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A Study of Impact on the Socio-Economic Development in Changing Agricultural Land

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Abstract - Agricultural systems will have to respond to global change drivers such as population growth, changing dietary habits, and climate change. However, alterations of how food is produced in the future may conflict with other UN sustainable development goals, such as the protection of land resources and climate change mitigation. To strike a balance between human demands and environmental implications, decision-makers must be aware of possible trade-offs between both objectives. and the research that included agricultural marketing, brackish water fisheries' effects on socioeconomic development, agricultural land use, farming practices, fisheries in flood plains, and fisheries development.

Keyword - agricultural, land

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INTRODUCTION

India has experienced notable increases in agricultural productivity over the last decades. Nevertheless, there are still significant yield gaps for many crops across the countryside. The existence of yield gaps can be explained by many confounding factors, such as the prevalence of subsistence farming and poor access to chemical inputs, improved technology, and management techniques. A projected population rise of more than 1.6 billion people by 2050, as well as a shift in dietary habits necessitates an increase in India's food production in the coming decades. This is an extremely challenging issue. Currently, India provides food to 18% of the world's population but occupies only 2.4% of the world's total land area see large potential in India for increasing agricultural productivity by improving management practices and adopting new crop varieties.[1] To realize these improvements, further investments in research and development in the agricultural sector are required.Agriculture science and practice of producing crops, the other sub-sectors of agriculture are fish and fisheries, and forest and forestry Precipitation and its distribution are critical factors in Bangladeshi agriculture. The National Agricultural Development Program or Rashtriya Krishi Vikas Yojana(RKVY) intends to achieve 4% annual growth in the agricultural sector during the XI Plan period by guaranteeing a comprehensive development of agriculture and its associated sectors in all eligible States of India. As per the scheme, the Government of West Bengal has to prepare the State and district level plans in the field of agriculture and allied sectors based on guide lines issued by the Planning Commission, for availing of financial assistance from the Government of India. The objectives of the scheme are to provide incentives to the State for increasing public investment in agriculture and allied sectors, and in particular, To ensure that agriculture for the State and districts are prepared based on agro-climatic conditions, availability of technology and natural resources; make sure that local needs in the field of agriculture & allied sectors are better reflected in the agricultural plan of the State; To reduce yield gaps in major activities under agriculture & allied sectors through focused interventions; Maximization of returns to farmers in agriculture and allied sectors. In order to achieve verifiable improvements in agricultural and allied sector output and productivity in the short and long term, a comprehensive approach is needed.[2]

We analyze changes in land-use pattern in 17 major states for the period 1984-85 to 2011-12. These states are: Andhra Pradesh, Assam, Bihar (including Jharkhand), Gujarat, Haryana, Himachal Pradesh, Jammu &Kashmir, Karnataka, Kerala, Madhya Pradesh (including Chhattisgarh), Maharashtra, Odisha, Punjab, Rajasthan, Tamil Nadu, Uttar Pradesh (including Uttarakhand) and West Bengal.[3]

The importance of land use change for the functioning of the earth makes studies that explore land use changes very relevant. In studies on land use change it is essential to link land use changes to their driving factors. These driving factors (e.g. population or development), mediated by the socioeconomic setting (e.g. market economy, resource institutions) and influenced 67 by the existing environmental conditions or context, lead to

changes in land use through the manipulation of the biophysical conditions of the land. Understanding trends in land use change in relation to the driving factors will provide essential information for land use planning and sustainable management of resources.[4]

Agricultural land

The total land area of Bangladesh is about 14.3 million ha, of which about 59.8% is available for cultivation. Depending on the flooding depth, the land is categorized as highland (20%), medium highland (39%), medium lowland (15%), lowland (8%) and very lowland (2%). Based on physical environment which are relevant to land use, the land is divided into 30 agro ecological zones and 88 sub-regions.[5]

All land areas are not suitable for all types of crops. Seasonally flooded land is suitable for rice cultivation but the use of HYVs is limited to areas with relatively shallow flood depth during the kharif season. Long-term land usage is restricted to a single low-yielding rice crop grown in deep water. Well-drained ground is used for most highland crops. During the dry (rabi) season, Bengali is planted on soils with low drainage, where irrigation is possible but floods will not occur before the crop is harvested.[6]

Agricultural land use in coastal areas is limited to wet season cropping because of high dry season soil salinity and lack of suitable quality irrigation water. Cropping intensities, therefore, are low in coastal areas. Intensive cropping with HYVs is commonly practiced under high to medium highland with assured good quality irrigation water. Total cropped area is about 13.7 million ha, with more than 176% cropping intensity. Areas under single, double, and triple cropping are 3.5, 3.7 and 0.99 million ha, respectively. Rice alone covers about 77% of the total cropped area, of which HYV's share is about 75%.[7]

British Water Fisheries' Impact on Socio-Economic Development

Brackish water shrimp farming has a significant role on the socio-economic development of Deshapran Block in PurbaMedinipur coastal area. Inland brackish water fisheries are a provider of source of income, employment, necessary nutrients, engagement of rural and marginal workers, and livelihood for farmers. It makes a valuable achievement to social and economic development of this study area. Most of the peoples are engaged in fishing activities i.e. net weaving, repairing, fish feeding, distribution of small shrimp, reformation of water bodies (pond), import of feed and export of shrimp business etc.[8] I have tried my best to show the important contributions of this primary sector and it will help variously in socioeconomic development in this study area

- Necessary nutrient supply to our body (fat, iron, calcium, phosphorous etc.),
- Protein supplement,
- Source of income (national and international money),
- High profitable farming,
- More profits in less time
- Contribution of the local economy,
- Alleviate poverty through employment,
- Economic development,
- Improve the standard of living,
- Infrastructural development (construction of road, house, building of fish market etc.)
- Establishment of training center,
- Development of ancillary or secondary industry (ice factory, packaging industry, fish processing industry etc.)
- Import of seeds and export of shrimp business.

Agricultural Land Use

Agricultural land usage includes net planted area, existing fallows, and acreage under tree crops and groves. Only a bit more than half of India's land area is used for agricultural purposes.[9] Any nation in the world has the largest percentage of land. However, India's per capita arable land availability is lower than the global average because of the country's enormous population (0.24 hectare). Some nations, such as the United States, have substantially larger agricultural land per capita than India. It is 2.8 hectares in Australia. The lower per capita land availability in Canada (1,35 hectares) and Brazil (0,33 hectares) reflects the country's high population demand on the country's limited land resources. As more land can't be put under the plough, the only option to feed the world's expanding population is to boost land productivity. More than 15 percent more land has been seeded many times throughout this time span. Cropping intensity refers to the number of times a plot of land is planted in a year. Gross cropped area divided by net sown area is referred to as Irrigation and new technologies are essential for raising agricultural yields. HYV seeds, chemical fertilizers, and artificial irrigation are all part of the so-called Green Revolution. A major shift in agricultural land usage has occurred since India adopted the Green Resolution in 1966.[10]

Types of Farming

Agriculture in India is divided into many groups based on factors such as rainfall, irrigation facilities, purpose of production, ownership and size of holdings, and technology employed. A variety of agricultural practices may be recognized based on these variables.[11]

A. Dry Farming

It is common to see this style of farming in regions with annual rainfall levels below 80 millimeters. Farmers in these areas are heavily reliant on rainfall to meet their needs. Soil moisture content is lower in this location. As a result, a single crop may be raised each year. These crops include millets like jawar,

bajra, ragi, pulsees, and more.[12] This kind of farming may be found in Rajasthan, Maharashtra, Madhya Pradesh, Southern Haryana, Gujarat, and Karnataka. Subsidy activities such as dairy and cattle farming are common in these regions, when agricultural earnings are low.

B. Wet Farming

Alluvial soils get an average yearly rainfall of at least 200 centimeters, making this sort of farming feasible. There is adequate moisture in the soil to produce more than one crop at a time in this area. These agricultural methods' primary crops are rice and jute. This kind of farming may be found in the states of West Bengal, Assam, Nagaland, Meghalaya, Tripura, Manipur, Mizoram, and the Malabar Coast.[13]

C. Irrigated Farming

This style of farming is used in the places where average rainfall is between 80 to 200 cm which is inadequate for some crops,. This kind of farming can be done only in those locations where availability of water from subterranean or surface water sources like rivers, tanks, and lakes is adequate throughout the year. Another need for this kind of farming is the presence of agricultural land that has been leveled. In Punjab, Haryana, Uttar Pradesh, northwestern Tamil Nadu, and the deltas of peninsular rivers, farming is prevalent. The Deccan Plateau area, notably Maharashtra, Karnataka, and Andhra Pradesh, is home to additional significant hotspots of irrigated agriculture. This farm relies heavily on the production of wheat, rice, and sugarcane as key crops.[14]

D. Subsistence Farming

These agricultural methods are used largely to meet the needs of the local population. The primary goal of this kind of farming is to feed as many people as possible in a given region. This style of farming relies heavily on physical work and primitive agricultural tools, making it a very labor-intensive endeavor. In sections of Chhattisgarh, Uttarakhand, Jharkhand, and the mountainous regions of the nation, subsistence agriculture is practiced.[15]

E. Commercial Farming

In this agricultural method, crops are grown primarily for sale. Some examples of this agricultural technique include crops that are utilized as raw materials in West Bengal..

Fisheries of Flood Plain

Approximately 2 to 600 hectares of floodplain wetlands span 42,500 hectares in West Bengal, or 22 percent of the state's total freshwater area. Since a few years, the majority of the beels have been caught using a culture-based fisheries management strategy. But this resulted in unwise and excessive stocking, which harmed the ecosystem's function, productivity, and biodiversity in a number of the state's wetlands. [16]According to a study, wetland fisheries may produce up to 3262 kg/ha/year with excellent management strategies such as stocking and stocking schedules, size limitation at catch, watch-and-ward, and flood control measures. However, there is relatively few research on the effects of climate change on floodplain wetland fisheries.[17]

Fisheries Development

is one of the country's main fish-producing states and the biggest producer of fish seeds. The inland fisheries industry in West Bengal accounts for 30% of the total fish output in India. Sixty-two percent of India's fish seed output is produced in this state, From 14.71 lakh tones in 2007-08 to 14.84 lakh tones in 2008-2009, the state's total fish output has grown. From 13,475 million fish seeds produced in 2007-2008 to 14,000 million in 2008-2009, this is a significant rise. From Rs 50 crore in 1987-88 to Rs 725 crore in 2008-09, export revenues from this industry have increased significantly. Shrimp is the country's primary export item. Despite its relatively tiny coastline of 150 kilometers, the State has already emerged as the country's fourth-largest exporter.[18-19] In recent years, the State's fisheries micro-finance initiative has also achieved significant progress. Since 2003-04, 8125 SHGs have been established, with a total of 85,240 members. 4250 groups have been connected to credit and 3885 groups have taken up economic activities via project finance in the fisheries industry, compared to 8125. Because of the state's development plan, it has been feasible for the fisheries industry to expand significantly during the previous 25 years in the state. Existing fisheries and new water bodies have both been subjected to scientific pisciculture as part of the overall plan. There has been a significant growth in the financial benefits of pisciculture. It's because of this that an increasing number of farmers are turning to pisciculture.[20]

CONCLUSION

Due to excessive dry season soil salinity and a lack of sufficient quality irrigation water, agricultural land utilization in coastal locations is restricted to rainy season cultivation. As a result, crop intensities are low along the shore. HYVs are typically used for intensive cropping in high to medium highland areas with access to reliable irrigation systems. India's future food needs will be driven mostly by socioeconomic variables such as an expanding population and an expanding economy. The expected agricultural output rise between 2010 and 2030 varies from 43% to 55% under the various scenarios simulated here. More than double livestock output is expected, "Vision 2050," an agricultural research project conducted by the Indian Council of Agricultural Research, supports this conclusion, China, the second major Asian food

producer, has comparable challenges in that considerable changes in agricultural policy and management techniques are needed to achieve the necessary production increases in a more sustainable manner. Additionally, our findings show that climate change has a detrimental impact on Indian food supply, and that larger agricultural R&D spending in the future may help to offset these losses in productivity.

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