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SUSTAINABAL AGRICULTURE DEVELOPMENT: CONCEPT AND ROSPECT

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ABSTRACT

Agriculture sustainability is prime challenges arises before all developing economies. Indian agriculture sector also face the distress and became more challengeable in this modern era. To protect agriculture productivity, profitability, growth and make it socially as well as environmentally sustainable. The necessary steps in this direction should be taken by government, NGO's and all individual farmers for protect our future. There is no significance difference between the sustainable agriculture development in economic, social and environmental prospective.

KEYWORD: Sustainable development, Sustainable agriculture practices, Knowledge index.

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I. INTRODUCTION:

Agricultureis a most common driving force in many developing economies and Indian economy has not exclude from it. The development force is key factor behind all kind of changes over a period of time in the world. Agriculture is a most common and familiar business for the community from ancient time. But after industrial revolution the agriculture sector has treat as business and expected outcome as same. The technological innovations and upgradations hit the agriculture development in many fold as per the requirement. The global force has create many challenges before agriculture sector, the commercialization of agriculture has divert it towards more unsustainability. The present scenario of Indian agriculture reflect the impact of unsustainability exited in agriculture sector. The effort of government in the direction of sustainable agriculture development has explicit the importance of sustainability in agriculture. To maintain sustainability government has undertaken many plan and policies like improvement in soil fertility on a sustainable basis through introduced Soil Health Card Scheme, 'Pradhan Mantri Krishi Sinchai Yojana' for efficient access of irrigation and increased water efficiency. To support organic farming system through the 'Paramparagat Krishi Vikas Yojana' and minimization of risk in agriculture sector a new scheme "Pradhan Mantri Fasal Bima Yojana has been launched and implemented for Kharif crop from 2016.

The present research study has intensively and extensively exhibit the concept of sustainable agriculture along with it explain various indicators of sustainable agriculture development and their inter relations. In this research work the primary dada has collected through questionnaire from fifty farmers to evaluate their understanding about sustainable agriculture. A Knowledge Index of Sustainable agriculture practices has exhibit the actual condition in the study areas.

II. OBJECTIVES OF STUDY:

1. To define the concept of sustainable agriculture.

2. To explain the various indicators of sustainable agriculture development.
3. To discuss the result of Knowledge index.
4.To provide conclusion and suggestion for sustainable agriculture development.

III. RESEARCH METHODOLOGY:

The present research work has based on primary and secondary data. The primary data of fifty farmers has collected through well design questionnaire. The fifty farmer's respondent were conveniently selected from Satar, Sangli and Solapur districts for sampling. The secondary data has collected from published sources in academic libraries, records, books and journals, articles, government report, Economic survey of India, Agriculture census etc. The time series data of selected variables from 2001 to 2018 has used to analyses and conclusion.Researcher will use the important statistical techniques to examine and interpret the data. The various tools such as percentage, Compound Growth Rate, etc.

IV. WHAT IS SUSTAINABLE AGRICULTURE?

Sustainable agriculture is not a new concept but it has present in new way after the Brundtland Report has published in 1987. Before this period such concept had known as natural farming and which was practiced from ancient time. The sustainable agriculture means the production of food, fiber, or other plant or animal products using farming techniques that secure environment, public health, human communities, and animal welfare.

A broadly acceptable definition of sustainable agriculture, from a biophysical perspective, has been proposed by the Technical Advisory Committee (TAC) of the Consultative Group on International Agricultural Research (CGIAR): "Sustainable agriculture involves the successful management of resources for agriculture to satisfy changing human needs, while maintaining or enhancing the quality of the environment and conserving natural resources" (Julian Dumanski, 1998)

V. INDICATORS OF SUSTAINABLE AGRICULTURE:

Sustainable agriculture is a practice oriented concept and not a complete unitary at all level and places. The assessment of sustainability has linked with the farming system.The sustainable agriculture indicators has not different from the economic social and environmental aspect of agriculture. The following three aspect can clarified the dimensions of sustainable agriculture development.

1. Economic Indicator:

Economic variables are very important and expose the first impression of agriculture sector. The short period reflation of agriculture sector could be understood through the economic variables. In this respects, the economic sustainability has nothing but economic viability of farm and expected that the farming system can survive in the long term in a changing of economic context. Economic viability has mainly focused on profitability of farm, liquidity, stability and productivity. Productivity is a measure of the ability of the factors of production to generate output. The ratio of output to input explain the productivity of farm and it is expected that, the trend of productivity has at least constant over a period of time. Profitability and productivity indicators are mainly quantitative indicators and are expressed in monetary terms or as ratios. Some other studies refer to 'autonomy' as an indicator of economic sustainability. Autonomy is essential measure considerin every system. It is a social indicator express the autonomy in use of input, burden of debt, dependency on

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subsidies for farm all consider while measuring economic sustainability in the respect of agriculture.

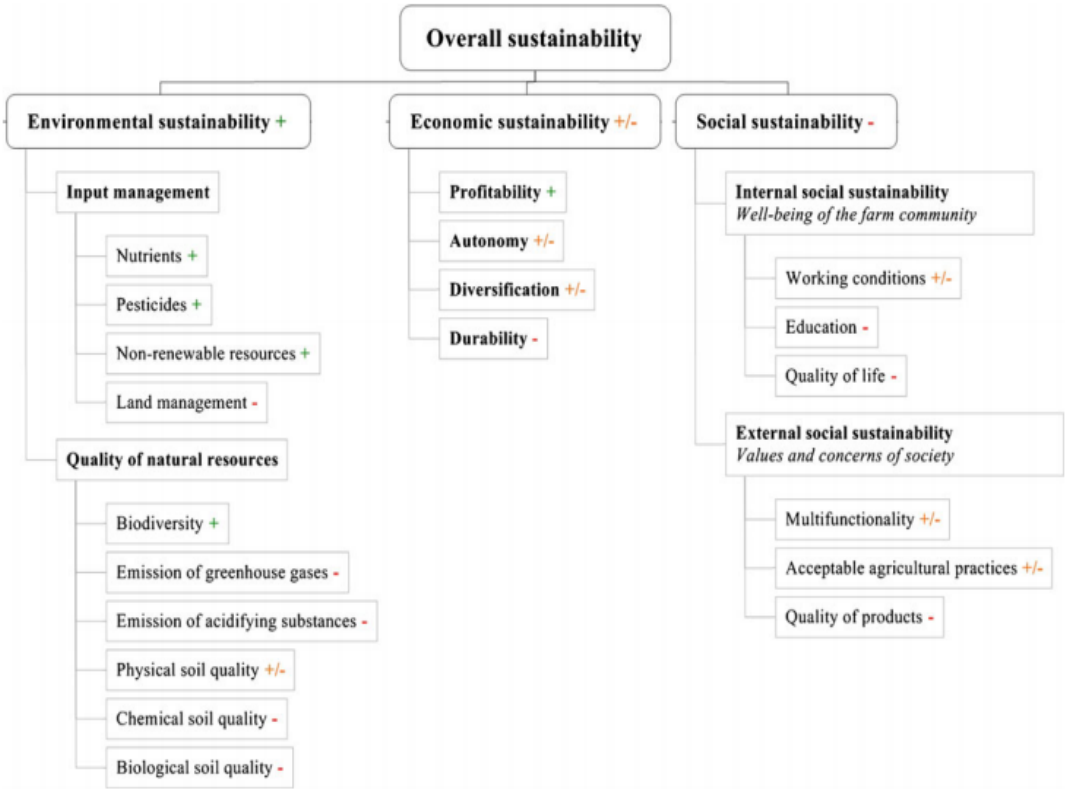
2. Environmental Indicator:

The environmental indicators for sustainable agriculture has meanly belong to the soil conservation, use of renewable resources in agriculture, emission of GHG, water quality and many more.Sustainable agriculture is frequently defined as an ecologically sound practices that have little to no adverse effect on natural ecosystems. Sustainable agriculture also seeks to have a positive impact on natural resources as well as wildlife.

3. Social Indicator:

The social sustainability has belong to the farmer community in two way's like Firstly, there is social sustainability has related to the well-being of the farmers and their families. The group of the indicators found in the literature having three main categories, like education, working conditions and quality of life. The second group consist multi functionality, acceptable agricultural practices and quality of products. These indicator include various aspect like as in multi functionality includes quality of rural areas, contribution to employment and ecosystem services, the acceptable agricultural practices contained environmental impacts and animal welfare , and the quality of products has includes food safety and quality processes.

However, from this short explanation the summery of above explanation and specification of indicator can explain through the following tree diagram.



Source: (Stilmant, 2012)

VI. KNOWLEDGE INDEX –RESULT AND DISCUSSION:

The sustainable agriculture is practice related concept and heterogeneous in nature. The data of agriculture practices of the fifty farmers were collected from three district. In this researcher work the knowledge tests has use to reflect the gap between actual

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agriculture practices and sustainable agriculture practices. The respondent's knowledge score classify into three knowledge level categories namely: Low, Medium and High. Category.Score Low Category 0 to 3 Medium Category 4 to 6 High Category 7 to 10 Knowledge Index of farmers was calculated by using following formula.

1. **Calculation of Knowledge Index:**

$$\textbf{KnowledgeIndex}=\frac{\text{Respondent's total score}}{Total\ posible\ score}*100$$

2. Outcomes of Knowledge Index:

The calculations and result of knowledge index reflect that out of fifty farmers 60 % were don't know about such concept as well as 70 % of them does not undertake any kind of sustainable agriculture practices in their farm. Approximate 70% cultivators has accepted that the sustainable agriculture became economically viable in long run, use GM seed and prefer organic fertilizer for cultivation. The 80% farmers were agree that agriculture is playing vital role in social development of people. The more than 90% respondent are known about soil erosion and undertake remedial measures to protect soil fertility.

On this analysis it clear that present agriculture practices has limited scope to maintain sustainability of agriculture sector. It is necessary to aware the in present time about challenges has stood before this sector. There are argent need to undertake a broad program for increase awareness about sustainable agriculture practices at field level. The handheld training of farming practices should be provided by government, NGO's in that field to minimize unsustainable practices in agriculture.

VII. CONCLUSION AND SUGGESIONS:

In short, after this brief discussion, it is observe that the agriculture sector development has so connected with the economic, social and environmental development. For the present time as well as near future sustainable agriculture practices is necessary for to secure the future of next generation. The present challenge before the agriculture sector could meet through the sustainable agriculture practices. The social, environment problems belong to agriculture can remove through long term continuous effort. The government and other social institution has already started working in the direction of sustainable agriculture development.

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