# A Review of the Factors Impacting Coffee Cultivators (Growers) and the use of Plantation Agriculture Schemes

**Namreen Asif V. A. [1] & Niyaz Panakaje [2]**

[1] Research Scholar, Institute of Management & Commerce, Srinivas University, Mangalore, India- 575001,
ORCID ID: 0000-0001-8533-4488; E-mail: namreenasif@gmail.com

[2] Associate Professor & Research Guide, Institute of Management & Commerce, Srinivas University, Mangalore, India- 575001,
ORCID ID: 0000-0003-4568; E-mail: niyaz0191@gmail.com

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**Namreen Asif V. A. [1] & Niyaz Panakaje [2]**

[1] Research Scholar, Institute of Management & Commerce, Srinivas University, Mangalore, India- 575001,

ORCID ID: 0000-0001-8533-4488; E-mail: namreenasif@gmail.com

[2] Associate Professor & Research Guide, Institute of Management & Commerce, Srinivas University, Mangalore, India- 575001,

ORCID ID: 0000-0003-4568; E-mail: niyaz0191@gmail.com

## ABSTRACT

**Purpose:** *The major plantation crop in India is coffee, which is also a wide application marketed product on the global market. The study's primary objective is to identify and investigate the factors influencing coffee growers and to comprehend the difficulties faced by coffee Cultivators (Planters/growers) in the cultivation of coffee. The sustainability idea places a value on maintaining productive rural systems, using and regulating farm resources, preserving biodiversity, and taking environmental steps to restore soil fertility also to comprehend the programs relating to the Coffee Board's activities, agricultural finance, financial institutions, and the Karnataka & Codagu Planters Association.*

**Design/Methodology/Approach:** *This review paper examines the review on coffee cultivators using secondary data from journal papers and scholarly research publications.*

**Results/ Findings:** *There are several challenges faced by coffee producers. The notion of sustainability focuses mostly on conventional agricultural practices for maintaining life, the use and maintenance of agricultural resources, the preservation of biodiversity, and ecological methods to restore soil fertility. Our research shows that there is an absence of information on the how, where, and why of various changes in land use and landscape, as well as how these changes may impact coffee production, farmer livelihoods, ecosystem services, and other facets of sustainable development. These changes could have positive or negative effects on the sustainability of the coffee industry. The farmer faced a number of problems. Due to the Coffee Board's monopoly over the buying and selling of coffee, producers did not be paid fairly.*

**Originality/Value:** *The focus of this research is to evaluate coffee Cultivators/ growers' access (Planters. List the initiatives that the Karnataka & Codagu Planters Association, financial institutions, the Coffee Board, agricultural financing, and several agricultural banks have implemented for coffee growers.*

**Type of Paper:** *Review of literature.*

**Keywords:** Coffee Agriculture**,** Coffee Cultivators (Planters/growers), Schemes, Sustainability, Strategies, ABCD Analysis.

## 1. INTRODUCTION :

Coffee has been a favourite beverage of humans for about a thousand years. Coffee is more widely consumed now than ever before. Despite the fact that growing coffee and drinking it are significant traditions in many cultures, coffee cultivation and harvesting have changed significantly since the days of colonialism. Every single espresso bean undergoes a meticulous and intricate process [1]. Coffee cultivation is the second most commercialized product in the world after oil and is produced in countries of the tropics [2]. Coffee is one of the most important commodity crops in the world and has been the main export of several nations for generations. In reality, coffee is the second-most widely traded legally in the world after petroleum [3].

Coffee is one of the most important commodities in terms of quantity and value in both local supply and international transactions. It is commercially categorized as an agricultural commodity. The

primary buyers are the industrialized nations, where there is a concentrated demand for coffee, and the primary suppliers are situated there [4]. In India, coffee production has long been a hot topic. To increase the sustainability of coffee production, an emphasis should be placed on improving coffee quality through sustainable, environmentally friendly cultivation practices, which can result in higher net returns in the long run [5]. India is becoming known around the world as one of the world's leading coffee producers. The top five coffee-producing states in India are listed below [6].

India is the world's leading coffee producer, ranking among the top ten worldwide [7]. India produces some of the world's best coffee, which is grown in the shade. With over 3 million coffee growers, coffee cultivation is a source of employment in India. In the fiscal year 2014-15, India produced 3.27 million metric tons of coffee. The economics of the coffee industry have changed in recent years, with international market prices falling [8].

Sustainable agricultural production depends on the appropriate management of natural resources while operating within the current socioeconomic framework. It is essential to integrate natural resources, capital resources, institutional resources, and human resources for sustainable agricultural growth (i.e. to optimally utilize the agricultural resources). Information technology (IT) has a significant impact on the rapid economic growth and social change in developing nations as an enabling technology. Information technology and biotechnology, which are "the drivers" of globalization due to their complementary features of liberalization, privatization, and stricter Intellectual Property Rights (IPR), are inescapably going to increase the risks of marginalization and vulnerability in the Indian agricultural sector [9]. The welfare of the country the economic and social well-being of coffee growers. Colombia n Coffee Growers' may look like a competent, alternative government or a big business with social sensibilities, it is still fundamentally an organization of smallholder farmers. It remains a striking example of what farmers can achieve by working together and should be considered as a model for all a coffee grower [10].

## 2. OBJECTIVES OF REVIEW PAPER :

(1) To evaluate and study the factors affecting Coffee Cultivators (Growers/Planters).
(2) To identify the challenges faced by the coffee growers (Cultivators).
(3) To study the integrated coffee development project (ICDP) subsidy scheme of the Coffee Board under the xii plan.
(4) To examine and evaluate methods to improve the agriculture credit to Coffee Growers.
(5) To define the research need/gap.

## 3. METHODOLOGY :

This review study examines the variables influencing coffee farmers and government initiatives using secondary data from reports from the Coffee Board, the Karnataka & Codagu Planters Association, the RBI, NABARD, journal articles, and academic research publications found through the Google Scholar search engine.

## 4. ORIGIN AND DISCOVERY OF COFFEE :

According to a legend, the story of coffee begins with its discovery in **Kaffa,** a region in today's Ethiopia. The unusually vivid and erratic behavior of his goats after consuming a certain type of fruit made the shepherd called **Kaldi** curious enough to research into the cause. His curiosity eventually led to the discovery of the stimulating effect of the coffee plant [11]. Known to us is that since the $11^{th}$ century people were using various parts of the coffee plant in different ways. They ate raw coffee berries, made liquid stock from green coffee beans and even processed it into an edible mixture with the help of animal fat [12].

Through slave traders, the very first coffee plants and the knowledge about their unique effect made their way from Ethiopia to Arabia and into the, at the time much larger, Arabic-speaking area around it. The Arabs started experimenting with exotic beans and quickly developed the oldest roasting culture in the world. Quickly coffee started to become more and more popular throughout the whole area [13].

The Arabs also became the first ones to ever cultivate coffee plants in the form of plantations in present-day Yemen. The center of the Arabic coffee monopoly was the nearby city of **al-Mukha**, also known as **Mocca**. Especially during the 16th century, coffee conquered the whole Arab Kingdom and the Ottoman Empire as a revitalizing and therefore popular alternative to the forbidden alcohol. The first opening of a real coffeehouse was documented in Mekka in 1511. Syria, Asia Minor, Egypt, and other regions followed shortly and coffeehouses became the lynchpin of social life. Until their prohibition in the late 16th century, friends, businessmen, and families of higher classes frequently visited the popular cafes.

Coffee has an almost 400-year history in India, dating back to the 17th century. Around 1670, coffee made its first appearance in India. BABA BUDAN, a guide who took a pilgrimage to Islamic holy sites, is credited with bringing the history of coffee to India. According to legend, an Indian traveler to Makkah, Baba Budan, returned to India with seven mystical raw coffee beans hidden in his beard from Yemen, a country located along the Arabian coast [14]. He smuggled even beans from Yemen to India (it was illegal to transport) At the time, he brought coffee seeds from Arabia and planted them in the Karnataka Chandragiri hills. Coffee became increasingly popular in this region, filling the air with blooms and fragrance. Though the origin is unknown, it is thought to have originated in India, near the Chandragiri highlands of the Chikmagalur district. This is where India's coffee industry began, and it is now part of the state of Karnataka [15] [16].

## 5. REVIEW OF LITERATURE/ RELATED WORKS :

The fundamental purpose of this research is to conduct a literature review. Reviewing the current literature is the primary goal of this research study. It helps in understanding and analyzing prior research efforts. The following descriptive and tabular format summarizes and discusses the contribution.

1. The natural properties of grown beans deriving from the environment and biological characteristics and the way the beans are handled from harvest to market delivery are the two key determinants of coffee quality. **Teketay, D. (1998). [17].**

2. This paper intends to analyze recent modifications of the coffee landscape via the optic of ‘place as process.’ As coffee became the most significant regional export crop, its ‘place’ altered. 3.1 million hectares of coffee-producing land are currently spreading across international borders. Coffee has fallen victim to intensification, sometimes known as technification, like many other agricultural systems. As a result, a traditional Agro-forest coffee system coexists with coffee fields that have undergone modernity. This process' institutional drivers and some of its social and ecological implications are explored. **Rice, R. A. (1999). [18].**

3. The existing research on income diversification and livelihoods mostly focuses on situational analysis supported by the presumptions of economic optimization on the side of decision-making families, disregarding the more comprehensive process of desensitization. Diversifying rural incomes brings a fresh, more recent dimension. the significance of distinguishing between the official, informal, and peasant sectors of the national economy, as well as the sustainability of rural livelihood initiatives now promoted by aid organizations. **Bryceson, D. F. (1999). [19].**

4. In this article, we examine how changes in legislation and the nation’s economic crises have affected localized agricultural systems and land-clearing methods. The main conclusions are that (1) the rate of deforestation increased significantly in the decade following the 1986 start of the crisis compared to the decade prior to the crisis, (2) the primary proximate causes of this change were sudden rural population growth and a shift from the production of cocoa and coffee to plantains and other food crops, and (3) the primary underlying causes were macroeconomic shocks and structural adjustment policies that led to rural population growth, **Sunderlin, W. D., (2000). [20].**

5. Sustainable agricultural production depends on the appropriate management of natural resources (soil, water, livestock, plant genetics, fisheries, forests, climate, rainfall, and terrain) while operating

within the current socioeconomic framework. It is essential to integrate natural resources, capital resources, institutional resources, and human resources for sustainable agricultural growth (i.e. to optimally utilize the agricultural resources). Information technology (IT) has a significant impact on the rapid economic growth and social change in developing nations as an enabling technology. Information technology and biotechnology, which are the drivers of globalization due to their complementary features of liberalization, privatization, and stricter Intellectual Property Rights (IPR), are inescapably going to increase the risks of marginalization and vulnerability in the Indian agricultural sector, **Moni, M. (2003). [21].**

6. This review describes the reasons for this quick expansion and investigates the consequences in ecological and social terms. Local institutional reforms in the eighties have accelerated coffee expansion in three ways: demographic resettlement, socio-economic liberalization and legislation towards land ownership. Unsustainable land use manifests itself at four levels. (i) The areal limits for sustainable coffee production have been exceeded. (ii) As a consequence, over 74% of the present coffee stand is situated on sub-optimal land units. (iii) An excessive coffee area in combination with over-irrigation is likely to deplete groundwater resources. (iv) And paradoxically 24.3% of suitable soils for coffee production is still under forest. In turn this leads to large-scale environmental and socio-economic decline: soil erosion, water scarcity and social inequity resulting in conflicts between migrants and the indigenous tribes. Besides local reforms, world trade liberalization changed the global coffee market in the late nineties from a regulated system to a free trade market, **D'haeze, D., (2005) [22].**

7. This study explores the nation's coffee business in the context of its producers, emphasizing most significantly the contribution made by small home growers as well as the problems and difficulties they encounter in the sector. It also chronicles the rise of coffee as a cash crop, among other things, current improvements in extension and brings out potential for government action to assure the future sustainability of the highlands coffee sector. Conceptually, the debate recognizes the centrality of relational economics and its tenets, particularly in light of views on the dual nature of labor, conceptions of coffee as a cash crop, and markets in connection to Indigenous farmers, **Imbun, B. Y. (2014). [23].**

8. The general review is to understand coffee production and marketing value chain system in revise coffee production and marketing value chain, volume of production, domestic and international marketing and consumption level. Factors causing low productivities are increasingly competing Khat, traditional agronomic practices, and shortage of specialized institution that provides extension support for coffee production. Low quality coffee supplied to the local market. While, price of coffee in the local market is usually higher than export prices and it has seasonal and auction market, and has poor fair-trade system, price Volatility which affects those who depend on it for their livelihood. The evaluation for sustainable production of coffee has four categories: Product quality, economic accountability, social responsibility, and environmental leadership in the supply chain. The approaches are Common denominator, Industry structure and social equity, Cost vs. benefits, Multiplicity of certification bodies, Supply and demand balance. It concluded that, coffee production, processing, marketing value chain needs its area-based production, quality, pre and post-harvest management practices, and gender sensitive which is women participation and to benefit them, and link the value chain actors in chain is very important, **Amamo, A. A. (2014). [28].**

9. The primary factor contributing to social profit inefficiency is sub-optimal resource and production level allocation. The nearest coffee factory/traders, the closest town/city center, and the frequency of drip irrigation are all statistically linked to social profit inefficiency, which is statistically linked to a variety of socio-economic factors and management techniques. If we are to increase farming sustainability, the sustainability of individual farms must be measured and connected to the characteristics of the farm and its management, **Gaitán-Cremaschi, D., (2018). [25].**

10.Swabi, S., & Kumar, P. A. An Empirical study on Socio–Economic Conditions of Tribal Coffee Plantation workers. The present study reveals that the „Socio-Economic Condition of Tribal Women Workers in coffee plantation. Major findings revealed that there were various drawbacks in the coffee plantation tribal women workers. The study is undertaken with some objectives i.e. Examine the socio-

economic condition of the coffee plantation tribal women workers and to analyze the role of coffee plantation authority, NGOs, and State Government as well a Union Government for socio-economic development of the coffee plantation tribal women workers. The paper based on both secondary data and primary data through field study. The primary data have been collected from selected coffee estates, coffee plantation worker colonies, and tribal villages, **Swabi, S., & Kumar (2018). [26]**

11.This study draws attention to the data on the causes, patterns, and effects of biophysical changes in coffee landscapes as well as outlining a thorough research plan. Developing policies, strategies, and incentives for sustainable coffee production requires a deeper understanding of the causes, patterns, and effects of changes in coffee landscapes. In order to preserve biodiversity, promote sustainable development, and support rural lives, Arabica coffee (Coffea arabica) must be grown. In this article, we examine the current level of information regarding the continuing biophysical changes in coffee-growing regions, consider potential socioeconomic and ecological effects. The significant land-use patterns that are posing a threat to the viability of coffee-growing regions. Among these trends are the widespread adoption of disease-resistant cultivars, the traditional intensification of coffee management through higher planting densities, greater use of agrochemicals, and less shade, the conversion of coffee to other agricultural land uses, the introduction of Robusta coffee (Coffea canephora) into areas not previously cultivated with coffee, the expansion of coffee into forested areas, the urbanization of coffee landscapes, and the rise in coffee production in emerging markets, **Chemura, A., (2021). [27].**

12.The present study is a descriptive analysis tries to focus upon the socio- economic conditions and the existing problems of these coffee plantation workers. The study would highlight the problems of these labours and the measures that government has taken for improving their conditions**. Reinecke, J., (2012).** [28].

13.The sustainability of coffee farming, we must be able to measure the sustainability of individual farms and relate this sustainability to the characteristics of the farm and its management. The main source of social profit inefficiency is the sub-optimal allocation of resources and levels of production. Statistical association between the set of socio-economic characteristics and management practices and social profit inefficiency shows that social profit inefficiency is increased (sustainability is decreased) by larger distances from the coffee farm to the closest town/city center and to the closest coffee factory/traders and by a high frequency of spraying. On the other hand, sustainability is increased when coffee producers belong to the ethnic group Jo Rai, when using more hired labor and frequency, and when there are a larger number of fertilizing and pruning activities. We conclude that social profit inefficiency can be used to summarize sustainability, **Winter, E., (2020 [29].**
14.In order to build strong and wealthy agricultural communities, one of the study's goals was to focus on the problem of coffee cultivation. Therefore, the goal of this study is to describe the socioeconomic traits of coffee farmers who have successfully adopted new technologies, to describe and explain the political factors of local government policies in forming social relations between the government, markets, and farmers, and to describe how the coffee commodity market is perceived by farmers. The findings demonstrate that as coffee growers' ages and incomes rise, so does their propensity to pick the intermediary sales route**, Afandi, M. F (2021). [30]**

15.This study looks at the socioeconomic variables affecting smallholder coffee output. Additionally, it evaluated how coffee prices affected yields and reinvestment. Access to sufficient financing, having a source of income from other businesses or work, and consulting extension agents were the explanatory factors that showed statistical significance. Additionally, it was shown that there is a significant positive correlation between price and the degree of reinvestment. This suggests that higher pricing promote investing in the coffee industry. This suggests that while pricing influences yields favorably, it may not always result in noticeably higher yields. Higher prices need to be supported by the three major variables in order to enhance yields considerably, **Minai, J.M., (2014). [31].**

16.This is to examine coffee producers' market preferences. The existence of local traders and the frequent economic transactions entwined with social relationships reveal the amount of coffee growers' sales to buying agents markets. There is a misinterpretation that formal institutions give coffee farmers

better access to markets, but the main problems are opportunistic behavior, inadequate market knowledge, traditional farming practices, and contract noncompliance, all of which have led to a decreased preference for the market of processors/exporters, **Hung Anh, N., (2019). [32].**

## 6. NEW RELATED ISSUES :

New and significant issues in relation to the research topic have been examined in tabular form. In order to better comprehend the development of the research in important areas, fifty significant academic research articles were analyzed.

**Challenges Faced by Coffee Growers:** The main plantation crop in India is coffee, which is also an extensively marketed product on the global market. However, coffee farmers encounter a variety of difficulties. The sustainability idea primarily addresses traditional agricultural methods for sustaining life, the use and management of farm resources, biodiversity preservation, and ecological strategies to restore soil fertility. [33] [34].

**Table 1:** Contributions from many academics on the challenges experienced by coffee growers.

| S. No | Field of Research | Focus | Outcome | Author/ Reference |
|---|---|---|---|---|
| 1. | Production and Harvesting. | Cost of Coffee Production | The grower dealt with several issues. The Coffee Board had a monopoly on the purchase and selling of coffee growers did not receive a fair price. Many farmers have been compelled to scale back or perhaps stop their agricultural activities as a result of the decline in coffee prices. To guarantee the producers access to high-quality inputs and efficient harvesting methods, the price of the produce was not changed in response to variations in the cost of production. | de Almeida, L. F. (2017). [35] |
| 2. | Sustainability Challenges | Biggest producers & exporters of Coffee. | Around the world, 25 to 30 million agriculture is dependent mostly on coffee production for their livelihood. The problem is how to produce coffee in environmentally sensitive areas that is productive and of high quality while also being highly influenced by a variety of economic conditions & agricultural factors. In this article, we examine a number of studies that are pertinent to a wide range of sustainability issues encountered by various players in the coffee production chain. | Velmurugan, K., (2017). [36] |
| 3. | Potential for exporting as well as dependence on income sources | Sales and marketing and also the agricultural schemes. | This article aims to evaluate the issues facing coffee producers in regards to sales and marketing, loan availability, spending, the cost of fertilizers, storage issues, coffee exports, weather and rainfall, etc. The present study found that the majority of coffee growers are struggling with operational costs, high intensity costs associated with coffee production, problems with selling and marketing coffee, and a preponderance of storage issues. The study found that coffee growers face many challenges in producing coffee and in remaining competitive in the market. Therefore, in order to solve their challenges, | Sunanda, H. S., (2014). [37] |

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| | | | coffee producers must be supported. In order to benefit society as a whole as well as coffee producers specifically. | |
| 4. | Coffee Production Industries problems | Pest illnesses, & fungus now pose a serious concern | In this article, we examine the most important issues affecting coffee growers globally. For many growers, pests, illnesses, and fungus now pose a serious concern. Coffee leaf rust (la roya) is one of the most famous diseases, and has been harming coffee plantations for over a century. The Arabica coffee species is now threatened by climate change, which is causing higher temperatures and changing patterns of rainfall. Arabica, Robusta, Excelsa, and Liberica are the four-primary species. Due coffee its fragrant flavors, Arabica is regarded as having the highest quality and commands higher pricing. Pests that previously couldn't live at the high elevations of Arabica fields are now able to flourish there. | Kueh, A. B. H. (2021). [38] |
| 5. | Reforestation & Afforestation | Increasing the distribution of improved and disease-resistant varieties | Despite its significance, the coffee industry faces a number of challenges, including: low productivity caused by an absence of improved varieties, diseases and pests, improper processing techniques, a lack of post-harvest handling, such as storage facilities, climate change, land degradation, and marketing. To varying extents, attempts have been undertaken to lessen these difficulties. | Shamil Alo-Sora S, (2021). [39] |
| 6. | Integrated Pest Management | coffee berry borer (CBB) are a lack of understanding regarding CBB management. | The biggest barriers that coffee producers encounter while attempting to build an integrated pest management program for coffee berry borer (CBB) are a lack of understanding regarding CBB management, a shortage of field personnel, and a high cost of labor and supplies. The prevalence of CBB makes it difficult for producers to maintain high standards of coffee quality. | Aristizábal., L. F. (2018). [40] |
| 7. | E-Marketing | Constrained by factors such as pricing, location, products, the buyer, and promotion | In addition to being a significant source of foreign cash, coffee helps the economy by creating local jobs and providing a means of income for coffee producers. In light of this, it can be said that coffee growers in Aceh are financially stable, but their spending is excessive due to the high expense of raising a family with an average of five children. Therefore, assistance is required to raise their revenue once more. In terms of coffee marketing, the farmers are constrained by factors such as pricing, location, products, the buyer, and promotion. | Kaido, B., (2019). [41] |

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| 8. | Fair-trade & Green coffee campaigns | To have success in the market | A good example is coffee, where the fair trade and certified organic movements are having success in the market. These movements each reflect a different sort of economic and social reorganization from the bottom up, utilizing and forging connections outside the conventional coffee trade and production borders. Small producer associations interested in these coffees confront difficult obstacles both inside and outside of their organizations. To further understand how these networks function in the dynamic agro-food complex, more research is required, particularly in situ fieldwork targeted at revealing the difficulties, advantages, conflicts, and triumphs. | Rice, R. A. (2001). [42] |
| 9. | Agri - business | The rise in demand and the producers' competition among the coffee-producing nations. | This article aimed to clarify present and future challenges for the coffee Agri chain, coffee Agri chain, taking into account the expanding demand as well as the producers competition.<br>The main challenges that each location, which enables the production of a broad variety of types and quality, will encounter in the future. Increasing complexity in coffee farming, farm succession, mechanization, increased use of pesticides, climate change, consumer behavior, and risk management in the coffee Agri chain are just a few of the new drivers of change that the study consolidated and which have a direct impact on business strategies and governmental policies. | de Almeida, L. F., (2017). [43] |
| 10. | Situating climate change | The ideationalizing of adaptive techniques | In order to handle their risk from rainfall, coffee producers have two options: irrigation (sprinkler and rain guns) and rainfall insurance. This article addresses this topic using a case study of coffee growers in particular and focuses on these two options. This paper also examines how farmers decide whether to invest in insurance and irrigation and shows that, even though rainfall variability is a major concern for farmers, investing in neither of the two approaches (insurance and rain-gun irrigation) or only in sprinkler irrigation continues to be the most popular choice. | Ogra, A. (2022). [44] |
| 11. | Coffee Price Fluctuations & Marketing Co-Operatives | Sustainability of agricultural marketing cooperatives | Farmers who are involved in the production and selling of coffee have major implications due to the problem of changing coffee prices as well as the viability of agricultural marketing cooperatives. This review looks at the pricing methods utilized | Sambuo, D., (2017). [45] |

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| | | has serious implication. | and how they affected the sustainability of coffee cultivation in order to evaluate the sustainability of Agricultural Marketing Cooperatives. It has also been demonstrated that the primary obstacles to both sustainability and price change in the coffee industry are access to extension services, pests and illnesses that affect coffee, unstable coffee markets, a lack of farm inputs, and their delayed availability. | |
| 12. | Marketing challenges | To market the product and & economically depend on the income. | This paper reviews Coffee producers face many challenges like nature fury, no proper rains, labour problems, and marketing challenges. The demand for coffee also varies from year to year, and it is dependent on global prices too. The farmers work very hard and finally has to face challenges for marketing produce. It focuses on the marketing challenges and its support from coffee board and other sources in order to market the product and economically depend on the income. | Akkamma KK (2018). [46] |
| 13. | Technology Transfer and Adoption | The adoption and horizontal dissemination or transfer of improved technologies by coffee farms. | This paper reviews small-scale farmers have been and are still being the major coffee producers followed by state owned farms-Coffee Plantation Development Enterprise (CPDE). In recent years, however, largescale private commercial coffee farms are emerging in major coffee growing regions of the country. In this regard, most of these farms manage their plantation depending mainly on technologies developed. This paper, therefore, discusses the adoption and horizontal dissemination or transfer of improved technologies by large-scale private coffee farms. | Box, C. L. P., (2008). [47] |
| 14. | Sustainable coffee supply chain management | Deforestation and soil degradation that have led to decrease in the quality of coffee beans. | This paper aims to analyze and discuss the evolution towards sustainable coffee supply chain and its management. The sector is facing enormous challenges as the current farming methods and processing infrastructure have been unsustainable resulting in many catastrophic impacts on the environment such as deforestation and soil degradation that have the potential to lead to a decrease in the quality of coffee beans. This study confirms that although productivity is high, and farmers have positive experiences in this sector, sustainability issues are emerging. For instance, the farmers have experienced soil erosion and a lack of water and as such are now more willing to incorporate | Nguyen, G. N., (2018). [48] |

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| | | | sustainability initiatives in their production and processing. | |
| 15. | Coffee cultivation techniques, | Molecular approaches for coffee crop improvement & facing challenges. | The present review briefly discusses the coffee cultivation techniques, impact of climate changes on coffee production, processing techniques of coffee, and the importance of coffee in our society, including its chemical composition and prevention against, major diseases. Furthermore, the importance and role of advanced nanotechnology along with molecular approaches for coffee crop improvement and facing challenges are explained. | Naik, B. J., (2021). [49] |
| 16. | Industry problems, | Migration of youth | The study aims at problems faced in coffee industry on the basis of migration of youth. The study found that youngsters choosing coffee plantation as career can bring about major development in the coffee industry that increases the growth of economy in Coorg. | KM, K. D., (2018). [50] |
| 17. | Water efficiency | Sustainability challenges of using water efficiently during coffee production | India has risen as the seventh biggest coffee producer internationally. This study investigates the sustainability challenges of using water efficiently during coffee production in India. The production of coffee uses considerable quantities of water and can adversely affect areas where water is scarce. A challenge facing the community in developing countries is the inevitable increase in urbanization and population growth and the increase in the water needed to sustain the population. The present research explores the possibility of the role the Dutch importers, Government and NGO's play in influencing a more sustainable and improved coffee trade and the role they can play for an Indian farmer to reduce water use. In this thesis, we analyses current practices and address the challenges faced with respect to the water footprint of coffee. We also examine socio-economic issues, like availability of water in India and its use in the production of coffee. | Dsouza, S. (2019). [51] |
| 18. | Technical Efficiency | TE provides quantifying & comparing the performance of farmer, which contribute in making proper | The increase in agricultural productivity is not only determined by technological adoption but also farmers' technical efficiency improvement. Technical efficiency denotes the producers capability to achieve the maximum output using the existing factor of production. Hence, technical efficiency improvements in agriculture seems to be more advantageous. technical efficiency provides a way of | Ngango, J. (2018). [52] |

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| | | management decisions. | quantifying and comparing the performance of each farmer, which can contribute in both making proper management decisions at farmer level and assisting policymakers to formulate pertinent policies of improving productivity. | |
| 19. | Effects of Climate Change | To focus on discovering climate change adaptation strategies. | Climate change has emerged in recent years as one of the most critical topics. Global and regional climate change impacts analysis show that the impacts of climate change on climate suitability of Arabica coffee would be very variable at both the national and global levels. Climate change will have different impacts and producers will have different vulnerabilities at small scales in the mountains where Arabica coffee grown in some countries, will lose competitiveness on global markets for quality coffee. They have to diversify into other products to prevent adverse effects on their rural economies generally, further research has to focus on discovering climate change adaptation strategies feasible for smallholder producers for practically implement. | Merga, W., (2019). [53] |
| 20. | Risk mitigation strategies | To promote crop diversificatio n by the existing Boards. | In this context, the paper analyses various risks among the small coffee growers. The risks that are analyzed are classified into farm risk arising due to threat to yield, rising cost of inputs, lack of irrigation and extension services and marketing risks arising due to volatility of prices and the buyer driven supply chain; policy risks arising due to taxation and other regulatory barriers. The other way to minimize risk would be to promote crop diversification by the existing Boards. It is therefore, important to promote diversification of crops at farm level. Attempts made to address crop related issues by Coffee Board, Spice Board and horticulture department hardly encourages diversification. It is essential that these Boards work in tandem to promote diversification of crops in the region looking into the problems of farmers in totality. | Deepika, M., (2021). [54] |

## 7. INTEGRATED COFFEE DEVELOPMENT PROJECT (ICDP) SUBSIDY SCHEME OF THE COFFEE BOARD UNDER THE XII PLAN :

The government has also proposed to repeal the decades old laws on tea, spices and rubber, and introduce new legislations in order to increase the ease of doing business and promote the development of these sectors. [55]

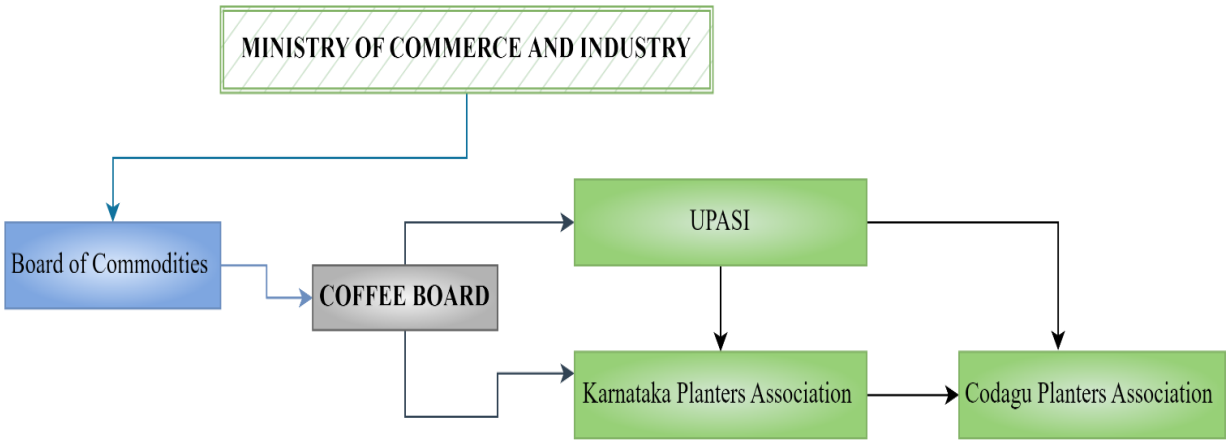


**Fig. 1:** Apex Plantation Decision Making Body of India

**Source:** Compiled by Author

### 7.1 The origin of the Coffee Act, 1942

The Indian coffee industry was dealing with serious issues in the 1930s, including extensive damage from pests and illnesses as well as the Great Depressions effects on the world economy. The government approved the Coffee Cess Act (XIV of 1935) and created the first Indian Cess Committee in November 1935 to encourage the sale of coffee and boost domestic and international coffee consumption as a result of the enormous losses experienced by coffee growers. The start of World War II only made these issues from the 1930s worse because of the significant drop in coffee prices brought on by poor demand and the loss of international markets. The government established the Coffee Board through the enactment of the Coffee Act, 1942, under the supervision of the Ministry of Commerce and Industry since the Cess Committee was unable to address the crisis the industry was experiencing. The Act's main goal was to make provisions for the expansion of the coffee market. The Board was responsible with assisting the sector in marketing, consumer promotion, financing, and research and development.

The Government of India has conveyed its approval for the Coffee Board's Scheme "Integrated Coffee Development Project" for implementation during the XII Five Year Plan (2012-2017), vide Letter No. 04/01/2013-Plant-B dated 18.12.2014. The scheme has the following 10 components covering the broad areas of Coffee Board's operations viz., Research, Extension, development support, market development, export promotion and value addition. [56].

Component-1: Research & Development for Sustainable Coffee Production
Component-2: Transfer of Technology and Capacity Building programmes
Component-3: Development Support for Coffee in Traditional Areas
Component-4: Coffee Development Programme (CDP) in Non-traditional Areas
Component-5: Coffee Development Programme (CDP) in North East Region
Component-6: Rainfall Insurance Scheme for Coffee (RISC)
Component-7: Support for Mechanization of Coffee Estate Operations
Component-8: Export Promotion
Component-9: Market Development
Component-10: Support for Value Addition

**Table 2:** The "Integrated Coffee Development Project" scheme of the Coffee Board has received clearance from the Indian government for execution during the XII Five Year Plan.

| S. No. | Schemes | Objective |
|---|---|---|
| 1. | **Replantation** | To improve the supporting the replanting of old, senile, and unproductive plantations will help increase coffee farms output and productivity. |
| 2. | **Quality Up-gradation – Eco Pulpers** | To provide eco pulper aids in lowering the quantity of water needed during the coffee pulping procedure. The system eliminates the |

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| | | brewing phase of the coffee processing, cutting down on water usage and processing time by a week. |
| 3. | **Water Augmentation:** | To increase the production of coffee crops by supporting the development of irrigation infrastructure |
| 4. | **Quality Up gradation** | To extend incentives to coffee holdings for creation of infrastructure facilities for production of quality coffee. |
| 5. | **Support for Mechanization of Coffee Estate Operations** | To provide producers with financial incentives to mechanize farm operations in order to boost labor productivity and to facilitate timely cultural operations, ultimately enhancing overall farm productivity and the sustainability of coffee growing. |
| 6. | **Eco Certification:** | To inspire coffee farmers to produce eco-certified coffees in order to increase earnings on their investments and their access to high-end specialty markets. |
| 7. | **Interest subsidy** | To offer interest subsidies on working capital loans to coffee producers in order to make their businesses profitable. During the XII plan period, the total expenditure for the interest subsidy scheme shouldn't be more than Rs. 30 crores. |
| 8. | **Rainfall Insurance Scheme** | To enable coffee producers who are expected to experience unfavorable rainfall incidence appropriate risk management assistance. |
| 9. | **Export promotion** | By expanding the market share of value-added coffees and high value differentiated coffees in significant high value foreign markets, the strategy seeks to maximize export revenues. |
| 10. | **Support for coffee curing works** | The use of upgraded technologies in coffee processing during the curing stage is intended to increase product quality, accomplish value addition, and efficiency. It also aims to close the talent gap and boost consistency during processes like color sorting, grading, and drying, among others. |
| 11. | **Support to Roasting & Grinding units** | To improve coffee product quality and add value via the use of new roasting, grinding, and packaging technologies. This will increase domestic coffee consumption and encourage business ventures in the coffee industry, particularly in non-traditional locations. |
| 12. | **Subsidy for Gap / Vacancy Filling** | The total number of gaps or vacancies filled, subject to a minimum of 25% of vacancies, in a specific estate should be translated to area by taking into account the current spacing as shown in that block, and subsidies shall be computed and paid in accordance with the XII plans guidelines. Replanting is a sub-component of the Development Support for Traditional Areas component. |

***COFFEE BOARD (2021)***

**Source:** Compiled by Author [57]

The substantial part of the Coffee Act, 1942, which deals with pooling and marketing of the commodity, has reportedly become redundant/inoperative, according to the draft Coffee (Promotion and Development) Bill, 2022, which was originally revealed in January of this year. With fewer government limitations, the new policy is now largely focused on boosting the sale and consumption of Indian coffee, including through e-commerce platforms [58]. Further economic, scientific, and technological research is also encouraged in order to bring the Indian coffee sector into compliance with global best practices. Exporters will continue to need a certificate from the statutory authority even if the Coffee Board still has a limited amount of influence over marketing [59] [60].

**Table 3:** Contributions from many academics Integrated Coffee Development Project.

| S. No. | Field of research | Focus | Outcome of the Research | Author/ Reference |
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|---|---|---|---|---|
| 1. | Replantation | Planting selected superior seeds for the resistance to pests & diseases. | This papers reviews that replanting and improved management together can boost output. When replanting, it's important to choose excellent seed with a high production potential and pest and disease resistance. By regularly cutting the main branches of trees and managing pests, diseases, and weeds, plantations may be kept from growing too tall and becoming difficult to harvest. | Amaral, F. E. (2003). [61] |
| 2 | Quality Up-gradation – Eco Pulpers | The newly developed coffee processing methods. | The purpose of the study is to compare the impact of conventional and novel coffee processing techniques on the fatty acid profiles and biochemical elements of two coffee cultivars. The methods varied on the mode of removal and pulping techniques. | Koskei, R. K., (2020). [62] |
| 3 | Water Augmentation: | The types of irrigation methods. | This paper reviews on many coffee plantations, the availability of water resources and the purchase and installation of irrigation accessories provide significant challenges. For coffee farms, the necessity for irrigation systems (sprinkler/drip) and the hunt for water sources are major issues. | Velmouroug ane, K., (2017). [63] |
| 4 | Quality Up gradation | It focusses on quality in coffee | This articles focus is on customers perceptions of the inherent quality of coffee from a sensory-scientific and behavioral-economics standpoint. A multi-dimensional notion, food quality includes both objective and subjective elements. Quality as defined by the industry typically relies on various instrumental evaluations and expert assessments, which may not always match how customers perceive quality. | Rao, G. P.(2008). [64] |
| 5 | Support for Mechanization of Coffee Estate Operations | Another innovative way of supporting growers in creating environment & sustainable practices. | This article reviews the making incentive structures for environmental protection and the adoption of sustainable practices would be another creative method to assist small farms. The burden of the growing cost of production would be lessened by providing subsidies at the input level for conservation. Small producers have a great desire to connect MGNREG with some of the plantation operations (at least for tiny and small growers) in order to reduce the cost of labor. A fair and transparent connection between MGNREG and plantation activities may be made by gram sabhas and village panchayats. | Martins, P. C. C., (2012). [65] |

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| 6 | Eco certification | It focusses on socio-economic outcome outcomes to documents issuing land use, land rights etc. | This paper reviews Studies on certification in the coffee industry are growing in size and breadth. They frequently emphasize its socioeconomic results to illustrate how smallholder farmers in poor nations gain. | Jena, P. R., (2022). [66] |
| 7 | Interest subsidy | Government incentives are offered with the goal of attracting young people into the agricultural industry. | This paper reviews the farmers motivation in working in agriculture was influenced by a number of variables, including the tenure of their property and the potential financial rewards. The policies necessary to ensure youth participation in agriculture must not only take the form of incentives, but also encompass a broader rural industrialization strategy that emphasizes the growth of rural agro-industry, innovation, investment, infrastructure, and the reinforcement of agricultural institutions from upstream to downstream. | Susilowati, S. H. (2014). [67] |
| 8 | Rainfall Insurance Scheme | It focuses on how insurance and rain-gun irrigation are changing how producers interact with precipitation. | This article addresses this issue using the particular case study of coffee farmers and focuses on two measures that may be used to reduce their risk from rainfall: irrigation (sprinkler and rain guns), and rainfall insurance. The article makes the argument that insurance and rain-gun irrigation change how producers interact with precipitation. | Ogra, A. (2022). [68] |
| 9 | Export promotion | It focuses on examining how the export scenario for coffee relates to price risks and the integration of the coffee market with global prices. | This study intends to investigate how the integration of the coffee market and price risks connect to the export scenario for coffee. According to the report, the nations where Indonesian coffee is exported have a broad economic development. | Fitriani, F., (2021). [69] |
| 10 | Support for coffee curing works | The operational costs associated with producing estimation of the price differential between coffee producers at the farm gate and exporters. | This article reviews Over 75% of the country's yearly coffee output is exported to other countries throughout the world, making it a commodity that is predominantly focused on export. The study’s findings show that the coffee value chain has a significant price spread (34,147 per ton) because small coffee growers are unable to ship their products directly to export markets due to a variety of obstacles, including low bargaining power brought on by fragmented production, a lack of knowledge about international trade, a lack of capital, and informational | Babu, B. N., (2019). [70] |

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| | | | barriers. The study's findings also suggest that there is a significant opportunity for coffee producers to increase their gross income by moving up the value chain. The survey also emphasized the steps the Coffee Board has taken to help small coffee farmers advance along the value chain. | |
| 11 | Support to Roasting & Grinding units | It focusses to improve the general quality and profitability of coffee beans. | This article reviews the lack of readily accessible roasters, which results in green beans being sold without being tasted, prevents smallholder farmers from having a shared understanding of how various processing quality control procedures might alter the flavor of coffee. Providing this feasibility study in collaboration with our clients will assist to confirm that offering a budget-friendly roaster as well as instructional seminars to help farmers understand their product would be advantageous in raising the overall quality and profitability of coffee beans. | Corado, T., (2019). [71] |

## 8. AGRICULTURE SCHEME FOR COFFEE CULTIVATORS (COFFEE PLANTERS/GROWERS) :

Since independence, India's agricultural industry has seen significant economic policy changes. The reforms and ensuing policy changes are primarily focused on the growth rate of agricultural output, food security, nutrition, regional fairness, price stability, farm income, and the effects on trade. Here is a quick discussion of some recent initiatives taken by the Indian government to improve sectors profitability and sustainability. [72] The scheme aims to maximize export earnings by enhancing the market share of value-added coffees and high-value differentiated coffees in important high-value international markets [73]. The agricultural marketing industry needs to get more attention in order to transform this into greater compensation for the producers. The agriculture marketing industry has to be developed of the supply chain by making infrastructure investments for agricultural produce value addition, post-harvest loss reduction, etc. [74].

**Table 4:** Various Agriculture scheme for Farmers (Coffee Planters).

| S. No. | Area | Contribution | Author/ Reference |
|---|---|---|---|
| 1. | Kisan Credit Card (KCC) | The alternative strategies that either lower the financial risks connected to the production and selling processes at the farmer level or strategies that transfer all of the farmers financial risk to the other value chain participants. Methods like contract-based finance and cascade financing raise the likelihood of company success while lowering the danger of farmers businesses failing. By lowering the danger of default and boosting each farmer's creditworthiness, joint liability group financing boosts the ability of farmers to take on financial risk. Access to financial services for small farmers is made easier via interdependence finance. The financial risk borne by the farmers is transferred to the other value chain participants through indirect supplier financing. | Patil, S., (2016). [75] |

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| 2. | Gramin Bhandaran Yojana | The Gramin Bhandaran Yojna or rural Godown Scheme, which was launched in 2001–2002, is one of the actions the Indian government has made to improve the agriculture industry. The main objective of the program is to give a loan as financial assistance to a person or an organization so they may construct and maintain a godown. Farmers may store their harvest in godowns for a certain period of time thanks to this capital-intensive enterprise. The amount of money set aside to subsidize the building and maintenance of godowns, as well as the number of godowns built and repaired in the Nagpur region, serve as indicators of the strategy's effectiveness. Statistical methods such as mean and others were used to assess the scheme's effect. According to a research, the number of godowns has somewhat increased over time. | Navghare, M., (2022). [76]. |
| 3. | Pradhan Mantri Krishi Sinchayee Yojana (PMKSY) | To prevent losses, water must be provided to the root zone. Since there are several losses during delivery, it is crucial to adopt a distribution method that increases efficiency. Efforts were made to apply water in a way that would yield the most production. It has been determined when, when, and how water should be administered. Effective water management for horticultural crops in particular, adopting well-designed systems is essential to maintaining output and product quality. Crop loss results from applying water when stress is required, and fruit yield and quality suffer greatly when there is a water shortage during the active growth phase or fruit development phases. In order to achieve maximum efficiency and production, it is crucial to manage the water, which tells when, when, and how. So, it is necessary to schedule according to plant water balance while taking into account the soil and climate. | Wani, S. P (2016). [77] |
| 4. | Paramparagat Krishi Vikas Yojana (PKVY) | Under the officially subsidized Paramparagat Krishi Vikas Yojana program, the Indian government promotes organic farming (PKKVY). Given the rising expenses and increased losses brought on by climate change, abnormalities in rainfall, and extreme climatic events like floods and droughts, organic farming has become more and more significant in India. The advantages and disadvantages of utilizing GMO (genetically modified) crops on a larger scale. As a result, there was more capacity for rising demand for organic farming. | Reddy, A. (2018). [78] |
| 5. | Pradhan Mantri Kisan Samman Nidhi (PM-KISAN) | India has 1.38 billion population and more than half of the populace are engaged in agriculture for their employment. To meet financial requirement of farmers to procure inputs for better crop health and productivity, Indian Government has launched Pradhan Mantri Kisan Samman Nidhi (PM-KISAN) scheme in 2018. This review aims to study the implementation goals and benefits provided to the farmers under the Pradhan Mantri Kisan Samman Nidhi (PM-KISAN) scheme. All marginal and small landowners involved in agriculture and farm operations benefited from the scheme, as they are supported with Rs. 6000 per year to cover their agricultural needs. Interestingly, there is approximately 28.73% hike in the number of farmers | Acharya Balkrishna. , (2021). [79] |

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| | | benefitted under this scheme from 2018 to 2021-2022, and an amount of about Rs. 22,000 crores have been successfully transferred to the farmers' bank account during Covid-19 lockdown. In addition, Rs 75,000 crores were distributed directly till August, 2020 without any commission to middlemen. The scheme proved to be a boon to the farmers and it should continue with the same pace.<br>India has 1.38 billion population and more than half of the populace are engaged in agriculture for their employment. To meet financial requirement of farmers to procure inputs for better crop health and productivity, Indian Government has launched Pradhan Mantri Kisan Samman Nidhi (PM-KISAN) scheme in 2018. This review aims to study the implementation goals and benefits provided to the farmers under the Pradhan Mantri Kisan Samman Nidhi (PM-KISAN) scheme. All marginal and small landowners involved in agriculture and farm operations benefited from the scheme, as they are supported with Rs. 6000 per year to cover their agricultural needs. Interestingly, there is approximately 28.73% hike in the number of farmers benefitted under this scheme from 2018 to 2021-2022, and an amount of about Rs. 22,000 crores have been successfully transferred to the farmers' bank account during Covid-19 lockdown. In addition, Rs 75,000 crores were distributed directly till August, 2020 without any commission to middlemen. The scheme proved to be a boon to the farmers and it should continue with the same pace.<br>The Pradhan Mantri Kisan Samman Nidhi (PM-KISAN) schemes implementation goals and benefits to farmers are the subject of this evaluation. India has a population of 1.38 billion people, and more than half of them work in agriculture. The Indian government introduced the Pradhan Mantri Kisan Samman Nidhi (PM-KISAN) initiative in 2018 to address the financial needs of farmers to purchase inputs for enhanced crop health and production. The program helped all marginal and small landowners engaged in agriculture and farm operations by providing them with assistance to meet their agricultural demands. Interestingly, there is about increase in the number of farmers benefitting under this plan. The plan worked out well for the farmers, and it should proceed at the same rate. | |
| 6. | e-NAM National Agriculture Market | Aiming to assist farmers, dealers, and buyers with online trading and obtaining a better price through efficient marketing, E-NAM (National Agriculture Market) is an online trading platform for agricultural produce. | Global Coffee Market: Socio-economic and Cultural Dynamics**.** (2018). [80] |

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| 7. | National Mission for Sustainable Agriculture (NMSA) | The National Mission for Sustainable Agriculture is described in this article (NMSA) focuses The Prime Minister inaugurated eight missions as part of the National Climate Change Action Plan, the National Mission for Sustainable Agriculture (NMSA) being one of them (NAPCC). Changes in agricultural techniques have a significant role in reducing the consequences of climate change. By putting an emphasis on integrated farming, effective water management, controlling soil health, and coordinating resource conservation, the National Mission for Sustainable Agriculture seeks to boost agricultural production, particularly in rainfed regions. | National Mission for Sustainable Agriculture (2019). [81] |
| 8. | Pradhan Mantri Fasal Bima Yojana (PMFBY) | The bulk of the population relies on agriculture for their living, and because India is one of the nation's most vulnerable to natural disasters, crop insurance is significant there. In order to provide a viable plan for India, an effort has been undertaken to comprehend and evaluate the effective execution of the Prime Minister Fasal Bima Yojana (PMFBY) in the Madhya Pradesh area of Datia. The necessary data was gleaned from the Department of Agriculture, the Collector's office, and private insurance companies to comprehend the problems with the crop insurance programs' operation. By instilling trust in the farmers and organizing the whole District Administrative Staff, they were able to achieve this feat. | Gujji, B., & Darekar, A. (2018). [82] |
| 9. | PM KUSUM | The Pradhan Mantri Kisan Urja Surakshaevam Utthaan Mahabhiyan Yojana, often known as PM KUSUM Yojana, was introduced by the Indian government in March 2019. The Pradhan Mantri Kisan Urja Surakshaevam Utthaan Mahabhiyan Yojana provides financial assistance to farmers for the installation of solar irrigation pumps. In order to build up tube wells and pump sets separately, farmers will receive a 60% subsidy. We shall highlight the PM KUSUM Yojana's goals, traits, eligibility requirements, and advantages in this post. | PM KUSUM Yojana. (2019). [83] |

## 9. FINANCIAL INSTITUTION :

India's agricultural financial institutions were created with the intention of lending money to struggling farmers and giving them access to resources that would boost agricultural productivity. NABARD was thus established in 1982. In India, NABARD has taken the place of three banks in the agriculture sector. ACD and Agricultural Refinance and Development Corporation, or ARDC, are other names for the agricultural credit division's rural planning and credit cell (RPCC). Earlier, the development of India's agriculture sector was the responsibility of several agencies [84] [85].

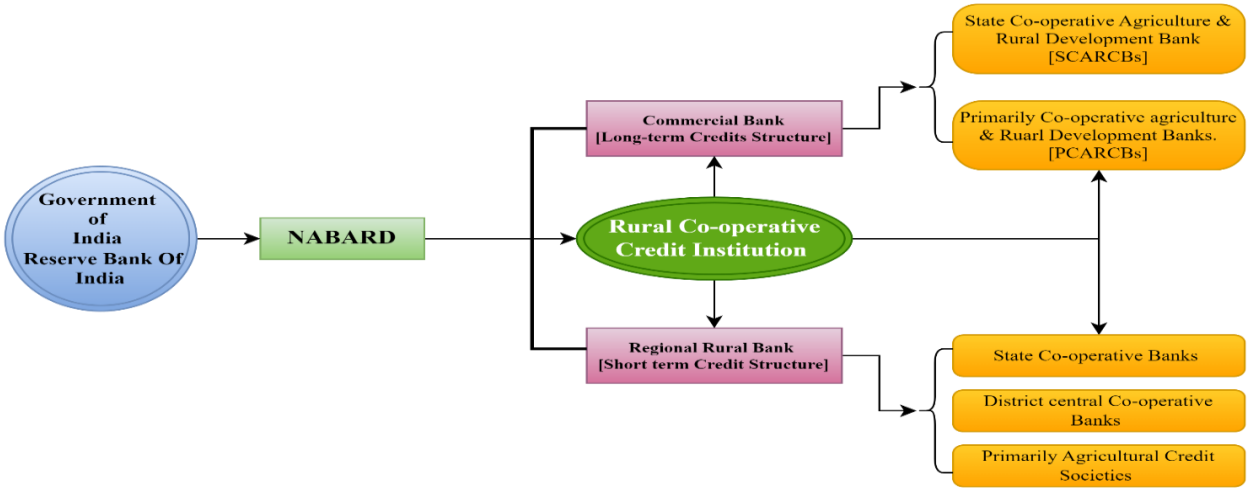


**Fig. 2:** Structure of Co-operative Credit Institution

**Source:** Compiled by Author

**Table 5:** Contribution by different authors on Cooperative Credit Institution.

| S. No. | Field of Research | Focus | Outcome of the Research | Reference |
|---|---|---|---|---|
| 1. | Government of India Reserved Bank of India | NABARD | A substantial portion of India's population depends on the agricultural industry, which is the foundation of the Indian economy. The role of rural infrastructure in improving the socioeconomic standing of rural residents through higher income and lifestyle standards the goal of economic planning cannot be accomplished without the growth of the rural sector. On July 12, 1982, the Indian government founded NABARD as a premier organization in this situation. It was created in order to devote all of its attention to the growth of the rural sector by lending money to institutions like RRBs, cooperative banks, commercial banks, and other financial institutions, as well as performing other supervisory duties. The current analysis sheds light on the numerous financial measures NABARD has made for rural and agricultural development. | Mirza, A. [86] |
| 2. | Rural Co-operative Credit Institutions | Long- term & Short- term credit structure for agriculture farmers (planters) | In India, the primary institutions in charge of guaranteeing credit flow to the agricultural sector are the rural cooperative banks (RCBs). Both short-term and long-term cooperative credit systems are included in it. | Rural cooperative banks [87] |
| 3. | Commercial bank | Rural agriculture banks for agriculture coffee growers | This study review looked on smallholder farmers' knowledge of service quality and satisfaction with the commercial banking industry. The paper modified the psychometrically verified SERVQUAL model, which considers tangibles, | Agholor, I. A. (2020). [88] |

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| | | | empathy, responsiveness, reliability, and assurance to gauge the degree of service quality and satisfaction among smallholder farmers. Findings show that the perceived level of service quality is higher the closer the perception score is to the expectation score. | |
| 4. | Commercial bank | State co-operative Agriculture & rural development bank. [SCARCBs] | According to the study's findings, bank managers had more favorable opinions of The GSCARD Bank with regard to loan approval and disbursement, addressing customer demands, giving rebates and incentives to borrowers, and supporting branches. They have demonstrated lower levels of awareness of the cost of stamp duties, the rate of interest, the state of the market, the necessity for personnel, and the competition, all of which the GSCARD bank may further research and make strategic decisions regarding. | Adebayo, o. (2017). [89] |
| 5. | Commercial bank | Primarily Co-operative agriculture & rural Development Banks. [PCARCBs] | Agriculture has to be modernized and improved, which will require significant investment cash. Credit is therefore a crucial agricultural input. Modern technology adoption requires additional money, highlighting the need of cost management for agricultural lending institutions' survival. Thus, the current study's major focus is on the cost of lending, profit, and loss of rural development banks (PCARDBs). The finding suggested that PCARDB administration costs had steadily increased over time. The loss-making PCARDBs also grew in number. Therefore, it is necessary to increase profit while simultaneously lowering management costs. underlines the necessity of giving PCARDBs authority over loan approval in order to prevent delays in PCARDBs' loan approval process. It is believed that efforts must be made to improve public awareness of marginal and small farmers, not by lowering credit rates. | Siddaiah, R., Ahmed, T., (201). [90] |
| 6. | Regional Rural Bank [RRB] | Rural Credit Market, | Regional Rural Banks were founded in accordance with the RRB Act and the requirements of an ordinance issued on September 26, 1975. The goal of this article is to determine if the 2005–2006 merger or amalgamation of Regional Rural Banks in India has improved their performance. It has been highlighted by several committees that these banks, which are significant players in India's rural loan | Ibrahim, M. S. (2010). [91] |

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| | | | sector, must perform better. The study uses secondary data and is exploratory and diagnostic in nature. The study shows that the government-initiated merger process has greatly improved the performance of rural banks in India. | |
| 7. | Regional Rural Bank [RRB] | State cooperative Banks | The foundation of the Indian financial system is its banks. In our nation, scheduled commercial banks (SCBs) and cooperative banks make up the majority of the banking industry. After banks were nationalized, the banking industry in the nation underwent rapid upheaval. By bringing a significant number of small depositors and borrowers into the formal financial system, cooperative banks work in conjunction with commercial banks to further financial intermediation. The purpose of this article is to use three financial ratios to compare the status of State Cooperative Banks (StCBs) and Scheduled Commercial Banks (SCBs). During the research period, StCBs' cash-deposit ratio was higher than SCBs'. Additionally, StCBs' Investment-Deposit Ratio has consistently outperformed SCBs' throughout the same time span. The study finds substantial differences between SCBs and StCBs based on these chosen ratios across the reference period. | Hooda, V. (2011). [92] |
| 8. | Regional Rural Bank [RRB] | District Central cooperative Banks | This study's primary goal is to investigate how much District Central Co-operative Banks cost (DCCBs). This is looked at in terms of economies of scope, economies of scale, and cost complementarities of joint production. Due to the nature of their banking activities, DCCBs behave differently from commercial banks in terms of cost structure and behavior. Members of these institutions, such as primary co-operative societies, individuals, and other institutions, control the loan portfolios of these banks. They also serve as their primary depositors and consumers of the credit that has been extended to them. They mostly serve the financial surpluses and shortfalls in rural areas. However, the sustainability of these institutions is crucial for agricultural prosperity in general as well as for the creation of co-operative institutions that they serve in the future. | Namboodiri, N. V. (2001). [93] |

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|---|---|---|---|---|
| 9. | Regional Rural Bank [RRB] | Primarily agricultural Credit Societies | This study demonstrates the significant regulatory changes and praiseworthy advancements in the Indian agri-credit sector. Institutions providing agri-credit have been crucial to inclusivity. | Gulati, A., (2019). [94] |
| 10. | National Cooperative Development Corporation (NCDC) | Financial and technical support for economic activities | A new development strategy was adopted as a result of the emergence of the cooperative movement in Guyana. A new kind of government bank, the Guyana National Cooperative Bank, is given a prominent position in it. Its goal is to save and support the cooperative societies found in emerging nations. The GNCB, which is essentially a development savings bank, is also a vehicle through which the government reduces the influence of foreign banks on the export sector of the economy. | Hope, K. R. (1975). [95] |

## 10. RESEARCH GAP :

The study of variables affecting coffee growers and the impact of various government programs on their income levels has identified a research gap. Previous researches have been based on various aspects of cultivation practices, Challengers faced by coffee growers, harvesting problems and the issues coffee producers face with credit systems, and agricultural advancements. An analysis of studies reveals a definite link between coffee Growers and the socio-economic development of coffee growers. According to a survey of the literature, academics have not considered coffee growers or evaluated government programs intended to improve their status. It expresses the opinions and degrees of satisfaction of the coffee producers with their financial situation and general well-being in the research area. And also, no research in this area has been done at the provincial level. As a result, there is a need for this type of analysis at the grass-roots level, which would be extremely beneficial to the district's evolving socio- economic growth. To narrow the gap, the present investigation is being done.

## 11. RESEARCH AGENDA :

The program's fundamental aim is to look at the expansion of agricultural credit in India, as well as the increase in coffee growers' income after acquiring financial assistance from the government. The study focuseson the structure of agricultural finance, as well as different perspectives and progress, with an emphasison how they lead to increased productivity and income growth for coffee farmers [96].

**(1) Socio-economic factors affecting on Coffee grower's income**: This study's objective is to comprehensively examine the socioeconomic elements that affect coffee producers' revenue among emerging horticulture cultivators. This study aims to investigate the socioeconomic characteristics of developing agricultural producers, to investigate the factors that affect farm income for developing producers, and to provide recommendations for raising the incomes of developing producers' coffee farmers. Such a research would lead to a more targeted governmental response for different sorts of emerging farmers. [97].

**(2) Economic factors on Cultivation system:** This framework incorporates strategies to enhance services at the local, national, and international levels and takes into account the social repercussions of production methods, competitive dynamics, and product combinations. It also has fewer inputs that have been synthesized. By incorporating functional diversity at various temporal and spatial dimensions, diverse cropping systems have developed as a model for preserving ecosystem services essential to coffee productivity. The objective is to assess the potential for and barriers to widespread adoption while providing an analyst's perspective on the factors that influence whether or not coffee producers find various production techniques to be economically attractive. [98].

**(3) Risk factors in Coffee sector:** The coffee industry is known for its high level of risk. Strategic management for the coffee industry must involve the ability to identify risks early and deal with them successfully. [99] This research presents the methodology and findings of a study looking at the incidence of risk factors and risk management practices in primary agricultural output. It places emphasis on the distinctive features of the danger. The research reveals that coffee producers see price volatility, output risk, or revenue risk as the most pertinent potential causes, and that diversification is the most important risk management strategy. [100].

**(4) Coffee Growers experiences and perception on climate changes:** The biggest environmental threat today is climate change, which has an impact on almost every area of the economy. One of the industries where the weather is become more unpredictable is coffee farming. Because of their struggle to make a livelihood amid these growing instabilities, coffee producers are therefore direct witnesses to climate change. Recent research has focused on figuring out the apparent effects of climate change as well as how individuals react to it**.** [101].

**(5) Financial institution and agriculture output:** This study's main goal was to ascertain how the government, lending organizations, and farmer investment choices interact with one another and how they affect overall agricultural investment and productivity. Evidence from studies supports the significance of upstream and downstream pricing in affecting collective agricultural production, however aggregate out-of-out supply indices are small. Investment, resource, and return decisions are significantly influenced by the accessibility of educational institutions and financial institutions. As a consequence, farmers, governments, and intermediaries all adjust to the same forces to determine how much agricultural production is produced [102].

## 12. RESEARCH PROPOSAL :

After a thorough examination and evaluation of the research literature, the paper recommends that a massive study be conducted to better understand Coffee grower's income and government funds.

(a) Proposed title (comprehensive) Coffee Growers Socio-economic status.

(b) Geography: Kodagu District

(c) Target respondent's coffee Farmers (Growers/Planters).

(d) Objectives

(1) To know the measures taken by the management for the development of socio-economic conditions of the coffee growers in this study area.

(2) To estimate the various schemes of government for the socio-economic development of coffee farmers (Planters).

(3) To explore whether growing of coffee has improved on levels of incomes of coffee farmers.

(4) To analyses and suggest the measures to fill the gap between Coffee farmers income and government fun.

## 13. ABCD LISTING :

ABCD stands for Advantages, Benefits, Constraints, and Disadvantages [102]. The ABCD analysis produces the core problems and identifying the crucial constituent elements based on four constructs, the ABCD analysis generates a systematic matrix with an ordered list that handles all variables in significant regions pros, strengths, Constraints, and Downfalls [103]. The overarching framework for four specific instances in hand namely Business model, Business strategy, Operational concept and Functional system are outlined here [104]. A business model or functional system is a set of process/activities that results in sustainable profit through desired revenue and customer value [105].

**Table 6:** Advantages, Benefits, Constraints, and Disadvantages (ABCD) has been analyzed.

| **ABCD Analysis** | | |
|---|---|---|
| 1. | **ADVANTAGES** | 1. The rise of coffee as a cash crop brings out potential for government action to assure the future sustainability.<br><br>2. The Fair trade certified are having success in the market. |

| | | |
|---|---|---|
| | | 3. The coffee growers help the economy by creating local jobs & providing a means of income for coffee producers.<br><br>4. Technical efficiency benefits the coffee producer's capability to achieve the maximum output using the existing factors of production.<br><br>5. Interest subsidy has attracted youth to work in agriculture as they provide advantages government incentives. |
| 2. | **BENEFITS** | 1. The optimal utilization of agriculture resources leads to sustainability agricultural growth.<br><br>2. The improved or adoption of technologies leads the coffee farms in more production & achieve the maximum output using the existing factors of production.<br><br>3. The government incentives could engage and introducing mechanical devices that can reduce manual labour services.<br><br>4. The introduction of eco-certification is benefiting coffee growers.<br><br>5. The rainfall insurance scheme benefits coffee growers to address their rainfall risks. |
| 3. | **CONSTRAINTS** | 1. The changes in legislation and the nations economic crises have affected localized agriculture systems and land clearing methods.<br><br>2. Environmentally sensitive areas that is productive and of high quality influenced by variety of Agro-ecological conditions, land holdings, economic conditions etc. leads to market constraints.<br><br>3. In terms of coffee marketing the farmers are constrained by factors such as pricing, location, products, the buyer & promotion.<br><br>4. The coffee export situation and coffee market integration are related to high price risk. |
| 4. | **DISADVANTAGES** | 1. Unsustainable land use manifests lead to large scale environmental and social declines.<br><br>2. Due to storage issues, coffee growers are struggling with selling and marketing coffee.<br><br>3. Due to climate change, issues affecting coffee growers has been harming coffee plantation.<br><br>4. The risks that are examined are divided into agricultural hazards brought on by threats to production, growing input costs, a lack of irrigation, and other legal and administrative obstacles. |

**Source:** Compiled by Author

## 14. FINDINGS :

(1) As a consequence, modernized coffee cultivators coexist alongside a traditional Agro-forest coffee system. Examined are some of the social and ecological ramifications of this process as well as its institutional motivators.
(2) Rural income diversification adds a new, more contemporary component. the importance of classifying the formal, informal, and peasant sectors of the economy as well as the "sustainability" of rural livelihood programs now supported by aid agencies.
(3) Localized agriculture systems and land-clearing practices have been impacted by legal changes and the nation's economic woes. In order to produce food sustainably, we must manage our natural resources in a way that is compatible with the socio-economic environment we now live in. For agriculture to flourish sustainably, it is crucial to integrate people, capital, institutional, and natural resources.
(4) This research examines the nation's coffee industry from the perspective of its producers, with particular emphasis on the contribution made by small home growers as well as the challenges they face in the industry.
(5) Sub-optimal resource and production level allocation is the main cause of inefficiency in social profit. The proximity of the closest coffee producers and dealers, the nearest town or metropolis, and the frequency of drip irrigation are all statistically associated with social profit inefficiency, which is statistically associated with a number of socioeconomic variables and management practices.
(6) Sub-optimal resource and production level allocation is the major cause of social profit inefficiency.
(7) Greater distances between the coffee farm and the nearest manufacturer or market, as well as a high frequency of spraying, are all statistically linked to social profit inefficiency, which is statistically linked to a variety of socioeconomic variables and management practices.
(8) The farmer faced a number of problems. Due to the Coffee Board's monopoly over the buying and selling of coffee, producers did not be paid fairly.
(9) There are several challenges faced by coffee producers. The concept of sustainability largely focuses on conventional agricultural practices for maintaining life, the use and management of agricultural resources, biodiversity preservation, and ecological approaches to restore soil fertility.
(10) Localized agriculture systems and land clearing techniques have been impacted by legislative changes and the country's economic difficulties. However, when technology is improved or adopted, coffee farms are able to produce more coffee and get the most out of their available resources.
(11) It is discovered that the risks are divided into agricultural hazards due to output threats, increased input costs, a lack of irrigation, and other regulatory hurdles.

## 15. SUGGESTIONS :

(1) The sustainability of the coffee industry in various ways, there is a lack of data on how, where, and why various land-use and landscape changes are taking place, as well as how they will affect coffee production, coffee planters' livelihoods and other aspects of sustainable development.
(2) To encourage coffee farmers and boost production wellbeing, policies should be flexible, and coffee farmers should have access to loans at lower interest rates than large farms because they are less likely to meet their basic needs.
(3) In order to provide the financial derivatives that rural communities need, the government must make sure that the financial system is sufficiently open and mobile.
(4) Coffee Cultivators (growers) should be informed of credit shortages brought on by unauthorized credit sources.
(5) Coffee farming needs to be sustainable, and this requires the capacity to evaluate each farm's sustainability and relate it to the characteristics of the farm and its management

## 16. CONCLUSION :

The importance of understanding both the current and future settings of coffee landscapes and people, as well as their contribution to sustainable development, outweighs the fact that our article ambitious

goal. Coffee plantations and landscapes are changing quickly and significantly on account of low coffee prices, coffee leaf rust, fluctuating meteorological conditions, and other factors. Some of the significant changes include the wide-scale adoption of new, rust-resistant varieties, the traditional intensification of coffee production, the abandonment and conversion of coffee to other land uses, the expansion of coffee into forested areas, the introduction of Robusta coffee, the urbanization of coffee regions, and the expansion of coffee produced in accordance with voluntary sustainability standards. The research agenda we've outlined aims to fill these knowledge gaps and ensure that governments, the private sector, NGOs, agricultural specialists, and other stakeholders have the information they need to make informed decisions about their campaigns to advance sustainable coffee systems and landscapes throughout the region. However, as our review demonstrates, there is a lack of information on how, where, and why various land-use and landscape changes are occurring, as well as how they will affect coffee production, farmer livelihoods, ecosystem services, and other aspects of sustainable development. All of these changes have the potential to significantly alter the sustainability of the coffee industry in various ways (both favorably and unfavorably).

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