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Organic Farming: Challenges And Scope in Purba Bardhhaman District Of West Bengal

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ABSTRACT:

Sustainable agriculture and sustainable development both are interconnected. Sustainable agriculture means to fulfil the human needs along with maintaining the quality of environment and conserving natural resources. Organic farming is one of them, through which we can attain the objectives of the sustainable agriculture as well as sustainable development. It is not as like the traditional agricultural system; it includes some special methods. It is based upon the natural fertilizers and some eco-friend methods. It prohibits the use of chemical fertilizers, pesticides, herbicides, insecticides and maintaining the quality of soil. It is a very recent thought or approach to avoid the bad effects of the chemical based agriculture. Most of the people in the world are now aware about the bad effects of chemical based agro-products. Hence, they are buying organic high premium agro-products for health. It is now being practiced in more than 100 countries in the world. This farming got priority globally of its healthiness and free from the harmfulness of chemicals. Green revolution makes the developing countries like India self-sufficient in the food production, but along the side it raises the use of chemicals in the agricultural fields and decreases the quality of soil. Organic farming restores the quality of soil by reducing the use of chemicals in the agriculturalfields.

Keywords: *Green Revolution, Sustainable Agriculture, Organic Farming, Organic Food industries, Sustainable Development.*

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INTRODUCTION:

India is an agrarian country as its main economic standard is depending upon the agriculture and its allied services. Agriculture in India first time started by the Harappan people almost before 3000 B.C.E. During that time the people wanted to settle themselves and thus the people started the agricultural practice. They were set up their settlements in the river basin as the river basin contents fertile alluvial soil. India rank 2nd in the world due to its ever-increasing population. The cultivable land is shrinking day to day due to provide them the shelter. Thus, the demand for agricultural products are increased. Hence, we must improve the agricultural productivity and maintain the soil fertility. The green revolution is such a way, through which we can increase the agricultural productivity, by using HYV Seeds, chemical fertilizers, pesticides and development of irrigation facilities and to prepare the skilled labour [Bobita, Thakur, M. (2015)]. After the independence (1947) agricultural development started through the green revolution. It was introduced in 1960s by the First Five-Year Plan (1952-57) to an increase in food grain (wheat) production. It was started first in Punjab, Haryana and Uttar Pradesh. Introduction of modern machineries and scientific technologies along with modern agricultural equipment, irrigation facilities, High Yielding Varieties (HYV) seeds, pesticides, herbicides and insecticideshelptheIndianagriculturetomodernizedfromitstraditionalform.Fromthefarmerspointofview, it had some positive impact in its initial stage. But within a short time, usage of excessive chemical fertilizers make the soil unfit for agriculture by killing the micro-organisms and worms, present in the soil, in Punjab and Haryana. Thus, the quality and quantity of the products both are damaged [Patra, S., Mishra, P.(2016)].

Discussion:

To meet the huge demand for food and for the high profit of the farmers pesticides, it has some positiveimpacts in its initial stage, which motivate the farmers to use it in a large-scale. But, day to day, it makes the soil unproductive and damage the plant's quality [Patra, S., Mishra, P.(2016)].

Most of the Indian people are involved in agriculture and agro-based industries. But now a days it started to decline from last one decade (2009-2018). In 1991 it was 66.80%, 2001 it was 56.60%, in 2009 it was 52.12% and 2018 it was decline as low as 43.86%. Among them 8% falls in West Bengal.

According to the Food and Agriculture Organisation (FAO), 'Sustainable agriculture' means, to manage the resources on the behalf of human needs and to conserve the environment and natural resources. It has an impact to increase the agricultural growth rate, which help to meet the ever-increasing food demands of the people Roychowdhury, R. (2013). Sustainable development can strengthen the economy of any place by scientific use of its natural resources (Flint, RW) 2013. According to the United Nations Sustainable Development (UNSD), sustainable development faced a challenge to preserve the ecological balance for both

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present and future generation. As it has maximum concentration to achieve the economic strength and not for the environmental stability Strange, T., Bayley, A. (2008). India faced the maximum problem in this regard, as it has 16% of the World's population within only 2.5% of the earth's land [UNEP, 2001]. It makes widespread problem of poverty, unscientific way to manage the natural resources is causing or, resulting the shortage of reserved natural resources.It will be more dangerous in the world by 2020 [World Bank, 2008]. In developingcountries,toincreasetheagriculturalproduction,useofchemicalfertilizersiscommon.In Asia, chemical fertilizers contribute as much as 50% growth of yield [FAO, 1998]. It is due to bringing huge land under cultivation with deficiency of various minerals accelerate the Indian farmers to use huge chemicals in the agricultural fields [Planning Commission of India, 2011]. Hence, for maintaining high crops productivity, soil quality and healthy ecosystem, we must adopt an alternative farming system, like organic farming [Bobita, Thakur, M., Ahmed, N.(2015)].

In the past fifty years, there has been two noteworthybreakthroughsconcerning to standard shift in agriculture field in West Bengal-

1. Effectiveexecution of the landreforms.
2. High growth rate ofpopulation.

In developing countries, land reform is essential for the agricultural growth and to check poverty. But the growth of population creates high demand for food and increase the pressure on land [Patra, S., Mishra, P., Mahapatra, S.C., Mithun, S.K. (2016)] (Fig. 1).

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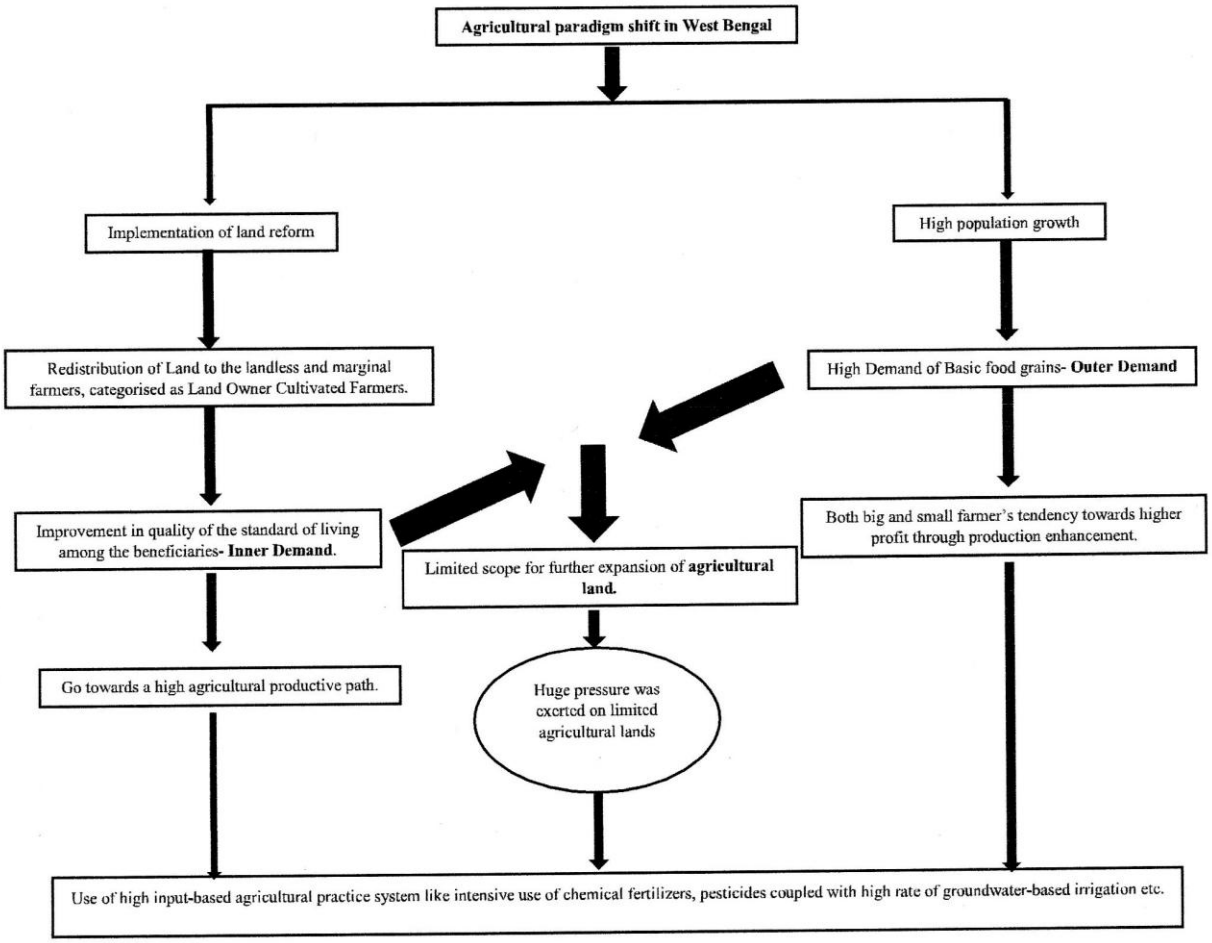


Fig. 1 Shift mechanism in agricultural paradigm in West Bengal

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In late 1970s Modern agricultural system was introduced in this Bengal. In 1977-78, only 26% of the total agricultural land started to use HYV of seeds and technology and it reached to 90% in 1998-99 [Kar, NB. (2011)]. But due to spread of green revolution concept, most of them stopped to use organic manures. Due to this steadysurge in food call, highrigorous farming led to exceeding the land's natural capabilities [Sarkar, R., Chakraborti, B. (2007)].

There are numerousclassifications of organic farming the most comprehensive definition is given by the United States Department of Agriculture (USDA). According to them, Organic Farming is defined as a system that is designed and maintained to produce agricultural products through natural methods and preserve the products in an organic way until/ unless it reaches to the consumers.

Chemical pesticides and fertilizers increased the contaminants in the food products. It causes large-scale health risks for the humans, wildlife and other macro and micro-organism, which helps to regain soil fertility Wolfenson, M. (2013).

Table 1. Percentage of land falling under organic farming in the world, 2019 are as follows:

Country	Percentage of land under organic farming (million hectares)
Africa	1.3
Asia	2.9
Europe	7.2
North America	2.2
South America and Caribbean Island	6.4
Australia and New Zealand	12.1

Source: *IFOAM – Organics International and Its action group.*

It is not only found in the developing countries, but developed countries were also a witness for this. Thus, an urgent action or measure was needed to check this situation [Food and Agriculture Organisation (FAO), 2012]. Modern agricultural practice produces 1/3rdof the world greenhouse gases, due to the use of chemicals, machineries and other agricultural equipment. It causes wind and water erosion, soil fertility loss and water holding capacity, desertification causes by vegetation loss and pesticides, herbicides and insecticides causes groundwater pollution [Food and Agriculture Organisation (FAO), 2011].

During last few years, the dreadfulcatastrophic events such as increase in cyclones, heat waves, natural disasters, frequent floods environmental pollution and loss of biodiversity stood as a major threat to human

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existence (UNISDR), 2012. Most of the people threaten by the safe food products and due to high prices of organic products, it does not achieve its goal to reducing hunger and poverty of the people. Thus, the people of the world must be united to solve this serious problem, as soon as possible [Food and Agriculture Organization (FAO), 2008]. Organic farming accelerates the development of the communities and the environment [Wyatt, B. (2010)].

Many countries promote Organic Agriculture to avoid facing larger evils, like unjustifiableagri-rural development and environmental degradation etc Pratap, T. (2010). The concept of organic farming is a traditional concept for the Indian Farmers, as it is practiced in the areas with hills, mountains, tribes and diverse climatic conditions. Still it is used by the small Indian farmers with outdated tools and techniques Bobita, Thakur, M. (2015). Organic farming of vegetables is still in its infancy in India and there isnotmuchworkdoneinthisfieldSingh,S.K.,Yadav,B.R.,Singh,J.,Singh,B.(2017).

ORGANIC FARMING: It is a way of farming where chemical fertilizers, pesticides, herbicides, insecticides and High Yielding Varieties (HYV) of seeds are not using. It is totally based upon the organic fertilizers. In this farming process maximum priority is given to the good quality of seeds and saplings and increasing the immunity power of the plants. The farming is also concentrated on the quality of food products and to maintain the quality of soil. It causes almost no environmental pollution. Hence, it is called eco-friend in nature.

Organic food products are very famous among the developed countries. But now in India the demand for organic food products are increased day by day.

MAIN PRINCIPLES OF ORGANIC FARMING

The main principles of organic farming are as followsChandrashekar, H.M. (2010):

- To preserve the soil fertility for a long period oftime.
- Tocheckalltypesofpollution,causedbyagriculturalmachineriesandagriculturalequipment.
- To produce the good quality food products in enoughquantity.
- To minimize the use of fossil fuels in agriculturalpractice.
- It provides the opportunities of animal rearing for thefarmers.
- It makes the earning opportunities for thefarmers.

The main pillars of organic farming are:

- Organic thresholdstandards.
- Reliable mechanisms regarding certification and regulatoryaffairs.

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- Technologypackages.
- Efficient and feasible marketnetwork.

GREEN REVOLUTION TECHNOLOGY: The term 'Green Revolution' has been used to mean two different things. For some it refers to a comprehensivealteration of agricultural sector in the developing countries to reduce food shortage and others are telling it refers to the specific plant improvements through HYV seeds.

Modern agricultural system came into state in the late 1970, when land started to use High Yielding Varieties of seeds and it became 90% in 1998-99. But due to spread of green revolution concept, most of them stopped to use organic manures. This technology has required the following facilities-

1. **High Yielding Varieties of Seeds:** Farmers are aware about the important of good quality seeds in cultivation as it increases of 10-20% of production. They are using seeds of in different quality, as because they can store the seeds during off seasons, in a cheap cost for their poor economic conditions and lack of technical knowledge. Thus, the government took some measures to check the condition, theyare-
   (a) to conductresearch.
   (b) to promote large-scale production and distributing the improvedseeds.
   (c) provision of adequate credit facilities, based on the farmers need, to purchase and use HYV of seeds, and expansion of irrigation, fertilizers, Chemical-pesticides which are necessary for efficient use of qualityseeds.High Yielding Varieties of seeds are increasing the production. Thus, in West Bengal, Government is supplying High Yielding Varieties of seeds to the poor farmers, from the Panchayats, in each year for increasing the production.

2. **Consumption of Fertilizers:** Use of chemical fertilizers played an important role for boosting agricultural outputs. India has a vast variety of soil, with the nitrogen and phosphorus deficiency, hence, only by using chemical fertilizers, we can meet the situation. But the Seventh Five Year plan is associated with the rise in use of organicmanures.
   In West Bengal, more than 80 per cent of the farmers are using chemical fertilizers, while 61.20% are using organic manures. More than 80% of the farmers are unable to use fertilizers due to poor economic conditions.
3. **Extension of irrigation system:** Water is an essential element for agricultural development. Heavy rainfall with evenly distributed areas has no problem of water, but in the other areas irrigation is must for the agricultural development. Different crops are having different water requirements, like rice,

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wheat and jute require more water supply to ensure the rise in agricultural production. Dry seasons cultivation became possible due to the development of irrigation infrastructure inIndia.

In West Bengal, agricultural development (Ravi and Kharif crops) became easy and spread rapidly during C.P.I. (M) government period, due to well-developed irrigation facilities. Govt. of West Bengal has been providing the irrigation facilities, especially to the poor farmers.

4. **Mechanisation:** Scientific tools and agricultural equipment along with technological advancement accelerate the improvement of High Yielding Varieties seeds cultivation. Development of technology, modern machineries along with irrigation infrastructure made the agriculture possible to produce three to four types of crops in an agricultural field in one year. Old and outdated tools and techniques are taking huge time for the agricultural operation, which became more fast, due to the advancement of tools andtechniques.

   In West Bengal, the Government is encouraging the poor farmers to use the advance tools and techniques, and, in this regard, the government has also been arranged the credit facilities for the poor farmers.

5. **Agricultural Credits:** Credit facilities, given by the Government or, Non-Government Organisation (NGOs) sectors, made a remarkable reform in the Bengal's agriculture. After 1977, the C.P.I. (M) Government provides various types of credit facilities scheme for the poor farmers. The co-operative societies played a vital role in this regard[Shodganga.inflibnet.ac.in].

AGRICULTURE AND FIVE-YEAR PLANS IN INDIA: After the Independence in 1947, the Indian agriculture was in backward due to over exploitation of natural resources and lack of economic development. So, the first task of Indian Government was to initiate the growth of Indian agriculture. Therefore, Planning Commission of India in 1950 to assess the country's need. The First Five-Year Plan commenced in April 1, 1951 and it was followed by a series of Five- Year Plan. Each one them is related to different aims and objectives for the country's economic development.

ORGANIC FARMING RESEARCH CENTRE IN WEST BENGAL (DRCSC):

DRCSC stand for Development Research Communication and Services Centre. It is an NGO, working for around 14 districts of the Bengal and few other states. They work in groups from hundreds of villages reaching about 800 farmers. Its major concern is to resolve the problems of food security of the below povertyfamily through sustainable management of available resources. This work is implemented locally through a network of 8 organization in West Bengal through a broadergrid of around 100 organisation.

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RESEARCH OBJECTIVES:

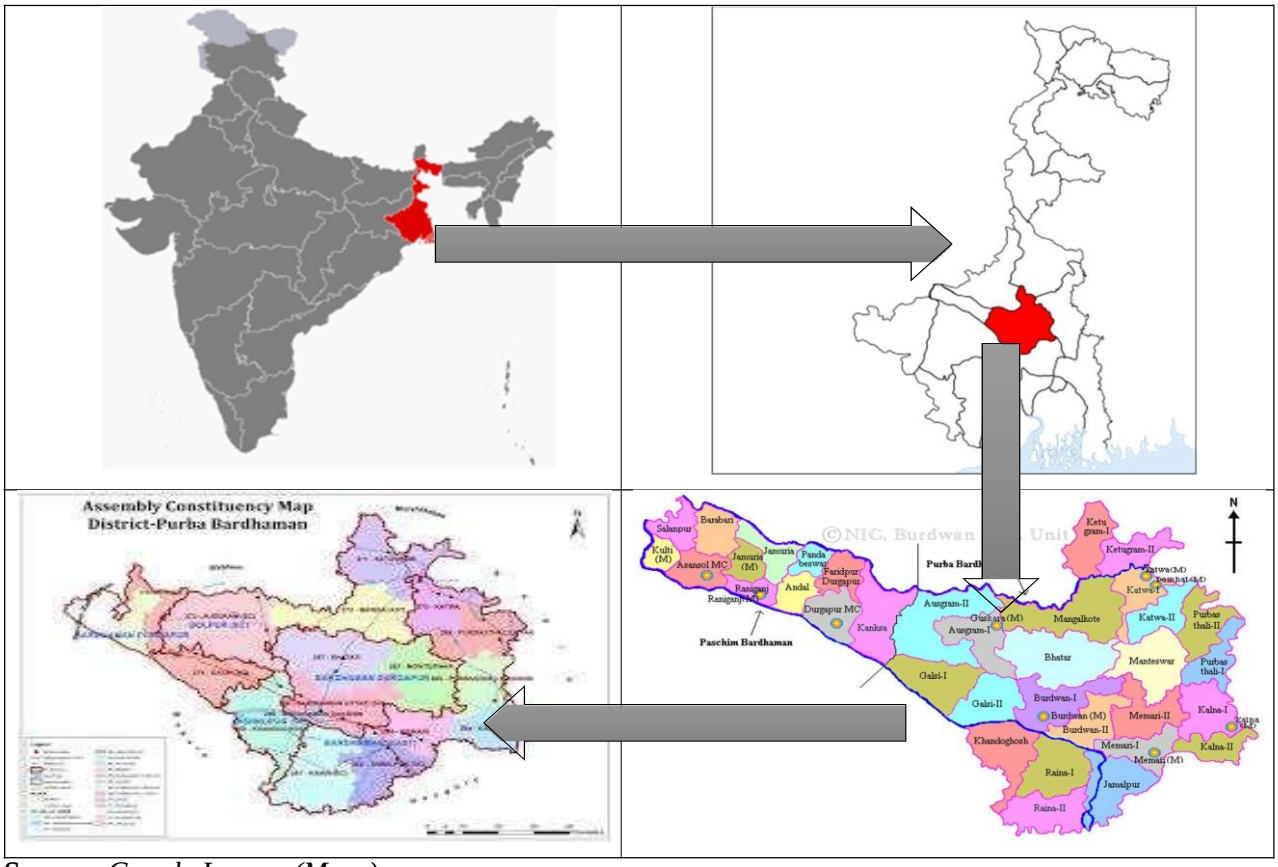
- To spread awareness among the Indians about the significance of organic food products and its environmentalvalues.
- TodeveloptheirrigationfacilitiesinIndia,asthemonsoonrainfallisnotevenlydistributedinIndia.
- To study about the organic farming or its alternative farming and itsadvantages.
- To enhance the benefits of agriculture for the farmers rather than the Multinational companies.
- To protect the life of the farmers because sometimes they are committed to suicide due to high production cost and naturalcalamities.

STUDY AREA:

Selected study area is PurbaBardhaman. It is in 23° 13' 57.0468" N and 87° 51' 48.3084" E latitude and longitude respectively.ItisasmalldistrictofWestBengal,situatedintheWestofWestBengal.Theareaishighlyfertileasit isdrained by several rivers, like Damodar, Ajay, Bhagarathi- Hoogly etc. The study area is well developed in agriculture. Most of the people in this region are involved in the agriculture and relatedactivities.

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Source: *Google Images (Maps)*

RESEARCH METHODOLOGY:

The choice of suitable methodology at the first hand depends upon the nature of the research problems; a researcher adopts a number of steps while conducting research. Both the sources, primary as well as on secondary sources.

Sampling: Sampling technique can be used. Since the organic farms are there in a scatter way in almost all blocks of PurbaBardhaman District of West Bengal. Hence, random sampling we can used to show the organic farms with different agro-products as well as cluster sampling we can used to show the group of farmers are involving in the various works of an organic farms. Size of sample will be decided on the basis of number of farmers and farmlands in that particular village/blocks/tehsils/districts.

Data collection: In this study primary as well as secondary data will be used, and the further analysis of primary and secondary data will be done through statistical methods. The diagrams, tables and maps will be used to represent the results.

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Primary Data: Primary data will be needed for the views on socio-economic conditions of the farmers and relevant problems related to the research topic. This will be collected by field survey. Field survey involves Farmland to Farmland survey of selected farmlands from various villages, household to household survey of sampled households of selected households from various villages and/or blocks under PurbaBardhaman District of West Bengal. The primary data will be collected on the basis of self-administered interview schedule.

Secondary Data: Secondary data related to the organic farming will be collected from Census of India, Research Journals, Articles, Conference papers, Newspaper reports, ICAR database, Survey of India Regional Office- Kolkata, Ministry of Agricultural Development-Govt. of WB, Ministry of Rural Development- Govt. of WB, Land and Land Reforms Departments- Govt. of WB, Municipalities and Block Offices, ***Banglarbhumi***website and other relatedwebsites.

Techniques of data analysis:*Statistical techniques:* Statistical techniques we will use for analysis and interpretation of raw data and to find out the relationship between variables.

Methods of data presentation: Suitable statistical and mapping techniques will be used to present the data in diagrammatic and tabular form forbettervisualrepresentationandunderstandingofthedata,someofthetechniquestobeusedare-

1. **Bar-graphs:** It helps us to show the comparison between the farmers of PurbaBardhaman and other districts of West Bengal are involved in organicfarming.

2. **Pie-diagrams:** It helps us to show the number of farmers is involving in the organic agriculture as well as chemicalbased-agriculture.

3. **Tables:** It helps us to show the amount of several organic food products are used by the people of PurbaBardhaman District of WestBengal.

4. **Maps:** It helps us to show the spatial distribution of the organic farms in PurbaBardhaman District of West Bengal.

Conclusion: At the end of my study I want to conclude my proposed research topic by mentioning that thisstudyhelpthepoorfarmersofmystudyarea‘PurbaBardhamandistrictofWestBengal’toadoptthe

organic farming process to feed the ever-increasing people, to earn the money and to protect the environmental degradation caused by chemicals used in conventional agricultural system.

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