
	% of cost covered	100	100	100	100								100	100		
Medium:	Average total Cost incurred	5125	11188	11188	2156								444	444		
	Average total subsidy given	5125	11188	11188	2156								444	444		
	% of cost covered	100	100	100	100								100	100		
Large:	Average total Cost incurred															
	Average total subsidy given															
	% of cost covered															
Toal:	Average total Cost incurred	2841	6306	6306	1314								440	440		
	Average total subsidy given	2841	6306	6306	1314								440	440		
	% of cost covered	100	100	100	100								100	100		

***** Legend**:** 1.Raising seedbed and seed supply, 2.Planting material, 3.Plantation of Silver oak trees, 4.Supply of black pepper saplings, 5.Supply of market information,6. Assistance with marketing,7. Inputs for intercropping,8. Construction of vermin-compost unit,9.Machinery and other tools, 10.Processing or grading of the produce, 11.Maintenance cost during the gestation period,12.The coffee processing unit or any information, 13.Farmer's training and information provision,14.Demonstration, farmers visit etc.,15.Miscellaneous and others. Source: Primary Data 2017.

6B.1b: Subsidy/Cost born by Government through Coffee Plantation Development Programme as per the Beneficiaries in Koraput District in Odisha: 2016-17

The share of subsidy in the total cost under CPDP as per the beneficiaries in Koraput district in Odisha in 2016-17 is shown in Table 6B.1b There is a difference between Visakhapatnam and Koraput districts for the category of farmers. In Koraput district, there are other category farmers along with STS. These coffee growers may be with Scheduled Castes (SCs), Other Backward Castes (OBC) and Other Castes (OCs). In this analysis, it is not done any socio-economic classification of the farmers rather than confining to the landholding sizes. The level of support and subsidy distributed to the farmer sizes may vary between STs and the other farmer groups in Koraput district. The landholding sizes of all farmer groups are being given 100 percent support under the CPDP in this district as well as in Visakhapatnam district, whereas in the case of other landholding groups are given 75% and 50% support to the OBCs and OCs, respectively, and the SCs farmer group is not present as per the information on the Coffee

Board. As we discussed earlier in Visakhapatnam district, it is observed that the all marginal and small farmers who belong to STs are given 100 percent subsidy to six items, referred above, under CPDP in Koraput district, while the medium and large farmers, who belong to the other categories, are supported with the subsidy by 75 percent to medium farmers and 50% to large farmers through the coffee development programme by the Government of Odisha and the Coffee Board. Therefore, the total subsidy given to the farmers may not be similar to all the farmer groups in Koraput district. Despite this fact, there is an unequal subsidy distribution among the farmer groups. The highest average subsidy took place for the large farmers who stood as the highest receivers followed by medium farmer group, and this could be eliminated in the subsidy disbursement to establish the social uniformity among the farmers. Moreover, the fact is that the STs are a vulnerable group, but this group was given the lowest average subsidy under all sub-items of the subsidy provided. It is unwholesome and against the welfare policy of the state, and it could be changed.

Table 6B.1b: Subsidy/Cost born by Government Under Coffee Plantation Development Programme as per the Beneficiaries in Koraput District in A.P.: 2016-17 (in Rs.)

Farm Size	Cost/Subsidy	1*	2*	3*	4*	5*	6*	7*	8*	9*	10*	11*	12*	13*	14*	15*
Marginal:	Average total Cost incurred	2000	2000	4000									300	300		
	Average total subsidy given	2000	2000	4000									300	300		
	% of cost covered	100	100	100									100	100		
Small:	Average Total Cost incurred	2167	4333	4333	1333								300	300		
	Average total subsidy given	2167	4333	4333	1333								300	300		
	% of cost covered	100	100	100	100								100	100		
Semi-medium:	Average total Cost incurred															
	Average total subsidy given															
	% of cost covered															
Medium:	Average total Cost incurred	3500	7000	7000	1857								300	300		
	Average total subsidy given	2563	5125	5125	1321								300	300		
	% of cost covered	73.21	73.21	73.21	71.15								100	100		
Large:	Average total Cost incurred	13125	26250	26250	6563								300	300		
	Average total subsidy given	6563	13125	13125	3281								300	300		
	% of cost covered	50	50	50	50								100	100		
Toal:	Average total Cost incurred	4575	9150	9150	1688								300	300		
	Average total subsidy given	3075	6150	6150	938								300	300		
	% of cost covered	67	67	67	56								100	100		

* legend: 1.Raising seedbed and seed supply, 2.Planting material,3.Plantation of Silver oak trees,4.Supply of black pepper saplings,5.Supply of market information,6.Assistance with marketing,7.Inputs for intercropping,8.Construction of vermin-compost unit,9.Machinery and other tools, 10.Processing or grading of the produce, 11.Maintenance cost during the gestation period,12.The coffee processing unit or any information, 13.Farmer's training and information provision,14.the demonstration, farmers visit etc.,15.Miscellaneous. Source: Primary Data 2017.

6B.2: Farmers Opinion over Additional Aspects of Government Support under Coffee Plantation Development Programme 2016-17:

The farmers' opinion over the additional aspects of Government support under coffee plantation development programme in Koraput district is presented in Table 6B.2. It is estimated the other aspects that would be added information in development programme in the study area. It is taken ten aspects, but only four items received the opinion from the respondents. For making available good seed/quality planting material and rejuvenation with improved cultivars, all the farmer groups have given 100 percent unanimous opinion over governmental support and the initiative in both study districts except with a little divergence from small and large farmer sizes in Koraput district. In the case of 'upgrading the existing tissue culture unit', it appears that the higher farmer size groups are not comfortable. The 'establishment of new plantation or seed/sapling production' shows a lot of difference in the expression from the farmer sizes in both study districts and this should be taken care of in the programme implementation by the concerned extension staff of the area concerned in both districts. For the ' Capacity building programmes, all the farmers are happy with the style and functioning of the programmes implemented in both districts. But in the case of operation of extension of the state government staff, there is much concern in Koraput district, and this is presented later in detail.

Table 6B.2: Farmers Opinion on Additional Aspects of Government Support Under Coffee Plantation Development Programme:2016-17(in %)

S. No.	Name of the aspect	Visakhapatnam District						Koraput District					
		Marginal	Small	Semi-medium	Medium	Large	Total	Marginal	Small	Semi-medium	Medium	Large	Total
1	Making available good seed/quality planting material like nursery	100	100	100	100		100	100	96		100	100	99
2	Rejuvenation with improved cultivars	100	100	100	100		100	100	96		100	100	99
3	Upgrading the existing tissue culture unit	100	100	81	75		91	92	96		94	100	95
4	Pump house to provide sufficient irrigation with/without a storage tank, community tank						0						0
5	Establishment of new plantation or seed/sapling production		58	69	63		44	100	96		94	100	98
6	Protected cultivation like greenhouse, shade net, plastic tunnel etc.						0						
7	Precision farming implements, e.g., computer, GPS, GIS, sensors and application control						0						
8	Promotion of integrated nutrient management or integrated pest management						0						
9	Post-harvest management like pack house, storage unit, mobile processing unit etc.						0						
10	Capacity building programmes	100	96	100	100		99	100	100		100	100	100

Source : Primary Data 2107

6B.3 Proximity of Training Place to Sample Farmers in the Study Districts:

The proximity of training place to sample farmers in the study districts is shown in Table 6B.3. There is no role of State Horticultural Department (SHD), and Non-governmental Organisations (NGOs) in Koraput district in the capacity building and the Coffee Board only has been conducting the training programmes. It is placing the training programmes in villages of the concerned farmers and all farmer sizes express 100 percent positive opinion over the location of

Table 6B.3 Proximity of Training Place to Sample Farmers in the Study Districts

(in %)

Farm size	Source of training	Visakhapatnam District						Koraput District					
		Within village*	Nearby village	Nearby town	District headquarter	State capital	Any other place	Within village*	Nearby village	Nearby town	District headquarter	State capital	Any other place
Marginal:	Coffee Board	100						100					
	SHD^	83											
	NGOs~												
Small:	Coffee Board	96			4			100					
	SHD^	96											
	NGOs~												
Semi-Medium:	Coffee Board	63	0	4									
	SHD^	63											
	NGOs~												
Medium:	Coffee Board	50	4	13				100					
	SHD^	58	4										
	NGOs~												
Large:	Coffee Board							100					
	SHD^												
	NGOs~												
Total:	Coffee Board	93	1	5	1			100					
	SHD^	90	1										
	NGOs~												

^ stands for State Horticultural Department, ~ stands for Non-Governmental Organisations. *refers to within the Panchayat, as the small grouped domiciles are spread in these tribal areas. Source: Primary Data 2017

these programmes. But the absence of the training programmes of the SHDs has felt the need of the hour for further understanding and success of the coffee plantation programme in Odisha. In Visakhapatnam district, both the Coffee Board and SHD have been rendering service in the capacity building. However, marginal and small farmers expressed the positive for ‘within the village’, while other farmer sizes report the low impression for the ‘within village’. Of course, all the landholding groups may not find the nearest location since it is a gathering of all the farmers to the certain location. Moreover, the lower landholding groups are facilitated ‘within the village' for the training programmes in Visakhapatnam district. There are specific programmes conducted at nearest town and district headquarter and these are participated by small, semi-

medium and medium groups and this type of training programme might be conducted to generate higher awareness and interaction to the farmers. The same does not appear in Koraput district.

6B.4: Sample Farmers Participation in Training Programmes by Duration & Frequency 2016-17 :

The sample farmers participation in training programmes by duration and frequency 2016-17 is given in Table 6B.4. As referred earlier, there is no presence of SHD in Koraput district in the capacity building for the farmers of coffee growers, while it is observed the role of SHD in Visakhapatnam district. The noteworthy fact is that the coffee board is playing many parts in the training programmes compared to SHD in Visakhapatnam district. Marginal farmers report the participation in one day in 100 percent, whereas the other farmer groups represent in between 81 percent to 96 percent. It shows that the marginal farmers are showing much interest in the learning of coffee cultivation. For the two days programme, marginal farmers attended 100 percent, and no other farmer group referred the participation in Visakhapatnam. The 'Coffee Plantation Programme' and this is an additional duty to the staff, and at the same time, they lack knowledge and dexterity of it. In the case of Visakhapatnam district, the relevant qualified and experienced were drafted for the coffee plantation programme and the programme is taken care at the required level of extension services for coffee cultivation.

Table 6B.4: Sample Farmers Participation in Training Programmes by Duration & Frequency 2016-17 (in %)

Farm size	Source of training	Visakhapatnam district						Koraput district					
		Duration of training			Frequency of training			Duration of training			Frequency of training		
		One day	Two days	More than two days	Once	twice	More than twice	One day	Two days	More than two days	Once	twice	More than twice
Marginal:	a) Coffee **B**oard	100	100		100			100					100
	b) SHD	83		2	79		4						
	c) NGOs												
Small:	a) Coffee **B**oard	96		4	94		4	100					100
	b) SHD	96			96								
	c) NGOs												
Semi-medium:	a) Coffee **B**oard	88		13	94		6						
	b) SHD	88		6	94								
	c) NGOs												
Medium:	a) Coffee **B**oard	81		19	81	13	6	100					100
	b) SHD	94			81	13							
	c) NGOs												
Large:	a) Coffee **B**oard							100					100
	b) SHD												
	c) NGOs												
Total:	a) Coffee **B**oard	93		8	94	3	4	100					100
	b) SHD	90		1	88	3	1						
	c) NGOs												

Source: Primary Date 2017

6B.5: Knowledge Provided in Coffee Cultivation by Training to the Sample Farmers

The knowledge provided in coffee cultivation by training to the sample farmers is shown in Table 6B.5. It is examined the significant coffee activities cultivation with the support of Coffee Board, SHD and NGOs and these activities are nurseries, growing of plantation, bush management, cradle pits and parchment. No NGO has given any service in the knowledge providing in the coffee cultivation in both districts, though only government departments are rendering wonderful service to the farmers by the Coffee Board and SHD in Visakhapatnam district. For the farmers of Koraput district, the single source is the Coffee Board, as it is discussed earlier. To the selected essential activities, all the farmer groups have expressed the 100 percent source of training from Coffee Board in both districts. For Visakhapatnam district, one more reference to all the farmer sizes is SHD, and this is absent in Koraput district. The opinion of all farmers groups showed 100 percent training received from Coffee Board and the lower level through SHD in Visakhapatnam district.

Table 6B.5: Knowledge Provided in Coffee Cultivation Activities Training to the Sample Farmers in the Study Districts

Farm size	Source of training	Visakhapatnam district					Koraput district				
		Nursery	Growing of plantation	Bush management	Cradle pits	Parchment	Nursery	Growing of plantation	Bush management	Cradle pits	Parchment
Marginal:	Coffee Board	100	100	100	100	100	100	100	100	100	100
	SHD	83	83	83	83	83					
	NGOs										
Small:	Coffee Board	100	100	100	100	100	100	100	100	100	100
	SHD	96	96	96	96	96					
	NGOs										
Semi-medium:	Coffee Board	100	100	100	100	100					
	SHD	94	94	94	94	94					
	NGOs										
Medium:	Coffee Board	100	100	100	100	100	100	100	100	100	100
	SHD	94	94	94	94	94					
	NGOs										
Large:	Coffee Board						100	100	100	100	100
	SHD										
	NGOs										
Total:	Coffee Board	100	100	100	100	100		100	100	100	100
	SHD	91	91	91	91	91					
	NGOs										

Source: Primary data 2017.

6B.6 Sample Farmers Opinion over the Support of the Government 2016-17:

Table 6B.6 shows the sample farmers opinion over the support of the government for coffee cultivation in study districts in 2016-17. In support of the government, the farmer groups of both districts viewed with 100 percent over the excellent role. There are taken 12 vital

variables to estimate the help of the state and central governments. In all the six items viz. 'arranging seedling /nursery', 'applying material inputs', 'capacity building', 'for cultivation as a whole', 'arranging of the processing facilities' and 'support which has become most useful', all the farmers from both districts expressed unanimously with 100 percent support of the government/s, and in spite of the much good view over these aspects, farmers are not comfortable with 'during the bearing period' and 'building infrastructure' since all the farmer groups except marginal group in Visakhapatnam district, all the remaining farmer sizes express. In addition to all the above, there is a need for the suitable mechanisation of the coffee growing in the study area to reduce the input costs (Raghuramulu, Y., 2012).

Table 6B.6 Sample Farmers Opinion over the Support of the Government 2016-17(in %)

S. No.	Item of the support given	Visakhapatnam district						Koraput district					
		Marginal	Small	Semi-medium	Medium	Large	Total	Mar-ginal	Small	Semi-medium	Medium	Large	Total
1	Arranging seedling /nursery	100	100	100	100		100	100	100		100	100	100
2	Supplying material inputs	100	100	100	100		100	100	100		100	100	100
3	Capacity building or training programme	100	100	100	100		100	100	100		100	100	100
4	For cultivation as a whole	100	100	100	100		100	100	100		100	100	100
5	During the bearing period	80	80	70	70		75	60	60		50	50	55
6	Building infrastructure	80	80	70	70		75	60	60		50	50	55
7	Arranging for the processing facilities	100	100	100	100		100	100	100		100	100	100
8	Support which has become most useful	100	100	100	100		100	100	100		100	100	100
9	Arranging an agency for marketing the product	0	0	0	0		0	0	0		0	0	0
10	Establishing a regular and periodic procurement facility	0	0	0	0		0	0	0		0	0	0
11	Controlling the prices of the local market or a controlling marketing agency	0	0	0	0		0	0	0		0	0	0

Source: Primary data 2017.

However, they still request for the arranging an agency for marketing the product, as they feel that there are some problems with the middlemen who are paying lower prices compared to national or international markets. They request for the permanent organisation for performing marketing activities. In the case of GCC, they said that it lacked expertise and age-old practices in the marketing. There is a need for regular and periodic procurement of coffee production in the study area. As the middlemen are paying prices which are very lower and they take extra one

kilo to three kilos for every quintal during the weighing of the product when the buying is taking place. They view that there should be some controlling marketing mandi or authorised agency from the government to streamline the marketing activity of the middlemen in the study area. Hence, farmers suggest for the establishment of the 'Controlling marketing agency' in the study area from the Department of Marketing' especially for the observation of the purchases of the middlemen in the coffee market.

6B.7 Change in Income level by Coffee Cultivation as per Sample Farmers:

The change in income level by coffee cultivation as per sample farmers in study districts is shown in Table 6B.7. All the farmers from the study districts inform that the increase in income has taken by the coffee cultivation. In the level of income change, there is a variation among the farmers. No farmer viewed the income change less than 20 percent in either district. From Visakhapatnam district, the total farmers express by 91 percent the change in income between 40 percent to 60 percent by the coffee cultivation, whereas all the farmers of Koraput district inform by 100 percent the difference in income level in between 20 to 40 percent level**.** In the Visakhapatnam district, marginal and small farmers divulge by 92 percent and 96 percent, respectively, the change in income level between 40 percent to 60 percent compared to other two groups, which express at the low level (88 percent of the farmers). At the same time, the higher group farmers-sem-medium and medium from Visakhapatnam district inform the level of income change in between 60 percent to 100 percent. No farmer came with any contrary opinion over the coffee cultivation. It indicates that the farmers are much alleviated by the coffee cultivation in their standard of living. It would be appropriate to quote here for the changed lifestyles of the tribal farmers whose school-going children are educated in good schools in Visakhapatnam district.

Table 6B.7 Change in Income level by Coffee Cultivation as per Sample Farmers in Study Districts:2017

(in %)

S. No.	Percent level	Visakhapatnam District						Koraput District					
		Marginal	Small	Semi-medium	Medium	Large	Total	Marginal	Small	Semi-medium	Medium	Large	Total
1	less than 20 %												
2	20 to 40 %	8	4				4	100	100		100	100	100
3	40 to 60 %	92	96	88	88		91						
4	60 to 100 %			12	12		5						
5	No impact												

Source: Primary Data 2017.

6B.8 Suggestions of the Sample Farmers for a Successful of Coffee Development Programme in the Study Districts:

There are suggestions of the sample farmers for a successful of coffee development programme in the study districts (Table 6B.8). All the farmers from both districts view unanimously by 100 percent for the need of sanction of fund in-time, it is meant, at the right time of the cultivation activity in question. Otherwise, it has been a pressure over the farmer to complete the task or work part which is to be finished at the desired time to enable the peasant community to do the works in-time in the farming. The similar trend appears in the case of supply of inputs to the farmers. Under this item, Visakhapatnam farmers differ one group to another group in the opinion. The marginal and small farmers express by 92 and 83 percent, respectively, for the exact timeline for the supply of inputs, while all the peasant groups of the Koraput district express by 100 percent for the necessity of the in-time supply inputs in the cultivation season. For the method of payment, all the sample respondents from the study districts request for the sanction of the subsidy or assistance in the material form, which is intended for the coffee cultivation. In this context, they express that if the subsidy is in kind, the farmer can immediately work out the tasks of the coffee cultivation and further, no miss-utilisation could be taken place.

There is a strong articulation from the farmers of Koraput district for a separate wing/department for the coffee development programme, as it is absent in the district. The farmers feel that the present department may not be suitable to discharge this development programme and they quote the example of the neighbouring district of A.P., where State Horticultural experts are taking care of the CPDP. All the farmers are unhappy with the services of the 'Soil Conservation Department', whereas, in Visakhapatnam district, all the farmer groups are happy with the extension services of the SHD. The extension services of the Coffee Board are recognised, and all the peasant groups from both the study districts report 100 percent contented with the extension work being done in the area. The security of the landholding of the tribal farmer has become a gigantic menace to the ST community in study districts. The tribal farmers feel insecure over the land since they do not possess ownership of the tilling land under coffee plantation given by GoAP or GoO. They want to have permanent 'Pattadhar Passbooks' or 'Ownership Document 'or 'Permanent Landholding Rights'. They argue that they can put their whole heart and soul for the development of the coffee plantation when they have the permanent rights over the distributed land by the governments. The instability of the possession of land could be removed, and the best morale might be established. It leads to the better development of coffee cultivation in the study area and the removal of ecological imbalance or the security of ecosystem. "As a result coffee agro-forest systems can aid in effectively reducing the intensity of physical damages to the ecosystem by providing alternative habitat to local

biodiversity and source of ecosystem services generally provided by natural forests, including prevention of soil erosion, water sequestration, wildlife corridors, carbon sequestration and livelihoods for the poor" (United Nations COP-11, CBC Ed., 2012). In the case of medium and large farmers of Koraput district, this problem is not there, as their lands are in their possession by the legal document.

Table 6B.8: Suggestions of the Sample Farmers for Successful of Coffee Development Programme in the Study Districts

S. No.	Item of Suggestion	Visakhapatnam District						Koraput district					
		Marginal	Small	Semi-medium	Medium	Large	Total	Marginal	Small	Semi-medium	Medium	Large	Total
1	In-time financial sanction and releasing fund.	100	100	100	100		100	100	100		100	100	100
2	In-time supply of inputs like seed, saplings, equipment and others	92	83	75	50		78	100	100		100	100	100
3	Method of payment of subsidy	Material	Material	Material	Material		Material	Material	Material		Material	Material	Material
4	Extension services by state	100	100	100	100		100	15	13		10	10	10
	Extension services by Coffee Board	100	100	100	100		100	100	100	-	100	100	100
5	Consolidation of landholdings	0	0	0	0		0	0	0		100	100	50
6	Roads or at least kutcha ones to reach plantations	0	0	0	0		0	0	0		0	0	0
7	Mission mode intervention	100	100	100	100		100	0	0		0	0	0
8	Training for value added	0	0	0	0		0	0	0		0	0	0
9	Organic certification agency in the study area	0	0	0	0		0	0	0		0	0	0
10	Specific yield increase techniques	0	0	0	0		0	0	0		0	0	0
11	Single nodal agency	100	100	100	100		100	0	0		0	0	0
12	Single auction hall	0	0	0	0		0	0	0		0	0	0
13	Community pulping centres run by SHGs	0	0	0	0		0	0	0		0	0	0
14	All the schemes are to be in force	100	100	100	100		100	100	100		0	0	50

Source: Primary Data 2017

The farmers of the study area request for the approach of kutcha roads in the coffee plantation area. They say "we do not request for the blacktop roads but only ordinary kutcha roads or gravel roads, as we have to weigh the raw coffee produce over our heads all the way coming to the down-hills to reach the pulping facility location or drying yard nearly four to six times in a season". Therefore, they express for the construction of approach kutcha roads in the coffee plantation area. All the sample farmers of Koraput district report that there should be mission mode intervention by the state government since they are very much lagging behind the coffee cultivation coverage and they are facing the number of problems to complete the coffee cultivation in a season or the gestation period after planting the coffee sampling. They are very much disgusted and vexed with the style of functioning of the present system of administration in the district, and therefore, they argue for the 'Mission mode of Intervention' in the CPDP for

the coverage. extensive area which is available in the Koraput district. In Visakhapatnam district, we do not receive this opinion, and they express 100 percent comfortable with the style of the function of the administration in force in the CPDP. Peasants from both districts suggest for the training in the ‘Value Added' from the coffee produce since they illustrate the recognition of the ‘Araku Coffee Cup' geo-indicator for the coffee grown in this area. It may enable the farmers to earn additional income from their coffee production (Sabina Khatri Karki, Pradyot Ranjan Jena, and Ulrike Grote (2016), and they quote the value added by the farmers of the apple in Himachal Pradesh.

For the ‘Organic Certificate Agency', the peasants of the study area seek the agency established in the area either by ITDA or by SHD since no certificate agency is available in the study districts. The tribal farmers argue that they are following the organic techniques in the coffee cultivation but their product does not find the certificate facility and the regular price. Organic certification and the selling of the product will give higher prices to coffee growers (Chengappa, P.G. et al. (2016).The farmers request for the certificate agency from any organisation which has good recognition in the market. The certified farmers had 17 percent higher income on average than the uncertified coffee growers in the study area (Sabina Khatri Karki, Pradyot Ranjan Jena, and Ulrike Grote, 2016). There is an argument for the role of Coffee Board to act as an intermediary in the lines of indigenous and profitable native certification (Upendranadh, C., C. A. Subbaiah and P. Rajesh, 2014). The certification procedure and process should be simple and accessible to the farmers. Otherwise, the objective of the certification may be defeated. The study conducted in Kodagu district, Karnataka informs the cumbersome and expensive of the accreditation (Kamala Bai, S. et al., (2009). The senior coffee growers who planted seven or eight years ago, in particular and the remaining farmers, in general, report the implementation of special yield increasing techniques in the cultivation. They say that the extending the coffee cultivation in the area is always required, and at the same time, the yields are to be increased to have better income levels to the farmers.

In the case of the single nodal agency, there has been no problem in Visakhapatnam district, as they feel happy with the functionality or administrative system which is being run by ITDA as the single nodal agency for the implementation of the CPPD. However, the farmers are very dejected with the administrative system in Koraput district. It is well acclaimed for the role of ITDA in Paderu, and the same may be replicated for the CPPD in Koraput district. Farmers suggest for the single nodal agency for the implementation of the programme in the area. Further, it is very pertinent for a better functional administration to alleviate of poverty. To this end, coffee growing gives a good generation of employment to the indigenous tribal women basing on the suitable coffee variety (Kavya Shree. K, 2016). It is high time that the CPDP was

to be successful for the sake of indigenous tribes in particular and the welfare of the whole district in general. Hence, it is better to arrange the mode of function in those lines for the better coverage and extension of the CPDP in the district, and further to cover the potential area of the region. There is an alarming plea for the ‘Single Auction-hall' in the study area. The farmers feel that the ‘Hassan Market’ is very far off (1250 Kms to Araku Valley), and therefore, the middlemen are very much unfair and underhand in the price fixation. It has been leading to the lower level fixation of prices at 20 percent to 30 percent. The marginal and small farmers of both districts are incommensurate to handle with the far-off market, and they are constrained by financial and knowledge resources. Hence, they demand the ‘Single Auction-hall’ in the study area either at Araku Valley or at Koraput to make the convenient and fair and trustworthy marketing of their produce.

All the marginal and small farmers of the study districts have requested for the arrangement of ‘Community Pulping Centres' (CPCs) in a big way, as they find many problems in the processing of the raw coffee produce. They suggest the CPCs might be sanctioned to the ‘Self-Helf Groups’(SHGs) of the coffee growers, especially to the tribal farmers. It will enable them to finish the processing activity in a time-bound schedule. There is no second opinion among the marginal and small farmers of the study area, and they are happy with the schemes implemented in the area. However, the medium and large farmers of Koraput district have shown that they were not given the schemes of 11th Plan on par with the traditional area farmers. They referred that the amount Rs 330 crores were sanctioned in the same plan, but they were not sanctioned and implemented in Koraput district for the welfare of the ‘Private Growers’. They informed in writing the same to the Principal Investigator of this project (letter dated 24-03-2018, Development Support Scheme XI Plan 2007-2012).

Summary:

In support of the government, the farmer groups of both districts viewed with 100 percent over the excellent role. In addition to all the above, there is a need for the suitable mechanisation of the coffee growing in the study area to reduce the input costs (Raghuramulu, Y., 2012). Farmers request for the permanent organisation for performing marketing activities. In the case of GCC, they said that it lacked expertise and age-old practices in the marketing. There is a need for regular and periodic procurement of coffee produce in the study area. As the middlemen are paying prices which are very lower and they take extra one kilo to three kilos for every quintal during the weighing of the produce when the buying is taking place. They view that there should be some controlling marketing mandi or authorised agency from the government to streamline the marketing activity of the middlemen in the study area.

The farmers of the study area request for the approach of kutcha roads in the coffee plantation area. All the sample farmers of Koraput district report that there should be mission mode intervention by the state government since they are very much lagging behind the coffee cultivation coverage and they say that they are facing the number of problems to complete the coffee cultivation in a season or the gestation period after planting the coffee sampling. They are very much disgusted and annoyed with the style of functioning of the present system of administration in the district, and therefore, they argue for the ‘Mission mode of Intervention' in the CPDP. Peasants from both districts suggest for the training in the ‘Value Added' from the coffee produce since they illustrate the recognition of the ‘Araku Coffee Cup' geo-indicator for the coffee grown in this area. For the ‘Organic Certificate Agency', the peasants of the study area seek the agency established in the area either by ITDA or by SHD since no certificate agency is available in the study districts. In the case of the single nodal agency, there has been no problem in Visakhapatnam district, as they feel happy with the functionality or administrative system which is being run by ITDA as the single nodal agency for the implementation of the CPDP. However, the farmers are very dejected with the administrative system in Koraput district. Farmers suggest for the single nodal agency for the implementation of the programme in the area. Further, it is very pertinent for a better functional administration to alleviate of poverty. There is an alarming plea for the ‘Single Auction-hall' in the study area. The farmers feel that the ‘Hassan Market' is very far off (1250 Kms to Araku Valley), and therefore, the middlemen are very much unfair and underhand in the price fixation. It has been leading to the lower level fixation of prices at 20 percent to 30 percent.

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CHAPTER VII
Summary, Conclusions and Policy Measures

7.1 Background:

It could hardly be found the relevant studies over the present problem through the review of literature done. It has become a visible problem of the extension of coffee development in Koraput district, Odisha, though the area has developed to a large extent in the adjacent Visakhapatnam district, Andhra Pradesh (A.P.). Hence, Directorate of Economics & Statistics, Department of Agriculture, Cooperation and Farmers Welfare, Ministry of Agriculture & Farmers Welfare, Government of India (GOI) has assigned this study to our centre with the following objectives: 1) To estimate the trends in the growth of area, production and yields in coffee cultivation for all India and states during 1997-2017 and the selected districts in 2007-17, 2) To examine the profiles of the selected coffee growing areas and the socio-economic conditions of the sample farmers, 3) To compare the cost of cultivation and incomes for coffee cultivation of the sample farmers in the selected districts, 4) To examine the marketing conditions for the coffee produced in the selected area, 5) To compare the implementation of ' Coffee Plantation Development Programme' (CPDP) in Visakhapatnam and Koraput districts and 6) To recommend the policy measures for the better CPDP in Koraput district.

7.2. Summary and Findings of the Study:

7.2.1 Analysis of Trends in Growth of Coffee Area, Production and Yields for all-India, States and Selected Districts:

In the coffee total growing area, Karnataka stood the first and A.P. emerged as second by 2017. However, A.P. does not demonstrate share in production (18 percent) as well as in area share (30 percent), and it projects the need of the increase in output in A.P. for arabica coffee. There is no increase of production level in NER, as its production remains the same nearly in the study period (1997-17). The robusta coffee is growing in Karnataka (58 percent), Kerala (declined from 47 to 38 percent), whereas it is absent in other two regions. It can be observed that the area shift is not there in Tamil Nadu due to non-suitability of robusta coffee. There has been no increase of coffee area either in Kerala or Tamil Nadu, and the share in the area by little amount has displayed decrease during the study period. A.P. has shown the phenomenal increase in the area, as it had 9 percent in 1997-02 and shifted to 30 percent by 2012-17. Interestingly, Karnataka has the major share in total area and production, as it has 70 percent share of coffee production at national level except in the recent past. Tamil Nadu shows the lower share of production 6 percent (2012-17) compared to its percentage of area with 13 percent in the same period. For Kerala, the scenario is different, as it shows two percent share of

the area at the national level, but it has 21 percent in the production. The policy formulation is to be in tune with the backward areas in the coffee growing. The planted area has increased much in the sub-period at 8 percent in Visakhapatnam district, and later it appeared 4 percent in the second sub-period. The similar trend with the acceleration seems for the bearing area in Visakhapatnam district, while it is different for production growth. In Koraput district, the planted area has increased at 3 percent in first sub-period, and the later period, the growth rate appears at lower level and the bearing area also shows similar trend as 4 percent and 2 percent in first and second sub-periods, respectively, nevertheless production has maintained the same level growth in both the sub-periods.

7.2.2 Profile of the Coffee Growing Area in Visakhapatnam and Koraput Districts:

Having introduced in 1898, coffee has historical growing in Gudem in Visakhapatnam district and since then it has been growing due to the efforts of ITDA and Coffee Board spreading across 11 mandals/blocks with the planted area–67089 ha, bearing area-54777 ha, No.of holdings: 153885, production -9800 MTs and productivity-178 kgs/ha mainly by tribal farmers along with A.P.Forest Development Corporation. Chinatapalli mandal comes first in population among the 11 mandals, and the tribal area population stands 14 percent in the Visakhapatnam district. All the mandals/blocks are with more than 90 percent ST population with the density ranging from 67 to 173 in different mandals against the 384 of the district and the literacy rates in mandals are low compared to the district. With the initiation of Maharaja of Jeypore in 1930 at Bicholkota near Jeypore, the Soil Conversation Department of GoO has been rendering service to the development of coffee in Koraput district during the post-independence period with the coordination of other departments. There are now eight blocks in Koraput district for the coffee development programme, and the departments of GoO and Coffee Board are rendering service for the coffee extension programme for the tribal and non-tribal coffee growers in the district. There are nearly four departments of GoO, and the Coffee Board are instrumental in whatever the coffee development has taken place in the region as area 2925 ha production 553 MTs and yield-225 kgs/ha. The eight selected blocks population contributes 50 percent in the district population.

7.2.3 Socio-Economic Profile of the Sample Villages in Visakhapatnam and Koraput Districts:

In Visakhapatnam district, there is no scope for cultivation by other communities other than STs, (as the area is STA notified), whereas Koraput shows STs and non-STs. The gender base for the head of the household is male dominated in both districts for coffee sample farmers. Among the STs, the heads of families are 66 percent by males and 10 percent females, and in

the age group of 16-40 years, the many farmers appear in Visakhapatnam district, whereas in Koraput district, the age group 41-60 years shows a higher number of farmers. The educational background is very low for the sample farmers in Koraput district compared to its parallel study district except for medium and large farmers. The sample farmers show 39 percent and 50 percent illiteracy in Koraput and Visakhapatnam districts, respectively. For agricultural labour, Visakhapatnam district shows 69 percent of the sample farmers, while it is only 10 percent in the corresponding study district.

7.2.4 Cost of Cultivation and Incomes for Coffee Cultivation: Part A-Landholdings, Cropping Pattern and Crop wise Costs:

In the sample villages, the irrigated area is meagre, and it does not give impact on the cultivation of the sample farmers. A significant fact is that the average net operated area is high in total for all landholding groups in Koraput district by two times except for small farmer group. There is a Kharif crop under irrigated area for only paddy cultivation in Visakhapatnam district, whereas it is absent in Koraput district. In the case of rainfed area, Visakhapatnam shows higher cultivated area (102 acres) of the sample farmers compared to the area (93 acres) of Koraput district. In perennial, coffee and black pepper are the principal crops in this season for cultivation. It would lead to a variation in the income levels and living standards of these farmer groups of the two districts. There is farming activity for all the farmer groups in the rainfed area for three crops, i.e. coffee, black pepper and mango in both regions. The production level is higher for the tribal farmers of Visakhapatnam district. There is backwardness in the farming activity of the tribal farmers of both districts compared to large farmers of Koraput district. Under rainfed area, the total value of the main production shows the higher amount for all the farmer groups of Visakhapatnam district compared to Koraput district. There is a lot accrual of the value of the main output for eight crops in Visakhapatnam district, whereas there are four crops in the Koraput district. Further, the total value of the main output is more than two times higher in Visakhapatnam district.

7.2.5 Cost of Cultivation and Incomes for Coffee Cultivation-Part-B-Comparative Costs & Incomes of Coffee Growing and the Other Main Crops:

The significant fact is that there is no material cost incurred by tribal farmers for the cultivation of coffee in the gestation period in the sample villages of Visakhapatnam district due to the support of Government of A.P. and Coffee Board. In Koraput district, large farmer group has much higher material cost among the farmer groups, and the small farmers have the lowest out of all farmer groups in incurring the material costs in the coffee growing. In Koraput district, there are labour costs under fertilisers and plant protection, while these costs are not noticed in

the parallel study district. Moreover, these costs show at a higher level for all landholdings in Visakhapatnam district rather than in the corresponding district. The costs under jungle clearance and digging a pit for planting are high for marginal farmer group compared to other groups in Visakhapatnam district. It is noticed that gingelly comes first with the total net income by 15 thousand in Kharif followed by long pepper. Turmeric shows the third position in the overall average net income to all the farmers and next place is found with paddy. It informs significantly that the cash crops gingelly, long pepper and turmeric have shown significant role in the income generation to the peasant community Viakhapatnam district out of eight major crops cultivated in Kharif. Mango shows the second position in the perennial season with Rs. 15 thousand. Out of the 13 crops grown by farming community in a year (including perennial crops), coffee divulges a vibrant and substantial fact to the policy formulators. It is because of its growing the volte-face on the socio-economic conditions of the people in the study area by the higher-shift of the rapid standard of living in the entire area. Compared to Visakhapatnam district, the corresponding district reports deficient farming activity since the sample farmers are cultivating eight crops in a year.

7.2.6 Marketing Conditions of Coffee Produce of Sample Farmers and Income Levels in Visakhapatnam and Koraput Districts:

The total processing costs per acre are the lowest to small farmers in Koraput district compared to other groups, and the highest costs appear to the medium group of Visakhapatnam district out of all farmer groups in the study area. The marginal farmer has the highest yield per acre in Visakhapatnam district, whereas the large farmer shows the highest yield per acre in Koraput district. However, the medium and large farmers nearly 80 to 90 percent sell their produce in the 'Hassan Market' to realise the higher price. Therefore, the market price of marginal and small farmers has been low around 13 to 17 percent in the study period (2015-17) compared to medium and large farmers of this district.The middlemen fix the price at a lower level compared to other markets in the country. The farmers maintain cash dealings with these middlemen during crop season, and they give advances to the farmers to meet the household or cultivation expenditure. Therefore, the farmers, especially, the marginal and small farmers are dependent on the advances of the middlemen to meet their exigencies. The GCC fixes reasonable prices, but it delays the payment. Some farmers blamed the GCC for the lowering once set the price.

7.2.7 Comparison of Governmental Implementation of Coffee Development Programme in Visakhapatnam and Koraput Districts:

The MGNREGA has become a good source of the coffee development programme, as it has taken place in 61.6 thousand ha and 2.6 thousand ha in Visakhapatnam and Koraput districts

(2007-16), respectively, against the expenditure of 154 crores and 8.5 crores, in that order, for the study districts. The per acre expenditure for the programme for the entire study period (2007-15) is Rs 25 thousand in Visakhapatnam district, while it is Rs. 32 thousand in Koraput district (28 percent high). The total per beneficiary expenditure for the 2007-16 is Rs 25 thousand in Visakhapatnam district, whereas it is Rs 60 thousand in Koraput district (118 percent high compared to Visakhapatnam district). These figures indicate that there is some wastage in the expenditure or lack of coordination among the departments who are responsible for the coffee development programme in Koraput district. The total area was extended by 64 thousand ha in 1998-2015 in Visakhapatnam district, while it was 1175 ha in Koraput district and the beneficiaries were reported as 81 thousand in Visakhapatnam district and three thousand in Koraput district. Some imbalances in the public expenditure made during the study period are per ha total outlays Rs.5900/- in Visakhapatnam district and Rs. per 14809/- in Koraput district during 1998-15. It shows that there is no ‘economy' and ‘proper distribution' in the public expenditure incurred for the same coffee development programme in Koraput district. The spending took place at Rs 643 per ha in 2002-06 in Visakhapatnam district, while it was Rs.12581/- in Koraput district and there were double and three times more expenditure incurred in Koraput district per ha compared to its counterpart.

7.2.8 Coffee Growers Opinion over the Coffee Plantation Development Programme in Visakhapatnam and Koraput Districts:

For the ‘Capacity building programmes', all the farmers are happy with the style and functioning of the programmes implemented in both districts. The Coffee Board has been conducting the major training programmes. But the absence of the training programmes of the State Horticultural Departments (SHDs) has been felt the need of the hour for further understanding and success of the coffee plantation programme in Odisha. In Visakhapatnam district, both the Coffee Board and SHD has been rendering service in the capacity building. Of course, the participation is at the lower level of all the farmer groups. In support of the government, the farmer groups of both districts viewed with 100 percent over the excellent role.

7.3. Conclusions:

1. Karnataka and A.P. stood the first and second by 2017, respectively, for the area and there is a need for an increase of production in A.P. in the ratio of area. Karnataka has the lead for robusta coffee not only in the area but also in the production. Kerala shows 2 percent area and 21 percent production, whereas Tamil Nadu reports vice versa as 13 percent area and 6 percent production. There is no considerable share of Odisha and NER. The policy formulation is to be

in tune with the backward areas in the coffee growing. There is a necessity of increase of yield in the selected districts-Visakhapatnam and Koraput districts.

2. Marginal and small farmers are in the clutches of intermediaries in the market due to their financial vulnerability, and they are compelled to sell their produce to intermediaries at lower prices and at the excess weight, i.e. for every 50 kgs. 1 to 3 kgs extra on the pretext of moisture in the produce. The price volatility in the study area could be nullified rather through the non-price factors, i.e. authorised market, low priced inputs, quality testing and certification centres.

3. The GCC in Visakhapatnam district is still unable to reach the coffee grower in the entire area, and inadequate to transact with the coffee farmer to render service and to replace the middlemen in the market due to its inherent defects: a) lack of fair transactions by some of the field staff, b) delayed payment c) original price change later, when payment taking place, 4) non-coverage of, all shandies, and the villages which are coffee growing.

4.The MGNREGA has become a good source of the coffee development programme, as it has taken place in 61.6 thousand ha and 2.6 thousand ha in Visakhapatnam and Koraput districts (2007-16), respectively, against the expenditure of 154 crores and 8.5 crores, in that order, for the study districts.

5.There is some wastage in the expenditure or lack of coordination among the departments who are responsible for the CPDP in Koraput district. It may be inferred that the programme has been implemented without any proper planning or concern with the ground realities which exist in Koraput district, the best example, If the figures of 2015-17 are seen in Koraput district, the per beneficiary expenditure shows Rs.1,20,144 and the per acre expenditure shows Rs.89 thousand for 2015-16 and Rs. 37 thousand for 2016-17.

6. The total area available for coffee plantations is 1,45,170 ha or 3,58,723 acres in Koraput district (and the selected eight blocks show 98 percent potential area). The policy formulators may have a fresh look over this area to open the new portals in the lives of the people of the district, especially native tribes who are in need of the alleviation of poverty. “Farm management should be guided by the famous quote "only change is permanent", (Jean Nicholas Wintgens, 2004).

7. The ‘Capacity Building Programmes' run by the Coffee Board are successful in the generation of the awareness in the farmers in the study districts along with the efforts of State Horticulture

Department(SHD) in Visakhapatnam district, whereas Koraput district does not report of any participation of the GoO, the SHD.

8. All the farmers from the study districts, especially marginal and small farmers of the study districts inform that the coffee cultivation has generated a good level of increase in net income, However, the security of the landholding has become a heart-burning problem to the tribal community in study districts. They want to have 'Permanent Landholding Rights' over the allotted land for the coffee plantation in both study districts.

9. It is high time that the CPDP was to be successful for the sake of indigenous tribes in particular and for the welfare of the whole district in general. Hence, it is better to arrange the mode of function to achieve the alleviation of poverty of tribals and the removal of ecological imbalance through the better coverage and extension of the CPDP in Koraput district.

7.4. Policy Measures:

1. **Single Nodal Agency in Koraput district for CPDP :**

   It is compatible **'***Single Nodal Agency in Koraput district'* for the successful and extensive long-run and effective governance without wastage, misdirection and non-execution of the CPDP in Koraput district and this hierarchy of administration is to be executed by the officer from 'All-India Services', instead of coordination of the five Departments of the GoO.

2. **A Single Platform Auction Hall in NTA:**

   A single Platform auction Hall in NTA is the basic redressal measure for the relieving from some of the market maladies of the coffee growers, as the national market centre, 'Hassan Market' is far distant nearly more than 1200 km. away. Hence, GoAP may arrange the building and other infrastructure to conduct the auction of the coffee produce by the Coffee Board. This auction hall could be provided either in Visakhapatnam or in Araku which is proximate to the coffee growing area of Odisha. Otherwise, GoO may provide the required infrastructure in Koraput for the same purpose to facilitate the auction activity by the Coffee Board.

3. **Authorised Market Controlling Agency:**

   The '*Authorised Market Controlling agency'* from the Department of Agricultural Marketing is to be arranged in the coffee growing area to observe the purchases of the middlemen or traders by the respective State Governments in Visakhapatnam and Koraput districts. It will certainly curtail the malpractices in the market: a) taking the extra weight, b) fixation of low price c) unwarranted and unreliable fixing of high moisture condition during the coffee produce purchase.

4. Authorised Marketing Mandies in NTA:

The *Authorised Marketing Mandies in NTA* are due for a long time since the tribal farmers are selling their products in the weekly shandies which are the places for the exploitation of the peasants through the several mismanagement and malpractices. Despite the GCC presence and its service in Visakhapatnam district, there have been the erratic methods in the shandies of the area. Therefore, the dependable system of shandy is need of the hour in the study districts to get a reasonable price to the cultivators in general and in particular the coffee growers in the study districts.

5. Wide Role of GCC in Coffee Market in Visakhapatnam district:

The GCC is to play a wide role in coffee market in the tribal area of Visakhapatnam district and it is still to rise in removing the coffee market imperfections. To achieve this: 1) covering all the tribal coffee growers 2) advances to the coffee growers at 70 percent of the farmer's produce (currently very limited), 3) functional integrity of some of the personnel 3) opening of the coffee purchasing shops in the weekly shandies to remove the distress sale of the farmers and the village level procuring especially in coffee plantation area to reduce the traders role and 4) online transactions for payments, price and quality fixation, 5) starting own curing unit, though expensive (Rs.15 crores around), to realise higher prices to the production and 6) dissemination of market information along with the generating of post-harvest production practices and quality awareness among the coffee growers.

6. Organic Certification Centre and Value Addition Training :

There is a demand for the organic certification centres, as there is a great deal of the organic produce taking place in the study districts. The Coffee Board may take the initiative in this direction and facilitate all the peasant community in both districts, and this will enable the coffee growers to get the premium prices for their organic production. It would be better for the value addition training and infrastructural support to the coffee growers, and this will enable the farmers to receive the additional income to their produce. Moreover, the geo indicator 'Araku Coffee' enhances certainly the organic certification and value addition endeavours of the coffee growers.

7.Mission Mode Intervention:

The coffee extension programme is lagging behind the requirement in Koraput district compared to Visakhapatnam district. It is highly essential to cover the vast potential area of 98 percent in the district, as the present programme and its past achievement (discussed earlier) entails the 'Mission Mode Intervention' in the execution of the CPDP. The GoO may look into the geospatial technique for the extension of the coffee programme and the removal of wastage and

red-tapism in the administration. It could be replicated the programme of the ITDA, Paderu, Visakhapatnam for the greater success in the district.

8. **Community Coffee Growing Counselling Centres:**

Majority of the coffee growers in the NTA are native tribes and hailing from the marginal and small landholding sizes and these lack of financial and the knowledge of the coffee growing. It would be better to establish 'Community Coffee Growing Counselling Centres' with the support of the local self-help groups in the villages to run them properly and for the optimum utilization of the centres. These centres may stand as the guiding sources in the vicinity of the coffee growing area for the pre and post-harvest practices and training programmes, arranging common pulping centres, average drying yards, guidance during the marketing of the produce. Already Kovel Foundation with the support of Rythu Sadhikara Santha (Famers' Empowerment Organisation), GoAP, has done through the establishment of these centres on the pilot basis in some villages in Visakhapatnam district and they got success in increasing the production at 33 percent through the Zero-Based Natural Farming Budget (ZBNFB).

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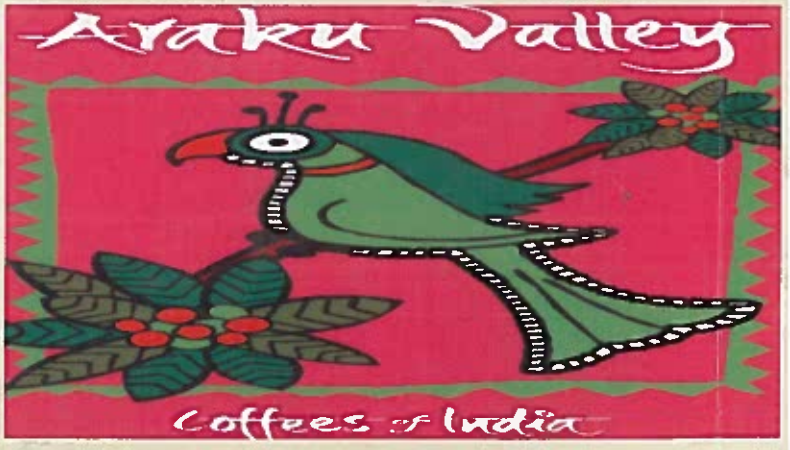

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