

Problems and prospects of Agriculture Development in Upper Assam: A case study of Sadiya Block of Tinsukia District

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Abstract:

The Sadiya Developmental Block of Tinsukia district is one of the remotest and most backward blocks of Assam in the North Eastern India. It was geographically completely isolated from the main land of the country by the Lohit (Brahmaputra) and Dibang rivers until the recent bridge over the Brahmaputra was inaugurated on May 2017. Agriculture is the only source of livelihood and revenue generation of the people in this block. However, there is vast scope for socio economic upliftment of the poor mass. A case study has been conducted for finding the problems and prospects of the agricultural development in the area by selecting 10 sample villages of the Block. It has been found that the poor road communication and agricultural marketing are the major problems that hinder the overall development of agriculture in the Block.

Key words: Assam, Sadiya, Agriculture, Crops, Economic development, Marketing

1. Introduction

The economy of India is Agrarian and the socio economic development of the mass of the majority of its states depends on Agriculture. In India most of the states are gradually moving away from their traditional agriculture-based economy towards industry or service-oriented sectors. However the state Assam is still mostly dependent on the agriculture sector (Bhuyan 1998). The economy of the state which is located in the north eastern part of the country is entirely based on the agriculture including tea cultivation. About 98.4 per cent of the total land mass of the state is rural, where agriculture and agriculture related activities are the major occupation of its people. The net cultivable area of the state is 28.11 lakh hectares, which is about 88 per cent of the total cultivable land of the state (Infrastructure Statistics of Assam, 2014-15). About 90 per cent population of the state rely on agriculture for their livelihood and socio economic improvement. Because of the suitable agro-climatic condition with good fertile lands, the state has immense scope for enhancing farm output and agribusiness. Moreover, the two major rivers the Brahmaputra and the Barak support the favorable agro-climatic condition of the state. The State is already well known for its various crops like Tea, Paddy, Maize, Sugarcane, Oil seeds, Jute, vegetables, etc. However, apart from tea the productivity of the other crops are not satisfactory in most of the districts and hence the people in the state are deprived of good economic return. A number of factors are responsible for the pathetic situations of agriculture. Thus the conditions of the agriculture of the state need to be studied and addressed. Agriculture in Assam is still characterized as orthodox farming. It is fully depending on monsoon and consequently agricultural production in the state is not stable and unpredictable (Despande and Prachitha, 2006). A large

number of problems effecting development of agricultural sector have been depicted pointed out which are categorized under socio-cultural, physical, technological and infrastructural (Mruthyunjaya, 2001).

The district Tinsukia which is located in the upper part of the Assam is although known for a hub of tea production, 70 per cent people are fully depending on agricultural activities. The district, bounded in the east and North by Arunachal Pradesh and with its various tributaries like Brahmaputra, Dibang, Kundil, Noa Dihing, Buri Dihing is harbouring very fertile soil supportive for different crops. Particularly the economy of the Sadiya Block, one of the most backward block of the state is 100 per cent based on agriculture activities as no other industrial development has taken place. To examine the status of the agriculture and its problems a case study has been conducted in Sadiya Block of Tinsukia district of Assam.

2. Objectives of the study

1. To study the present scenario of agriculture and allied activities.
2. To find out the various existing problems of agriculture development.
3. To find the prospects of agriculture development.
4. To highlight the developmental plans and programmes initiated by the Govt. for the agriculture development in the block.

3. Methodology:

The study was conducted during the year 2015-16. The information related to agriculture for the district and Sadiya Block has been collected from various secondary sources. On the other hand primary data have been collected from 10 selected villages from Sadiya Developmental Block. The details of the villages are given in Table 1. All the important data related to agriculture like, types of crop grown, methods, harvesting and marketing, existing problems, etc. were collected by visiting and interviewing the villagers using pre structured questionnaire. For data collection 20 household from each of the villages were selected randomly. Besides, the discussion was also made with the teachers, educated youth and administrative officials for understanding the different aspects of agricultural problems and development.

Table 1: Details of the surveyed villages with area and population

Sl No	Villages	Goan Panchayat	Area(ha)	Household	Population	Road connectivity
1	Sarudhaniya	Sunpura	141.948	77	438	poor
2	Bilgoan	Sunpura	84.316	209	1174	good
3	Rukmini Deori	Ambikapur	326.635	270	1,527	poor
4	Katual Khuti	Ambikapur	256.928	46	247	poor
5	Deopani	Buraburi	122.109	85	515	poor
6	Mugalpur	Nagoan	64.032	100	445	poor
7	Lakhimipathar	Borjiya	325.732	314	1,505	poor
8	Shanti Nagar	Kundil	196.372	64	310	good
9	Kundil Kinar	Na Sadiya	238.104	147	723	poor
10	2 no Santipur	Santipur	190.036	53	264	good

(Source: Sub Divisional Statistical Officer, Tinsukia, 2011)

4. General features of the Sadiya Block

Sadiya Block situated in the eastern most part of Assam and it is completely isolated from the main land of the state by the Lohit and Dibang rivers. It is bordering on the North by the Arunachal Pradesh, on the South by the Lohit river, on the east by the Balizan river and on the west by the Dibang river. Sadiya Block was established in 1963, it is covering a total geographical area of about 79046.40 hac with 11 Goan Panchyats and 108 revenue villages. It is located at a distance of about 65 kms from the headquarter of Tinsukia district. Sadiya is one of the three sub- divisions of Tinsukia District. Chapakhowa is the centre of Sadiya. Historically Sadiya is very famous for some of its sacred religious centres like Bairagi Than and Bura Buri Than, historical place like Bhismak Nagar, British colonies like Purana Sadiya, etc.

The block is dominated by various communities namely Ahom, Kachari, Deori, Nepali, Mishing. Because of geographic isolation, there is almost no infrastructural development resulting in no industrial and commercial progress in the area. Thus communities of the blocks are fully dependent on agriculture and allied activities for their livelihood. It has been found that only about 2 to 8 per cent population of the surveyed villages has service and business support for their economic development. Among the Govt employee, about 95 per cent are teachers in schools and administrative govt offices.

The climate of the area is of humid sub tropical in nature with warm and humid in summer and cool and dry in winter. Sadiya has a high amount of rainfall in the summer. Such a heavy rainfall causes largely flash floods, and soil erosion. The average annual rainfall is 2973 mm. In Sadiya the average annual temperature is 22.9° C. The soil is clay loam, sandy loam and sandy with domination of clay loam. More than 70 per cent areas are having fertile soil suitable for various agricultural crops.

5. Agricultural crops grown and their contribution in livelihood

Agriculture is the main livelihood activity and major source of income of the people of the area. As per the data of Agricultural Sub Divisional Office of Sadiya (2011) about 26000 hectare areas is marked as gross cropped area distributed among 15404 farming families. Based on secondary and primary source of information it has been found that the paddy is the most dominant crop grown in the block like many other parts of the state. Besides paddy, the other major crops grown are maize, potato, mustard, ginger, pulses and vegetables. The various major crops grown in the block with the area used and production is shown in (Table 2). It has been found that out of the 26000 hac agricultural land, about 19000 hac is used for paddy only followed by mustard (5000 hac), potato (4200) and maize (1000 hac). The villages having sandy or sandy loam soils are more dependent on the cultivation of mustard, potato, and ginger. Plantations of bamboos and areca nut are also the two important cash crops grown in the area. The various crops grown presently in the surveyed villages are presented in the (Table 3). Although cultivation of vegetable crops is a common agricultural phenomena, the commercial cultivation is however restricted to only some of the villages and farmers. Among the vegetable crops, radish, cucumber, gourd, cabbage, beans, brinjal, ladies finger, pumpkin, lentils are the main. During the conversation with the farmers it was revealed that the cultivation of wheat and jute were preferred by many of the farmers in the past, but during the past two decades these crops are no more preferred because of the irrigation and marketing problems.

The analysis of total agricultural income shared by various existing crops indicated that in most of the surveyed villages the major share of income is coming mostly from paddy and areca nut (Table 4). The sharing of income from paddy is found 29.14 per cent while by the areca nut it is 24.43. Potato, mustard, bamboo and maize also shared some agricultural income but below 10 percent. Cultivation of ginger and buckwheat as commercial crops is also reported from many of the villages of Sadiya particularly in the

bordering areas of Arunachal Pradesh which provide a good sustenance to some specific farmers. The total percentage of income shared by the different crops in the study area is indicated in Fig. 1.

Among the various fruits plants like guava, pineapple, plum, mango, banana, peach, jackfruit etc. they are still to be grown as commercial crop. However, the banana and peach are now been promoted by many of the farmers for revenue generation. Almost for all the crops the traditional varieties are used by the communities with almost pure organic farming. Although the application of organic fertilizer is not practiced in paddy cultivation, organic fertilizer in the form of cow dung is applied for crops like potato, maize, ginger, vegetables, etc.

Table 2. Area under major crops with average production during 2011-12 in Sadiya

	Name of Crop	Area (in Hac)			Avg Production (Qtl/Hac)		
		2010-11	2014-15	2015-16	2010-11	2014-15	2015-16
1	Paddy	19100	16010	16495	16.00	10	10
2	Wheat	60	NA	NA	14.00	NA	NA
3	Maize (Rabi & Kharif)	990	375	380	5.50	40	40
4	Mustard	5000	4352	5430	5.50	6	6
5	Potato	4200	1218	1765	180.50	120	120
6	Black gram (Rabi)	600	1552	1550	8.50	4.0	5.0
7	Ginger	375	350	370	90.50	135	140
8	Sesamum	80	NA	NA	4.50	-	-
9	Turmeric	50	NA	NA	145.00	-	-
10	Banana	NA	105	122	NA	100	105
11	Arecanut	NA	82	87	NA	240	240
12	Pea	NA	760	762	NA	40	40

(Source: Agricultural Sub Divisional Office, Sadiya.)

Table 3. Types of agricultural crops grown in surveyed villages.

Sl No	villages	Cereal crops	Major vegetable crops	Other	Allied activity
1	Sarudhaniya	Paddy and maize	Potato, brinjal, pumpkin, cabbage	Mustard, areca nut, bamboo.	-
2	Bilgoan	Paddy and maize	Potato, brinjal, pumpkin	Areca nut, bamboo	fishing
3	Rukmini Deori	Paddy and maize	Potato, yam	Mustard, areca nut, bamboo	piggery
4	Katual Khuti	Paddy and maize	Potato, pumpkin, brinjal, lentil, beans	Mustard, bamboo, areca nut, banana, ginger	Cattle farming
5	Deopani	Paddy and maize,	Potato, brinjal, pulses pumpkin, gourd,	Mustard, bamboo, areca nut, ginger, buckwheat	Cattle farming
6	Mugalpur	Paddy	Cabbage, lady's finger.	Areca nut, banana	-
7	Lakhimipathar	Paddy and maize.	Beans, brinjal, chilly	Areca nut.	Piggery poultry
8	Shanti Nagar	Paddy and maize.	Potato, Cabbage, lady's finger, cucumber	Mustard, bamboo, banana, areca nut, ginger	Cattle farming
9	Kundil Kinar	Paddy	Potato, Pulses, beans, brinjal	Mustard, Bamboo, areca nut	Cattle farming
10	2 no Santipur	Paddy and maize.	Potato, Pulses, beans, chilly	Mustard, areca nut, bamboo, ginger	Cattle farming

Table 4: Agricultural income shared by the major crops in the study periods

Sl No	villages	% total agricultural income shared by the major crops								Total income
		Paddy	Maize	Potato	Vegetable and pulses	Mustard	Bamboo	Areca nut	Others*	
1	Sarudhaniya	99000	8000	10000	21000	30000	15000	61000	0	244000
2	Bilgoan	87000	11000	25000	20000	0	20000	65000	0	228000
3	Rukmini Deori	90000	10000	20000	18000	45000	25000	48000	0	256000
4	Katual Khuti	43000	19000	23000	28000	26000	10000	50000	27000	226000
5	Deopani	25000	18000	30000	17000	32000	14000	55000	34000	225000
6	Mugalpur	10000	0	0	15000	0	0	30000	0	55000
7	Lakhimipathar	89000	15000	0	25000	0	0	52000	0	181000
8	Shanti Nagar	68000	25000	12000	31000	14000	15000	45000	21000	231000
9	Kundil Kinar	42000	0	15000	10000	9000	10000	50000	0	136000
10	2 no Santipur	59000	22000	20000	26000	39000	20000	57000	75000	318000
	Total Income	612000	128000	155000	211000	195000	129000	513000	157000	2100000
	% of total income	29.14	6.10	7.38	10.05	9.29	6.14	24.43	7.48	100

*Ginger, Buckwheat, Banana

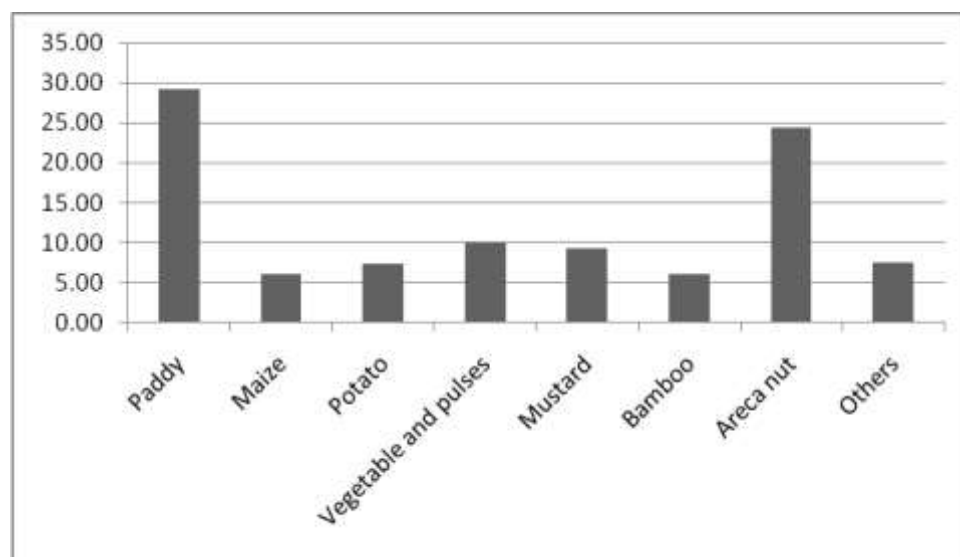


Fig 1. % of total agricultural income shared by various crop in the study villages.

6. Existing problems in agricultural development

1. Rainfall irregularities

Weather plays an important role in agricultural production. The rainfall has profound influence on growth, development and yields of various crops as well manifestation of insects, pests and diseases. It also affects the soil nutrients and fertilizer requirements. The farmers of the study areas informed that, irregularities in

the rainfall during the past few years have drastically affected the crop productivities of both Rabi and Kharif crops. Both excessive and shortage of rain water with irregularities in the seasonal rainfall directly affect the yield rate.

2. Flood and Land erosion - Flood is the most devastating natural calamity that affects every year. Brahmaputra and Kundil rivers cause the devastating flood which affects on land, roads and other means of communication, water, forests, wildlife, beels, agriculture, livestock etc. and all these leading to diverse effects on livelihood, biodiversity and environment. Although majority of the villages in Sadiya do not experience regular flood and water logging, some villages in southern part of the block in the basin of Kundil, Dibang and Brahmaputra are regularly affected by flood. Among the selected study villages the Kundil Kinar, Mugalpur and Lakhimpuria Goan are fully disturbed by floods, while Bilgoan and Shanti Nagar are partially disturbed by flood. Besides, the other villages which have been commonly affected by these problems are Ratanpur, Kundil, Bogaribari, Ghormura, 2 mile, 3 mile etc where the agricultural productivity is highly affected. Boruah Saikia (2016) in her study in one of the villages in Southern Sadiya also clearly indicated the effects of flood by river Brahmaputra in agricultural productivity and other livelihood pattern.

3. Agriculture marketing and storage- Marketing of Agriculture produces in the Sadiya is a serious problem for the farming community. Lack of organized marketing facility and lack of storage infrastructure are the main causes of low agricultural income and poverty in the area. Poverty and need of money after harvest for repayment of agricultural debt force the farmers to sell their food grains at the earliest and that too at low prices. Moreover, the govt. has not supported any marketing facilities for the agricultural produces and has focused more on collecting revenue (Bhuyan, et al., 1990). Because of the poor road communication and isolation of the block from the district headquarter, the prices of most of the agricultural products including the paddy is found far below the average. The vegetable, pulses and other minor products are mostly sold in the local weekly markets. Although there are 7 daily and weekly markets namely (a) Chapakhowa (b) Santipur (c) 8th mile (d) Ghurmura (e) Ambikapur (f) Sunpura (g) Ghumtibill in the block, the prices and selling of the produces are very low.

The marketing of the major agricultural produce, the paddy, maize, mustard and ginger are highly suffered because of isolation of the place. Since there is no direct road communication and transportation facilities, the sale of farm produce at urban places like district headquarter at better prices is not possible and hence the farmers are deprived of suitable price. During the interaction with the farmers, it is found that the farmers are not interested to grow paddy even in the available land which leads for reduction of the quantity of the total food grain supply. The average price of paddy in 2016 in Sadiya is around Rs 1000/- per quintal while in Kakopathar Block it is Rs 1300/ per quintal.

4. Inadequate Irrigation facilities- People of Sadiya are fully dependent on rain for the cultivation. Thus lack of irrigation facilities is one of the major reasons for low agricultural productivity in block. It has been found that none of the surveyed village does have any irrigation facility.

5. Traditional means-One of the important obstacles in the agriculture development in the state of Assam is traditional method for cultivation. In Sadiya also the agricultural activities are fully performed through traditional means. Use of HYV seed and application of fertilizer, modern machineries have not recorded.

6. Animal disturbances-It is one of the important problems which the cultivators have to face every year. Mostly the unorganized rearing of livestock and non availability of grazing field directly affect the

agricultural crops. The cattle (mostly the cows) are commonly allowed for free grazing in available agricultural land or restricted in some specified crops land and in both the cases they affect the crops. Besides the cattle, the agricultural crops particularly of the villages along the Dibang river and adjacent to the boundaries of Arunachal Pradesh have been destroyed by elephants. It is found that annually the crops of Deopani and adjacent villages are severely destroyed by the elephants in the winter, harvesting season of paddy and the growing season of other rabi crops. As per the officials of the Sadiya Forest department, the intensity of elephant movement in crop lands is increasing year by year and in the year 2014 – 2015 more than 8 villages faced this situation.

7. Lack of awareness and education- Level of education and training related to agricultural development for framers is very poor. There are lack of modern farming techniques like selection of suitable crop varieties, accurate methods of sowing, control of pest and pathogen, application of proper amount of fertilizer, etc in the area. These minimizes the production even the best traditional methods of crop selection, sowing and harvesting are followed.

8. Manpower- Shortage of manpower for agricultural activities is also found to be another tending problem and it is increasing year after year.

The various case studies conducted from the different parts of state also indicated various existing problems that hinder the agricultural development. Kar (2015) in her study from Hailakandi district clearly indicated the lack of irrigation facilities and application of fertilizer, lack of marketing and storage facilities, limited use of HYV seed and labour scarcity as the main problems. Flood is another important problem indicated as a major problem of agricultural development (Boruah Saikia, 2016). Deka (2001) in his report on agricultural status of Assam also enumerated the above mentioned causes along with the low availability of farm power and planting materials.

7. Prospects of economic development through Agriculture

The analysis of different issues of agriculture and its productivity reveals that there are good prospects of economic development in the region. The following are the major ones which may be focused.

- i). Huge cultivable fertile land area having free from pollution is available. The proper use and management of this land may enhance the agricultural production.
- ii). Numerous traditional varieties of food and vegetable crops having high commercial potential are also available which can be promoted for better revenue generation.
- iii). The physiography of the block is supported with 3 major rivers like Lohit (Brahmaputra), Dibang and Kundil along with some other small rivers like Balizan, Deopani, Kundil Kolia, Duttung, Jia, etc and few streams which can be used as a source for irrigation. The fertile lands irrigated properly by these water sources would enhance the productivity.
- iv). The agro climatic condition is very supportive for cultivation of some cash crop like ginger, tea, black peeper and areca nut and promotion of some selective cash crop in agriculture would definitely improve the economy.
- v). As the farmers continuing the traditional farming systems with available organic manure mostly in the form of cow-dung, the region can lead to organic farming by adopting proper technology of decomposition and vermi- composting.

vi). For better utilization of the agricultural and forest products, establishment of cottage industries with promotion of effective entrepreneurship would definitely boost the economy of the farming communities.

vii). As most of the farming lands are lacking of good managerial systems and unorganized form, an efficient land management with modern agro technique would be a good option for overall improvement of agricultural sector and better economic turnover, in the area.

viii). Animal husbandry and fishery are the other two important options with the communities which can be undertaken along with agriculture. Dairy farming in char area (sandy grass land) will increase the dairy products and at the same time act as easy source of organic manure. There are some distinct available Char areas particularly along the Brahmaputra, Dibang and Kundil rivers which are already being used by the farmers for animal husbandry. Promotion of rearing of more cattle i.e. cow and goats with improved breeds may give good substantial benefits. Because of easy availability of ground water with numbers of rivers, rivulets and streams, fishery can also be encouraged.

Plans and programmes of the Govt for Agriculture Development

As in other parts of the state, the following plans and programmes supported by the govt are implemented in this block. As per the data of Agriculture Sub-divisional Office (2010-11) the following developmental schemes were implemented.

1. Kisan Credit Card Scheme (KCC): It aims at providing adequate and timely credit support through banking system to farmers for their cultivation. 563 numbers of KCC were issued to farmers.

2. Rashtriya Krishi Vikash Yojana (RKVY): Under this scheme, the farmers are supported with high yielding seed and agricultural machinery (Tractor, Power tiller, Irrigation Pump etc) in 50% discounted price. As per the official record two paddy varieties namely Ranjit (8.70 qtls) and MTU 7029 (4.50 qtls) were distributed.

3. National Food Security Mission (NFSM): It was launched in October 2007. The major objective of this scheme is to increase production and productivity of rice, wheat, and pulses on a sustainable basis so as to ensure food security of the country. So accordingly in Sadiya under this scheme some high yielding varieties of paddy crop namely Luit (6.0 qtl), Var.832 (30 kg), Var.704 (40 kg) BP- 9 (3.84 qtls) were promoted for cultivation to improve the productivity of the crop. Moreover, 20 nos. of hand sprayer have been distributed to the farmers.

4. National Agriculture Extension Programme (NAEP): Under this programme cultivation of the crops like paddy, maize, potato, pea, mustard, wheat, rajmah were promoted.

5. District Development Programme (DDP): The cultivation of horticultural crops have been made through distribution of seedlings of orange (600 nos), Tea (16000 cuttings), banana (5500 nos and bamboo (5040 nos).

It is found that the supports through all the above mention schemes are not enough to meet the necessities of the farmers for overall improvement of the sector. Besides, the schemes like National e-Governance Plan (NeGP) in Agriculture and other promoted programme me by the central Govt are not fully operational.

Conclusion

The Sadiya sub division has enough scope of socio economic development through agricultural sector. The productivities of agricultural crops is found satisfactory even with the traditional farming techniques as practiced by the farmers. Efficient management of available agricultural land with proper irrigation support and adoption of modern technique through extension education and training will enhance the average production of different crops. The District Agriculture Department may provide full support to the progressive farmers through different plans and programmes. More and easy facilities for KCC and other loan may help the farmers to enhance their interests and activities for farming. The establishment of marketing facilities by the Govt for easy disposal of the products with suitable pricing is the most important need of the day for the development of the agricultural sector. It is expected that the new Dhola-Sadiya Bridge, the longest bridge in India over the Brahmaputra connecting Sadiya to the main land would be a big turnover for the socioeconomic upliftment of the region. It will also promote the cultivation of tea and other cash crops like ginger, vegetables, fruits, etc.

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