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Study on the Adverse Effects of Agriculture on Environment

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Abstract:

It is well known that maximum part of the earth is used in the agricultural field for the production of food. This agricultural field is mostly affected by the environment as it depends upon the natural resources (soil, water, air etc.). In the same way, the agricultural activities also affect the environment because of the need of more production of food (large population). To overcome this problem, farmers use new technologies in which most of the technique give an adverse effect on the environment as the different factors such as chemical fertilizers, use of pesticides, and more irrigation create the problems of land degradation, soil erosion, production of harmful gases, water pollution etc. These problems harms the health of organisms. So, there is a need to reduce the impact of agriculture on the environment by reducing these problems. This review paper gives an idea about how to reduce the impact of agricultural activities on the environment. Government started a scheme of sustainable agriculture through which the impact on the environment can be reduced.

Keywords: *Chemical Fertilizers, Erosion, Agricultural Activities.*

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Introduction

Nature is the beneficial source for humans from the existence as they were dealing with the agricultural events. They have applied various agricultural techniques without any disturbance in the nature for a long time. Various activities, methods and results of the science and technology had a nature disruption attributes. From these results (damage in nature), human being were unaware for a certain period of time. The humans are harming the environment which is not considered because of the renewability features of environment. With the time, the detriments on environment is being increased due to which the renewable capability of the environment is not working.

Nowadays, the growth of the population is increasing continuously due to which the demand of agricultural land for food fiber and fuel is also growing. The disagreeable facts (using of plastic bags) which are followed by the every nation for the development without knowing the environmental impact of degradation and pollution of agricultural lands due to which global environment is changing and has become a challenge to living systems. In reducing the environmental and agricultural land pollutions, both the business sector and the individual consumers plays an important role. The environmental and agricultural land pollution such as waste water and solid waste discharges and energy use are strictly reduced by business sectors over these years along with consumer have increased environmental and agricultural land pollution. The concern of the global community and caring media around the world have been raised due to the negative environmental impacts and agriculture land pollution.

Agriculture and Environment

The intensification of agriculture impact on the environment that indicates the use of unsustainable resources and modern inputs such as chemicals and machinery. The common domains for agriculture are water, soil, air and biodiversity. Due to any detrimental effect on these domains creates an impact on the environment. The change in the climate is the global threat that harms the agriculture, natural eco-system, water supply, health, soil and atmosphere are the component that maintain the sustainability of the life on earth. Many factors such as temperature, rainfall, and extreme weather events related with the climate change affects the crops.

Impact of Agriculture on Environment

Agriculture activities are affected by the environmental condition. Agriculture is a major cause of many types of environmental degradation such as 25 to 33% greenhouses gases are emitted from the agricultural activities, 40% land of earth surface for agriculture, more than 70% freshwater withdrawals for the agricultural field, deforestation and habitat fragmentation, loss of biodiversity and agrochemicals make aquatic water acidic. So, there is a need to understand the relation between diets, agricultural production practices and environmental degradation. Agriculture system has both negative and positive impacts on the environment.

1. **Negative Effects of Agricultural Application**: The place where human, animals and plant live together is known as an environment. The environment is divided into two parts; man-made and natural environment. The environment is polluted day by day because of the rapid industry, urbanization, organic and inorganic wastes are left in the environment. Unintended usage of agricultural lands and wrong agricultural application like chemical fertilizers, also damage the environment. There are different factors through which environment is affected:

    a. **Degradation of Land:** Irrigation is the main factor for the degradation of land. The importance of irrigation is very high in agricultural field. Environmental issues are basically due to wrong irrigation. During the irrigation of water, rising of ground water, salinity, fertilizers and chemical additives residues are gone deeper into the ground. Trace elements are mixed with the water sources due to which soil erosion, water make disease harms the living organism. It can be said that land use and amount of soil erosion are affected by the agricultural policies.

    b. **Biodiversity:** A wide variety of agro-climatic condition is found in India that works as a shelter for animals and plants. But now, number of plant and animal species are endangered; some species have been extinct due to the fact of more and more commercialization of agricultural industry.

    c. **Pesticides Usage:** Pesticides are used to kill or control the harmful pests like insect, microorganism etc. they are mixed with the soil during the cultivation due to which they absorbed by the water, food and environment and harm human and animals. It also contaminates the surface water. According to World Health Organization (WHO)'s classification very dangerous pesticides are

33, quite dangerous are only 48, and moderately dangerous are 118 pesticides while 239 pesticides are less dangerous. Developed countries use the pesticides at the rate of 75%.

d. **Disposal of industrial and Agriculture Wastes:** The increment in the harmful gases such as carbon dioxide and carbon monoxide is due to the burning of By-products such as paddy straw, and rice husk. These gases produce the respiratory problems for the animals and human beings.

Industries and domestic uses create the many products such as affluent water, smoke and un-degradable solid waste which are responsible for the toxicity in plant, aquatic life and animals. It also unbalanced the soil nutrients.

e. **Chemical Fertilizer Usage**: The excessive use or wrong use of chemical fertilizers can cause to the environmental pollution such as soil washing, contamination to ground water, drinking water, stream and sea are because of the high amount of nitrogen fertilizers. So, many countries make a limit to the usage of the fertilizers. Excess of micronutrient elements in soil are harmless to the domestic plants. Hence, they have more importance than nitrogen and phosphorous fertilizers.

2. **Positive Effect of Agricultural Application:** Various positive environmental effects are seen because of the agricultural applications as in the fertilization field, photosynthesis consists oxygen, increased in the atmosphere. 12 ton oxygen in per 1 ha area constitute by the cereal production. Agriculture area produces the more oxygen in comparison of forests and empty areas. Another is food that become more affordable to the consumer as the costs of production is less.

Review of Literature

Önder, Ceyhan and Kahraman (2011) analyzed that different types of chemicals are used to produce a high quality food but this chemicals also affects the non-target organisms that result to ecological imbalance. A new agriculture technique 'sustainable agriculture' is an environmental friendly as this is good agriculture practice, organic agriculture and precision agriculture.

Parris (2011) studied the impact of agriculture on water pollution In OECD (Organization for Economic Co-operation and Development) countries and gave a conclusion that agriculture actives pollute the surface water, groundwater, marine water and drinking water that harms the ecosystem. They give a suggestion that sustainable management of water quality in agriculture can reduce the water pollution.

Vats (2012), in this paper, he studied about the effect of burn crop on environment and concluded that a large amount of smoke in short duration is produced by agriculture burning. Permission is required to burn the agriculture that can reduce the impacts. By taking permission, type and amount of agriculture materials can be restricted.

Adomako and Ampadu (2015) studied that some agriculture activities effects such as deforestation, land clearing, slash burn agriculture, irrigation etc. can give an adverse effects on the target 'environment'. Hence, for reversing the environmental degradation trend and enhance the conservation of the basic resources of the environment, the respective roles should be played by the stakeholder. The positive impact on agriculture-environment-health synergies is seen because of the sustainable agricultural technologies.

Ali (2016) proposed that different types of alternative inputs should be used by farmers instead of those input that give adverse effect on environment and damage the biological diversity. Various methods such as polycultures in term of fallow rotation, use of residues, bio- manuring, alley cropping, contour planning should be applied to promote sustainable agriculture.

Chatterjee, Lamba and Zaveri (2017) gave a conclusion on their research that the ground water level is decreasing due to the high cultivation of wheat. The reason behind the decline in the ground water level is Subsidy Induce Shift from pulse cultivation to wheat cultivation.

Rohila *et al.* (2017) studied the 'Impact of Agricultural Practices on Environment' and concluded that for improving the agriculture infrastructure, strengthening research, new policies are needed. By new laws and regulation, new technologies and their enhancement would be possible in the field of agriculture which are in the favor of environment.

According to Almaraz *et al.* (2018), oxides of nitrogen is mostly produce by agriculture (major source). These oxides emission affects the quality of air and human health. The knowledge of the sources, and their distribution and then the impact of biologically produced oxides of nitrogen should be improved which will enhance the ability to mitigate emissions in the future.

Conclusion

Environment and agriculture are correlated to each other as both are affected by the activities of each

other. In this manner, agriculture has some positive as well as some negative effects on the environment. Due to the negative effect caused by chemical fertilizers, use of pesticides and others, the environment and ecosystem are being disturbed in a large quantity by harming the health of organisms. So, there is a need to reduce these effects by emerging new technologies in the field of agriculture. After reviewing the conclusions of many researcher, this review paper concludes that the sustainable agriculture system can help in reducing the impacts of agriculture on the environment by using the favorable farming techniques that protects the environment, and organism's health.

References:

Chatterjee, Shoumitro, *et al.* "*The Water Gap: Environmental Effects of Agricultural Subsidies in India.*" June 2017. Available at: http://www.princeton.edu/~sc20/papers/water_crop_6june2017.pdf

Adomako, Theophilus, and Boateng Ampadu. *"The Impact of Agricultural Practices on Environmental Sustainability in Ghana: A Review." Journal of Sustainable Development,* vol. 8, no. 8, 2015.

Ali, Sk Ajim. "Impact of Modern Agricultural Technology on Environment: A Case Study in Memari Block of Burdwan District, West Bengal." *The Journal of Bengal Geographer*, vol. 5, ser. 2, Apr. 2016, pp. 4–22. 2.

ÖNDER, Mustafa, *et al.* "Effects of Agricultural Practices on Environment." *International Conference on Biology, Environment and Chemistry*, vol. 24, 2011, pp. 28–32.

Vats, Naresh Kr. "Crop Residues Burning is Detrimental to Environment." *International Journal of Law and Legal Jurisprudence Studies*, vol. 2, no. 1, Jan. 2012, pp. 1–7.

ROHILA, A. K., *et al.* "Impact of Agricultural Practices on Environment." *Asian Journal of Microbiology, Biotechnology and Environmental Sciences*, vol. 19, ser. 2, Feb. 2017, pp. 145–148. 2.

Almaraz, Maya, *et al.* "Agriculture Is a Major Source of NO x Pollution in California*." Science Advances*, vol. 4, no. 1, 2018.

Clark, Michael, and David Tilman. "Comparative Analysis of Environmental Impacts of Agricultural Production Systems, Agricultural Input Efficiency, and Food Choice." *Environmental Research Letters*, vol. 12, no. 6, Jan. 2017.

Parris, Kevin. "Impact of Agriculture on Water Pollution in OECD Countries: Recent Trends and Future Prospects." *International Journal of Water Resources Development*, vol. 27, no. 1, June 2011, pp. 33–52.