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SUSTAINABLE AGRICULTURE: AN OVERVIEW AND ITS CHALLENGES IN INDIA

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ABSTRACT

The ever-increasing population of India puts enormous strain on agricultural fields and other Natural resources in order to generate more food. Increased use of chemical fertilizers in agriculture may make the country food self-sufficient, but also degrades the environment and has severe effects on living creatures. During the green revolution, tremendous food production was observed, with little regard for sustainability. Chemical fertilizer reliance for future agricultural growth would result in greater soil degradation and the risk of water contamination. Soil loss (together with soil fertility), rising water demand from agricultural practices, and pollution from heavy use of agrochemicals are among the most significant concerns facing agriculture's long-term viability. Biodiversity losses as a result of land use changes, as well as greenhouse gas emissions from agricultural activities, are also sources of worry. A number of alternative agricultural methods are also offered that can help to reduce the use of natural resources, limit inputs, and preserve soil fertility and biodiversity, all of which can help to make agriculture less environmentally detrimental. Sustainable agriculture is a concept based on human aims and an understanding of how our actions affect the environment and other animals in the long run. To construct integrated, resource-conserving, and fair farming systems, prior experience and the most recent scientific advancements are combined. These methods help to protect the environment, preserve agricultural productivity, promote short- and long-term economic viability, and sustain stable rural communities and quality of life.

KEYWORDS: *Sustainable Agriculture, Biodiversity, Integrated Approach, Ecological, Sustainability, Climate, Natural Resources.*

INTRODUCTION

The share of the agriculture industry to GDP (Gross Domestic Product) and employment in the Indian economy indicates its worth. This industry contributes greatly to the country's long term economic development. Long term sustainability of agriculture in any country depends on interaction between agricultural activities and the ecological environment. In reality, it influences the portion of a country like India, where most of the population lives in rural India and relies on agriculture for a living, despite decades of expanding urbanization.

As a result, if agriculture fails, it would be disastrous for the economy, as declining agricultural normal growth affects employment even on GDP. The greater goal of improving the agriculture sector can be achieved by rapid agricultural growth, which is dependent on increasing cropping intensity, area under cultivation, and productivity. However, boosting productivity is more vital than the other two for a country like India. This is due to the country's small land area, rising urbanization, and industrialization.

There are two strategies to boost productivity. To begin, increase outputs by making systematic work of accessible resources. Second, by varying input, you can increase results. In terms of productivity and lengthy viability, the first option is superior. However, due to the rising population, this strategy will not be able to give a long term answer.

As a result, we can opt for a second alternative, which has the potential to degrade the economy's environmental sustainability. As a result, concerns relating to sustainable agriculture development must be addressed.

Sustainable Agriculture:-

Sustainable agriculture refers to planting exercises that connect society's present food and industrial requests while not jeopardising upcoming creation's capacity to meet by themselves. It could be acceptable on a hold of ecological facilities.

Sustainable Agriculture Development:

Traditional production systems, modern agriculture systems, and sustainable agriculture systems are three basic parts of farming systems that can be discussed. These systems can be compared with three levels of sustainability: ecological, economical, and social.

Ecological Sustainability:

The majority of customary and ordinary farming exercises are not environmentally sound. They just waste natural deposits, causing soil erosion and benefectioning to global climate by lowering soil fertility and promoting soil erosion.

1. Soil Fertility:-

In many places of India, a continual decline in soil fertility is a severe problem. Fertility and soil structure are enhanced by Sustainable agriculture.

2. Water:

Irrigation consumes the most clean water, and compost and fungicides pollute both top and groundwater. Sustainable agriculture raises the top soil's biological issue level, which improves its ability to retain and store rainwater.

3. Biodiversity:-

Mixed cropping is a sustainable agriculture strategy that increases crop diversity and on the other side it also boosts the divergence of plants, animals and other insects and plants.

Social Sustainability:-

The concepts of social acceptability and fairness are linked to social sustainability in farming systems. Poverty reduction is essential for long-term development. The government must devise strategies to ensure that the impoverished in rural areas benefit from agricultural development. When a part of society is left out of growth chances, it is referred to as social injustice. However, a strong social sustainability system can help close the space amid the "have" and the "have not". Numberless innovative telecommunication breakdown to get traction in the agriculture field because they are not accepted by the local population. The reason for local social conventions is customary based on it, traditions, and so on, sustainable agriculture techniques are beneficial. The locals are more likely to welcome and adopt them because they are familiar to them. Furthermore, sustainable agriculture approaches rely on both traditional knowledge and local creativity. Locals are knowledgeable about their crops and livestock, as well as their environment. Traditional agriculture is more gendered, with women carrying the brunt of the labour load. Men and women are equally burdened and rewarded in sustainable agriculture. Sustainable agriculture enhances

food security by enhancing the quality and nutritional worth of food and by producing a wider range of products through time, whereas conventional farming focuses on a few commodities. The caste and wealth-oriented people were also driving traditional farming. The wealthy and upper castes benefited the most, while the poor and lower castes were largely ignored. Sustainable agriculture aims to provide equal involvement by acknowledging each person's voice and speech.

Sustainable agriculture is a broad concept that aims to achieve the following goals: 1. meeting

desired food, feed, fibre, and fuel production; 2. Economic agricultural production; 3. natural

resource conservation; 4. Environmental protection; 5. Gender equity; and 6. Avoiding regional imbalances. In India, the primary concern has been to produce enough food and fibre to fulfil the demands of an ever-increasing population, which has nearly tripled since independence.

Sustainable Agriculture and Economics:-

Farmers don't have much economic capacity to work for higher pricing for their process and outcomes due to increasing consolidation of food manufacturers and marketers, as well as agricultural input suppliers. As a result, farmers' profit margins are tightened, leaving them with limited resources to enhance environmental and labour conditions. Farmers can strengthen their relative economic power by forming a producing, processing unit. Other ways for farmers to get an economic gain of what they produce in their farm like high value specialty crops, setup processing unit, direct marketing of their products in the markets. Farmers can get long term benefits from the regulation of policies.

Challenges to Sustainable Agriculture:-

As a consequence of its harmful effect on natural deposits and the environment, agriculture output is currently on an unsustainable growth trajectory. A third of farmland has been damaged and up to 75% of crop genetic variety lost as well as 22 percent animal beget.13 million hectare area of forest have been changed to various field uses each year over the last decade. The time of when demand increasing for food, field, fibre and service of goods, from side of agriculture is quickly expanding, the overriding challenges are increasing shortage and rapid valuation of natural deposits. Some of the fastest population increase is expected in agriculturally dependent areas with high levels of food insecurity. The problem is further complicated by additional elements, many of which are interconnected:-

1. Natural resources competition will continue to grow. This could be due to urbanization, agriculture competition, agriculture growth of expensive forest, factory and industrial water consumption and recycle and use. Traditional users are being set out of resources and Market places in many places as a result of it.

2. Agriculture is both a cause and a result of climate change. Climate change makes production systems less resilient and adds to the depletion of natural resources. Temperature rises, altered precipitation patterns, and extreme weather occurrences are all projected to worsen in the future.

3. With the increase in the time of people and service of goods, some change in production and environmental change also emerge threatening food safety purpose, human being health related condition and less effective and sustainability of increasing demand system.

4. The production and resource conservation policy agendas and procedures are mostly disconnected. Ecosystems and/or landscapes do not have a clear coordinated management strategy.

What needs to be done?

The aforementioned problems create birth to essential concept regarding driving the developing method of innovative approachable and the transformation to sustainability:-

1. Area of improving resources capacity is criticism for long lived agricultural viability.

2. Sustainability involves proactive preservation, protection and improvement of natural deposits.

3. People, communities, and ecosystems must be more resilient to climate change and market instability in order for sustainable agriculture to succeed.

4. Both natural and human systems require good governance for long-term viability.

CONCLUSION

Agriculture has a lot of potential to be sustainable–to generate enough food and other agricultural products for today while also promoting human and environmental wellbeing and safeguarding future generations' ability to do so. It will be difficult to meet the sustainability challenges of increasing intensification, climate change, biodiversity loss, and other environmental changes; nevertheless, with the appropriate incentives, new research, and political will, it is possible.

Is today's agriculture a long-term solution? By a long shot, no. Tomorrow's could be, if we're willing to take action.

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