

## **CSR FOR AGRICULTURE DEVELOPMENT: INFLUENCING ELEMENTS OF CSR CONTRIBUTIONS IN THE ADVANCEMENT OF THREE DIMENSIONS OF SUSTAINABLE AGRICULTURE IN INDIA**

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### **ABSTRACT**

Corporate social responsibility (CSR) is the idea that firms should consider their broader social and environmental implications alongside their financial ones. Corporate and the agricultural sector both stand to benefit from CSR which might be interpreted as 'Creating Shared Value'. What motivates the companies to invest their CSR funds in the arena of agriculture sector is the most notable subject. Since the CSR practitioners are often willing to contribute towards significant projects that directly attribute to their sustainable development goals. The study investigates various influencing elements of CSR contributions for the welfare of farming communities and improvisation of Indian Agri-sector and its impact on the three dimensions of Sustainable Agriculture Development.

**Keywords:** Corporate Social Responsibility (CSR), Indian Agriculture, Sustainable Agriculture Development, Agroeconomic growth, Farmers Livelihood, Agroecological restoration.

### **1. Introduction:**

The twentieth century writings and contexts of business ethics has widely covered various aspects of social responsibility (SR) and individual responsibility (IR). When it comes to firms and business, uncompromising social and ethical standards with transparency is a conjoint effort to have a strong corporate governance. Such an engagement of organisations with the society within which it operates and the social contribution to the welfare of their surrounding communities and environment extends the company's economic, legal, ethical and philanthropic value under the term called Corporate Social Responsibility (CSR). CSR was first mandated by law in India on April 1, 2014 under Section 135 of the Companies Act, 2013 which requires that profitable businesses shall pay 2% of their preceding three-year average net profit on corporate social responsibility.

The CSR contributions are made based on multiple motives set by the companies to achieve their desired social objectives. A constructive and unambiguous impression makes it easier to put CSR into practise, which in turn can provide more value (Clarinda et al., 2018). In the realm of CSR mandate regime, the companies are often suit themselves while selecting the CSR projects or programs under Schedule VII of the companies Act, 2013. The activities listed in the schedule broadly cover many social problems, areas and sectors that needs special attention. The law offers specific rules for what kinds of activities are eligible across different categories, and it requires that CSR activities be carried out either project or program mode. Though agriculture sector is not listed directly under schedule vii, several entrepreneurs and corporate has actively initiated numerous projects or programs for the socioeconomic upliftment of marginal farmers. Most of the CSR agriculture initiatives are executed as livelihood development projects, rural development projects, training program for farmers, cattle care program, etc. CSR Agri-projects introduces farmers to

modern farming techniques such as soil health, crop planning, constructing model farms with bio-dynamic farming practices, constructing necessary infrastructure and capacity building (Oguntade&Mafimisebi,2011)which leads to an increase in agricultural productivity.

## 2. Literature review and factor extraction:

### 2.1 Corporate Social Responsibility and Sustainable Agriculture Development:

Summing up all conventional definitions, corporate social responsibility is an approach through which a company balances its obligations to shareholders, the environment and society. Intervention of business firms in agriculture through CSR has hugely impacted the agro economic growth, welfare of farmers and agro ecological restoration which leads to Sustainable Agriculture Development because it focuses on the economic, social and environmental determinants of sustainable agriculture(Mazur-Weirzbicka,2015; Balasubramani, 2017).A review article (Upadhyay, 2019) states thatin contrast to the majority of other sectors such as education, healthcare, art and culture etc., the CSR spending in agriculture is considerably low.But many of the agribusinesses for instance: nestle, unilever, etc. was adopting sustainable agriculture initiatives through strategic CSR (Poetz, 2012).Always prioritising the long-term advantageous effects over any immediate benefits gives a firm high value than any short-sighted company(Singh & Amudha, 2018).

The idea behind sustainable agriculture is that we must cater to the demands of today's population without making it harder for the tomorrow's generations to accommodate their nutritional requirements. Also, the young generation must learn the sustainable concepts while they are introduced to CSR (Singh et al., 2020). In that way CSR and sustainability can work together to give better outcome of various social projects. According to the definition provided by the Committee on Twenty-First Century Systems Agriculture (2010), sustainable agriculture is defined as progress made in relation to the following four goals: (a) achieving a level of production sufficient to meet human requirements (b) improving the quality of the environment while simultaneously safeguarding the natural resource base (c) becoming profitable and (d) enhancing the standard of living of agriculturalists, farmers and the general populace as a whole(Systems Agriculture Staff et al., 2010).

### 2.2 Influencing elements of CSR Contributions:

CSR contribution towards agriculture sector are highly depends on certain motivating factors that enabled them to accumulate their CSR funds to such sensitive and huge projects. (David, D.S. 2023) identifies six influencing elements of CSR contributions in agriculture sector. And also, the study observes what are all the elements that positively and negatively affects the overall CSR contributions towards agriculture sector.

**Table 2.2.1 Factor extraction of influencing elements of CSR contributions from existing literatures**

<b>Business Value</b>	<i>An empirical study done by (Panwar et al., 2022) found that organizations obligated by the mandatory regime of Indian CSR had higher unusual profits and achieved greater business value compared to companies not obligated by the mandate. Still some research identified negative impact on firm's value by CSR approach and implementation (Hafez, 2016).</i>
<b>Organisational Support</b>	<i>Top management plays a crucial role in promoting corporate social responsibility. In addition to their direct influence on CSR, top managers can affect the CSR behaviors of their organizations by building and instituting an ethical culture (Tefera et al., 2019).</i>
<b>Robust Policy</b>	<i>Well-defined CSR policy statement can make a company more attractive to numerous stakeholders such as investors, customers, &amp; employees (Butrin, 2023).CSR activities must be consistent with viable strategic policies in order to achieve the objective of sustainable social, environmental, and economic growth(Jaysawal&amp;Saha, 2015).</i>
<b>Philanthropic Priorities</b>	<i>Companies undertaking CSR efforts are mostly viewed as obligatory outcome, yet corporate motivation to contribute and participate in philanthropy entails an endeavor to effect social change (Iwannanda et al., 2017). A few decades of aggravating agrarian crisis in India have moved the attention of organisations</i>

<b>Internal and External Risks</b>	<i>to link their philanthropic CSR goals with the agriculture sector. Internal risk refers to threats from within the company's own operations, whereas external risk refers to threats from the environment, politics, geography, investors and the general public. Constraints to implement a CSR strategy today come from a variety of sources (Vilanova et al., 2009). When a company attempt to take a position on their competitive edge through CSR with other potential companies, the major concern is that their competitive advantage will be fragile.</i>
<b>Project Design and Management</b>	<i>As a fluid concept, CSR can be handled in a variety of ways across projects. The potentiality of project management to aid in the accomplishment of CSR objectives in ways that are strategic for businesses demands additional investigation. Companies are adopting efficient project design methods to improve and innovate CSR implementation procedures. Success of CSR projects depends on its implementation design as it determines resource efficiency and maximizes positive impact (Phillips, 2017).</i>

### 2.3 Three dimensions of Sustainable Agriculture Development:

According to the Triple-Bottom-Line theory, the only way to achieve sustainable development is to pursue environmental, social, and economic objectives in tandem. Long-term success requires careful balancing of the three bottom-lines of sustainability which are interdependent. For agriculture to be considered ultimately sustainable, it is essential that it maintains its social, economic and environmental viability, all of which are intricately interconnected. (Sonja et al., 2011). Nonetheless, there is a growing consensus that sustainable agriculture should be defined by its effects on the three pillars of sustainability, namely the environmental, economic, and social pillars. This research has identified three dimensions of Sustainable Agriculture Development: Agroecological growth, Farmers livelihood & income enhancement and Agroecological restoration. (Asadi et al., 2013) studied that agricultural sustainability is positively influenced by ecological, social, and economic sustainability, but that ecological sustainability has a stronger influence than social and economic sustainability.

**Table 2.3.1 Factor extraction of three dimensions of Sustainable Agriculture Development from existing literatures**

<b>Agroeconomic Growth</b>	<i>Economic theory is applied to agriculture in agricultural economics. It includes the research in the production, marketing, and utilization of commodities and resources associated with food and comestibles (Rossman, n.d.). The term "agroeconomic development" refers to an improvement, both quantitatively and qualitatively, in the living standards of agricultural communities and of those who are solely dependent on the agricultural industry. Given the significance of agriculture to Indian economy, it is crucial that agricultural output must increase and make considerable impact on the gross domestic product (GDP) of the nation (Pattanayak&amp; Mallick, 2017). Economic growth that benefits the farming community is intrinsically connected to agricultural development.</i>
<b>Farmers Livelihood &amp; Income Enhancement</b>	<i>Farmer participation is essential for sustainable agriculture. Farm families are capable of making tremendous progress toward sustainable land and water management with the correct incentives and government assistance. A statistical test done by (Suhadi et al, 2022) concludes that after receiving CSR assistance, the poverty rate among farmers dropped from 16.4 % to 5.8 %.</i>
<b>Agroecological Restoration</b>	<i>Agroecology is the practise of applying ecological principles and methodical planning to crop cultivation with the goal of improving and maintaining soil fertility, water adequacy and agriculture productivity over the long run. It proposes an endeavour to expand the diversity of agroecosystems and to promote sustainable techniques for farming. Agro-ecological innovation is needed to boost agricultural output and sustainably manage agri-activities while enhancing natural resource quality (Tripathi et al., 2015).</i>

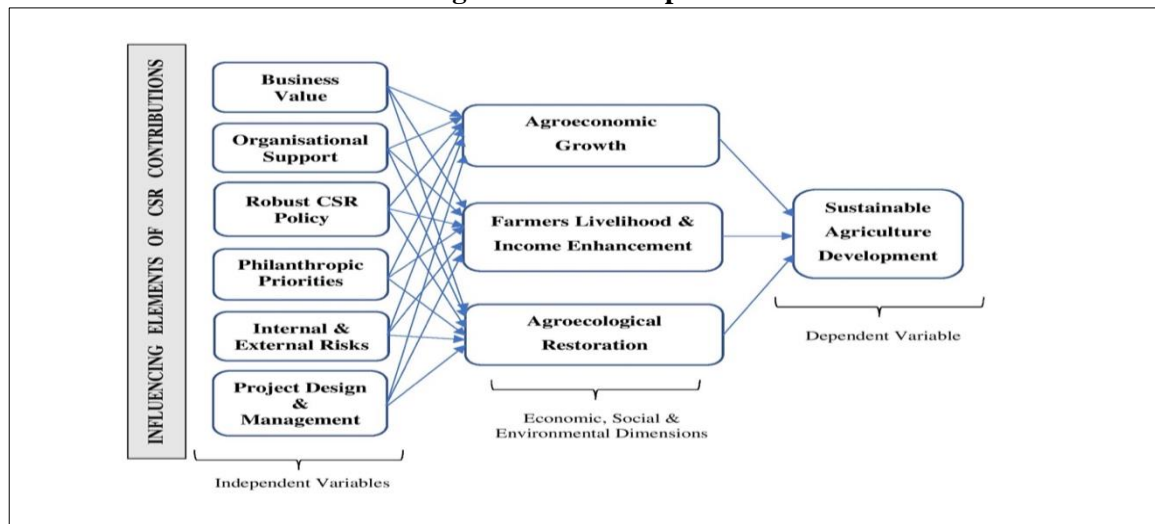
### 3. Objectives of the study:

1. Examine the correlation between the factors that favorably and negatively affect CSR contributions across the dimensions of Sustainable Agriculture Development.
2. Evaluate the impact of influencing elements of CSR contributions on Sustainable Agriculture Development.

### 4. Methodology and framework of research:

The broad perspective of this present study is to find out the role of CSR in Sustainable Agriculture Development. The CSR spending patterns for six financial years from FY 2014 to FY 2020 are evaluated. And six influencing elements of CSR contributions towards agriculture sector are identified through previous literatures.

**Figure 4.1 Relationship between influencing elements of CSR contributions and sustainable agriculture development**



As per the data retrieved from the Annual Reports of 41 companies in India, CSR Agri initiatives taken by the companies are recorded and their degree of contribution is extracted using a well-constructed questionnaire. The three dimensions of sustainable agriculture development are measured using five-point Likert scale based on the agreeableness of the respondents in terms of the outcome of their CSR Agriculture projects and programs. The relationship between the variables are explained using a conceptual model (Figure 4.1). The level of effectiveness (using Friedman test), correlation (using Pearson's method) and the impact of overall influencing elements of CSR contributions on three dimensions of sustainable agriculture development are studied using multiple regression analysis.

### 5. Hypotheses Development:

The following hypothesis was developed based on the conceptual framework to understand their differences and relationships between the variables of the study.

**H1:** The mean rank of opinions regarding the influencing elements of CSR contributions do not significantly differ from each other.

**H2:** The mean ranks of three dimensions of sustainable agriculture development do not significantly differ from each other.

**H3:** Influencing elements of CSR contributions and the factors of sustainable agriculture development have no significant relationship to one another.

### 6. Analysis & Interpretation:

#### 6.1 Calculation of the mean ranks of opinions regarding the influencing elements of CSR contributions to determine their significant difference using Friedman Chi-square

When measuring an ordinal dependent variable, statisticians use the Friedman Test to compare three or more related groups on a parameter like mean rank to determine if there are

differences between the groups. In comparison to other non-parametric tests, the Friedman method performs better in situations in which the same variable has been tested on the same metric under a range of various conditions. The test checks to see if the mean ranks for each condition are statistically different from what you would expect by chance at 0.05 level of significance. The table 6.1.1 shows the test result of the mean ranks of influencing elements of CSR contributions and how they significantly differ from each other representing a distinct opinion over the subject. Given that the P value is lower than 0.01, the null hypothesis (H1) can be declared to be rejected at 1% confidence level.

**Table 6.1.1 Determination of significant difference between the mean ranks of opinions regarding the influencing elements of CSR contributions**

<i>Influencing elements of CSR contribution</i>	<i>Mean Rank</i>	<i>Chi-Square value</i>	<i>p value</i>
<i>Business Value</i>	3.74		
<i>Organisational Support</i>	4.09		
<i>Robust CSR Policy</i>	2.87	81.977	<0.001**
<i>Philanthropic Priorities</i>	5.37		
<i>Internal and External Risks</i>	2.18		
<i>Project Design and Management</i>	2.76		

Note: \*\* denotes significant at 1% level.

This leads us to the conclusion that there is a substantial difference among the mean ranks of opinions regarding the influencing elements of CSR contributions towards agriculture and farmers welfare. Based on the mean ranks, Philanthropic Priorities (5.37) is the most effective factor that highly influences CSR contributions in improving agriculture sector and farming communities followed by Organisational Support (4.09), Business Value (3.74), Robust CSR Policy (2.87), Project Design & Management (2.76) and the least effective factor is Internal & External risks (2.18). Though negative impact on business reputation is a serious concern, the CSR projects towards agriculture sector is almost perceived by corporate as a risk minimizing and effective initiative towards ensuring good business image and organisation reputation.

## **6.2 Calculation of the mean ranks of three dimensions of sustainable agriculture development to determine their significant difference using Friedman Chi-square**

The table 6.2.1 explains the difference among the mean ranks of opinions of the respondents to evaluate the outcome of their CSR Agriculture projects in achieving the three dimensions of sustainable agriculture development such as agroeconomic growth, farmers income & livelihood enhancement and agroecological restoration at a significance level of one percentage.

The hypothesis (H2) is rejected at a confidence level of one percentage as the P value is less than 0.01. Therefore, it can be deduced that the three dimensions are significantly different within the group and has notable contribution to the development of sustainable agriculture.

**Table 6.2.1 Determination of significant difference between the mean ranks of three dimensions of sustainable agriculture development**

<i>Dimensions of Sustainable Agriculture Development</i>	<i>Mean Rank</i>	<i>Chi-Square value</i>	<i>p value</i>
<i>Agroeconomic Growth</i>	1.70		
<i>Farmers Livelihood &amp; Income Enhancement</i>	1.43	50.428	<0.001**
<i>Agroecological Restoration</i>	2.88		

Note: \*\* denotes significant at 1% level.

Based on the mean ranks, Agroecological restoration (2.88) is most effective in promoting Sustainable Agriculture Development followed by Agroeconomic growth (1.70) and Farmers



livelihood & income enhancement (1.43). The companies are focused to invest their CSR funds more on maintaining agriculture ecosystem which is in turn restores the loss of Agro-biodiversity.

### 6.3 Correlation between the factors of influencing elements of CSR contributions and the factors of Sustainable Agriculture Development

The Pearson correlation coefficient, commonly written as  $r$ , is the method most frequently used for determining the strength of a linear relationship. The coefficient of determination is a measurement that falls within -1 to +1 and it shows both how close two variables are and what kind of relationship they have with the other variables. The below table 6.3.1 specifies the correlation coefficient between the six factors of influencing elements of CSR contributions and the three dimensions of sustainable agriculture development. The correlation coefficient between the factors of influencing elements of CSR contributions and Farmers Livelihood & Income enhancement is 0.679, 0.675, 0.702, 0.637, 0.579 and 0.672 respectively which of all being the highest value compared to Agroecological growth and Agroecological restoration, which indicates 67.9 %, 67.5 %, 70.2 %, 63.7 %, 57.9 % and 67.2 % of positive relationship except Internal and External risks which is negatively correlates with every other factors of Sustainable Agriculture Development. Hence, the hypothesis (H3) is rejected at 1 percent level of significance substantiating that there is a positive relationship between the six influencing factors of CSR contributions and the three dimensions of sustainable agriculture development.

**Table 6.3.1 Pearson's correlation coefficient between the factors of influencing elements of CSR contributions and the factors of sustainable agriculture development**

	<i>Agroeconomic Growth</i>	<i>Farmers Livelihood &amp; Income Enhancement</i>	<i>Agroecological Restoration</i>	<i>Overall Sustainable Agriculture Development</i>
<i>Business Value</i>	0.591**	0.679**	0.512**	0.716**
<i>Organisational Support</i>	0.543**	0.675**	0.500**	0.693**
<i>Robust CSR Policy</i>	0.610**	0.702**	0.536**	0.741**
<i>Philanthropic Priorities</i>	0.483**	0.637**	0.595**	0.664**
<i>Internal and External Risks</i>	- 0.573**	- 0.774**	- 0.535**	- 0.769**
<i>Project Design and Management</i>	0.463**	0.579**	0.560**	0.617**
<i>Overall Influencing Elements of CSR Contribution</i>	0.567**	0.672**	0.554**	0.710**

Note: 1. \*\* denotes significant level at 1%

Having a robust CSR policy contributes to the overall sustainable agriculture development by 74.1 % showing a highest positive correlation followed by Business value (71.6 %). The results shows that Business value, Organisational support, Robust CSR Policy, Philanthropic priorities, Project Design & Management positively influence the CSR contributions towards Agriculture sector especially towards the welfare of farmers in enhancing their farm income and livelihood.

#### 6.4 Regression analysis of sustainable agriculture development on overall influencing elements of CSR contributions

The concept of multiple regression investigates the connection that exists between one dependent variable and a number of other independent variables. The analysis forecasts a single dependent value by employing independent variables that have been identified. A weight has been assigned to the value of the predictor to represent the proportional contribution that it has made to the total estimate. The below table 6.4.1 indicates that there is a strong and positive impact of overall influencing elements of CSR contributions on Sustainable Agriculture Development and the formula for the multiple regression equation is represented as  $Y = a + b_1 X_1 + b_2 X_2 + \dots + b_n X_n$  ensuring that the dependent variable may be predicted with the greatest accuracy using the set of independent variables. For the study, all the six influencing elements of CSR contributions are computed to overall factor thus forming one independent variable and hence the equation has been formulated as  $Y = a + bX$

Dependent variable	: Sustainable Agriculture Development (Y)
Independent variable	: Overall influencing elements of CSR contributions(X)
Multiple R value	: 0.863
R square value	: 0.745
F value	: 26.284
P value	: <0.001**

**Table 6.4.1 Regression analysis of sustainable agriculture development**

<i>Variable</i>	<i>Unstandardized co-efficient</i>	<i>SE of B</i>	<i>Standardized co-efficient</i>	<i>t value</i>	<i>p value</i>
<b>(Constant)</b>	38.688	4.530	-	8.540	<0.001**
<i>Overall influencing elements of CSR contributions</i>	0.163	0.052	0.339	3.113	0.004**

Note:\*\* denotes 1% confidence level.

The multiple correlation coefficient for sustainable agriculture development is 0.863, indicating that there is a strong association between the actual and estimated values. Hence, statistical evidence proves that the overall influencing elements of CSR contributions and sustainable agriculture development have a very positive and strong relationship. The level of goodness-of-fit of the estimated Sample Regression Plane (SRP) is evaluated using the coefficient of R-square. This metric expresses itself in terms of the proportion of the variance in the dependent variable that can be attributed to the fitted sample regression equation. Therefore, the estimated SRP that uses the overall influencing factors of CSR contributions as the independent variable has a R square value of 0.745, which indicates that it accounts for about 74.5 percent of the variation in sustainable agriculture development and the R square value is significant at one percentage level.

The regression equation of the sample is  $Y = 38.688 + 0.163X$ . Here the coefficient of X is 0.163 represents the total effect of overall influencing elements of CSR contributions on promoting Sustainable Agriculture Development through various CSR Agriculture projects ensuring Agroecological growth, Agroecological restoration and Farmers livelihood & income enhancement. The positive sign in the preceding equation indicates that the impact is positive and that sustainable agricultural development will be increasing by 0.163 for each unit gain in the overall influencing elements of CSR contributions and subsequently the coefficient value is found to be significant at one percent.

#### 7. Empirical findings:

- When it comes to CSR motivation in doing agriculture projects, the philanthropic nature in creating social value tends to be the top most aspect along with having a strong management

support in the pursuit of proliferating the overall business value of the company by achieving a positive impact on sustainable agriculture.

- b. Most of the companies focuses on the environmental dimensions which is to restore the agro-biodiversity. The sustainability nature of agriculture predominantly revolves around maintenance of natural resources like soil, land and water and to retain it goodness for a long period of time. And also, CSR Agri projects are implemented for the purpose to increase the total factor production (TFP) of agriculture yields which subsequently improves the Indian agro economy.
- c. The overall six influencing elements of CSR contributions towards agriculture sector has a significant relationship with the overall three dimensions of sustainable agriculture development for a correlation coefficient of 0.710 representing 71 % of positive correlation between the factors. Whereas internal and external risks have an insignificant relationship with every other factor that affect the CSR contributions by a correlation coefficient of -0.769 representing poor correlation of -76.9 % indicating it as a negative factor that hinders the motivation of companies to make CSR contributions towards agriculture welfare projects in promoting sustainable agriculture development.
- d. Every CSR fund invested in agriculture projects has an impact on overall sustainable agriculture development and this research shows that for every unit increase in influencing elements of CSR contributions made towards welfare of farmers and agriculture as a whole, there is an increase in the overall sustainable agriculture development by 0.163 creating an impact of about 86 percentage on economic, social and environmental dimensions of sustainable agriculture in India.

#### **8. Managerial implication:**

Issues concerning the agricultural sector and farming communities are not specifically covered under Schedule VII of the Companies Act, 2013. They are carried out under rural development, livelihood development, education, socioeconomic inequalities, health care, etc. However, policymakers and committee members of the Ministry of Corporate Affairs (MCA), Government of India may amend the struggling sector into the list in order to attract more CSR funds and to motivate the corporate to take initiatives in mitigating the agrarian crisis in a positive way without attempting to acquire contract, ownership or control over the agricultural and farming communities.

#### **9. Conclusion:**

The augmentation of safe and high-quality food production in Indian agriculture is imperative, while simultaneously ensuring the conservation of natural resources that are integral to agricultural productivity. It is essential for an organisation to acknowledge its obligation towards the society and the surrounding environment in which it operates. The implementation of CSR Agri initiatives has resulted in the adoption of sustainable agricultural practices by farmers and farming communities. Enhancing agricultural productivity facilitates the provision of sustenance for the global populace while concurrently conserving additional land for the preservation of natural habitats and biodiversity. Intervention of CSR in agriculture has resulted in enhanced market stability for farmers, increased employment opportunities and improved economic viability in numerous villages. These programs have also facilitated sustainable production practices that align with the standards of food security and create a balanced agro ecosystem.

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