

A STUDY OF THE IMPACT OF MODERN TECHNOLOGY ON THE WORK AND WORKING CONDITIONS OF AGRICULTURAL LABORERS



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ABSTRACT

Over the course of the last half-century, advancements have been made in the field of sustainability. For example, the best management practises agricultural sector and policies that have been updated for the benefit of agriculture are extensively adopted and have been effective at highlighting the need of external inputs to rise in today's society. Reduced susceptibility to illness thanks to newly developed hybrids. the manufacture of food This has resulted in an increase in the use of pesticides, biological methods of pest management, cultural practises, inorganic fertiliser, and animal intake of pesticides, all of which have the potential to lower the occurrence of illnesses and pests. products for animal feed as well as tractors and other types of machinery. These insect-specific chemicals and biological insect controls are now being used instead of broad-spectrum treatments and procedures because they are foreign inputs that have replaced for natural resources. As a result, the effectiveness of these treatments has been reduced. Insecticides pesticides, which actually cut down on the amount of sprays needed, have largely replaced the biological, cultural, and mechanical approaches that were formerly utilised, and consequently their capitals. GIS, Crop models as well as methods for preventing and treating diseases, weeds, and insects.

KEYWORD: treating diseases, biological methods, illness, pest management.

INTRODUCTION

Inorganic remote sensing can offer information to farmers about fertilisers that have replaced livestock manures, allowing for the realisation of precision agriculture. This type of agriculture involves matching composts with crops that fix nitrogen. The first obstacle that must be overcome in order to practise sustainable agriculture is to optimise the use of these field's various inputs in accordance with the actual yields they produce. These tools provide a crucial function while also enabling the utilisation of internal resources. Regenerating wildlife is one way that agriculture may use these resources to better manage land so that it can be used for agriculture while also reducing the amount of outside inputs that are required.

The vast majority of policies still actively support farming, and this is because they can manage the liquidity and supply issues associated with being dependent on external inputs and technology.

REVIEW LITERATURE

Mehdi Haghshenas (1987) This piece explores two distinct topics that are connected to one another. To begin, there is the process of labour being displaced from the subsistence or peasant sector as a result of the influence of mechanisation, which results in the creation of a "surplus population." The usage of available labour in the subsistence and market sectors, as well as the availability of labour, is the subject of the second theme. The size of the underutilization problem provides strong evidence that growth in emerging nations has followed a trend that is not uniform.

.Sukhpal Singh (2003) His report, entitled "Contract Farming in India: Impacts on Women and Child Workers," argues for the necessity of taking a gender perspective to address the entire question of a changing agrarian production structure under contract farming, particularly issues associated with the transfer of skills, choice of technology, organisation of labour, working conditions, and terms of employment. He suggests that prohibiting child labour is not the solution; rather, the working conditions for these children need to be made more tolerable, and their education and skills need to be built so that they can free themselves and their families from the cycle of poverty and exploitation that they are currently caught in. In addition to this, he proposes the establishment of industry-regulated standards of behaviour in conjunction with legislative measures in order to boost the voice and influence of contract workers.

Rao (2008) (does what its title says: gives a comprehensive framework to look at the possibilities of sustainable agriculture in India. The framework is based on trends, data, and assessments made by specialists covering three areas. These domains are the primary forces driving agriculture's development, efficiency, and stability. The domains are as follows: natural resources, which include land, water, climate, and the environment; human development, which includes the characteristics of farmers as producers and entrepreneurs;

and technology and institutions, which provide the development thrust and means for harmonising growth, social justice, and adjustment to globalisation. The conclusion of the study presents three possible outcomes, ranging from undesirable to good. It should not come as a surprise that the prospects for agriculture are regarded to depend, in the ultimate analysis, not so much on nature or circumstances that are beyond control as they do on the friendliness of the policy regime towards farmers, agriculture, and rural communities.

Sharmistha Self (2008) published her research in the "International Journal of Development Issues" with the title "Developing Countries and Fertility: Role of Agricultural Technology." The objective of this study is to investigate the influence that advances in agricultural technology have had on the fertility rates of emerging nations. It is anticipated in this article that advances in agricultural technology would change production methods as well as patterns of labour demand, both of which will have an effect on fertility rates. The hypothesis is put to the test through an empirical investigation utilising the methodologies of ordinary least squares and instrumental variables estimation. According to the findings, advances in agricultural technology have both a direct and an indirect detrimental effect on fertility. When technology is broken down into its component parts, such as mechanical technology and biochemical technology, there is a stronger case to be made that mechanical technology is the primary factor in declining fertility.

Mohammad Shaikh (2009) in "Indian Journal of Agronomy," under the heading "Modern Concepts of Agricultural Research: Ripples and Options for Conservation Agriculture and Resource Use Efficiency," the following was discussed: In the second part of the 20th century, India made the transition from traditional organic agriculture to chemical-based industrial agriculture, which led to the country's achievement of food self-sufficiency. The production levels have reached a plateau, and various issues concerning the health of the soil, the production of crops, and the environment have become extremely important in the new century. Because of this, agricultural methods and the goals of research need to undergo paradigm transformations. Systems Rice intensification is beneficial to water conservation, although it is challenging to implement. However, organic sources of nutrients are not adequate to cover the nutritional requirements of crops, and organic farming results in a significant drop in crop yields.

In a similar manner, they expel the poisons that are stored there in the stomachs of the deadly insects that crop plants attract. Farmers will receive an early warning from nanosensors before the onset of a pest, illness, or nutritional deficit that may cause damage to their crops. After the harvest of aerobic rice, planting anaerobic crops using resource conservation technology can help save money and cut down on the amount of time spent preparing the field. Because of this, early planting of crops following rice harvest will be made easier, and they may take use of the carryover moisture in the soil or a shallow irrigation. When planting seeds with heavy gear, you run the risk of eventually compacting the ground. Even while the residue on the soil's surface contributes organic matter, there is a possibility that it may inhibit the seedlings' ability to develop normally. Rice hulls and straw may provide a safe

haven for rats and other rodents, as well as a breeding ground for snakes, which are all potential health hazards.

Iddrisu Seidu (2011) a research project titled "The Effects of Agricultural Modernization on Poverty Reduction: A Case Study of the Tono Irrigation Scheme in the Kassena-Nankana District of the UpperEast Region of Ghana" has been carried out. Over the course of the last three decades, there has been a gradual shift toward the awareness that the construction of irrigation systems may be a source of long-term poverty reduction. From the standpoint of the Tono Irrigation Scheme, the purpose of this study was to determine whether or not irrigated agriculture contributes to a reduction in the level of poverty experienced by the residents of the Kassena-Nankana District. The area can be found in Ghana's Upper East Region, which has a poverty rate of 90 percent, meaning that nine out of 10 people living there are regarded to be living in poverty.

RESEARCH METHODOLOGY

Methods of random sampling were used to choose the farmers who would participate in the study as sample subjects for the study. On the basis of the amount of fertilisers that were applied per acre by the farmers, each of the villages that make up the block were divided into one of three groups. Random selection was used to choose four villages from each distinct group of towns for the purpose of this investigation, which involved a total of 12 communities.

The communities that were chosen are presented in the table above in accordance with the different size groupings of farms. In every one of the villages that were chosen, a list of the cultivators who worked the land was compiled, together with the total amount of fertiliser that each farmer used over the course of the year. For the purpose of the study, fifty farmers were chosen at random from each of the four categories of villages included on this list. Despite this, when selecting farmers to participate, efforts were taken to ensure that they were more representative of the entire block. In the table that follows, the salient features of both the population that served as the sample and the Jagatsinghpur block as a whole have been detailed.

Characteristics Of Sample Cultivators As A Whole

Items	Average of sample cultivators
1. Average size of Holding (hectres)	2.85
2. Percentage area Irrigated	All are irrigated
3. Intensity of cropping	136.00
4. Percentage area under:	

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Paddy	52.10	
Pulses	23.00	
Potato	4.77	
Others	21.13	

Data Collection

In order to obtain this information, we looked at a variety of primary and secondary sources.

The records of the District Agricultural Office, which are kept by the Directorate of Agriculture in Bhubaneswar, as well as the many publications produced by the governments of Orissa and India, as well as the Jagatsinghpur Block, were the secondary sources. In addition, we resorted to both published and unpublished research papers that were pertinent to our investigation.

The farmers, agriculture workers, and block authorities of the Jagatsinghpur block were the primary sources of information utilised in the collection of primary data. Personal interviews and questionnaires were employed as methods of data collection. Appendix-1 contains a copy of the questionnaire for your convenience.

Techniques Of Analysis

In order to conduct the analysis of the data obtained from the sample farms, the tabulation technique was utilised. In order to determine whether or not there is a correlation between the earnings of farmers and the numerous observations that have been made, several individual factor ratios are being employed.

On the other hand, in some situations, simple correlation and multiple regression analysis have been utilised. This is particularly the case in circumstances in which the aforementioned methods appear to be insufficient to produce exact conclusions.

In conclusion, ordinal ranking and quantitative approaches were utilised in order to investigate the level of financial disparity that exists between farmers whose holdings were of varying sizes. In order to investigate the distribution of ordinary ranking, the Lorentz curve method was applied in this study. Methods such as Gini's Mean Difference, standard deviation, and coefficient of variation are now being utilised in an effort to measure the extent of the disparity in the manner in which income is distributed. In conclusion, numerous different significance tests were performed in order to draw conclusions from the findings that were acquired.

Data Presentation

In accordance with the specifications, the necessary tables, diagrams, charts, and graphs have been included where they belong.

Objectives Of The Study

It has been decided to undertake a micro research at the grass-roots level in the Jagatsinghpur block of the Jagatsinghpur district in Orissa in order to determine how the introduction of new technologies affects the income of local farmers. This research contains a consideration of the link between inputs and outputs, as well as the influence this relationship has on the distribution of income. The pattern of farm income expenditures and savings of various categories of farmers will be analysed in the study.

DATA ANALYSIS

The expansion of the economy is seen as the most important factor in the country of India's overall economic development. A fundamental and long-term programme of investment and return is what is meant by the word "planning strategy." The planning on a macro level was not suitable for the minor units such as a block at all. In the last chapter, we discussed the many different plans that were put into action both before and after independence in order to incorporate new economic technologies. The physical factors, such as the location, soil, climate, and amount of rainfall, as well as the economic factors, such as the availability of irrigation facilities, the size of the farm, organisation, cooperation, transport facilities, and communication, as well as the use of improved agricultural inputs. The profile of the block that was chosen for the micro level study may be found in this chapter.

Economic Factors

The term "economic factors" refers to any and all elements that are in some way connected to the economic pursuits of man. These aspects are described in more detail below and include things like infrastructure, transportation, communication, occupation, land usage, irrigation, and marketing, amongst others.

Infrastructure

The quick economic development of the Block is dependent on the development of its economic infrastructure. The growth of the market was directly correlated to the construction of new highways and other transportation hubs. The Jagatsinghpur District places a high priority on this particular block. Six primary health facilities located within allopathic medical institutions and one homoeopathic dispensary are responsible for providing the residents of this block with their required medical care services. CESCO, located in Bhubaneswar, Orissa, has brought electricity to each and every one of the villages that fall under the jurisdiction of the Jagatsinghpur block. In addition to the numerous privately

owned wells and tube-wells, the government dug and constructed 389 tube wells to supply the population with drinking water. At Jagatsinghpur, there is one veterinary hospital and dispensary, one VAS centre, 24 live-stocks help stations, 19 livestock inspectors, and 24 artificial insemination centres to ensure the health of the animals.

Transport And Communication

It should come as no surprise that the expansion of Blocks communities would require more access to roadways. People cannot be integrated into society and the economy unless they have access to reliable modes of transportation and communication. Not only is it an essential part of the development of the Block, but it is also widely acknowledged as an efficient programme for alleviating poverty. This Block is also traversed by the canal that connects Jagatsinghpur and Machhagan. This canal was once utilised for the movement of a significant quantity of commodities; however, at the present time, this route is not being utilised. Therefore, vehicle travel is the primary mode of transportation utilised in this area. The Block now has access to postal and communications services as a result of these developments. Within the Block, there are 7 sub-post offices in addition to the 36 branch post offices. This district now has 32 telephone exchanges, which has significantly boosted the capacity of the existing communication system. From the Jagatsinghpur Block location, the distance to the national highway is 10 kilometres, while the distance to the state highway is 109 kilometres.

Occupational Distribution Of Jagatsinghpur Block

Occupation	Male	Female	Total
A. Non workers	27 240	38 211	65 451
B. Marginal workers	280	1 210	1 490
C. Main workers	28 122	3 204	31 326
-> Construction			880
-> Trade & commerce			1 822
Mining & quarrying			4
-> Manufacturing, processing & repairs			2 218
-> Transport, storage & communication			612

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-> Cultivators			8 912
-> Agricultural Labourers			9 220
-> Fishing and hunting			312
-> Other services			7 346

Occupational Pattern

A breakdown of the inhabitants in Jagatsinghpur Block according to their primary occupation can be seen in Table 4.3. According to the data presented in Table 4.3, which can be found above, the percentage of primary workers is as follows: 2.80% are employed in construction, 5.8% are engaged in trade and commerce, 7.08% are engaged in manufacturing, processing, 28.4% are employed in cultivators, and 29.43% are agricultural labourers.

Land Utilization

The ways in which the Block makes use of its territory are outlined in Table 4.4. It is clear from the data shown in the table that agriculture is practised on 57.40% of the total land area within the Block. If the intensity of cropping system that is now being utilised in the block is continued to be implemented, there is a chance that more areas will be brought under double cropping at the current level of cultivable land.

Land Utilisation in Jagatsinghpur Block

Particulars	Area in hectares	Percentage
Geographical Area	18 656	100
Forest Area	18	0.09
Miscellaneous Tree crops & Grooves	374	2.00
not included in net area shown		
Permanent pasture & other grazing lands	546	2.92
Cultivable waste	117	0.62
Land put to Non-agricultural use	3 261	17.48

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Barren and uncultivated land	215	1.15
Current Follows	838	4.50
Other Follows	741	3.97
Net Area shown	10 710	57.40
Gross Cropped area	14 411	77,24

Irrigation

As a result of the high level of susceptibility that it has to the whims of the monsoon, agricultural output must be increased before it can be improved, and this requires the construction of more irrigation systems. As a result, the actions pertaining to irrigation and flood control have been given priority throughout the plan years. Irrigation facilities are available to nearly all of the total farmed land that is located on the Block. During the Rabi seasons, the water supply from the government canals has been cut off. The following provides specifics on the irrigated land in the block:

Source Wise Distribution Of Irrigated Area

Sources of Irrigation	Irrigated area (in Hectares)	Irrigated Area (in Percentage)
Govt canal	11 595	95.47
Lift Irrigation	121	0.99
Dug well	40	0.33
Filter point Tube well	389	3.20
Total	12 145	100

Block Records is the cited origin.

According to an examination of the data shown in the table that was just provided, canal irrigation accounts for 95.47 percent of the total irrigated area. In this context, it is important to note that the primary irrigation sources have been confronted with the following challenges: I As a matter of policy, the government canals that are maintained by the state of Orissa no longer supply water during the Rabi seasons. This decision was made by the

irrigation department of the state's administration. The Orissa lift irrigation corporation has failed to perform adequate maintenance, which has resulted in the bulk of its pump sets being inoperable. The situation has become even more dire as a result of someone stealing electric wire from the connections that link the lift irrigation sites. Over the past several years, there has been an increase in the frequency of power outages at the busiest times of the year.

Co-Operative Credit

Since the passage of the co-operatives credit societies' act on March 25, 1904, the cooperatives movement has been growing for more than a century. This day marks the birth of the contemporary cooperative movement. The cooperative was acknowledged as a "instrument of planned economic activity in democracy" in the first plan, which was entirely appropriate. When it came to ensuring that credit was used appropriately for manufacturing objectives, it was determined that the cooperative agency was in a better position than the state. It offers a foundation on which to base the determination of the farmer's capacity for repaying the loan. On the basis of the length of time for which loan is extended, the cooperative credit societies may be split into two distinct groups. The first is the immediate and intermediate terms, while the second is the long-term forecast.

With the exception of a very small fraction of medium term loans for the purchase of bullocks and agricultural activity, nearly all of the loans are intended for it, including loans for chemical fertilisers, seeds, pesticides, better equipment, and so on. Primary co-operative credit societies may often be found operating at the village level. These societies are normally associated with a District Central Co-operative Bank. The Apex Co-operative Bank, which is also known as the State Co-operative Bank, is associated with the District Central Co-operative Bank, which in turn is linked with the State Co-operative Bank. On the basis of the aggregated needs of their members, the Central Co-operative Bank decides whether or not to grant loans to primary co-operative societies. To get larger sums, borrowers are need to mortgage their land. Farmers have started to adopt better farming practises,

Agricultural Credit Cooperative Societies

Particulars	Details (Rs. in Lakhs)
No. of societies	16.00
No. of membership	20 473.00
Working capital	1 472.00
Loans advanced	79.20

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Loans overdue	106.19
Loans outstanding	350.30

The information was obtained from the Assistant Registrar of the Co-operative Societies in Jagatsinghpur. It can be seen from the Table that is above that there are 16 societies that make up this Block. There is no change in the total number of cooperative societies. It's possible that this is due to people not paying back their loans or the availability of simple financing from other sources. Within the Block, there is also a regional and specialised commodities marketing co-operative organisation that is at its members' disposal.

Consumption Of Fertiliser

The following table provides information on the consumption of several types of fertilisers within the block. It can be deduced from the table that the consumption of fertiliser, which has been on the rise since the years 1998-1999, has reached 1472 MT per hectare. The consumption of fertiliser in the Block during the years 2001-2002 and 2003-2004 was 0.0781 MT and 0.0743 MT, respectively, which suggests that the farmers of this block have used more fertiliser in order to achieve higher levels of production.

Fertilizer Consumption In Metric Tonnes

Year	Nitrogenous		Phosphatic		Pottasic		Total	Consumption per
	Fertilizer	Fertilizer	Fertilizer	Fertilizer	Fertilizer	Fertilizer		
	Rabi Kharif Rabi Kharif Rabi Kharif consume hectare							
							d	
1998-99	510	603	83	118	83	75	1 472	0.1021
1999-00	426	722	70	97	66	86	1 467	0.1017
2000-01	230	239	51	54	70	34	678	0.0470
2001-02	520	227	135	70	125	49	1 126	0.0781
2002-03	231	134	98	87	96	51	697	0.0483
2003-04	288	312	142	127	120	82	1 071	0.0743

CONCLUSION

The Indian economy revolves mostly around agricultural production. The growth of the economy as a whole is very necessary in order to ensure its strength and consistency. Agriculture was in a quite precarious situation both in the years leading up to and following the country's independence in the 1960s. On the other hand, the 1960s witnessed a shift in technical direction that came to be known as the "Green Revolution." In point of fact, because of this, the economic landscape of the country saw a dramatic transformation. India, which had previously been forced to purchase food grains in order to make up for its inadequate supply, has recently begun exporting the food grains that it has in excess. The planners were given a push in the right direction by this development in agriculture, which allowed them to create policies that will improve agricultural production and contribute to the socio-economic rehabilitation of the country. Before the sixties, a significant portion of the plan to enhance agricultural productivity was geared at increasing the amount of land that was under cultivation in the country. Nevertheless, during the decade of the sixties, a deviation from this policy framework was observed. The conventional methods were gradually phased out in favour of new technologies, and the primary objective of these new technologies was to increase agricultural production. This comprises practises such as rotating crops, using hybrid insect-resistant (HYV) seeds, multiple cropping, extensive use of fertilisers and pesticides, scientific study on water and soil management, and its practical implementation. The country's agricultural output increased by a factor of four when it successfully implemented the innovative new technology, which led to the country's economic boom. The implementation of emerging technologies, on the other hand, has resulted in the country's socio-economic structure being somewhat unbalanced.

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