The scope of Sustainability in Sustainable Food Value Chain generates opportunities via Canvass model techniques in Indian Food Processing Industries

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ABSTRACT

A sustainable food value chain consists of all stakeholders participating in coordinated value-driven activities to achieve the long-term objectives of firms and benefit society's welfare. The study gives an in-depth knowledge regarding the scope of the Sustainability and Business model canvass, makes significant achievements in firms, develops the value proposition, and measures the performance to determine each block's function. The study adopted an explorative method, which briefly described the Canvass Business Model involved the firms value creation in the food value chain, and also evolved the SFVC framework structure that defines stakeholders' role and responsibility. The SFVC generates sustainable organizations to achieve long-term objectives and vision and address the complex challenges in firms and their supply chain. The canvass business model made it significant for firms to promote value creation and achieve strategic goals and discussed the performance of all industries through gross value-added activity.

Unique: implication of sustainable food value chain in food processing firm, the application of canvass business model into SFVC.

Limitation/implication: The study is based on quality data and literature review of sustainable food value chain and canvass business model, which create opportunities for business growth.

Introduction

A sustainable food value chain establishes coordination among all stakeholders as millers, processors, and distributors are to achieve food availability and food security and generate a sustainable agriculture system. The sustainable food value chains adopted the convergent innovation, which transformed raw food into processed food witha nutritious diet. It established the link between theprocessor, miller, aggregator, and agricultural food system. The primary objective of the sustainable food value chain is a) to generate an efficient working mechanism, provide a procurement facility and maintain supply chain distribution to achieve the long-term goal. b.) the SFVC provides quality food, generates food security, and allows the sustainability dimension, which directly impacts the performance of food pro-

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cessing firms, (Dietrich, 2020). The SFVC extends its scope to control food grain wastage, reduce the depletion of all resources, and control malnutrition and hunger. C) SFVC are implied todevelop the coordination among variouskey partners in the value chain to generate the enabling environment, which supports the sustainability dimension to full fill the triple bottom line concept of profit, people, and the planet (FAO, 2014). The SFVC plays a significant role in food processing firms to achieve self-sufficiency infood production, providea sustainable food value chain, upgrade the governance technique, and control the depletion of resources (Negi, 2013). The sustainable food value chain increases the crop production capacity, which enhances the processing capacity, directly impacting the performance of firms and expanding the economy. Therefore, allfood processing firms must follow the standard guideline of IPCC (inter governmental panel on climate change), which reduces the impact of greenhouse gas emissions, climate change, and other natural calamities, a decline in resources to promote environmental safety (Sellahewa, 2010). The SFVC increases the financial assistance of firms, promoting diversification and investment of all funds, changing the firms' governance techniques, rising consumerism, changing eating habits, and growing urbanization. The research study is classified into three sections: a. the first section discusses Sustainability and, literature review, B. The second section analyzes the sustainable food value chain and Canvas business model for firms' value proposition and performance assessment C. The third section discusses the advantages and disadvantages of a sustainable food value chain and it measures the performance of all industries through gross value-added activities, which shows the growth and development of enterprises.

Section 1.1 Sustainability and their scopes

The concept of Sustainability evolved in 1987 by the United Nations Brundtland Commission, which defined Sustainability as "to meet the present and future requirement of present needs without compromising the resources of future generations to meet their own needs." The united nation commission successfully participated to developed unified environmentalism with social and economic concerns on the world's development agenda. Sustainability is a holistic approach that considers ecological, social, and economic dimensions to recognize all prospects and that all must be considered prosperity. To de-

velop the business firms and control the consumption of all resources, to achieve the societal needs, which increases the livelihood. The sustainability dimension is to meet the future requirements of food processing firms and their key partners to sustain and enhance the future goal, control the depletion of resources, and protect the environment. The sustainability concept reduced the human and ecological footprint and developed an approach to preserving all renewable and nonrenewable resources and providing future availability and security. The sustainability dimension positively impacted the performance of manufacturing firms and their value chain through different sustainability measures and adopted strategies that enhanced the internal processes and provided food grain for procurement. The scope of Sustainability achieves the balance between demand and supply of processed food, provides a comprehensive quality maintenances approach to all products according to firms and customer demand, and reduces the environmental footprint of declining resources. Sustainability is often a combination of three-dimension economic, environmental, and society. To achieve the following objectives are. a) To establish the trust and engagement among the staff, investors, customers, and other stakeholders, which increases their performance in firms. b) To reinforce for developing the community relations. c) and encourage the firms to create innovation that benefits by providing the additional requirement. d) and established a better understanding of potential customers. Sustainability generates the broad scope of all primary manufacturing inputs in food processing firms as crops, grains, water, and resources for food processing and reducing the wastage of food grains and depletion of resources, which impact the economy of food processing firms (Fionnuala *et al.*, 2014. The scopes of Sustainability area. to generate the effective food value chain, which enhances the operative mechanism, logistic handling, and maintains the balance between the demand and supplies of pulses, increasing the capital gain. B. Sustainability in food processing firms generates the operating functions, which establish the coordination among the stages of food processing, maintain the actual demand, the cost-effective mechanism, and create value addition, quality upgradation. C. The scope of Sustainability sopport unities consists the several factors are a. to conserve all resources, b. provide the quality seeds, food grain that consists of value addition activities, c. and fo-

cused onaccess of input the raw material for processing, with optimum uses of resources, and utterly biodegradable form of liquid and solid wastes that becomes easier to compose in soil (Willie Scott, 2012).

The figure demonstrates the Sustainability and its dimension with their key strategic objectives to achieve the firm's long-term goal and objectives, considering the internal and external factors impacting firms' performance.

Section 1. 2 Literature review

The literature review discussed the sustainability dimension and sustainable food value chain, which generate the scope and growth opportunities for firms to develop the Sustainability indicators in business. The review study identifies the technical and organizational issue that arises during implementing sustainable food value chain practices in firms and causes literature onthe Canvass Business model and its Advantage. Wagamama's (2011) Sustainability dimensions in firms are achieved the financial, social, and environmental benefits and show the current status of firms to develop the best possible alternatives (Elvria, 2016). The sustainable food value chain framework identifies sustainability indicators that directly assess firms to develop the broader range of value-added activities of food pro-

cessing firms (Seuring *et al.*, 2008) evolved a sustainable food value chain framework structure that consists of all stakeholders to establish coordination with other distribution networks (Srivardhani Jha, 2014). The sustainable food value chain is a developed the different stages of production that involve value chain activities and generate the holistic approach to analyzing the value-added activities (Zong *et al.*, 2017). Sustainable food value chain model has categorized the value chain activities and made classification according to that research, (Alba *et al.*, 2013) and developed sustainable agriculture which preserved all resources, and established the bridges which built on diverse area of food production and developed value chain activity. The sustainable food value chain established the coordination of all stakeholders and intermediaries to extend the collaborative efforts to make the best alternative for resolving technical and organizational issues. Stefan *et al.* (2008) the sustainable food value chains developed the effective coordination among supply chain management risk with supply chain performance to achieve the objectives of sustainable processed food (Stefan *et al.* (2011) and promote the Sustainability in the organization tomanage the supply chain operation capabilities, which focused on core competencies shifting from the internal supply chain (Ikered, 2011). The sustainable food value chain developed the coordination among all farm-

Diagram presentation of SFVC
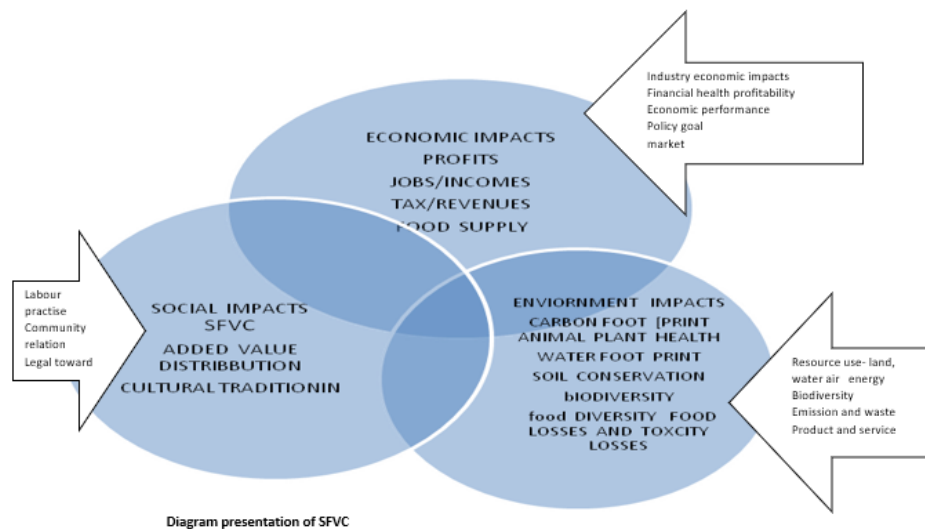
Source: Exploration of corporate social responsibility (CSR) in multinational companies within the food industry, 2008

Fig. 1. The figure on Sustainability and its dimensions considers all factors that directly impact Sustainability, with an arrow to identify suitable measures, similar tosocial impact and environmental impact on food processing industries.

ers, processors, and distributors, which made participation in food production and distribution to provide food security that made an impact on the growth and economy of firms and identify critical processes, (Jacques *et al.* (2008). The SFVC generates consumer concern towards food safety and builds a collaboration of private and public sector organizations to create food safety and quality up-gradation (Brainier *et al.* (2005). The Canvass business model is developing competitive strategies and achieves the competitive scenario of the business environment (Prasetyawan, 2017). Business Model Canvass generates the ability to manage internal resources, with all business levels, which engaged with customers to create potential revenue and increase profits. The literature review gives brief knowledge regarding the sustainable food value chain and its significance in defining the sustainability concept and its scope, giving a depth description of canvass business model techniques that develop the firm's strategies to achieve its financial and social objectives. The canvass business model defines each block's internal goals and value proposition and establishes internal communication among blocks. The research gap identifies how the business model canvass becomes more objective-oriented to set the parameter for firmsto achieve the financial goal and vision. It generates significance of sustainable food value chain in food processing firms to attain the long-term goal of firms, achieve the vision and mission of firms, identify the gap of lack of implementation of the sustainable food value chain, and canvass business model in food processing firms.

Section 1.3 Sustainable food value chain (SFVC)

Food, agriculture, and Organization (FAO) provide

the sustainable food value chain practices is allowed the inculcation of successive value chain activities to produce the quality food product and performed the transformation process of processed food to deliver a quality based diet. The SFVC concept adopted the consumerism related to taste, packaging, and color to develop the features of food processing and directly impacted firms' profitability, and achieving the competitive Advantage to cover the board area of society, with the support of the sustainability dimension. The first dimension of SFVC is based on the economic perspective of firms to achieve financial gain. The second dimension of Sustainability is related to social welfare,which provides the enabling environment to support secondary activities on firm performances. The third dimension is associated with the environmental extent to achieving the environmental goal and objectives. The SFVC concept emphasizes a dynamic, multi-dimensional approach and allows the integration of technology that depends on the market-driven approach and accepts the vertical, horizontal governance system. The SFVC generates the sustainability indicators that measure the firm's performance and generate self-sufficiency to increase the value chain analysis of the food chain. The following are the factors responsible for the creation of SFVC. A) the first phase is applied to measure firms' performance and generate information used for decision-making and optimum utilization of resources (Neven, 2014). b) SFVC identifies the gap which occurred during the food processing arises due to less adaptation of sustainable practices, low productivity, and developed the design of firms to discriminate between actual and potential performance, c) the SFVC generate the wide scope of Sustainability of agriculture, health and food system related to all sector, which inclined to energy conservation and established the standard
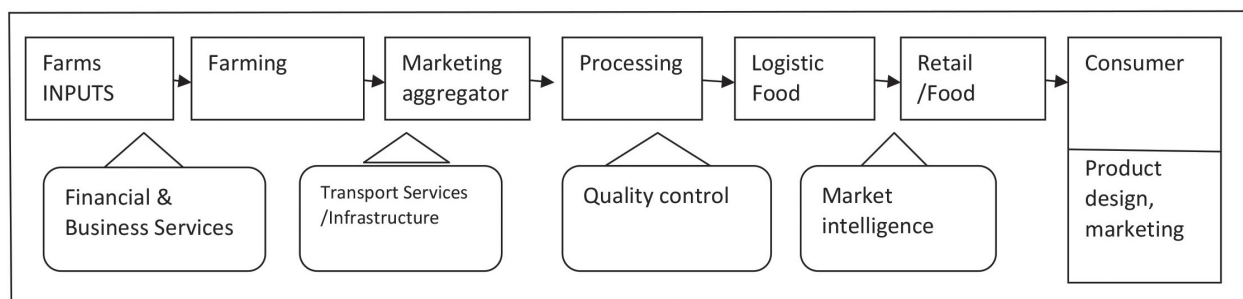

Fig. 2. The given figure illustrates the sustainable food value chain framework, whichindicates the series of steps involve for value creation in the Food value chain.

Source: Adopted from KPMG Analysis

benchmark of sustainability parameters. The SFVC attains the long-term goal of societal development and achieves the farming objective. The third phase of SFVCD focuses on improving the value chain's performance with sustainability indicators [www.fao.org].

Section 1.4. Sustainable food value chain fame work model

The Sustainable food value chain framework model develops the cordial relation among several components offood value chain to achieve the long-term sustainable objectives. The current scenario emphasizes the sustainable food system practices, which improve the product life cycle of food products and facilitate the complete filling of the wide gap in the processing and distribution of processed food, which supports resolving the problem of food insecurity and lack of resources Wagamama, (2011). The SFVC framework aimed to provide farm input, farming, marketing aggregators, and processing information. It can be applied for primary and second-

ary processing of firms, which generates information applied for decision-making and develops transparency of issues. Stefan *et al.* (2011). The SFVC developed the collaborative paradigm' of supply chain management,which creates the competitive environment and achieves the firms' objectives.

This sustainable food value chain framework model describes the value-added activities that are consist of several factors to develop the farming practices, which involvein processing, market aggregator, etc., and developed to enable in an environment of finance and business services, transport service/infrastructure, and developed the quality control and the market intelligence which provides the product design, sustainable firms and improve the food processing firms as permarket requirement. The sustainable food product incorporates product design and marketing concerning time, cost, place,etc. (Harry *et al.*, 2011) to promote the bottom-up approach for developing sustainable organization, which enables the natural environment, and social factors to achieve sustainable organization and generate the expected returns as a form of finan-

Table 1. The Given table illustrate the Advantage and disadvantage of the Business Model canvass and the scope of business opportunity

Advantages of Business Model Canvass	Disadvantages of Business Model canvass	Scope of business Opportunity
1. BMC help to visualize the firm's objective and vision, which focuses on the critical areas of teamwork.	1. The external factors forcea business model, such as competitors, market factors, and government policies that affect firms' BMC model.	1. Business model canvass is a developed strategic management tool to specify the defined business idea.
2. Canvass business model generates the knowledge related to competitive strategies of firms to provide a better internal insight of the company	2. The business model did not accommodate business and developed eachstage.	2. The BMC developed the nine-building block, consisting of adesign template.
3. Business model canvass is identifying the critical elements of business and developing a value proposition related to the operation, customer, and finance	3. The business model canvass developed the enabling the risk assumption within a business model without offering a straight forward way to verify them	3. It offers a visualchart with elements of product value proposition, infrastructure, customer, and finance, which assists inaligning their activities.
4. Business model canvass generates a holistic approach view of your business which focuses on critical elements to provide insight related to a customer.	4. The business model canvass does not implement in small enterprises; it becomes difficult to align all activities in each block	4. The business model generates the opportunity todevelopcore competenciesin product development and firms' strategic decision

cial gain and return as assets, and developing information technology in the food value chain.

Section 2.1 Canvass Business model performance assessment techniques of the sustainable food value chain

The Canvass business model was evolved by Alexander Osterwalder and had applied to evaluate the performance assessment of the food value chain. It is a technique to control the performance of critical factors and classify these factors into nine different blocks, allocate functions in each actor of blocks, has assigned the tasks and responsibilities among key partners, which develop the effective coordination among communication and outcomes. The Canvass business model technique creates competitive advantages in enterprises, which generates a new structure, and makes the ability for the sustainable development of firms (Prasetyawan, 2017). The Canvass business model technique is applied to design firms, maintain the balance between effective working patterns, and achieve the competitive Advan-

Fig. 4. The given figure illustrates that the business model canvas is a pre-structured canvas with nine basic building blocks, as outlined below.

tage of firms. The canvass business model has developed the value proposition in firms' internal and external functions that maintain the balance between customer relations. The BMC techniques are consist of various actors to achieve the following objectives are (a) to design the structure of firms and develop the competitive strategies to achieve the long term goal of firms, (b) and analyze each block with their critical partners of canvass business model (c) and consolidate the outcome of various analyses, applied for decision making to developed the competitive strategies to measure the performance of food value chain Elena *et al*. (2017)

The Canvass business model briefly defines firms' structure andcompetitive strategy to achieve each block's goal and objectives, which assigned function and role to perform their responsibilities. The Canvass Business model developed the parameters for achieving their competitive strategy with their key partners, key activities, value proposition, customer relationship, segments, and revenue stream. Each block performed multiple tasks and established cordial relations with each block. The actors and intermediaries performed to support the management solutions for Business Model Canvass model to perform the different functions related to designing of the firm, competitive structure, of other actors and stakeholders, which could be possible with the following the three objectives are (1) to developed the blocks with their actors and assigned the function to identified the actual requirement of firms, (2) to developed the value proposition which collaborates with canvass business model, to achieve the sustainable value proposition and generate function responsibilities infirms, (3) The canvass business model formulates the sustainable value proposition in firms and adopts the sustainability parameters. This template in the Canvass Business model provided the information related to every actor in a block. It developed the link with each block to de-

Table 2. Shows the Gross Value Added (GVA) of all Food Processing Industries (FPI), during the period (2016-17 to 2021-22) in terms of percentage.

SI. No.	Economic Activity	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22
1	GVA-All India	11.0%	6.1%	6.6%	4.9%	7.7%	9.2%
2.	GVA Manufacturing	16.8%	7.2%	6.8%	7%	9.6%	8.8%
3	GVA – Agriculture, Forestry, and Fishing	17.9%	6.5%	17.6%	18.4%	20.2%	3.9%
4	GVA-FPI*	22.00%	10.49%	20.21%	-3.45%	7.3%	9.2%

Sources: www.ibef.org, www.mofpi.gov.in, Food Processing Industry in India: Challenges and Potential (2020), www.business-standard.com, (2021)

sign the framework structure of firms to achieve the long-term sustainable objective and measure the performance of different metrics (Elena *et al.*, 2015).

VI. Section 3.1. Advantages of the sustainable food value chain

The SFVC practices have the following advantages a. to increase food processing capacity, generate quality food, protecting from environmental hazards, and conserve resources. B.SFVC provides the advantages of society's welfare based on future generations' requirements, reducing poverty, providing food security, and food availability. C. SFVC increases the value-chain activities in each stage of the food chain, which achieves the significant returns of an asset, b. and generates advantages, c.which allows exemption from paying taxes and providesthe environmentsecurity. The SFVC achieves the standard performance of food processing and breaks down the activities into different stages, which made more competitive, and inclusion of small farmers (Neven, 2014). The SFVC framework structure has achieved the Advantage of critical attributes that enable all factors and accommodate the national and international environments to generate growth and opportunities. The SFVC value addition process increases the shelf life, food security, sustainable nutrition of food processing which adopts the risk mitigation strategies for reduces the unpredictable risk related for the demand and loss of food grain, which directly impacts on governance system, to up-grade and establish the communication among various stakeholders.

VII. Section 3.2 Challenges faced by the sustainable food value chain

The SFVC is facing the significant challenges related to depletion of funds, scarcity of resources, poor production, lack of government support, and climatic change, which are substantial causes of disruption of value chain practices in India. According tothe Panel on Climate Change (IPCC), fore casts the global warming which going to increase by 1.3 °C, in the year (2040), which made direct impacts on low production and developed the adverse effect on food processing firms and generate pulse production which created the approx. The population of about 9.3 billion in 2050 will increase the demand for processed food and make the double burden of climate change, reducing agriculture productivity (Monastyrnaya, 2017). A sustainable food value chain framework develops the coordination among several vital functions and their actors to achieve financial, social, and environmental goals and sustainable strategies to build the business models. The varied demography of population and geographical area is a crucial challenge, which causes the various issues related to the demand for nutritious food, food security, depletion of resources, unfavorable climate and the productivity of land, etc. The SFVC efficiently resolved the challenges related to the productivity of food grain, high labor cost, high use of all resources, and future scarcity of resources, people, and the planet. The rising challenges of food processing firms are increasing the price volatility of food commodities, lack of non renewable resources, and high volatility in market prices, which tend to
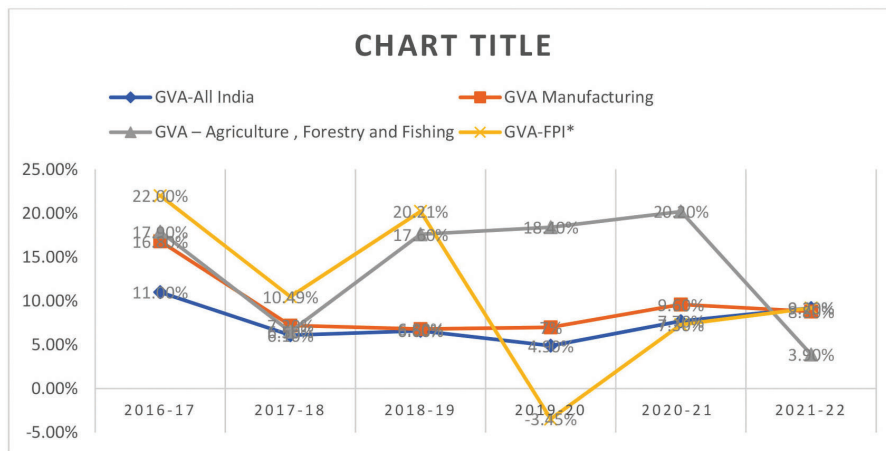

Fig. 4. The given figure illustrates that the business model canvas is a pre-structured canvas with nine basic building blocks, as outlined below.

grow consumerism, reduce the demand for processed food and develop a more nitrous diet, which will consume easily.

VIII. Section 3.3 Comparison of growth of Food processing industries in India

The gross food value-added performance of all sectors

The given tables show the performance of all sectors during the year (2016-17 to 2021-22), with gross value addition of economic activity. The gross food value-added focused on the growth and decline of industries during that period, which is related to manufacturing, agriculture, forestry, and fishing, shows their performance which raises the economic development of industries

(% Share in Total GVA) source by MOPI

The successive increment of gross value-added activities of food processing industries identifies the high growth in the year 2018-19 was 20.21%, showing high growth and down in the year 2019-20 was -3.45%. In comparing the subsequent development of food agriculture, forestry, and fisheries industries highlighted, 2020-21 was 20.20%, which shows high growth. The year 2021-22 is 3.90%, which shows that the development of food processing industries went down. This successive steady and consistent performance of Gross value added of the manufacturing sectors shows that very high in the year 2016-17 was 17.90% and delivered a consistent performance in the year 2021-22 was 8.8%. The gross value added of India processing industries, including all sectors, shows the consistent performance at high in the year 2016-17 was increased 11.0 % compared to 2021-22 are 8.30%, which shows down in the year 2021-20. All food sectors and industries are required to adopt the sustainable practices and industrial development policies related to quality upgradation, technology, and governance system, of all sectors, which achieve the successive growth and adopt sustainability measures in the sustainable food value chain to achieve the strategic and successive growth and profit for all industries.

Conclusion

The SFVC contributes to food processing industries and agricultural food sectors to define their role

infirms' growth and raise the economy. It could be possible with the support of sustainable agriculture and food processing industries, which help establish cordial relations amongtheir partners. The SFVC covers the broad scope and opportunity for all smalland largefirms based on sustainability measuresto achieve sustainable food processing practices. The SFVC frame work developed the outline structure of firms. It established the different entities to perform the other functions of each actor, which define the role of the canvas business modelis applied to measure the performance of food processing firms and develop the core competencies. The objectives of SFVCare to provide sustainable organization, conserve the renewable and nonrenewable resources of source energy and quality food, achieve competencies, and adopt the environmental paradigm. The SFVC faces significant challenges related to poor production, climatic change, lack of resources, lack of awareness, and issues that reduce sustainable implementation practicesin their food value chain. SFVC reduces the price volatility, high food commodities, and fluctuation of market demand, which reduces the consumption of processed food. The research emphasizes the food processing industry performance in terms of gross value added activity with different sectors and is inclined towards the growth of industries. The study discussed the growth and performance of all industries over the last five years, which shows it is essential that all firms should adopt the sustainability practice and sustainable pulse value chain impact, which directly increases the economy and generates profit for firms as well as cover the broad area of social welfare.

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