

STUDY NO: 154

Village Study in Assam (Nam Deuri Village)



**Sponsored by the Ministry of Agriculture and Farmers' Welfare
Government of India, New Delhi**

**Coordinated by-
Agro-Economic Research Centre, Visva-Bharati, Santiniketan**

***Dr. Anup Kumar Das
Dr. Ranjit Borah***

**Agro-Economic Research Centre for North-East India
Assam Agricultural University,
Jorhat-785 013
2020**

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PREFACE

The study entitled, “Village Study in Assam (Nam Deuri Village)” was undertaken at the instance of the Ministry of Agriculture and Farmer’s Welfare, Government of India, as a part of a network project ventured across the country. It was co-ordinated by the Agro Economic Research Centre, Visva Bharati, Santiniketan, West Bengal and the study for the State of Assam was carried out by the Agro Economic Research Centre for North East India, Jorhat.

The Centre conducted its first ever village study way back in 1980 at Nam Deuri, a village mostly dominated by the Deuri tribe of Assam. As desired by the AER Division, the village was resurveyed in the year 1987 and then Nam Deuri was again reconsidered for a fresh study in 2019, after a gap of long 32 years.

The basic objective of the village study was to provide/generate a set longitudinal panel data set to capture the socio-economic dynamics of the villages. The purpose is to assess the pace, process and pattern of rural changes by means of repeated surveys in the selected villages, followed by re-surveys of the same villages at regular interval.

The present study was conducted based on both primary and secondary level data and the reference period pertained to the year 2019. The primary data were collected from the selected village by complete enumeration and altogether, 262 households were covered by the study.

The study shows that the literacy rate of Nam Deuri village was 44.68 per cent in 1987, 78.90 per cent during 2011 Census and 81.28 per cent in 2019. The average family size of the villagers in 1987 was 9.93 members, which came down to 5.73 persons in 2019. The per capita net cultivated area was reduced from 0.29 hectare (In 1987) to 0.16 hectare (In 2019). The percentage of doubled cropped area was increased to 56.57 per cent (From 24.69 per cent in 1987) and the cropping intensity was worked out at 156.57 per cent (From 124.69 per cent in 1987) in the reference year.

The village infrastructures like road, electricity, educational and medical facilities had considerably improved during the intervening period. It was also seen that quite a good number of developmental schemes were implemented in the village by the Government, but with no much visible impact in terms of economic standing of the villagers. However, nearly 96.56 per cent of the total households of the village were covered under rural electrification in 2019, which was merely 12.10 per cent in 1987.

Agriculture and allied activities continued to be the principal means of livelihood of the village people and the crop husbandry was characterized by predominance of traditional varieties, manure and bullock power even today. The overall living standard of the villagers was not up to the expectation, despite the fact that there were marked changes in the socio-economic milieu in the peripheral areas.

The present study is a joint output of the AER Centre, Jorhat and on that count, the research staff of the Centre deserves much appreciation. I am thankful to AERC,

Visva Bharati for critically reviewing the draft report and offering valuable comments. I also thank Mr. Pranabjyoti Kalita, Computer of the Cost of Cultivation Scheme, Assam Centre for meaningfully designing the cover page of the Report. Last, but not the least, I express my gratefulness to the staff of the Integrated Child Development Scheme (ICDS) operating in the study area and the members of the Local *Panchayat*, Nam Deuri village for their help and co-operation in accomplishing the task.

The findings of the study, I believe, will be useful to the students, researchers and to those who are involved in planning and policy formulation.

Dated Jorhat the 31st May, 2021

Prof. Anup K. Das
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Executive Summary

The present study has been undertaken at the behest of the Ministry of Agriculture & Farmer's Welfare, Government of India in order to capture the changes that have taken place in the selected village over the years. These village surveys or resurveys are conducted by the Agro Economic Research Centres/Units spread across the country, as a part of continuous effort of the AER Division of the Ministry to see the changes in socio-economic dynamics. The Agro Economic Research Centre for NE India located at Jorhat, Assam conducted its first ever village study way back in 1980 at Nam Deuri Village. As desired by the AER Division, the village was resurveyed in the year 1987 and then Nam Deuri was once again reconsidered for a fresh study in 2019, after a gap of long 32 years.

Assam is a land of numerous ethnic groups and the Deuris are one of them. The Deuris constitute one of the major tribal communities of Assam and the village, Nam Deuri is inhabited exclusively by the Plain Deuri Tribe. In olden days, the Deuri community was engaged in priest activities of the society.

The Deuri community is sparsely distributed in all the districts of Upper Brahmaputra Valley Zone of Assam. Historically, the Deuri tribe had migrated from Dibang, Lohit and Kundil valleys and had settled in Upper Assam long ago. The community has been maintaining its racial traits, language, religion, folk tales and traditional beliefs for centuries. They have a unique style of living, which separates them from other plain tribes of the State. Thus, undertaking a kind of periodic survey in the selected village can generate valuable information which can very well be utilized by the planners and policy makers to chart out the development agenda for the region.

Methodology

The study was accomplished using both primary and secondary level data. As accepted in principle, complete enumeration of the village was done instead of sample survey. The primary level data were collected in 3 (three) different stages with the help of 3 (three) sets of specially designed questionnaires through personal interview method. A total of 262 households were covered by the study.

Information on socio-economic profile of the households, land use pattern and cropping pattern, irrigation status, sources of income and livelihood pattern were collected

from the respondents of each household. Similarly, data on use of fertilizer, variety selection, input purchase, weather/rainfall related information, durable consumer goods, income and expenditures, borrowing *etc.* were collected from the respondent farmers of the village. Also, data on social changes, demographic changes, agrarian changes, livelihood changes, economic changes and ecological changes were collected from the available records for the reference year 2019. Attempts were also made to identify the driving forces of such changes in consultation with the respondents.

In addition to these, information on Government schemes, status of implementation, benefits accrued, price and market were obtained from Panchayat office bearers, Village Head and other knowledgeable persons of the village.

Objectives of the study

The overall objective of the study is to create a longitudinal panel dataset, to capture the socio-economic dynamics of the villages. The purpose is to assess the pace, process and pattern of rural change by means of repeated survey in the selected village followed by re-surveys of the same village at regular interval.

The focus would be on agricultural change and changing pattern of rural livelihoods and its implication for future development. The study would also evaluate the efficiency of Government interventions in rural areas and key drivers of changes in village economy.

Reference period of the study

The reference period of the study pertained to the year 2019.

Findings of the study

The data emerged from village enumeration indicate that the educational level and health facilities have improved considerably during the intervening period. However, the use of modern agricultural tools and implements was found to be limited and the irrigation facility was far from satisfactory. Some noticeable changes like drinking water facility, modern housing and furnishing, construction of village roads, power connectivity to village households, selection of BPL/APL households and establishment and extent of ICDS centres have been observed. Moreover, setting up of Customer Service Point (CSP) under State Bank of India and the emergence of Self-Help Groups (SHG) were considered to be the major changes towards upliftment of the economy of the village. Increase in agricultural production and rise in prices of agricultural produces together with earnings from non-agricultural

vocations like business; salaried job *etc.* have helped the villagers in raising the households income.

The findings of the study indicate that the natural increase of population during the intervening period from 1987 to 2019 had gone up from 1231 persons to 1501, with a Compound Annual Growth Rate (CAGR) of 0.60 per cent only.

Out of the total working force, 54.35 per cent was engaged in main/marginal works in 1987, which shot up to 74.28 per cent in 2019. The CAGR of working population is worked out at 1.51 per cent.

Out of the total 262 households, 149 (56.87 per cent) were involved in primary occupation (agriculture & allied), followed by 65 households (24.81 per cent) in secondary occupation (manufacturing of finished goods, trades, wage earners, *etc.*) and 48 households (18.32 per cent) were involved in tertiary sector (services and pensioners *etc.*) in 2019.

Coming to land ownership, the study reveals that there were 12.90 per cent marginal farms, 27.42 per cent small farms and 59.68 per cent medium and above farms in the last survey (1987). The corresponding figures in the year 2019 were 59.16 per cent, 35.88 per cent and 4.96 per cent. Further, the average size of land holdings for all classes of farmers was worked out at 2.83 hectares in 1987 which further declined to 0.94 hectare in 2019.

Regarding operational holdings, the study reveals that out of the total operated area, 8.73 hectares were under marginal farms, 49.79 hectares under small farmers and 292.89 hectares were under medium and above farmers during the last survey (1987). The corresponding figures for the current survey (2019) were 85.35 hectares, 129.98 hectares and 31.33 hectares only.

The CAGR of operational holdings was worked out at 7.38 per cent for marginal farmers and 3.04 per cent for small farmers, while the CAGR in respect of medium and other farms was recorded at -6.75 per cent between the two surveys, conducted at different point of time. The values of Gini Co-efficient for operational holdings was found at 0.35 in 2019 and 0.38 in 1987, which indicates moderate inequality for both the years. The inequality in terms of operational holdings in 2019 was little lower as compared to 1987.

Basic characteristics of farm households indicate that the average family size was 6 persons and the average operated area across the farms was 0.94 hectares in the village. At the farm level, the land man ratio was worked out at 0.19 for all farm sizes. Cropping intensity

was worked out at 157 per cent and the net irrigated area was 5.38 per cent for all farm sizes. The head of the family was found to be reasonably educated, at least up to primary level. On an average, 3 to 5 crops were grown annually by the farmers of the village.

In the year 1987, the Gross Cropped Area was 438.18 hectares, of which 86.77 hectares was sown more than once and as such, 351.41 hectares was the net sown area. The per capita net cultivated area was 0.29 hectare and the percentage of area sown more than once to the net area sown was 24.69. The cropping intensity for the year 1987 was 124.69 per cent (last survey).

In 2019 (current survey), the gross cropped area declined to 386.20 hectares, out of which 139.54 hectares was double cropped area. Due to population pressure, the per capita land was reduced from 0.29 hectare (in 1987) to 0.16 hectare (in 2019). The percentage of double cropped area was recorded at 56.57 per cent and cropping intensity at 156.57 per cent in the year 2019.

Paddy was the most dominant crop cultivated by the farmers in 364.52 hectares of land in 1987 and 202.71 hectares in 2019, indicating a decline in area by 44.39 per cent during the intervening period. However, the area under vegetable crops had increased from 13.88 hectares in 1987, to 96.20 hectares in 2014 and further to 101.26 hectares in 2019. The percentage area under vegetable crops had increased significantly by 629.53 per cent during the intervening period.

The cropping pattern of the village by and large, remains traditional with little change. The area under *khari* paddy was 8.76 hectares, 4.15 hectares was under mixed vegetables and the area under *rabi* mixed vegetables was 5.09 hectares under irrigated condition. On the other hand, under rainfed condition, *khari* paddy and mixed vegetables occupied 202.71 hectares and 41.56 hectares, respectively.

During *rabi* season, major crops grown by the farmers included 12.28 hectares of mustard crop, 59.70 hectares of mixed vegetables, 21.89 hectares of potato crop and 30.05 hectares of peas under rain fed condition.

Analysis of the extent of crop diversification reveals that the value of Herfindahl Index was 0.3894 in 2019 as against 0.6953 in 1987. Therefore, it can be stated that the extent of crop diversification was higher in the year 2019, as compared to 1987.

The study further indicates that the yield of paddy under irrigated condition was 37.05 qtls./hectare in 2014 and 37.77 qtls/hectare in 2019, showing a marginal increase of 0.72 qtls/hectare only between two different point of time.

As against this, under rainfed condition, per hectare yield of paddy crop was 15.24 qtls in 1987, 27.64 qtls in 2014 and 27.42 qtls in 2019, registering an increase of 79.92 per cent in 2019 over 1987. Similarly, average yield of mustard crop, was 9.92 qtls/ha. in 1987, 16.58 qtls./ha. in 2014 and 17.18 qtls/ha. in 2019, with an increase of 73.19 per cent in 2019, as compared to the year 1987.

The percentage change in yield of vegetables, potato and peas were recorded at 34.31 per cent, 255.13 per cent and 62.24 per cent respectively for the period under reference.

The study also clearly indicates that there were marked changes in livestock composition during 1987-2019. The work cattle, milch cattle and buffalo population in the village declined by 55.44, 69.28 and 92.86 per cent, respectively while the number of goat, pig, duck, fowl and peigon increased substantially, to the tune of 103.30 per cent, 166.80 per cent, 80.63 per cent, 59.47 per cent and 50.00 per cent, in the same order.

The study shows that out of the total paddy production, 32.85 per cent was sold by the farmers to the Middle man/Commission Agent @ Rs. 1,350/qtl. Similarly, 91.92 per cent of vegetables were sold either to the retailers or to the middlemen at an average price of Rs. 1,543/qtl.

Of the total potato and pea production, 54.05 per cent and 85.70 per cent respectively were sold by the farmers at an average prices of Rs. 1,300/qtl. (potato) and Rs. 2,123/qtl. (pea). Also, 72.21 per cent of mustard crop, 50.20 per cent of arecanut and 73.25 per cent of coconut were sold by the farmers @ Rs. 2,753/qtl., Rs. 6,475/qtl. and Rs. 25/piece (coconut), respectively.

The farmers cultivated paddy for home consumption only. Hence, there was no marketing of paddy as such except for a two isolated use. But, the farmers of the village cultivated vegetables on commercial mode.

And, the major marketing channels identified for the vegetables were

- I. Producer-Retailer-Consumer,
- II. Producer-Middlemen-Retailer-Consumer and
- III Producer-Middlemen-Wholesaler-Retailer-Consumer.

The study further reveals that the percentage of households in the lower income group in 1987 (53.23 per cent) had substantially increased to 85.11 per cent in 2019. Unequal distribution of household income was common and prominent both in 1987 and 2019.

The study shows that bicycle and furniture were common household items for the people of Nam Deuri, and were available to almost all the households of the village. Farm size wise, average value of assets was Rs. 54,523 for marginal farmers, Rs. 93,073 for small farmers and Rs. 2,34,734 for medium and above farmers. The average value of assets across all sizes of farms stood at Rs. 77,295.

When considered all sources of income, the highest annual average income was found among the medium and above farmers (Rs. 4,24,856), followed by small farmers (Rs. 2,28,602) and marginal farmers (Rs. 1,34,876). In aggregate, the average annual income for all farms was recorded at Rs.1,83,483 in 2019.

The overall CAGR of income from all the sources at current prices or money value stood at 8.25 per cent during the reference period. The corresponding annual average income for the year, 1987 was recorded at Rs. 14,517 only at then current prices and values. The price relative to the corresponding year, the figure stood at Rs. 46,815, registering a 3.92 fold increase during last 32 years (from 1987 to 2019) revealing a poor economic development of the village in terms of annual income of the farm household.

Total annual expenditure for an average family of 6 was estimated at Rs. 1,28,724. The expenditure per family was highest for medium and above farms (Rs. 2,68,138), followed by small farms (Rs. 1,67,137) and marginal farms (Rs. 93,736), covering both food and non-food items.

Annual average savings was Rs. 42,141 in marginal farms, Rs. 61,466 in small farms and Rs. 1,56,718 in medium and above farms, with an average savings of Rs. 54,759 for all farms. The per capita income, expenditure and savings were worked out at Rs. 32,027, Rs. 22,469 and Rs. 7,536 per annum respectively. Per capita savings was found to increase from Rs. 265 in 1987 to Rs. 7,536 in 2019 at aggregate level.

The CAGR of per capita income, expenditure and savings stood at 9.90 per cent, 9.60 per cent and 11.03 per cent, respectively. And the per capita income, expenditure and savings had increased by 6.36 times, 5.82 times and 8.82 times, respectively during last 32 years (1987-2019).

Overall economic condition of Nam Deruri village was fairly good. Nobody in the village passed a single day without food and none of them had gone to bed with empty stomach during last twelve months, as reported.

It was further emerged that the villagers had to borrow from different sources to meet a variety of commitments. During last five years, nearly Rs 4,02,000 was borrowed from the commercial banks, Rs. 5,75,000 from private banks and Rs. 14,81,000 was taken from the Self-Help Groups of the village. It was also observed that the highest loan amounting Rs. 12,98,000 was borrowed by the marginal farmers, while Rs. 10,57,000 was taken by the small farmers and only Rs. 1,03,000 was borrowed by the medium and above farmers.

The findings of the study show that the village is characterized by high density of population, small land holdings, traditional production practices, high dependence on natural resources and weak market linkages. Employment of people in the non-farm sector in the village was also found to be negligible.

Except for a few Assam Type semi *pucca/pucca* houses, all other houses in the village are constructed on raised platform popularly known as *Chang Ghar*.

The ground water in the village was reported to be iron free and good for drinking and other uses.

It was strange to note that the farmers of the village are yet to be provided with the Soil Health Card (SHC) by the line Department. The farmers usually go for applying fertilizers in a limited scale, as advised by the fellow farmers and fertilizer dealer(s). They were habituated with applying Farm Yard Manure (FYM) and other organic manure @ 4 to 5 quintals per hectare.

Findings of the study did not show any report of flood, drought, cyclone *etc.* during last five years, except for as erratic high rainfall pattern. Due to unpredictable rainfall, nearly 25 per cent to 30 per cent of crop damage was reported to every farm household.

In aggregate, across all sources of livelihood, the weighted exposure index (vulnerable) was worked out at 2.97. This indicates that a little more of effort on the part of the authorities could change the economy of the village by pursuing the existing policy initiatives in true sense of the term.

To meet the water requirement of crops, a good number of Shallow Tube-Wells (STW) were installed by the Government in the village. But majority of the STWs remain unused because of the high cost of Diesel which is to be borne by the farmers.

There were reports of maladies like tuberculosis and cancer in the village in the recent past. Fever, cough, dysentery and worm infestation were the common ailments and as such, the medical expenditures of the village people had gone up considerably over the years.

The system of weather or disease forecasting and warning process in the village was assessed to be fairly good. Forecasting or alerts are highlighted in print and visual media for the benefits of the village dwellers. These days, mobile technology is also being used extensively.

A large track of land of the village still remains under water-logged condition during the summer. These areas many a time, caused health hazards to the inhabitants as these are the breeding place of mosquitoes and other insects. The soil of the village is sandy-alluvial in texture which contributes towards creating natural drainage system. At the same time, soil erosion was found to be more in the summer.

So far as production flows are concerned, very little change could be seen in terms of mode of farming, irrigation status, farm input use or livestock development during the period.

The study reveals that a significant number anti poverty schemes are being implemented by the Governments for improvement of the village economy covering almost all families in the village. Local-Self Government/Panchayat is responsible for a range of vital services and activities under those programmes.

Overall perceptions of the village people towards the major Government schemes were found to be satisfactory. But, the people of the village still remained ignorant about many of the development programmes launched by the Government, meant for them, may be because of lackadaisical approach of the implementing machinery.

Constraints identified

Problem is a part of life, it is said. Like any other village of the country, Nam Deuri is also having some problem areas. The major difficulties perceived by the villagers are enumerated in the following paragraphs.

- A large part of the village remains under water-logged condition during the summer, causing health hazard to the villagers.

- The soils of the village being sandy-alluvial in texture, soil erosion in certain part of the village are quit rampant, which can be considered as a crawling peril.
- Use of fertilizers and pesticides is very limited in the village, may be because of lack of irrigation and other associate factors. Also, the villagers are yet to get the Soil Health Cards issued by the line Departments.
- The already installed STWs remain unused for most of the time, because of high price of diesel and there is no electrical connection to the STW points.
- Only traditional breeds of livestock and birds are raised by the villagers, which yielded low returns. There was scant knowledge of improved feeding or fodder crops.
- Most of the crops are cultivated in traditional manner, without much use of HYV.
- Crop losses are estimated to the tune of 25 to 30 per cent to every household due to erratic rainfall pattern.
- Large quantities of vegetables are produced in some selected pockets of the village, with no market outlet. There is no storage and processing facilities for which heavy losses are to be incurred by the farmers. Low price and inadequate market support have put the farmers in a precarious position.
- Weaving happened to be an important cottage industry of the village. This has been hard hit in recent years, because of scarcity of raw materials and lack of organized market support.

Recommendations and Policy Implication

On the basis of findings of the study, and in the light of the personal interactions held with different stakeholders, the following policy recommendations have been offered, with an expectation that the measures, if executed in true sense of the term, will improve the socio-economic conditions of the villagers. The appropriate agency/departments which can implement the suggestions are also indicated in the interest of the villagers.

Agricultural Development

The findings of the study show that the crop cultivation in Nam Deuri village continue to remain nature-dependent and the cropping pattern of the village remains mostly traditional. Inadequate irrigation facility and low or no consumption of fertilizers/pesticides has led to low yields for most of the crops. Therefore, following suggestions are put forwarded to draw attention of different line **Departments, namely, Agriculture, Veterinary, Fishery, Irrigation, Marketing Board under the Government of Assam and Directorate of**

Extension Education, Assam Agricultural University. Further, co-ordination among these departments is considered most essential for realization of the desired goals.

- Findings of the study clearly show that there lies enough potentialities for development of crop (horticulture), livestock and fishery in an integrated manner.
- The Department of Agriculture and Irrigation should come forward to supply irrigation water in the crop field at the time of need and should recommend optimum crop-combination for the locality after a thorough plot-auditing.
- Need based training and demonstrations on balanced use of fertilizer, improved package of practices, pest and disease control measures, balanced feeding of fish and livestock and establishment of fish hatchery should be arranged to motivate the farmers and young people to go for modern agriculture.
- Small land holder farmers need to be encouraged to go for crop diversification with inclusion of low volume, low-cost, quick return, high income generating enterprises taking into account the relationship of complementary and supplementary enterprises, marketing possibility and existing farming system.
- Considering the inherent potentiality of the village, fruits trees and medicinal plants may be promoted along with focused priority on sericulture.
- Resource recycling through vermi-compositing, biogas preparation, liquid manure production, *etc.* may be encouraged to generate additional income.

Livestock Development

It was revealed that the economy of the people of Nam Deuri basically depends on agriculture & allied sectors. Among the allied sectors, animal husbandry and veterinary has significant role, particularly on employment and additional income generation. Therefore, following suggestions are offered to draw attention of the **Department of Animal Husbandry and Veterinary, Government of Assam.**

- Rearing of livestock is a traditional culture for tribal farmers, so it is a way of their living. Therefore, the Government machinery should devise useful strategies to expose the farmers to modern and scientific methods of livestock production and management, with an element of commerce.

- Strengthening of extension services to sensitize the livestock rearers about balanced feeding, disease diagnosis and treatment and adoption of improved breeds, so that the people could move forward from tradition to trade.
- The study shows that there exists considerable demand for livestock products and birds in the village. But the district is not self sufficient in egg, chicken and meat production. As such, there is a great opportunity for the farmers, particularly, the young educated lot to start up new ventures in the line indicated above. For that matter, Banks and other agencies may come forward to provide institutional credits and insurance coverage on easy terms.
- Considering the existence of grazing ground and abundant availability of green fodder, the young farmers may be inspired to go for co-operative livestock farming with adequate support.

Manpower (Human Resource) Development

Since the educational level of the people of Nam Deuri village is fairly satisfactory, it will be easier to inculcate in them new traits of personality development to cope with the changing situation. Therefore, following suggestions are given to draw attention of the **Department of Agriculture, Animal Husbandry and Veterinary and Industry, Government of Assam.**

- The women folk of the village are found to be front runner in all sort of socio-economic settings. Because of their historical involvement, they may be encouraged to go for livestock rearing (mainly piggery) and weaving in the village. Awareness on market intelligence, growers' co-operative society and establishment of vegetable storage and processing facilities can very well improve the socio-economic condition of the village.
- Skill Development Programme may be organized to sensitize the young generation to garner entrepreneurial skill in trades like raising nursery, wood carving, spinning of cloths, cane and bamboo related works, hospitality management and eco-tourism to improve their standing and lifestyle.

Institutional Development

Institutions are the formal and informal rules and norms that organize social, political, and economic relations. And every community has an array of local public, private and non-profit institution. Each one has resources, such as personnel, space expertise, equipment and economic power that can potentially contribute towards overall growth of the village. The

following suggestions are offered to draw attention of the **Department of Education, Health and Family Welfare, Assam Power Distribution Company Ltd., Local Panchayat and Rural Development Agencies.**

- A large track of land of the village remains under water-logged condition for the entire summer and it happen to be the breeding ground of disease-borne insects. This area can be developed as fishery by the local bodies under the ongoing development programmes like MGNREGA and Swachh Bharat Abhiyan. At times, it may act as water harvesting structure and may supply irrigation water to crop field during dry spell.
- Considering the need, the school premises should be expanded to include commerce stream at Higher Secondary level and vocational education should be promoted for skill development.
- Adequate staff may essentially be placed in the Primary Health Centre, which should include Doctor, Nurse and Paramedicos.
- Electricity connection may be extended to the STW-points, so that the farmers can avail off the benefits of irrigation water at affordable terms. Because of the prohibitive price of diesel, many of the STWs, at present, remain unused.
- Although the road connectivity to the village appears to be fairly good, the drainage part still remains unattended to. As such, the local Panchayat may come forward to make provisions for the same.

Conclusion

The findings of the study amply demonstrate that the literacy percentage, health facilities, drinking water facility, road connectivity, power supply position and networking of Government machinery have improved considerably in Nam Deuri village over the years. The study also indicates that there lies most potential to increase the productivity and performance of agriculture and other allied sectors, with the intervention of Government Departments and other agencies under a receptive environment.

However, in case of resource use and management practices, no noticeable shift would be observed particularly in the cropping patterns. Modern tools and implements are yet to find entry into the village. Most of the field operations were done manually for which the cultivation practices almost remain traditional.

May be with an integrated approach, through appropriate development strategy, can change the face of the village with adoption of improved cultivation practices, use of HYV,

replacement of livestock breeds, promotion of medicinal plants and other cash crops, ably supported by credit-insurance and market linkages. In this regard, the local Government can play a vital role to bring the villagers out of the morass of age-old backwardness. Social organizations and SHG can add value to the entire process through people's participation.

Appropriate and timely action, if taken and implemented in true sense of the term, can really bring about desirable changes in the life and living of the people of Nam Deuri village.

Chapter I

Introduction

1.1 Introduction

The present study was undertaken as a part of continuous village surveys and resurveys at a gap of definite time period at the instance of the Ministry of Agriculture and Farmers Welfare, Government of India. In the initial years, it was a primary work of all Agro-Economic Research Centres across the country.

Since independence, the Government of India is implementing a number of policy and programmes for development of socio-economic conditions of the village people as large chunk of population of the country lives in villages. Mahatma Gandhi, the father of nation, once rightly remarked that “The soul of India lives in the village”. Therefore, maintaining a strong data base against each of the villages on various parameters is a must for formulation and implementation of any development programmes. Resurvey of village is a system of grass-root level data generation to capture the socio-economic changes over a period of time.

Nam Deuri village in the district of Jorhat, Assam was first time surveyed in 1980, and then it was resurveyed in 1987. The village was selected once again to see the structural changes of the village and the living conditions of the people after a gap of over 32 years.

Assam is a land of more than 21 ethnic groups and unity among them is a pride of Assam. The Deuri is one of the major indigenous plain tribal communities of Assam living in different places of the upper Brahmaputra valley of the state. The village, Nam Deuri is exclusively inhabited by the people of Plain Deuri Tribe. Traditionally, the Deuri community was engaged in priest activities of the society.

History reveals that the people of Deuri tribe had migrated from Dibang, Lohit, Kundil valleys and settled in Upper Assam long ago. The community has still maintained their racial traits, language, religion, folktales and traditional beliefs through the centuries. The community has a unique style of living which separates them from other plain tribes of the state.

Through this study, it has been tried to see the relative changes in the living conditions of the people of the Nam Deuri village in the reference year (2019). It is

therefore, expected that the study will generate valued information and findings to appraise the outcome of the development efforts over the years.

1.1.1 Need and scope of the present study

Since the beginning of the planning era, the Government of India was instrumental in introducing quite a good number of welfare and development programmes for the village people in order to improve their social and economic status. After so many years of implementation of focused programmes, it has become imperative to assess the status of these villages and its inhabitants, level of their achievements and impact of the development initiatives. Thus, a village study can very well be considered as eye-opener for all stakeholders.

Repeat village studies are of much significance in order to understand various changes that are taking place over time and to provide some basis for further planning & development. Such studies throw light on the conditions under which the farmers survive through ups and downs, face natural calamities and live a living. Socio-economic and institutional strengths and constraints of the village society are brought forward by such studies, to enable the policy makers and planners to formulate appropriate roadmap for the villages suiting their exclusive requirements towards sustainable development.

Revival of village survey study afresh will act as a useful device to ensure continuous flow of information indicating the fruits of development and basis to socio-economic analysis and environmental dynamics of village so that these inputs can further be used to mitigate the crisis situations and promote maintainable development of the village as a whole. The people of Nam Deuri village have, over the years, continued to maintain their unique identity, isolation and unaffected by externalities. The villagers are still maintaining their old traditions and customs, religious thinking and age old practices and traditions. The present resurvey of the village, under the given scenario is a significant endeavour towards understanding the change elements in socio-economic front, after 32 years hence.

In view of the above, Ministry of Agriculture and Farmers' Welfare, Government of India, approved for undertaking the village resurvey at Nam Deuri, which is known for its unique socio-economic and cultural traditions. The findings of this study will certainly

be a value addition to the existing literature, with special reference to social dynamics, economic system, vulnerability and sustainability, policy and governance.

1.1.2 Objectives of the present study

The overall objective of the study is to create a longitudinal panel dataset, to capture the socio-economic dynamics of the villages. The purpose is to assess the pace, process and pattern of rural change by means of repeated survey in the selected villages followed by re-surveys of the same villages at an interval of 5 years.

The focus would be on agricultural change and changing pattern of rural livelihoods and its implication for future development. The study will also evaluate the efficiency of Government interventions in rural areas and key drivers of changes in village economy.

1.2 Background Information

1.2.1 Background information about the survey

The first point survey of Nam Deuri village was conducted in 1980, and after a gap of seven years it was resurveyed in 1987. The changes that had taken place during the intervening period in the village under reference were highlighted in the resurvey report.

1.2.2 Brief review of the earlier survey

Nam Deuri village is situated in the north eastern part of the Jorhat district of Assam. The village is about 20 km. away from Jorhat town, the district headquarters. Some noticeable changes were observed particularly in the socio-economic status of the people of the village during the resurvey (1987). Increase in agricultural production and income generation from non-traditional occupations like professional services, salaried jobs *etc.* had helped the villagers in raising their gross income. However, the pace of agricultural growth and overall economic development in the village was rather sluggish because of the recurring flood it experienced from the river Brahmaputra.

The farmers of the village usually grew their crops by traditional methods. To cope with the situation of recurring flood in the village, the farmers started growing more crops during *rabi* season. The crops like vegetables and mustard *etc.* were commonly raised which required intensive labour use.

The findings of the study revealed that agricultural tools and implements used by the farmers were mostly traditional, only two farmers of the village purchased two new power tillers for tilling of soils. The number of diesel pump sets in the village increased from 2 (two) in 1980 to 14 (fourteen) in 1987. The pump sets were mainly used for watering seed beds of winter paddy, but for want of sufficient water source, these could not be used properly. Seven number of diesel operated Shallow Tube-Wells (STW) were also installed in the village after the first point survey. These were used as and when necessary by those farmers whose farms were located near the STW. Horse was a new addition to the village as draught animals. During the year of resurvey, 33 horses were used for ploughing in the village while in 1980, no horse was used. Horses were mainly used by a section of farmers for drawing ploughs particularly during *rabi* season. This was due to the decline in the number of bullocks for its high price.

The resurvey also reveals that there was enough scope of technological change as the people of the village were progressive by nature. The extension machinery of the State Agricultural Department had not made much effort to induce the farmers for adopting improved technology in crop cultivation. However, some infrastructural facilities like drinking water, electricity *etc.* were provided to the village during the interim period. The findings of the study further revealed that the number of tube wells in the village had increased from 10 to 22 which considerably improved the drinking water facilities in the village. The study also indicated that focused development planning backed by appropriate follow-up programmes would be of much help to accelerate the socio-economic development of the village.

1.2.2 Historical Profile of the village

Nam Deuri is exclusively inhabited by the people of Plain Deuris Tribe. The Deuris constitute one of the aboriginal plain tribes in the Brahmaputra valley of Assam. They are ethnically affiliated to the great – Tibeto – Mongolian tribes of Assam. Historically, the Deuri have been maintaining old traditions, religious thinking and practices, intact although they are exposed to the influence of various religious faiths. But the pantheon of Gods and Goddesses of the Deuris clearly indicates that they are Hindus. Only the names of the Gods and Goddesses are different from the Hindu names. According to B. Datta ‘At present the bulk of the indigenous population is made up of

Assamese Hindus among whom the Indo-Mongoloid or Kirata element is visibly strong in terms of both racial strains and cultural traits, although scholars have also discerned certain Austric and Dravidian ingredients.....' (Datta, 1994:pp.3-4)

The state of Assam is located in the North-Eastern part of India. It is a landscape of indigenous tribes. The Deuri tribe is one of the largest tribal communities of Assam. Deuri tribe of the state is very rich in their culture and social activities. The people of the tribe are distributed in many districts of the state like - Jorhat, Majuli, Sivasagar, Dibrugarh, Tinsukia, Dhemaji, Lakhimpur, Biswanath *etc.* The tribe has made significant contributions to the socio-cultural heritage of Assam and one of the objectives of the earlier study was to make a kind of socio-cultural analysis of the tribe.

Different scholars and dictionaries indicated the existence of Deuri community in Assam, at different point of time. The Assamese Dictionary, Chandra Kanta Abhidhan (1933) describes that the Deuri is an aboriginal tribe, originally resident of the hills but now inhabiting in the plains of upper Assam. Prominent writers like E.T. Delton (Delton, 1978), E.A. Gait (Gait, 1926), P. Saikia (Saikia, 1976) and Hem Boruah (Boruah, 1984) observed that the Deuris were the priestly section of Chutiyas. Significantly, in Chutiya language, De means great, wise and O and R means respectively male and female. Hence, the meaning of Deuri is the great or wise male and female. A section of the Deuri people believed that the term, Deuri means people who distribute the articles among the participants in a religious or social function.

The Deuris were migrated to the north eastern part of India in the distant past from Northeast Asia and settled in Sadiya. During the period of Ahom and the Chutiya regime, they performed all the religious functions on behalf of the ruling community. But after the downfall of Ahom kingdom, they started to migrate from Sadiya to South bank of Brahmaputra River and settled in different parts of Upper Assam. The Deuris were one of the major groups belonging to the Tibeto-Burman family (All Assam Deuri Student Union 1995). The present population of the Deuri is about 2,17,357 (Census, 2011) which is concentrated in the districts of Lakhimpur, Dhemaji, Jorhat, Dibrugarh, Tinsukia and Sunitpur (All Assam Deruri Student's Union, 1955).

1.3 Review of literature

The north eastern part of India is a habitat of a large number of tribal communities, each having own cultural identity. The state of Assam, the most prominent one in the region also has diverse social groups with significant cultural variation among them. Assam is a melting pot of different races, languages and culture.

Adhyapok (2002) in his study on “Rural Employment Programme in Assam” observed that the development initiative under the programme might be regarded as strategic policy for the development of the rural economy through poverty alleviation and employment and income growth. The study suggested that the selection of beneficiaries under self-employment and wage employment scheme were to be done carefully in a planned way by the programmes implementing agencies. It must be noted that, those who were assisted under one or all of these programmes did manage to cross the poverty line. Implementation of these programmes should be within the broader framework of a growing economy with special thrust for poverty alleviation and income and employment generation to the disadvantaged class.

Barkakati (1969) studied the origin and migration of tribal people in Assam and their nature of settlement. Tribal redistribution in the bordering areas and its social impact was highlighted by Barthakur, 1997. Historical description of tribal origin and distribution in Assam was described by Barpujari, 1988. Changing pattern of tribal settlements in Bodo dominated areas were studied by Bashiya, 1997.

Bhuyan (1969-71) showed the change of cultural settings among the tribes of undivided Assam and he further (1973) showed how the migrants had changed the socio-economic structure of Brahmaputra valley. He highlighted again (1991) the nature of immigration and population pressure of 16 tribal communities in some selected areas in Assam.

Bora (1992) found that the IRDP had increased the income and employment of the landless marginal farm beneficiaries. He was of the view that programme had a positive impact on income and employment generation. However, the study revealed that that the performance in Dibrugarh district was not encouraging in terms of number of beneficiary families crossing the poverty line. In Assam, IRDP was implemented

exclusively by the Government agencies without involving any grass root level institution.

Brown in 1895 stated that the Deuris were a small tribe in the Lakhimpur and Sibsagar district of upper Assam. Deuris served as priests at four different temples, all located in the vicinity of present Sadiya.

Deuri 1964 made an attempt to reveal the complete culture and history of Deuri society. Redistribution of Deuris after 1950s and their settlement of social problems were located by him. He further attempted (1991) to show the distribution of Deuris and concentration in an around Sadiya.

Deuri (2002) defined the cultural impact of the Deuri community in relation to redistribution among other tribe in the Brahmaputra valley. The forefathers of Deuris came to India in the dim and distant past from northeast Asia *i.e.* from Chinese and Mongolian territories. They settled in the valleys of the river Brahmaputra in places like Tsangpo, Lassa, Siddhakhetri, Swati, Bidarva or Banzul, Kundil, Chengchukul, Laibari, Laphabari, Sadiya *etc.*

Dutta (1993) highlighted that the performance of Rural Development Programmes in Majuli Sub-Division of Jorhat district was discouraging in terms of the number of beneficiary families crossing the poverty line, but it is impressive in terms of increase in the income of the beneficiary families.

Dynamics of Rural Development, a compiled study edited by Debendra Kr. Das (2007) pointed out that effective implementation of rural development programme depends on proper identification of the poor for whom the schemes are chalked out.

Goswami (2003) explained in his Doctoral work, that various rural development programmes implemented in Jorhat district of Assam had not shown satisfactory results. Certain socio-economic, political and technical problems were responsible for poor performance of the programmes. Among these problems, malpractices by the DRDA functionaries were one of the root causes of poor performance of the programmes.

Goswami (1962) studied the origin and changing nature of Deuris in Assam and found that the Deuris were the royal priests of King Bhisma and the god and goddess they worshipped were the same god and goddess that were worshiped by the king

Bhismaka. It is only about a century ago when the community moved to their present settlements, and some of still occasionally visits Sadiya for religious purposes.

Haloi (2000) in an important assessment study on centrally sponsored rural development programmes in West Garo Hill District of Meghalaya stated that the various programmes of rural development in the study area, individually and collectively created some impact both on poverty reduction and improvement in village life. But compared to the investment and also the depth of the problems related to quality of life of the villagers, the achievements were far below the expectations. The study revealed that the success of rural development programmes was limited due to lack of people's participation and political interference in the selection of beneficiaries and multiplicity of the administrative control.

Kular (2009) in his study on "Micro credit through SHGs and Women Empowerment" focused on how micro finance provided through SHGs could combat the poverty, thereby income and the pace of rural development.

Kumaran, (1999) had analyzed the concept of SHGs and revealed that SHGs were not only helpful for meeting the credit needs of their members but also helpful in generating income of its members.

Muragan and Dharmalingan (2000) argued that empowerment of women through SHG would lead to benefits not only to the individual women and women groups but also for the family and community as a whole through collective action for development. Empowerment is not just for meeting their economic needs but also for holistic social development.

Rajkhowa (1996) observed that due to faulty selection procedure of beneficiaries and political interference, the impact of Rural Development Programmes in Assam could not be said to be satisfactory. Large scale decline and vanishing of programme assets indicated poor performance of the programmes. The percentage of loan recovery was very low and sometimes nil. The State Government officials tried to hit the target rather than meeting the objectives of the programme, as the study revealed. This study was carried out in fifteen district of Assam to evaluate the IRDP implemented in respective districts.

Sarma (1988) observed that the levels of living of the state of Assam had not improved much over the twenty-five years period (1955-1980) under study. Her estimate indicated that the quality of living of the state rather had deteriorated during last 25 years. The study also revealed that the nutrition of the inhabitants had fallen down to below average in between the period 1975-1980.

Poverty Eradication in India by 2015-A strategy paper on Rural Households (2008) submitted by the Department of Rural Development, Ministry of Rural Development, Govt. of India 15th November, 2008, revealed that if self employment and skill development were expanded and universalized under the restructured SGSY and at least one member from about 1.4 crore households and one member from about 1.7 crore households, especially youth, were provided self employment and skill development, respectively then it would be possible to lift 4.5 crore BPL households above the poverty line by 2015.

The Scheduled Tribe (STs), constituting 8.6 per cent of the population of India as per the 2011 Census, was one of the most disadvantaged groups socio-economically. Despite having special constitutional provisions to protect the interests of these tribes and various affirmative policies to uplift their socio-economic conditions, it was even officially acknowledged that the development interventions have had limited success in raising the level of living (Planning Commission, 2011).

The major ST Communities living in Assam are the Boro-Kacharies, the Missings, the Karbis, the Sunowal Kacharis, the Rabhas, the Dimasa Kacharis, the Tiwas, the Garus and the Deuris (Registrar General of India, 2011). A major section of the tribes of the region are located in the hills, the foothills and the forest areas of the state. But the Missing and the Deuris of Assam inhabit mostly on the banks of the Brahmaputra and its tributaries in upper Assam. Accordingly, these tribes face additional livelihood and development difficulties arising from recurrent natural calamities of floods and riverbank erosion afflicting their habits (Bordoloi, 1990). Moreover, he described that the developmental difficulties of these riverine tribes had received little attention by the authority.

There is a high concentration of tribal population in the northeastern region of India. In the state of Assam, where the proportion of tribal population is the least among

the states of the region, the STs constitute a sizeable 12.44 per cent of the total population (Ministry of Tribal Affairs, 2013).

From the studies referred above, it is observed that the Deuris constitute one of the aboriginal Scheduled Tribes (plain) in the Brahmaputra valley of Assam. The socio-economic conditions of the community have not improved much, although various development policies and programmes were taken up by the Governments for their upliftment during the post independence period. Certain socio-economic, political and technical problems were responsible for poor performance of those programmes.

1.4 Scheme of the Chapters

The present report has been divided into eight chapters. The First Chapter relates to the background information of the selected village, need and scope of the present study, objectives, review of earlier survey, historical profile of the village and review of literature. Definition and concept used in the report, study design, survey approach and dimensions covered, analytical tools and limitations of the study are dealt with in Chapter Two. Third Chapter presents the village profile, livelihood/employment and migration status, agriculture status of the village, development institutions and infrastructures in the village, cultural profile of the village, uniqueness of the village *etc.* Fourth Chapter deals with social dynamics such as households, population, sex composition, caste/religion, literacy, APL/BPL wise distribution *etc.* The perception of various groups and households in the village about different changes like population, literacy, gender bias/women empowerment, political deprivations *etc.* in the village are also captured in Chapter IV. Fifth Chapter looks into the livelihood and employment, agrarian system, poverty, income and consumptions, financial transactions and perception of various groups of the village about infrastructural changes, economic changes, *etc.* in the village. Ecology, vulnerability and sustainability, such as natural resources of the village, land use classifications, natural and manmade disasters and perception of various groups on ecological changes, adaptation strategies by the Government, non-Government Agencies and other stakeholders in the village are elaborated in Chapter VI. Policy and governance is discussed in Chapter VII, followed by a summary of the findings, conclusions and policy suggestions in Chapter VIII.

Chapter-II

Methodology

Methodology in fact, by definition, is the systematic and theoretical analysis of the methods and concepts applied to a field of study. As such, in this chapter it has been attempted to present a brief account of the definitions and concept used, source of data base, sampling design, adopted survey methods and analytical tools used for accomplishment of the study.

2.1 Definitions and Concepts

Followings are some definitions and concepts used in this report.

2.1.1. Village community: Village community may be defined as a group of people living in a definite geographical area, which is characterized by consciousness of fellow feeling, common life styles and intensive social interactions.

2.1.2. Literate: Literate is a person who can read and write, or person who is educated in a specific area of knowledge.

2.1.3. Literacy: Literacy is commonly understood as an ability to read, write and use numeracy in at least one method of writing.

2.1.4. Worker: Worker is a person that performs a specific or essential task or who completes task in a certain way.

2.1.5. Non worker: A person who does not work; not employed for a salary, dues or wages; not producing or generating income.

2.1.6. Agricultural labour: Agricultural labours are those persons who work on land of others on wages for the major part of the year and earn a major portion of their income as a payment in the form of wages.

2.1.7. Sustainable development: Sustainable development is development that meets the requirements of the present, without compromising the ability of future generations to meet their owned needs. The objectives of sustainable development cover different aspects of social development, environmental protection and economic growth.

2.1.8. Primary occupation and secondary occupation: Among the different occupations, primary occupation has been considered as one, from which a household earns maximum amount of income, *i.e.* more than 50 per cent of total households' income. Secondary occupations have been considered as those among the listed occupations from which a household earns a reasonable amount of income not exceeding 50 per cent of total household income.

2.1.9. Operational holding: It is defined as all land which is used wholly or partly for agricultural production and is operated as one technical unit by individual person alone or with others without regard to the title, legal form, size or location.

2.1.10 Size group of holdings: As per the standard norms, there are five kinds of land holdings in India, depending on various sizes as follows-

Sl No.	Size group of holdings	Farm Sizes in hectare
1	Marginal	Below -1.0 hectare
2	Small	1 to 2 hectares
3	Semi-medium	2 to 4 hectares
4	Medium	4 to 10 hectares
5	Large	Above 10 hectares

Maximum number of operational land holdings in India is marginal holding (67 per cent) followed by small holdings (18 per cent) as per Agricultural Census, 2010-11.

However, for the present study, only three different size groups have been considered as per the guidelines provided by the Coordinating centre, *viz.*

Sl No.	Size group of holdings	Farm Sizes in hectare
I	Marginal	Below -1.0 hectare
II	Small	1.0-2.0 hectare
III	Medium and others	2.0 hectare & above

2.1.11. Earner and dependent: An earner is a person who obtains money of a specified kind or level in return for labour or services. And development a person who depends on or needs someone or something for aid, support, favor *etc.* for example, a child, spouse, parent, or certain other relative to whom one contributes all or a major amount of necessary financial support.

2.1.12. Assets: All items of property owned by a person, regarded as having value and available to meet debts, commitments, or legacies known as their assets. In the present study, there are two types of assets *i.e.* one productive asset like land, livestock, poultry, household industries, agricultural implements *etc.* and others are non-productive assets

like household durables goods. From the productive assets, the members of the households obtain gainful employment and earn income for their livelihood. On the other hand, the consumer durable goods are those assets which have no direct effect to the households' income or employment for the family but these assets help indirectly *i.e.* it increases standard of living of the people like good housing condition, electrical appliances, furnishers *etc.*

2.1.13. Households: A household consists of one or more persons who live in a same dwelling house and share meals. It may consist of a single family or another group of people. A dwelling is considered to contain multiple households if meals or living spaces are not shared.

2.1.14. Unitary and joint family: A single or unitary family consists of husband, wife and their children. But a joint family is an extension of nuclear family and typically consists of parents, children, grand children and other near relatives along with their women.

2.1.15. Employment and unemployment: People with paid job are employed. People who are jobless and looking for a job, but their skills and experience are available for work is unemployed.

2.1.16. Gainful employment: Gainful employment refers to an employment situation where the employee receives steady work and payment from the employer. In psychology, gainful employment is a positive psychology concept that explores the benefits of work and employment.

2.1.17. Labour force: Labour force is the total number of people who are currently employed and the number of people who are unemployed and seeking employment. Labour force participation rate is defined as the section of working population in the age group of 18 to 60 years in the different economic activities like agriculture and other sectors also.

2.1.18. Census method: Census method is called complete enumeration of a population or groups at a point of time with respect to well defined characteristics. The census method is necessary in some special cases like population census, livestock census and animal census for gaining vast knowledge.

2.1.19. Productive activity: Productive activity is the activity that has economic value in the market place. In brief, it includes any activity that produces a valued good or service even if it is not actually paid for.

2.2 Data Base

Data base is an organized collection of information from which it can be easily accessed, merged and updated. The present study covers both primary and secondary level data and were collected from appropriate sources in consideration of the data generated during the last survey. During 1987, there were 124 households which were increased to 262 households in 2019. The population and land census report 2011 of Assam was taken for collection of secondary level information of Nam Deuri village. Moreover, some official data published in various medias were also collected and incorporated in the study report.

2.3 Sampling Design

2.3.1 Criteria for selection of the village

The present study was undertaken by the Agro-Economic Research Centre for North-East India, Jorhat and was confined to the State of Assam as decided by the Ministry of Agriculture and Farmers Welfare, Government of India. The Coordinating Centre for the study was Visva-Bharati, Santiniketan, West Bengal. The village Nam Deuri was purposefully selected in view of the fact that the pilot study was conducted in this village in 1980 and was resurveyed again in 1987. The village was chosen after a gap of 32 years in order to see the structural changes in the village and also to know the living conditions of the people over time.

2.3.2 Criteria for selection of households

The study was based on both secondary and primary level data. There being less than 400 numbers of households in the village, complete enumeration was undertaken, as per the prescribed methodology. The primary level data were collected with the help of 3 (three) sets of specially designed schedule and questionnaires in three different stages. During first stage, data on village level information were collected from village head and Panchayat office. In second stage, data on different issues like ecological change, drought, flood *etc* during last five years were collected from different groups of the

locality and in the third stage, household level data were collected by personal interview method adopting complete enumeration in Nam Deuri village.

The Census Report, 2011 of the State was referred to for collection of secondary level information of the village. Moreover, some official data from local Panchayat and Community Development Block were also collected to understand and capture the status of educational institutes, drinking water facilities, health and sanitation facilities *etc.* available in the village.

2.4 Survey Approach

2.4.1 For village level information

In the first stage, data on village level information was gathered through a specially designed schedule. The existing village level institutions like school, health centre and Public Distribution System were also enumerated in detail. The village level functionaries, like President, Secretary and Members of local Panchayat of the village were interviewed. Moreover, the Village Head (*Gaon bura*), President and Secretary of Deuri Autonomous Council were also consulted to get a better insight of Nam Deuri village. A few active Anganwadi workers guided the enumerators for collection of village level data.

2.4.2. For group level information

In the second stage, data on changes in ecology, drought, flood waves *etc.* in the village during the last 5 (five) years were collated by canvassing a specially designed schedule through three different stages of group discussion. First of all, the schedule was canvassed in a group of common farmers and the data on different changes that took place in the village were collected. In second stage, the same schedule was canvassed in a group of different stakeholders and members of the local Panchayat and data were collected on different changes. In third and final stage, the same schedule was canvassed in a group of extension workers of the local Community Development Block (West Circle of Jorhat district) and all relevant information and data on different change elements, in the village during the last 5 (five) years were collected.

2.4.3. For household level information

The field level data were collected from all the households of the village with the help of a set of specially designed questionnaires through personal interview method. All

the households of the village were interviewed and all required data were collected. Thus a total of 262 households were covered by the study.

Information on socio-economic profile of the households, land use and cropping pattern, irrigation facility, sources of income and livelihood pattern were collected from the respondents of each household. Similarly, data on use of fertilizer/feed application, variety selection, input purchase, weather/rainfall related data, durable consumer goods, income and expenditures, borrowing *etc.* were collected from the farmers. Moreover, data on social change, demographic change, agrarian change, livelihood changes, economic changes and ecological changes were collected for the period from 2014 to 2019. Also, it was attempted to identify the driving forces of all those changes that took place in the village during the intervening period.

In addition, Government schemes related information, price and market related information during *kharif* and *rabi* season of the year were also obtained from the respondents.

2.5 Analytical Tools

To meet the objectives of the study, following statistical tools and techniques have been used:

2.5.1 Compound Annual Growth Rate

The Compound Annual Growth Rate (CAGR) has been worked out with the help of the following formula,

$$\text{CAGR} = \left[\left(\frac{\text{End Year}}{\text{Starting Year}} \right)^{\frac{1}{\text{Periods}}} \right] - 1$$

2.5.2 Tabular analysis

To meet the stated objectives of the study, collected data were analyzed, collected & were presented in tabular format and interpretations of the results were offered accordingly.

2.5.3 Diversification indices

The magnitude of crop diversification among the farmers was worked out with the help of Herfindhal Index.

$$\text{Herfindhal Index} = \sum_{i=1}^n P_i^2$$

Where,

P_i = is the proportion of area under i^{th} crop and

$$P_i = \frac{A_i}{\sum_{i=1}^N A_i}$$

In which,

A_i = actual area under i^{th} crop; $i=1, 2, 3, \dots, n$

n = total number of crops.

The index is described as sum of the squares of all 'n' proportions and is a measure of concentration. For increasing diversification, H is decreasing and vice-versa. It is surrounded by '0' (complete diversification) and '1' (complete specialization). Herfindhal Index is an opposite measure of crop diversification. It assumes that major alternatives of production choices are available. Taking the case of crops, Herfindhal Index assumes that there exist a very large number of crops, which can be grown by the farmers. If the total area was equally shared among the large number of crop alternatives, then the share of each crop would be near to zero. Therefore, this index uses deviations between actual shares of each crop against equal share of all possible alternatives given by zero.

2.5.4 Gini co-efficient & Lorenz curve

The Gini coefficient is an important tool for analyzing income or wealth distribution within a country or region. The coefficient ranges from 0 to 1, with 0 representing perfect equality and 1 representing perfect inequality.

The Gini coefficient is usually defined mathematically based on the Lorenz curve, which plots the proportion of the total income of the population (y-axis) that is cumulatively earned by the bottom x% of the population.

Gini Co-efficient (G) can be calculated as-

$$G = 1 - \sum_{i=1}^{k-1} (Y_{i+1} + Y_i) (X_{i+1} - X_i)$$

Where,

Y_i = Cumulative proportion of the income variable in the i^{th} household

X_i = Cumulative proportion of the i^{th} household

k = Total no of household.

2.5.5 BMI

Body Mass Index (BMI) is a person's weight in kilograms divided by the square of his height in meters. A high BMI can be an indicator of high body fatness. If BMI of a person is less than 16.5, it means that the person is severely underweight and in between 16.5 to 18.5 is underweight. A BMI between 18.5 and 24.9 is ideal. A BMI measuring between 25 and 29.9 is overweight and a BMI over 30 indicates obesity.

Mathematically,

$$\text{BMI} = \frac{m}{h^2}$$

Where,

m = mass (in kilograms)

h = height (in meters)

2.5.6 Any other

Percentage change

In the present study percentage change has been worked out with the help of following formula.

$$\text{Percentage change} = \frac{X_1 - X_2}{X_2} \times 100$$

Where,

X_1 = Value of parameter in 2019

X_2 = Value of parameter in 1987

2.6 Limitations of the Study

Most of the data incorporated in this report pertain to the year 2019. The study also depicts the changes that took place during a long intervening period (32 years). As such, certain attributes like education, health and sanitation, availability of drinking water and climatic condition, *etc.* were ascertained on the basis of both subjective and objective judgment of the respondent household. Also, the Census data was utilized, which relate to the year 2011 only. Obviously, there were changes in population dynamics as well.

Chapter III

An Overview of Study Village

This chapter presents the village profile, which includes its location, climate and rainfall, soil, natural resources, status of agriculture, literacy, demography, village settlement pattern, livelihood/employment and migration, transport & infrastructures, institutional development, cultural profile and uniqueness of the village.

3.1 Village profile

3.1.1 Geographical and administrative location of the village

Nam Deuri village is situated in the North-Western part of the town, which is about 17 km. away from Jorhat. The district and district headquarter of the village is Jorhat. The location code of the village is 293571 as per 2011 Census. The village belongs to 39 No. Uttar Baligaon Parbatia Panchyat.

The geographical area of Nam Deuri village is about 290.91 hectares. It is the 40th biggest village by area in the district. The total household in the village is 262 and total population stands at 1501 during the current survey, 2019. The population density of the village is 496 persons per square km as per 2011 Census. The village is under the Dergaon Assembly Constituency and the Parliamentary Constituency is Koliabor. The post office of the village is Nam Deuri (Branch Office) Post Office with PIN Code 785108. The village lies between 26° 49' 3.4932" N Latitude and 94° 6' 25.5024" E Longitude. The locational details of the village are presented in Table 3.1. Figure 3.1 shows the geographical map of Nam Deuri village.

Traditionally, the Nam Deuri village had its own local self-Government. As per the Constitution of India and Panchayati Raaj Act, the village was administrated by Sarpanch (Head of Village) who was an elected representative. Earlier all local cases of disputes and violation of rules were heard and settled by this village council. The guilty party was punished with the imposition of fine, excommunication and in some cases, physical sentence.

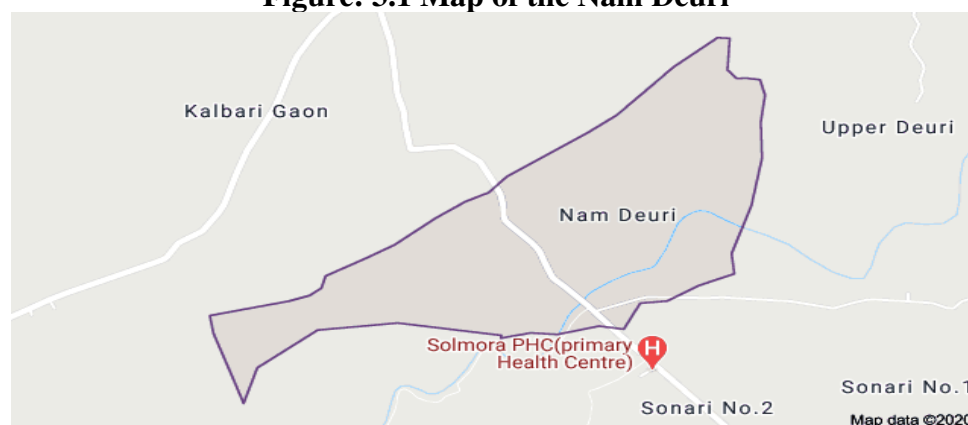
Gradually, the villagers started taking the serious cases to the Government agencies like the Police Department and the Judicial Court. The Government appointed *Gaon-bura* continued to be the Village Headman and he enjoyed a special status as an

agent of the Government in the village. It was further observed that the village Headman of a cluster of neighboring villages had formed a common organization under the name and style of *Santi Committee Gaon bura Sora* (The Village Headman's Forum for Peace).

Table: 3.1
Locational details of the village Nam Deuri

Particulars	Reference year (2019)
Location Code (As per 2011 Census)	Location code 293571
Geographical area of the village	290.91 Hectares
Total Households	262 Households
Total Population	1501
Post Office and PIN code	Nam Deuri B.O. (Branch Office) PIN code 785108
Gram-Panchayat	39 No. Uttar Baligaon Parbatia
Assembly Constituency	Dergaon
Parliament Constituency	Koliabor
Block/Tehsil	North West, Jorhat
District	Jorhat
State	Assam
Nearest Primary School (with distance)	Within Nam Deuri Village
Nearest Secondary/Higher Secondary School (with distance)	Within Nam Deuri Village
Nearest College (with distance)	Jorhat Town (About 17 Km.)
Nearest Health Centre/Hospital (with distance)	Solmora PHC (Primary Health Centre), About 1 Km.
Nearest City or Town (with distance)	Jorhat Town (About 17 Km.)
Nearest Railway Station (with distance)	Jorhat Town (About 22 Km.)
Nearest Airport (with distance)	Jorhat Town (About 27 Km.)
DMS Latitude	26° 49' 3.4932" N
DMS Longitude	94° 6' 25.5024" E

Figure: 3.1 Map of the Nam Deuri



3.1.2 Climate and rainfall

The climate of the hill districts of Assam is generally moderate while that of the plains is comparatively warm in summer but cool in winter. Accordingly, the climate of the Jorhat district is characterized by alternate cool and warm periods with high humidity, especially from May to November. Between March to May, at a time when precipitation in Northern India is at the minimum, the district gets good amount of rainfall from the North-Western monsoon which keep the temperature low in the season of spring.

Jorhat is a plain district of Assam. The district lies at 93 m above the mean sea level. During the summer, the district receives a good deal of rainfall, while the winters experience very little rainfall. The climate of the district falls under moderate temperate zone, as classified by Central Weather Agency (CWA) through the Koppen-Geiger system. The temperature of the district averages at 24.0 °C / 75.1 °F.

Average annual rainfall in the district is 194 mm. The maximum rainfall in the district is received in July (412 mm) and minimum in December (15 mm).

3.1.3 Soil

The soils of Nam Deuri village are sandy-alluvial in texture and are very fertile. Critical observations show that the valley was previously affected by frequent floods during the summer. Some spur and dyke were constructed by the Government to prevent frequent floods even before the resurvey of the village (1987). But it was not completely successful to protect the village from the floods. Prior to the construction of spur and dyke along with the bank of the Brahmaputra, flood continued to be a serious problem in the village and the situation was no different at the time of current survey (2019). At the same time, the crop cultivation during *rabi* season was found to be difficult due to inadequate irrigation facility in the village.

3.1.4 Communication/Telecommunication

Popular channels like Newspaper/magazine and modern gadgets like Tele Vision and Mobile phone are common amenities available to almost all the households in the village. Recently, 2 (two) Mobile Towers have been established by Jio and Airtel/Vodaphone within the village. Availability of computers is very limited in the village as reported by the village Headman.

3.1.5 Transport facilities

Nam Deuri village is connected with Jorhat town by a PWD gravelled road. Kakilamukh-Kalibari is a feeder road that passes through the northern side of the village and is linked with Jorhat Kakilamukh PWD road. These two roads facilitate the public conveyances to move in or out of the village.

The Cars, Magic, Travelers, Mini Trucks, *etc.* ply daily between Jorhat town and Bahphola which provide transport facilities to the residents of Nam Deuri and other neighboring villages. The village is situated within 20 to 24 kms away from the Railway Station, Inter-State Bus Terminus (ISBT) and Air-Port transport facilities. These facilities are available in and around the Jorhat town.

3.1.6 Natural resources: Forest/Rivers/Pond/Wells/Flora & Fauna

The Brahmaputra river is flowing only at a distance of about 2 km. in the northern side of the Nam Deuri village. It provides larger *Char* area (small river islands) with available green fields sufficient to feed the cattle population of the village. It was also reported that some farmers have occupied some '*Char*' area of the Brahmaputra river. Such '*Char*' area is used mainly for grazing their cattle population and to collect thatch. Moreover, few households in the village used to earn a considerable amount of income from the sale of thatch. A few affluent households of Nam Deuri village also maintain their cattle herd in the '*Char*' areas for breeding and milking purpose.

Besides, out of the total area, about 3 per cent (8.73 hectares) of land is covered by the un-classified forest in the village. From the forest, the villagers normally collect valuable woods for construction of their dwelling houses and to make furniture. Some farmers also collect fire woods for households use as well for selling it outside.

Ponds and wells are available in almost all households of the village. However, no elaborate flora and fauna are found in the village.

3.1.7 Demographic profile of the village

3.1.7.1 People

The village, Nam Deuri is exclusively inhabited by the people of Plain Deuri Tribe. The Deuri constitutes one of the major tribal communities of Assam. Traditionally, the Deuri community was engaged in priest activities of the society.

The people of the Deuri tribe are mainly divided into four groups of clans, mainly Dibongia, Bor-geeya, Tengaponiya and Pator-goya. The Deuri people of the village belong to Dibongia group of clans. Amongst the Dibongia group of clans, there are some sub-clans also. Each and every Deuri person wishes to introduce himself or herself with their main clan and sub-clan. Otherwise, their introduction remains incomplete.

3.1.7.2 Religion

The Deuris constitute one of the aboriginal plain tribes in the Brahmaputra valley of Assam. They are ethnically affiliated to the great – Tibeto – Mongolian tribes of Assam. Historically, the Deuri are maintaining old traditions, religious thinking and practices intact though they are exposed to the influence of various religious faiths. But the pantheon of Gods and Goddesses of the Deuris clearly indicates that they are Hindus. Only the names of the Gods and Goddesses are different from the Hindu names.

3.1.7.3 Village settlement pattern

The Deuris have a traditional preference to living along the riverside areas. The present setting of the village under study is located near the bank of the Brahmaputra river. The living environments have had influence in their economy, life style and culture in various ways. As they generally live on the river banks, the Deuris usually construct their dwellings on raised platform *i.e.* *Chang Ghar* (Stilt house) to protect themselves from probable flood. The Figure 3.2 A and Figure 3.2 B depict the *Chang Ghars* (dwelling houses) of Deuri families with two different income strata.

The traditional *Chang Ghars* of the Deuri people are built by using cane, bamboo, wood *etc.* The first room of the dwelling houses is called “Subasani” room which is set centering the home deity. The lower section of the house is used for household animals. Piggery is one of the most favorite livelihood options of Deuri people and most of them have piggeries. They used to make some holes on the floor so that all unused food grains *etc.* can directly pass through it to the lower section. The fire place attached with the *Chang* (Floor) is called *Dudepati*.

From the resurvey (1987), it was observed that all the dwelling houses were constructed by wood and bamboo in the Nam Deuri village. But, the scenario has gradually changed during the intervening period. Presently, it is observed that almost all the raised platforms are constructed by cement concrete and bamboo. The Assam type

pucca houses are also constructed by some people with cement concrete and brick. Nearly, 95 per cent dwelling houses are now constructed on raised platform and only the remaining 5 per cent houses are constructed on the ground as Assam type *Pucca* house in the village (2019).



Figure: 3.2 A: The *Chang Ghar* of a Poor(APL) family



Figure: 3.2 B: The *Chang Ghar* of a medium income family

3.1.7.4 Literacy

As per 1987 resurvey, total population in the village was 1231 persons, of which 550 persons were literate. Overall literacy of the Nam Deuri village was 44.68 per cent, out of which male literate persons were 50.72 per cent and female literacy was 38.52 per cent as indicated in Table 3.2.

**Table-3.2
Gender-wise Population Distribution and Literacy:1987**

Particulars	Total	Male	Female
Population (No.0	1231	621	610
Child 0-6 (No.)	224	124	100
Total literate person (No.)	550	315	235
Literacy (per cent)	44.68	50.72	38.52

Source: Nam Deuri resurvey, 1987

3.1.7.5 Poverty

Population pressure in the village was considered to be one of the primary causes of rampant poverty. The average family size was recorded at 9.93 members as per last survey (1987). This indicates that the big family size was the root cause of losing land and other assets which eventually pushed them to poverty. The distribution of land among the children has resulted in decline in the per capita cultivable land, which automatically had a negative impact on agricultural production. Thus the population pressure coupled with land fragmentation has led to poverty at individual level and

substantial reduction in output at market level. The developmental activities taken up in the village were limited to a few select areas only.

However, in Nam Deuri village, altogether there were 248 numbers of ration card holders, of which 43 card holders were BPL households and were entitled for the benefits of *Antyodaya Anna Yojana* (AAY) scheme (2019). The rest of the cards holders were considered as Above Poverty Line (APL) households which were known as Priority Households Cards of the Government. Moreover, some cards were issued by the Government under the *Mukhya Mantri Anna Suraksha Yojana* scheme which includes both APL and BPL card holders based on their economic conditions. A few BPL cards holders of Nam Deuri village were benefitted under the Atal Amrit Abhiyan Scheme of the Government of Assam for medical treatment.

3.2 Livelihood/Employment and migration

3.2.1 Livelihood pattern/types

Agriculture is the principal means of livelihood for the villagers of Nam Deuri village. As per the survey/enumeration, other traditional livelihood options include fishing on commercial or subsistence basis in local river Brahmaputra and other water bodies, rearing and selling of livestock (pig, goat, poultry *etc.*) and animal products (eggs, milk, meat *etc.*); collection of fire woods and other timber or non timber forest produce for self use or exchange; handlooms for weaving of traditional Deuri clothes and wage labour especially, among the immigrant communities, with whom land holdings were small or non-existent.

3.2.2 Primary/Secondary/Tertiary livelihoods

Primary occupations are those that extract or harvest products from the earth *i.e.* agriculture and allied sectors. The resurvey of Nam Deuri (1987) indicated that the agriculture and allied sector was the major source of income, wherein 121 farm families were involved and provided 71.62 per cent of the total annual income for the reference year.

Secondary occupations involve manufacturing of finished goods, trades, wage earners *etc.* Weaving topped the list of secondary occupations amongst the villagers. Almost all the women knew how to weave in their looms and they used to feel proud of doing it. Besides handloom weaving, cane and bamboo were also important enterprises in

Nam Deuri village. Trade and business, wage earners *etc.* are also included in this sector. These activities contributed 9.82 per cent to the total annual income as revealed by the resurvey undertaken in 1987. Altogether 27 households were engaged in these livelihood options in the reference year.

Income from services and salaried job, professions *etc.* are included in the tertiary sector occupations. The resurvey of Nam Deuri (1987) reveals that these contributed 18.56 per cent of the total annual income in the reference year and covered 22 households.

3.2.3 Pattern of migration

Human migration is a universal phenomenon. It is a process through which people move from a permanent place of residence to another more or less permanent one for a substantial period of time. It was reported by different stakeholders that because of the occurrence of frequent floods during the summer, a considerable number of families had left the village (migrated) to some other place of the Jorhat district and settled there permanently. Besides, 8 (eight) families left the village in recent time and permanently settled in different parts of the state, because of their professions and occupational compulsion. Moreover, 12 (twelve) villagers from 12 households are doing job under the Government/Private sector in different parts of the country.

3.3 Agriculture Status of the village

3.3.1 Land utilization pattern

Land utilization pattern in the Nam Deuri village is shown in Table 3.3. The Table shows that the total Gross Cropped Area was 438.18 hectares, of which 86.77 hectare

Table- 3.3
Land utilization pattern in the village Nam Deuri: 1987

(Area in hectares)

Particulars	1987
Net area sown	351.41
Area sown more than once	86.77
Gross cropped area	438.18
Per capita net cultivable area	0.29
Percentage of area sown more than once	24.69
Cropping intensity (per cent)	124.69

Source: Nam Deuri resurvey, 1987

was sown more than once and net sown area was 351.41 hectares. The per capita net cultivated area was 0.29 hectare. The percentage of area sown more than once to the net area sown was 24.69. The cropping intensity for the year was 124.69 per cent.

3.3.2 Irrigation

Although the village, Num Deuri is situated in the flood-prone area, many a time, it experienced scarcity of water particularly for winter paddy crop. So, there was a need of irrigation in the crop field. As per record, there were 14 diesel pump-sets in the village in 1987. But it is learnt from different stakeholders that the pump-sets have not been properly utilized. In most of the cases, the pump-sets were used for irrigating the seed-beds of *Sali* paddy only.

Moreover, the Resurvey highlighted that only 7 (seven) diesel operated shallow tube-wells were available in the village. These shallow tube-wells were used, as and when necessary, primarily by those farmers whose farms were located near to the shallow tube-wells. It was further reported that although the power (electricity) connectivity was there in the village; but it was not extended to any of the shallow tube-wells points. So, the shallow tube-wells remained under-utilized due to high cost of diesel.

3.3.3 Cropping pattern

Rice is the staple food for the people of Nam Deuri village. So the major portion of the cultivable area of the village was allocated to cultivation of winter paddy (*Sali*), summer paddy (*Ahu*) and autumn paddy (*Bao*). Of these three, *Sali*, the winter paddy occupied the maximum area. Crop rotations followed in the double cropped area were *Ahu* paddy followed by *Sali* paddy and *Sali* paddy followed by peas under relay cropping method. *Kharif* vegetable was followed by *Rabi* crops. Besides these, the other crops usually grown in the village were Potato, Mustard, Black gram, Jute and Vegetables.

However, considering the present livelihood status, the traditional cropping pattern has changed slightly. These days, the farmers of the village have given maximum stress to grow winter paddy (*Sali*), instead of summer and autumn paddy. The Village Headman reported that due to lack of adequate irrigation facility, the farmers of the village are not interested to cultivate summer paddy (*Ahu*). Instead, mustard and vegetables are cultivated by most of the farmers. Cabbage, Cauliflower, Brinjal, Tomato, Potato, *etc.* are also cultivated widely considering the market demand. It was also

reported that the farmers of the village are adequately benefited by selling these crops and earned substantial income during last two decades.

3.3.4 Livestock resources (Cattle/Birds/Others)

Possession of livestock is very important for farming community. Besides helping in cultivation practices, it also supplements the household income to a great extent. Table 3.4 shows the distribution of livestock population owned by the villagers for the year 1987. It was revealed that among the Deuri community, pigs, goats, fowls and ducks were considered to be the properties of the womenfolk. The entire sale proceeds of these animals went to the womenfolk.

Bullock and he-buffaloes were the main draught animals in Nam Deuri in the year 1987. However, rearing of draught animals has declined gradually during the intervening period. It was reported by the village Headman that the majority of the farmers now use Tractor and Power Tiller for tilling their crop field either by owning on its own or by hiring.

Table- 3.4
Ownership of livestock population
in Nam Deuri village during 1987

(Figures in number)

Particulars	livestock population
Bullocks	386
Cows	690
He-Buffaloes	37
She-Buffaloes	33
Goats	212
Pig	247
Fowls	1,219
Ducks	160
Pigeons	82
Elephant	2
Horse	33

Source: Nam Deuri resurvey, 1987.

3.3.5 Land tenure system and land reform measures

Land in the village was held mainly under the two systems, viz. Periodic Khiraj 'Myadi' and Annual Khiraj 'Temporary'. Periodic Khiraj land is held as full time revenue paying, permanent heritable and transferable land. In Annual Khiraj, there is no permanent right and they cannot be transferred to anyone officially. Apart from Periodic

Khiraj and Annual Khiraj land, there were some Government lands in and around the village. The Government lands were mostly occupied by religious institutions, schools, hospitals, play ground, club, *etc.* As per information available with the stakeholders, a considerable area of the Government land was also reported to be occupied by some farmers for cultivation purpose. Apart from the above categories of land, some people also occupied some 'Char' area (small river island) land of the Brahmaputra river. Such 'Char' areas were mainly used for grazing cattle population and for collection of thatch.

Like all other plains villages of Assam, the farmers from Nam Deuri also leased out and leased in cultivable land to their co-villagers. In most cases, cultivable land was leased out by the farmers mainly because of shortage of man power. The prevailing practice of leasing out land was based in terms of kind payment, *i.e.* fifty per cent of the total produce had to be paid to the owner.

3.4 Development of Institutions & Infrastructures

3.4.1 Panchayat

Nam Deuri village is under the Panchayat of the 39 No. Uttar Baligaon Parbatia. The Panchayat covers a big area with 9 (nine) villages in the locality. The villages are Baghora Chapari, Deuri No. 1, Deuri No. 2, Kalbari Gaon, Karang Chapari, Nam Deuri, Sonari No. 1, Sonari No. 2 and Upper Deuri gaon. The Panchayat comprised of 12 members including the President and Councilor. Nam Deuri village is situated about 2 (two) kms away from the Panchayat Office. At present, one representative is elected from the Nam Deuri village to the Panchayat and the member is responsible for growth and development activities of the village.

3.4.2 Co-operative society

Nam Deuri village is covered under the 'Hazari Baligaon Gaon Panchayat Samabai Somittee Ltd.'. The Samabai Somittee was established in 1973. The society office is around 5 kms away from the Nam Deuri village. The villagers usually purchase Kerosine, rice, sugar, wheat grains and some other essential commodities at subsidized rate approved by the Government for their household use.

3.4.3 Schools

The educational facility of the village up to higher secondary standard is more or less satisfactory. Within the village, there are two Government lower primary schools.

There was yet another primary school in private sector, named as Rupnath Brahma Adarsha Lower Primary School (Estd. 1969) just along the boundary of the village. One M.E. School named, Hemchandra Tribal M.E. School (Estd. 1952) is also located within the campus and the local students of the village could avail off their education up to M.E. level. For obtaining high school level education, there is a High School named Num Deuri High School which was established in 1947 and it was upgraded to Higher Secondary School in 1979.

Moreover, a private English Medium Bethal Christian School for juniors (Nursery and Kindergarden) was established by a young Naga teacher in March, 1986 at Kalbari, adjacent to Num Deuri village. The school attracted the attention of many guardians who were interested to get their children educated in English medium. So, the school level education from lower primary to higher secondary level is, by and large, satisfactory as the facilities are available in and around the village. But for obtaining the college education, the students have to go to Jorhat town mainly and other places of the state. On the whole, the educational facilities have improved considerably over time, as reported by the Village Headman.

3.4.4 Financial Institutions

Baring a branch of India Post Office, there were no other financial institutions in the village. A Customer Service Point (CSP) of State Bank of India (SBI) has been commissioned recently, just 500 meters away from the southern boundary of the Nam Deuri village. There is an Automated Teller Machine (ATM) as well, which is used extensively by the villagers for drawl and deposit of money.

However, a branch office of United Bank of India is located in an adjacent village, which is just one km. away from the village. The bank usually plays a significant role in improving the economic condition of the villagers by providing institutional loans and other grants. Most of the people of the village have deposit accounts in the bank.

3.4.5 Social organizations (Clubs/Society/SHG etc.)

There is a Cultural Hall in the village in which all cultural functions of the village are organized. The main functions include Bihus *i.e.* (1) Bohagiya Bihu (Bohag Bihu) and (2) Magiya Bihu (Magh Bihu). The Hall was constructed during 1990 at the North

end point of the village. The size of the Hall is about 150 feet x 55 feet. Presently, the condition of the Hall is quite good.

Moreover, one Community Hall (Club) is also there in the village. The club was established during 2018 by the side of the Cultural Hall. There was one Village Development Society formed by the villagers, which work for improvement of village life.

In addition, almost all Deuri women were involved in the Self Help Groups. There were 63 Self Help Groups (SHGs) in the village. It was reported that they used to arrange weekly meeting in their groups and distribute loans to their fellow members. The State Government is also providing sufficient fund to strengthen the Self Help Groups of the village.

3.5 Village Infrastructure

3.5.1 Market/*Haat*

There were two weekly markets on two different days in the area of Changliati, which is 1 (one) km from the village. Moreover, there is a daily market at Alengamora Chariali, which is about 2 (two) kms from the Num Deuri village. These are the nearest markets for the people of the village, where most of the producers sell their produces.

Besides, Jorhat, the district headquarters, offers a ready market for all the commodities, the villagers have to sell or purchase. The villagers usually carry a part of their surplus produce to Jorhat town by mini public vehicles (Magic/Mini truck). A good number of villagers also use their bicycles to carry their saleable products. Some of them even come to Rowriah and Chinnamora weekly markets which are located nearby the Jorhat township area to sell their vegetables, poultry birds and pigs. In addition, traders from Jorhat town also visit the village in order to collect primarily vegetables when these are grown in abundance. The villagers, usually purchase almost all consumer durable goods from Jorhat town for their household use.

There are a few grocery shops in the village owned by local businessmen from where the villagers used to purchase their essential commodities and other daily requirements. Few of such businessmen also collect crops like mustard, pea, paddy, potato, silk cotton *etc.* from the villagers for marketing outside the village.

3.5.2 Post Office

As indicated earlier, there is a Branch Post Office at the centre of the village with PIN code 785108. There are 3 (three) employees which include one Post Master, one Postal Assistant and one Peon. Although the main function of the Post Office is delivery type, it has recently started handling monetary transaction involving Savings Account and Recurring Deposit Account *etc.* Most of the people of the village are having their accounts in the Branch Post Office. As many as 300 accounts with Savings and Recurring Deposits have been reported from Nam Deuri village.

3.5.3 Health Facilities

There is a Medical Sub-centre in the Num Deuri village with a staff Nurse and a Multi Purpose Worker (MPW). They have been providing necessary medical supports, especially to the pregnant women and infant babies of the village.

One State Dispensary, established in 1951 at Kalbari which is located at a distance of about 1 km. only from the Num Deuri village is providing necessary medical facilities for the people of the village. Now, there is a full time Doctor, one Pharmacist, 2 (two) Nurse, one Mid-wife and a Chowkider. Staff quarters are available for all categories of employees of the dispensary.

The district headquarters, Jorhat which is about 17 km. away from the village also provides various medical facilities to the villagers at time of emergency. As such, medical facility-wise, the Nam Deuri village is much better off than many other remote tribal areas of the State.

It was reported that there was a considerable number of T.B. patients in the locality during the Nam Deuri resurvey (1987). Moreover, a few cases of cancer were also reported in the village. Fever, cough, dysentery *etc.* were the common ailments in the locality. Infestation of round and thread worm were most common among the children and the elders

The resurvey (1987) indicated that most of the villagers tried to cure the diseases by applying traditional methods. They believed in evil spirits and deities and were supposed to cause various diseases. For that matter, rituals and sacrifices were carried out by the village people.

It is reported by the stakeholders (2019) that the situation has completely been changed. The people became enlightened and they came forward to take modern medical treatment for their family member. As a result, the mortality rate of population in the village gradually decreased.

3.5.4 Electricity

Electric power connection was extended to the Nam Deuri village way back in 1980, but it is yet to become available to all households of the village till date. The Nam Deuri resurvey (1987) revealed that only 12.10 per cent of the households had electricity connection in the village. At present, about 96.56 per cent of the households are having electric power supply.

3.5.5 Drinking Water Supply

There is no drinking water supply scheme in Nam Deuri village. One drinking water supply project was approved during 2011, but it has not yet been completed due to unknown reason, as reported by the Village Headman.

3.5.6 PDS

There are 3 (three) Public Distribution System (PDS) shops in Nam Deuri village, wherefrom the villagers used to purchase the commodities like sugar, rice, kerosine, wheat grains, *etc.* The villagers confronted no problems in acquiring these items, as reported by the Village Headman.

3.6 Cultural Profile

3.6.1 Fairs and festivals

The most important festivals of the Deuris are Bihus. They used to celebrate two major festivals during a year, viz. (1) Bohagiya Bihu (Bohag Bihu) and (2) Magiya Bihu (Magh Bihu). Bihus are considered as festivals of unrestricted joy and merry making. Drinking, eating, singing and dancing together are the main features of these festivals. By celebrating Bihus, they bring about inter and intra-village solidarity among themselves. These Bihu festivals have close relation with their agricultural activities. The Bohag Bihu is celebrated before starting of the *kharif* agricultural operation while the Magh Bihu is observed after harvesting of the winter paddy. In addition, Siva puja is also an important festival on the occasion of ‘Sivaratri’ amongst the Deuri community.

3.6.2 Temples/Mosques/Churches etc.

The Deuris have their own customs and traditions and are exposed to different religious faiths. But the pantheons of Gods and Goddesses of the Deuris evidently indicate that they are Hindus. But the names of the Gods and Goddesses are different from the Hindu names. The Deuri people believe in 'Kundimana' which is the supreme power. So, they continue to worship 'Kundimana' (Kundi-Siva, Mana-Parvati) from the ancient time. There is a temple in the Nam-Deuri village called 'Deo-ghar' wherein the Deuri people used to pray at regular interval.

3.6.3 Dress and ornaments

Every tribal community of Assam has a particular dress code. Like any other races, an individual tends to form society and in the society, they create their own identity based on their tradition and culture. They use different adornments on different occasions. A Deuri male, at home uses a loin cloth called *Ikhoon* combined with shirt. When they go out of their home, they generally use trousers and shirt. They adorn themselves with white cloth and use a necklace (called 'Konthamoni') while taking part in traditional social function. Deuri women wear *Ujaduba igoon* which is enclosed



Figure:3.3 A Traditional dresses of Deuris



Figure: 3.3 B Traditional ornaments of Deuris

around the waist. Sometimes they use *Tegihra*, a traditional outfit. To cover their head, Deuri women use *Gathiki* or *Gamucha*, a kind of towel. They wear a ring called *Gema* and use bangles called *Uchoon*. Also, they wear a neck lace which they called *Igawa*, made of gold or silver. Some ornaments are used for they use while performing *Bihu*

only. The Deuri young girls also dress like a woman using *Igoon* and blouse with a *Gamocha* across the chest. The Figures 3.3 A and 3.3 B present the traditional dresses and ornaments of the Deuris in the study village.

Each and every young Deuri girl is an expert weaver and they used to preserve their products in individual (separate) boxes for their future use. They hardly sell those products. They purchase cotton yarn from the market for weaving of cotton clothes and all the products are primarily meant for households use. During festivals, they use fine traditional dresses which make their life more colourful and culturally rich.

In the recent past, modern dresses and fashions have also made silent entry in the Nam Deuri village. The young generation, both male and female, has been using factory produced garments of the latest designs. They used to wear gold or silver made ornaments during the festivals. Of course, traditional dresses are still very much popular particularly, at the time of rituals and celebrations and the new generation too wears them with pride.

3.6.4 Languages

The Deuris have their own dialect. The dialect is popular and is extensively used as common local language among their communities. The Deuri language is one of the languages of the Sino-Tibetan origin and is mainly a spoken language. It was once the original language of upper Assam and influenced a lot for development of Assamese language. Assamese is the mother tongue of Deuri people. The children of Nam Deuri village receive education through the Vernacular/English medium. Also, a major section of the village people can speak Hindi and English.

3.6.5 Food habits

Rice is the staple food for the people of Nam Deuri village. The non-vegetarian items include large quantities of fish, various types of meat and eggs, chicken, duck, mutton, *etc.* Pork meat is a widely accepted food item for the Deuri community. Interestingly, the use of edible oil was almost absent earlier. Items were mostly boiled, smoked and sometimes roasted. But now-a-days, the use of oil is very common, which may be because of influence of non-tribal neighbors had change at test. Similarly, the traditional cakes and snacks mostly prepared from *bora* rice, although still popular, are slowly giving way to modern factory-produced items. Tea is a popular beverage,

particularly among the young generation. Milk as a food, not popular earlier, is being increasingly accepted with the passage of time. Smoking with the traditional pipe has gradually replaced by *bidis* and cigarettes.

Home brewed rice beer is an essential component of the food basket of almost all the Deuri people in the village. It is an important element in the tradition of hospitality which is one of the most admired of Deuri virtues; it is almost a medium of exchange; it has great share in many of religious rituals (Elwin; 1964:242). The Village Headman, in course of interaction, also concurred with the fact that no Deuri conference can be arranged and succeeded without the use at rice beer; it is a kind of pledge that bind them together.

3.6.6 Caste System

Single-caste and single-tribe villages are very common in Assam. Therefore, the rural power structure does not indicate any caste conflict or dominance by a particular caste/tribe. Nam Deuri village is a single-tribe village and the entire population belongs to Dibongias group of clan, wherein no system of social ranking exists. All the inhabitants have equal social status and as such; there were no caste system among the villagers, as reported by the Village Headman. They usually follow their own rituals for different social events over the years. Untouchability is an unheard off word in the study area.

3.6.7 Dowry System

The marriage among the Deuris is an indispensable ingredient of social life. The system of bride price is prevalent among the Deuris, which cannot be considered as dowry. This price is given to their girls only as gifts, as a token of love. It includes mainly brass-mat, utensil, wooden or steel boxes, garments and clothes *etc.* The bride price paid by the groom varies between Rs. 500/- to Rs. 1,000/- and sometimes, even less. The Deuris solemnize the marriages in a traditional manner. However, it remains as a purely personal affair entailing heavy expenditure on sumptuous feasts and large amount of rice-beer continuously for two or three days for a large number of guests.

3.6.8 Political establishments & openness

Except for one Panchayat member, there was no other public representative in the Nam Deuri village. The common people of the village discuss their problems with the

Panchayat member and the Panchayat member plays significant role in the Panchayat meeting in the interest of the villagers. However, the villagers were found to be politically conscious, few of them having political affiliation as well.

3.7 Others

3.7.1 Library

There are 2 (two) school library available in two different schools namely Num Deuri Higher Secondary School which was established in the year 1947 and the Girls' H.S. School established in 1979. Apart from these, there is no other library in the village for common use of the villagers.

3.7.2 ICDS centre

There are 4 (four) Anganwadi centres in the Nam Deuri village which are under the Integrated Child Development Scheme (ICDS), Jorhat district. There is one Anganwadi worker and a Helper in each of the Anganwadi centres. The basic aim of these Anganwadi employees is to provide valuable guidance to the pregnant women and to serve for all round development of the 0-6 years of children of the village. The Anganwadi employees are rendering yeoman services to the pregnant women, besides distributing healthy food like 'Processed Cereal Based Complementary Food' to the children of designated age group as reported by the Village Headman.

3.7.3 Tube wells/Piped water supply

The majority of the villagers usually get safe drinking water through tube-wells. There are quite a good number of tube-wells in Nam Deuri village. There were only 22 tube-wells at the time of Nam Deuri resurvey (1987). The number of tube-wells has increased to 262, implying that every household is having their own tube-wells (2019). Majority of the tube-wells were installed by individual households from their own resources, as reported by the Panchayat member. Moreover, a few tube-wells were also installed at some common places of the village by the Public Health Engineering Department and the Village Panchayat. On the whole, one can very well see that the drinking water issue has been improved at lot during the intervening period. However, piped water supply facility is not available in the village.

3.7.4 Agro-processing Units (Mills/Factories)

Nam Deuri village is a major vegetable production centre of Jorhat district. The farmers of the village produce enough quantity of vegetables of different kinds during all seasons of the year. But due to a number of constraints, no agro-processing industries have come up in the village so far. The major constraints as reported by the villagers include lack of skilled labour and regular market, lack of cool storage facility and lack of regular electricity supply. Under the situation, considerable amount of vegetables get spoiled every year and are to be sold at a very low price.

3.7.5 Play Ground

There is a play ground in the Nam Deuri village which was developed near about fifty years back. The area of the play ground is around 200 sq. meters. The young people of the village are great admirers of foot ball game, and they generally use the play ground for playing football most often. Sometimes they play cricket as well. Presently, there is a reasonably good football team in the village and it occasionally participated in different competition.

3.7.6 Illegal activities

Deuri people are generally very simple pious and honest. The people believe in 'Kundimana' which is the supreme power and it is believed that if someone does any illegal activity in the society, he will be punished by 'Kundimana'. So, the people of the village generally keep far away from the criminal/illegal activities. It was stated by the Village Headman that no criminal/illegal activities such as theft, docoity, gambling, *etc.* were observed in the village during the last one decade and a village committee usually monitors the activities on regular basis.

3.7.7 Government schemes (Name & coverage)

As reported by the Village Headman, quite a good number of schemes have been implemented in the village by the Governments during the last two decades for uplift of the economic conditions of the villagers.

Pradhan Mantri Gram Sadak Yojana, Pradhan Mantri Awash Yojana, Gramin or Indira Awaas Yojana (IAY), National Horticultural Mission (NHM), National Food Security Mission (NFSM), Pradhan Mantri Kisan Samman Nidhi (PM-KISAN), Widow Pension Scheme *etc.* have been implemented in the village. In recent years, Open

Defecation Free (ODF) programme has also been implemented in the village. Under the programme, a large majority of the households in the village were benefitted through construction of toilets and other sanitation facilities. Beneficiaries are also there under the Atal Amrit Abhiyan Scheme and Mahatma Gandhi National Rural Employment Guarantee Act. based on the economic conditions of the families.

3.7.8 Occurrence and frequency of natural calamities (Flood/Drought/Cyclone/Others)

Agriculture in India is mainly weather-dependent. Assam is also no exception. During group discussion conducted in the study village, it was emerged that no flood, drought, cyclone or other calamity were observed during last five years except for erratic rainfall. Crop production in Nam Deuri village is predominantly rainfed, and as such, the major livelihood activity *i.e.* agriculture was affected adversely due to change in rainfall pattern. The net potential effect of weather changes had resulted in disturbance in crop production leading to food insecurity, joblessness and poverty in the village.

3.8 Uniqueness of the village

Deuris are one of the important schedule tribes of Assam. Although, they use Assamese as a lingua franca, they speak in their own dialect amongst the family members within the village. Rice is the principal food and taking home-made rice beer is a well accepted social custom. By nature, they are very humble and have full regards to visiting guests all the time. Their living styles are quite different from the other tribes of Assam. Ethnic dresses, ornaments and wearing styles of both man and woman during social functions and festivals, give them a separate identity. All the inhabitants are very much conscious of keeping their ethnic identity intact.

Summing up

The data collected through village enumeration clearly indicate that the educational facilities, health facilities and other physical infrastructures have improved considerably during the interim period *i.e.* from 1987 to 2019. The use of some modern agricultural tools and implements are also increasing with time. However, the irrigation facility still remains a distant dream. Some noticeable changes like drinking water facility, modern housing and furnishing, construction of village roads, expansion of electricity to households, selection of BPL/APL households, establishment of ICDS centres, *etc.* have been observed during the survey which definitely has contributed

towards social well being. Moreover, establishment of Customer Service Point (CSP) under State Bank of India and emergence of Self-Help Groups (SHG) were two other major developments having abiding influence on the rural economy. Increase in agricultural production along with rise in prices of agricultural produces and earnings from non-agricultural occupations like business, salaried job *etc.* have helped the villagers in raising their household income considerably.

Chapter IV

Social Dynamics

It is essential to see and understand the changes that are taking place in the village over the years especially in the context of demographic status, socio-economic progress and cultural environment leading to growth and development. As such, this chapter deals with population and households, gender-wise composition and age distribution, caste/religion wise distribution, literacy pattern by sex, birth and death, enrollment in different educational level (gender wise), food security & child nutrition, access to basic amenities and changes therein (electrification, sanitary toilet, health, safe drinking water, *etc.*) in Nam Deuri village. Moreover, social participation, inclusiveness and empowerment, perception of various groups and households in the village about different changes in the village, rigidity in caste system, gender bias/women empowerment, political bias or level of deprivation in the village are also incorporated in this chapter.

4.1 Population and Households

The natural increase of population during the intervening period from 1987 to 2011 had increased from 1231 persons to 1444 persons and it has further gone up to 1501 persons in 2019 as evidenced from the present survey and is indicated in Table 4.1. The Table indicates that the adult population (18-59 years) in the village was recorded at 48.25 per cent in last survey 1987, 71.88 per cent in 2011 census and 73.22 per cent in 2019 during the current survey. Similarly, the child below 6 years of age was 18.20 per cent in 1987, 9.97 per cent in 2011 and 9.79 per cent in 2019 as indicated in Table 4.1. This shows that adult population in the village has increased considerably while the children below 6 years of age declined both in 2011 census and current survey 2019, when compared to 1987 survey.

It was mentioned earlier that the inhabitants of the village were exclusively plain tribal people in the last survey (1987). But, the census report of 2011 shows that out of the total population, 9.56 per cent (138 persons) were non-tribals (OBC/MOBC category) and rest 90.44 per cent (1306 persons) was tribal population. It was reported that these non-tribal population were mainly ex-tea garden labourer and Nepali people settled in the village as immigrant population. They are the landless people and used to work as

Table 4.1
Demographic profile of Nam Deuri Village

(Figures in numbers)

Particulars	In 1987 (During last survey)			In 2011 (Census)			In 2019 (During current survey)		
	Male	Female	Total	Male	Female	Total	Male	Female	Total
Number of households	124			228			262		
Total Population	621	610	1231	737	707	1444	754	747	1501
Adult	300	294	594 (48.25)	525	513	1038 (71.88)	551	548	1099 (73.22)
Child (0-6)	124	100	224 (18.20)	82	62	144 (9.97)	70	77	147 (9.79)
Scheduled Caste	-	-		-	-		-	-	
Scheduled Tribe	621	610	1231 (100.00)	664	642	1306 (90.44)	717	728	1445 (96.27)
OBC/ MOBC	-	-		72	66	138 (9.56)	37	19	56 (3.73)
Total Workers	324	345	669 (54.35)	535	502	1037 (71.81)	558	544	1102 (73.42)
Main Worker	250	237	562 (45.65)	432	232	664 (45.98)	445	236	681 (45.37)
Marginal Worker	74	108	107 (8.69)	103	270	373 (25.83)	113	308	421 (28.05)
Cultivator	233	243	476 (71.15)	NA	NA	NA	336	348	684 (62.07)
Agricultural Labourer	5	12	17 (2.54)	NA	NA	NA	11	11	22 (2.00)
Workers in household industries	2	15	17 (2.54)	NA	NA	NA	3	29	32 (2.90)
Other workers	84	75	159 (23.77)	NA	NA	NA	208	156	364 (33.03)
Non worker	297	265	562 (45.65)	202	205	407 (28.19)	196	203	399 (26.58)
Literate population	315	235	550 (44.68)	614	525	1139 (78.90)	628	592	1220 (81.28)
Illiterate population	306	375	681 (55.32)	123	182	304 (21.10)	126	155	281 (18.72)
Literacy (%)	50.72	38.52	44.68	83.31	74.26	78.88	83.29	79.25	81.28
Sex Ratio	982			959			991		

Note: (a) Figures within brackets indicate percentages.

(b) N.A.: Not available.

agricultural labour or daily wage earners in the village. However, in course of time, some of them left the village *i.e.* migrated to the other nearby villages in search of better livelihood sources after 2011 census. As a result, during the current survey in 2019, the non-tribal population stood at 3.73 per cent (56 persons) only and the rest 96.27 per cent were (1445 persons) tribal population (Table 4.1).

Table 4.1 reveals that out of the total population in 1987, 54.35 per cent were engaged as worker (covering both main worker and marginal worker) and rest 45.65 per cent were non-workers, covering both male and female worker. As against this, there were 71.81 per cent worker and 28.19 per cent non-workers according to 2011 census. In the current survey (2019), the corresponding figures stood at 73.42 per cent and 26.58 per cent, respectively.

Table 4.1 also shows that out of the total workers, cultivators were 71.15 per cent in 1987 which declined to 62.07 per cent in 2019. The agricultural labour was 2.54 per cent in 1987 and had further decreased to 2.00 per cent in 2019. Nearly, 2.54 per cent workers were engaged in households industries in 1987 which had increased to 2.90 per cent in 2019. In the category of other workers, wherein the service sector, trade, commerce, transport, casual labour *etc.* are included, the percentage of workers were 23.77 in 1987 and 33.03 in 2019. The breakup data on cultivator, workers in household industries, others workers *etc.* was not found in the census 2011.

Table further, shows that out of the total population, 44.68 per cent were literate as per the last survey conducted in 1987. The literacy rate stood at 78.88 per cent as per 2011 census and the figure has further increased to 81.28 per cent during the current survey in 2019. From the analysis, it is observed that literacy rate in the village steadily increased during the intervening periods.

In regard to sex ratio, it is observed from the Table that the number of females per 1000 males declined in between 1987 resurvey and 2011 census. The figure for last survey in 1987 was 982 and it came down to 959 in 2011 census. However, the figure considerably increased to 991 during the current survey 2019. The sex ratio of the village, Nam Deuri is higher than that of the state as a whole, which read as 962 females per 1000 males.

During the village resurvey 1987, the number of households was 124 which increased to 228 in 2011 census and it has further gone up to 262 households in 2019 (Table 4.1). The increase in the number of households was mainly due to separation of families. This change (increase) in the number of household was considered to be quite normal for any other plains tribe of Assam.

Distribution of households by family size in Nam Deuri village is presented in Table 4.2. It is seen from the Table that there was significant increase in the number of households with smaller family size in the current survey (2019), while it was dominated by large size family households during the last survey (1987). The Table reveals that there were 62 households with an average family size of 4 (four), followed by 46 households with an average family of 5 (five) and 45 households with an average family of 6 (six) during the current survey 2019. As against these, there were 33 households with an average family size of 9 (nine), followed by 30 households with an average family of 10 & above and 28 households with an average family size of 8 (eight) during the survey conducted in 1987. Thus, the field survey clearly indicates that there were considerable increases in the number of households with smaller family size in the village.

Table 4.2
Distribution of households by family size

Family size	In 1987 (Last survey)				In 2019 (Current survey)			
	No. of households	Per cent to total	No. of persons	Per cent to total	No. of households	Per cent to total	No. of persons	Per cent to total
1	0	0.00	0	0.00	0	0.00	0	0.00
2	0	0.00	0	0.00	5	1.91	10	0.67
3	0	0.00	0	0.00	29	11.07	87	5.80
4	4	3.23	16	1.30	62	23.66	248	16.52
5	7	5.65	35	2.84	46	17.56	230	15.32
6	9	7.26	54	4.39	45	17.18	270	17.99
7	13	10.48	91	7.39	29	11.07	203	13.52
8	28	22.58	224	18.20	17	6.49	136	9.06
9	33	26.61	297	24.13	12	4.58	108	7.20
10 & above	30	24.19	514	41.75	17	6.49	209	13.92
Total	124	100.00	1231	100.00	262	100.00	1501	100.00

4.2 Sex composition and age distribution

The distribution of population by age and sex in Nam Deuri village is shown in Table 4.3. The Table reveals that the percentage of population in all the age-groups up to 0-15 years had declined in the current survey 2019, as compared to the previous survey 1987. On the other hand, the population of the village has increased in case of all other age groups during the intervening period. And no particular trend could be observed between male and female population, especially in terms of percentage.

Table 4.3
Distribution of population by age and sex

(Figures in Percentages)

Age-groups	In 1987 (Last survey)			In 2019 (Current survey)		
	Male	Female	Total	Male	Female	Total
Below 1 year	2.74	2.62	2.68	0.53	0.40	0.47
1 - 5	17.23	13.77	15.52	7.16	9.37	8.26
6 - 15	27.70	30.33	29.00	16.71	14.59	15.66
16 - 35	30.76	34.26	32.49	41.64	42.30	41.97
36 - 55	14.33	12.62	13.48	24.40	23.03	23.72
56 - 60	1.77	1.80	1.79	1.86	1.87	1.87
60 and above	5.48	4.59	5.04	7.69	8.43	8.06
Total	100.00	100.00	100.00	100.00	100.00	100.00

Distribution of population by age and marital status (in percentage) in the village, Nam Deuri is presented in Table 4.4. For all the age groups, the percentages of married persons were recorded 27.70 per cent and 50.57 per cent, respectively for the years 1987 and 2019, and the corresponding figures for unmarried persons were 68.72 per cent and 44.77 per cent. The percentages of widow/er were 3.49 per cent in 1987 and 4.60 per cent in 2019. The number of divorced persons was almost negligible, which stood at 0.08 and 0.07 per cent in 1987 and in 2019, respectively. One thing is clear from the Table that early marriage is not favored by the Deuris.

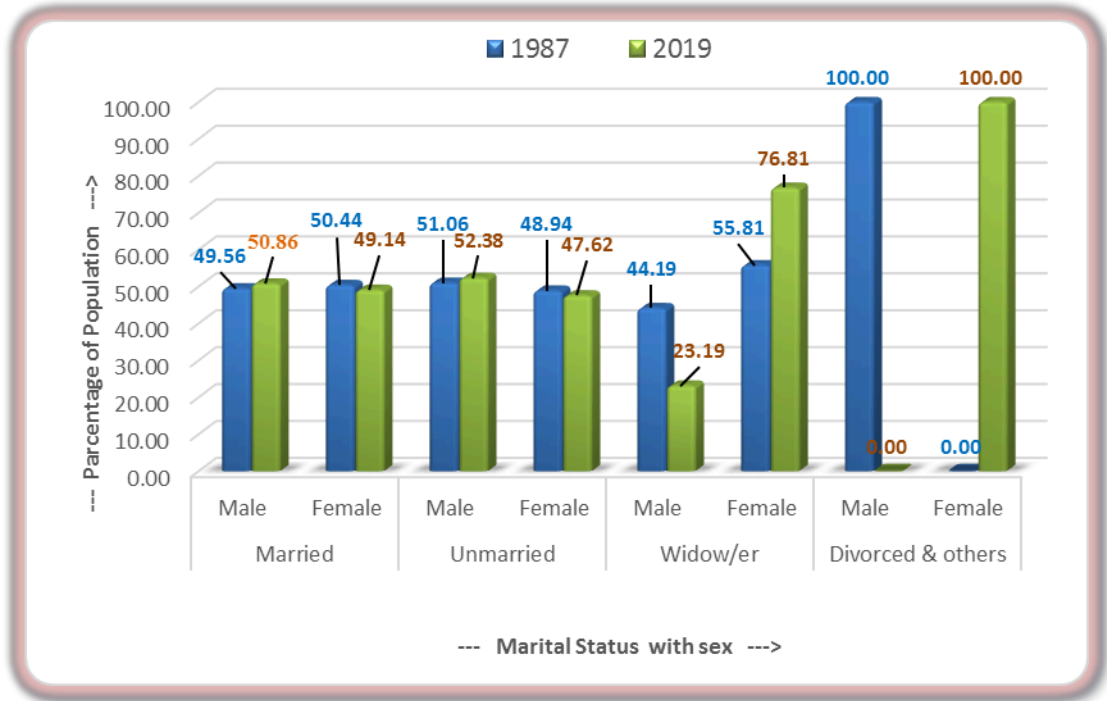
Table 4.4
Distribution of population by age and marital status

(Figures in Percentages)

Age Groups	In 1987 (Last survey)				In 2019 (Current survey)			
	Married	Un-married	Widow/er	Divorced & others	Married	Un-married	Widow/er	Divorced & others
0-10	0.00	100.00	0.00	0.00	0.00	100.00	0.00	0.00
11-15	0.00	100.00	0.00	0.00	0.00	100.00	0.00	0.00
16-20	11.59	88.41	0.00	0.00	14.63	85.37	0.00	0.00
21-25	34.96	65.04	0.00	0.00	43.67	55.06	1.27	0.00
26-30	62.50	36.46	1.04	0.00	74.76	25.24	0.00	0.00
31-55	89.22	4.90	4.90	0.98	86.03	10.53	3.44	0.00
56 and above	77.98	0.00	22.02	0.00	60.00	6.00	33.33	0.67
All age groups	27.70	68.72	3.49	0.08	50.57	44.77	4.60	0.07

On the other hand, the distribution of population by gender and marital status, indicated significant changes in widow/widower and divorced & others categories as compared to married and unmarried categories in both the survey years 1987 and 2019 (Figure. 4.1)

Figure 4.1
Comparison of Marital Status by Gender



4.3 Caste/religion wise distribution

The Deuris constitute one of the aboriginal plain tribes in the Brahmaputra valley of Assam and they have been maintaining old traditions, religious thinking and practices of Hindu religion. Population characteristics by caste and religion in the village could be traced from the Table 4.5. It is seen from the data that average size of household in the

Table 4.5
Population characteristics by caste and religions

(Figures in numbers)

Caste/religion	In 1987 (Last survey)					In 2019 (Current survey)				
	Male	Female	Total	Sex ratio	Average size of households	Male	Female	Total	Sex ratio	Average size of households
Hindu	621	610	1231	982	9.93	754	747	1501	991	5.73
Scheduled Caste	0	0	0	0	0.00	0	0	0	0	0.00
Scheduled Tribe	621	610	1231	982	9.93	717	728	1445	1015	5.83
OBC (7 HH)	0	0	0	0	0.00	37	19	56	514	4.00
Minorities (Muslim)	0	0	0	0	0.00	0	0	0	0	0.00
Minorities	0	0	0	0	0.00	0	0	0	0	0.00
Others (specify)	0	0	0	0	0.00	0	0	0	0	0.00
Total	621	610	1231	982	9.93	754	747	1501	991	5.73

village was 9.93 in 1987 and it was 5.73 in 2019. This indicates that the average size of households has decreased considerably in the current survey 2019 as compared to the last survey undertaken in 1987. It may be due to separation of traditional joint families in the village. In 1987, the entire population belonged to scheduled tribe category. However, there were 7 household belonging to category OBC in 2019 with average household size of 4.00.

4.4 Literacy pattern by sex

Distribution of population in the village Nam Deuri by sex and educational status is shown in Table 4.6. The Table clearly indicates that there were significant decline in illiteracy in the village for both the sexes. It decreased from 49.28 per cent (male) and 61.48 per cent (female) in 1987 to 16.71 per cent (male) and 20.75 per cent (female) in 2019, respectively. And the level of educational attainment also improved a lot during the intervening period. The majority of the village population were read up to primary level (23.77 per cent) during 1987 for both the sexes, whereas in 2019, nearly 26 per cent of the population got educated up to the secondary level.

Table 4.6
Educational status by sex

Educational Status	In 1987 (Last survey)				In 2019 (Current survey)			
	No. of Male	% to Total	No of Female	% to Total	No. of Male	% to Total	No of Female	% to Total
Illiterate	306	49.28	375	61.48	126	16.71	155	20.75
Able only to read or write	54	8.70	44	7.21	67	8.89	95	12.72
Up to Primary	180	28.99	145	23.77	153	20.29	146	19.54
Up to Secondary	65	10.47	39	6.39	248	32.89	194	25.97
Up to Intermediate	7	1.13	5	0.82	115	15.25	126	16.87
Technical	4	0.64	1	0.16	12	1.59	2	0.27
Graduates	4	0.64	1	0.16	30	3.98	26	3.48
Post graduates & professionals	1	0.16	0	0.00	3	0.40	3	0.40
Total	621	100.00	610	100.00	754	100.00	747	100.00

4.5 APL/BPL wise distribution

The main purpose for identifying Below Poverty Line (BPL) people by the Government is to help them financially to meet their basic necessities of life. It is a benchmark used by the Government to identify the individuals or households in the need of

Government aids. Ration cards were important documents that are issued by the Government authorizing its citizens to get various benefits under the Public Distribution System (PDS). The items that are provided through PDS included rice, wheat grains, Liquefied Petroleum Gas (LPG), kerosene, sugar, *etc.*

In Nam Deuri village, altogether there were 248 ration card holders, out of which 185 card holders were Above Poverty Line (APL), 43 card holders were under BPL category and 23 card holders belonged to Mukhya Mantri Anna Suraksha Yojana. It was also reported that BPL cards holders of the village were benefitted through the Atal Amrit Abhiyan Scheme for medical treatment.

4.6 Birth and death

Data relating to birth and death rate were collected during the field survey and it was observed that the socio-economic status of the respondents had definite influence on birth and death rates. The family with higher socio-economic status had lower birth and death rates in the village. The average birth rate and death rate by categories of households in the village during 2014-2019 are presented in Table 4.7. The Table reveals that the overall birth rate was 10.71 for OBC category and 16.61 for Scheduled Tribe category, with an average of 16.39 per thousand population. The birth rate was found to be higher in BPL category of households.

Table 4.7
Birth rate and death rate by categories of households
from 2014 to 2019(last 5 years)

Particulars	Average birth rate				Average death rate			
	APL	MAPL	BPL	Overall	APL	MAPL	BPL	Overall
General Caste	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
OBC	0.00	0.00	13.04	10.71	0.00	0.00	8.70	7.14
Scheduled Caste	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Scheduled Tribe	16.35	0.00	18.50	16.61	5.97	0.00	4.62	5.81
Minorities	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
All categories	16.22	0.00	17.35	16.39	5.93	0.00	5.48	5.86

Note: Birth and death rates per annum per 1000 population.

Similarly, the overall death rates were 7.14 for OBC category and 5.81 for Scheduled Tribe category, with an average of 5.86 per thousand population. Further, the death rate was recorded to be higher in APL category of households.

It was observed that both birth and death rates in the village were below the state average, *i.e.* 22.0/1000 population (2015) and 7.1/1000 population (2015), respectively. (Source: <https://knoema.com>). The higher risk of mortality among the poorer households can partly be explained by their material deprivation and higher birth rates could be the result of poorer educational attainments.

4.7 Enrollment in different educational level (gender wise)

The distribution of students is an important aspect to capture the status of educational levels in a village. It was mentioned earlier that there were 2 (two) Government Primary Schools and 1 (one) Higher Secondary School in the village. Moreover, a Private English Medium Bethal Christian School was also there at a distance of 1 (one) km from the village.

Table 4.8
Enrollment level of children (aged 5-15 years) in schools
by caste, sex and type of school

(Figures in Percentage)

Children categories	Govt. school		Private school		Other schools	Out of school	Total
	Vernacular	English	Vernacular	English			
Male Children	80.92	0.00	0.66	18.42	0.00	0.00	100.00
Caste Hindu	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Scheduled Caste	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Scheduled Tribe	80.14	0.00	0.68	19.18	0.00	0.00	100.00
OBC	100.00	0.00	0.00	0.00	0.00	0.00	100.00
Minorities	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Female Children	75.57	0.00	2.29	20.61	0.00	1.53	100.00
Caste Hindu	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Scheduled Caste	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Scheduled Tribe	75.19	0.00	2.33	20.93	0.00	1.55	100.00
OBC	100.00	0.00	0.00	0.00	0.00	0.00	100.00
Minorities	0.00	0.00	0.00	0.00	0.00	0.00	0.00
All Children	78.45	0.00	1.41	19.43	0.00	0.71	100.00
Caste Hindu	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Scheduled Caste	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Scheduled Tribe	77.82	0.00	1.45	20.00	0.00	0.73	100.00
OBC	100.00	0.00	0.00	0.00	0.00	0.00	100.00
Minorities	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Enrollment level of children (aged 5-15 years) in schools by caste, sex and type of school are presented in Table 4.8. The Table reveals that out of total male children, 80.92 per cent read in Government vernacular school, 0.66 per cent read in Private vernacular school and 18.42 per cent read in Private English school within the age-group 5-15 years. Similarly, out of total female children, 75.57 per cent read in Government vernacular school, 2.29 per cent read in Private vernacular school and 20.61 per cent read in Private English School. At overall level, 78.45 per cent of the children read in Government vernacular school, 1.41 per cent read in Private vernacular school and 19.43 per cent read in Private English school within the age-group 5-15 years.

Only 2 (two) female children were reported to be school drop outs. One had to discontinue because of memory loss and the other had to drop due to death of her mother. Further, the caste system did not have any influences on educational attainment of the villagers.

4.8 Food security & child nutrition (BMI)

Nutrition is important at every stage of life. Children need proper nutrients to stay healthy and strong. Nutrition for children can also help establish a strong foundation for healthy eating habits and nutritional knowledge. Under-nutrition in children affects both cognitive development as well as physical growth of the children.

As per methodology, to study the Body Mass Index (BMI), 100 school going children of both the sexes (50:50) in the age group of 5 to 15 years were selected together with all social classes of the village. The weights of the children were taken in kilograms and heights of the children were taken in meters. Pattern of malnutrition among the children (age group 5-15 years) by castes and sex in the village was worked out and are shown in Table 4.9.

The Table shows that all the children of the village belonged mainly to two categories only *i.e.* Scheduled Tribe and OBC. Among the male children in ST category 75.00 per cent were of normal weight, 16.67 per cent were under weight, 6.25 per cent were severely under weight and 2.08 per cent were overweight. 50.00 per cent each of male children under OBC category were of normal weight and under weight. In case of female children under ST Category, 65.31 per cent were normal, 26.53 per cent were underweight, 6.12 per cent severely underweight and 2.04 per cent were reported to be

overweight. However, all the female children under OBC category were found to be of normal weight.

Table 4.9
Pattern of malnutrition among the children (age group 5-15 years)
by castes and sex in the village Nam Deuri

(Number of children and % in particular category)

Categories of children	Severely underweight		Underweight		Normal		Overweight		Obesity		Total	
	No. of Children	Per cent	No. of Children	Per cent	No. of Children	Per cent	No. of Children	Per cent	No. of Children	Per cent	No. of Children	Per cent
Male Children												
Caste Hindu												
Scheduled Caste												
Scheduled Tribe	3	6.25	8	16.67	36	75.00	1	2.08	0	-	48	100
OBC	0	0.00	1	50.00	1	50.00	0	0.00	0	-	2	100
Minorities												
Female children												
Caste Hindu												
Scheduled Caste												
Scheduled Tribe	3	6.12	13	26.53	32	65.31	1	2.04	0	-	49	100
OBC	0	0.00	0	0.00	1	100.00	0	0.00	0	-	1	100
Minorities												
Overall												
Caste Hindu												
Scheduled Caste												
Scheduled Tribe	6	6.19	21	21.65	68	70.10	2	2.06	0	-	97	100
OBC	0	0.00	1	33.33	2	66.67	0	0.00	0	-	3	100
Minorities												

BMI categories for children (kg/m²): Severely underweight= less than 16.5; Underweight=16.5 to less than 18.5; Obesity=30 and above Normal=18.5 to less than 25; Overweight=25 to less than 30.

Taking all social classes and sexes together, 70.00 per cent of the children were found normal, 22.00 per cent under-weight, 6.00 per cent severely under-weight and only 2.00 per cent were overweight. From the analysis, it can very well be seen that malnutrition was quite rampant particularly among belonging to the ST category.

4.9 Access to basic amenities and changes therein (Electrification, sanitary toilet, health, safe drinking water etc.)

Electricity supply was extended to Nam Deuri village way back in 1980, but it is yet to cover all the households of the village even today. Access to basic amenities by the village households and changes that took place in the village during 1987 to 2019 is presented in Table 4.10. The Table reveals that, 96.56 per cent of the total households

were covered by electricity supply in the current survey (2019), while it was only 12.10 per cent in the last survey (1987).

Open Defecation Free (ODF) programme was implemented by the Government in the village and under this programme, a large majority of the households in the village got benefited through acquiring sanitary toilets. The Table 4.10 shows that out of the total households, 88.55 per cent had availed off such toilet facilities as evidenced in the current survey (2019), while it was only 4.03 per cent in the last survey (1987). It was reported that the people of the village usually lived in the traditional *Chang Ghar*, which were built up by using cane, bamboo, wood, *etc.* In the floor of the upper section, they used to make some holes in order to directly pass the unnecessary food grains and other items which were again taken as food by the animals (pig and poultry) below. Earlier, the same system was used as toilet by almost all Deuri families of the village, as revealed in the last survey 1987.

There is a medical sub-centre in the Num Deuri village, wherein a Staff Nurse and a recently employed Multi Purpose Worker (MPW) are providing necessary medical supports, especially to the pregnant women and infant babies of the village. The sub-centre was established during 1993 in the village.

Besides, one State Dispensary, established in 1951, is there at Kalbari at a distance of about 1 km. only from the village and is providing necessary medical facilities to the people of the village. It was reported during the field survey that all the people of the village used to visit Government hospitals for their treatment whenever required. It is also clear from the Table that medical facility in the village has improved significantly during the intervening period from 1987 to 2019.

The majority of the villagers usually get safe drinking water through tube-wells. There were only 22 tube-wells in the village, which covered 17.74 per cent of the total households at the time of last survey (1987). And the number of tube-wells has increased to 262 covering each and every household as emerged during the current survey (2019). Majority of the tube-wells were installed by individual households on their own. Moreover, a few tube-wells were also installed at some common places in the village by the Public Health Engineering Department and the Village Panchayat. On the whole, the

status of safe drinking water in the village was found to be satisfactory marked improvement was noticed in between the two Surveys (1987 and 2019).

Table 4.10
Access to basic amenities and changes
in the village during 1987 to 2019

(Percentages of households)

Basic amenities	In 1987	In 2019
	(Last survey)	(Current survey)
Electrification	12.10	96.56
Sanitary toilet	4.03	88.55
Health	50.00	100.00
Safe drinking water	17.74	100.00

4.10 Participation, Inclusiveness and Empowerment

Community participation in the framework of plan and policies is a new phenomenon in the present day economics. It is a general observation that some of the groups in the society are more empowered either by their socio-economic status or by political status and they have the opportunity to participate in the entire policy framework and some others are left out altogether in the process. These groups are mainly marginalized groups and they are the deprived lot in terms of race, gender, age, disability, housing and social classes. It was reported by the stakeholders that the Gram Sabha meetings are organized by the appropriate authority to prepare plan and policies covering all section of people like APL/BPL of the village. These meetings were organized once or twice in a year in the village. The villagers' participation in Gram Sabha/Gram Sansad meeting by caste and economic status in the village is presented in Table 4.11.

Table 4.11
Villagers' participation in Gram Sabha/Gram Sansad meeting by caste and
economic status in Nam Deuri village

(% of respondents participated in such meetings)

Particulars	Economic Categories			
	APL	MAPL	BPL	Overall
General Caste	0.00	0.00	0.00	0.00
OBC	100.00	0.00	100.00	100.00
Scheduled Caste	0.00	0.00	0.00	0.00
Scheduled Tribe	94.93	0.00	90.32	94.35
Minorities	0.00	0.00	0.00	0.00
All Categories	94.98	0.00	93.02	94.66

The Table shows that 100 per cent of the OBC respondents and 94.35 per cent of the Scheduled Tribe respondents participated in Gram Sabha meetings. At overall level, the participation rate stood at 94.66 per cent. During the current survey (2019), it was observed that the people, who were more empowered because of their socio-economic status, played more active role in such meetings. Also, political interference was found to be very limited in governance of village affairs. As such, the community participation and inclusiveness was satisfactory in Nam Deuri village.

4.11 Perception of various groups and households on different changes in the village

It was observed that illiteracy in Nam Deuri was much pronounced in 1987 (54.62 per cent) and with time, the importance of education was realized and almost all children started going to school up to 10-12 years of age. Thus, the drop out ratio in the village was very negligible *i.e.* 0.71 per cent in 2019 (Table 4.12) while it was 18.26 per cent in 1987. The literacy rate in the village during 2019 was 81.28 per cent, which was recorded to be higher than that of State average of 72.19 per cent as per 2011 census.

Each of the household in the village had a family size of 9.93 members in 1987, which was dropped down to 5.73 members in 2019. The couple in the age group of 25-30 years preferred to have 2-3 children only as emerged from the group discussion. They considered family size of their parents as one of the root causes which ultimately pushed them to poverty. Also, per capita net cultivated area had declined from 0.29 hectare (1987) to 0.16 hectare (2019), leading to negative impact on agricultural production.

Table 4.12
Some Important Parameters on different changes
in Nam Deuri Village

Particulars	In 1987	In 2019
	(Last survey)	(Current survey)
Average population/HH	9.93	5.73
Percentage of literacy	54.62	81.28
Drop out from school (ratio)	18.26	0.71
Per capita net cultivated area (Ha.)	0.29	0.16

The village infrastructures like Road, Electricity *etc.* were considerably improved during the intervening period. It was reported that almost all the roads within the village were constructed by the local development blocks within last five years under different

Government schemes. Further, 96.56 per cent of the households were covered under rural electrification scheme, while it was only 12.10 per cent in 1987 (Table 4.10).

The economic conditions of the villagers were reported to be improved substantially during the period. Agriculture & allied activity was the principal means of livelihood for the people of Nam Deuri village. They mostly used traditional variety of seeds, manure and bullock power for crop cultivation in the village till last decade. However, the situation has recently changed notably and production & productivity of crops have gone up with the adoption of new agricultural technology.

Developmental activities were observed in terms of extension of school buildings and good surface road connecting different marketing points in the vicinity. Emergence of new market has started influencing the young generations of the village to do something different from that of their parents.

The young people having certain level of education got some job either in Government or in private sector and were in better off position due to regular income flow. But those who were agricultural labour or casual labour still continue to remain in the same situation and they could not bring any change in their asset position. There were adverse effects of weather also - because of recurrent floods and drought like situations, which ultimately compelled nearly 60 per cent of the young people to leave cultivation practices, ending up with working as agricultural labour or casual labour at an average wage rate Rs. 250-300/- a day.

4.12.1 Rigidity in caste system

The dominance of upper castes over the lower castes is a common feature of the rural power structures in many parts of the country. Incidentally, Nam Deuri is a single-tribe village and the population belonged to Dibongia group of clan, where there was no system of social ranking among the Dibongia. All the inhabitants had equal social status.

Out of total population, 3.73 per cent belonged to Other Backward Classes (OBC) while 96.27 per cent (Table 4.1) of the population belonged to Scheduled Tribe (ST) category. The OBC category of people was from Bihari and Nepali community. They were living in the village after 1990. All the people of the village followed Hindu religion. As such, no rigidity in caste system could be traced in the village.

4.12.2 Gender bias/Women empowerment

Empowerment of women is one of the vital issues of development. Since 1970, the idea of Self-Help Group (SHG) started evolving, and it is said to be one of the major social phenomenon for poverty alleviation and women empowerment. It has widely been recognized that SHG can be a useful means of empowering the women by providing them with easy access to credits. The level of attainment of education by women (79.25 per cent, Table 4.1) in the study area was also equally impressive. That may be the reason, why the gender bias was not seen in the study village. It was reported that there were 63 numbers of women SHGs in the village and the members were of the opinion that it was very easy to get credit through the SHGs. This enabled them to participate in income generating activities by establishing microenterprises like weaving and livestock/poultry units *etc.* Thus, one can very well see that the women in the village were more powerful and played an active role in household decision making process, particularly in consumption, education and health related matters.

4.12.3 Political bias or deprivation

Historically, the tribal people are the most exploited and deprived lot of the society. All indicators of development amply demonstrate that they continue to remain the most excluded ones to reap the benefits of all those welfare programmes launched for their upliftment in the post-independence period in India. Needless to mention, that this sort of exclusion has adversely affected the quality of life of the tribal people.

Silver lining is that, with the rising of educational standard amongst the young generation, the situation has started changing in the recent years, particularly in Nam Deuri village. The young people with reasonable level of educational background have become aware of the development programmes meant for them and at their behest, the implementation of the ongoing programmes started bearing fruits now. As a result, the fruits of development are now reaching the people of Nam Deuri village and the quality of life of the people in the village started improving.

Summing up

The natural increase of population in Nam Deuri village during the intervening period recorded at 1231 persons, 1444 persons and 1501 persons in 1987, 2011 and 2019

respectively. Out of total population in 2019, there were 50.23 per cent male and 49.77 per cent female in the village. The sex ratio was recorded at 991 per thousand males in the year, 2019.

The number of households had increased from 124 in 1987 to 228 in 2011 census and then further increased to 262 households in 2019. During the year, 74.28 per cent were workers and the remaining 25.72 per cent were non workers. The literacy rate of the village was 44.68 per cent in 1987, 78.90 per cent in 2011 census and 81.28 per cent during 2019. At overall level, a large chunk of the population studied up to higher secondary standard, which can be considered as fairly good and satisfactory level of educational attainment.

The percentages of married couples were 27.70 and 50.57 in 1987 and 2019, respectively. The percentage of widow/er stood at 3.49 in 1987 and 4.60 in 2019.

Going by the Body Mass Index (BMI), and taking all social classes together, 70.00 per cent of the children were found with normal weight, 22.00 per cent were found to be under-weight, 6.00 per cent severely under-weight and only 2.00 per cent were overweight. By and large, it can be said that the child nutrition in the village was satisfactory.

It was emerged that the group of people, who were more empowered in terms of their socio-economic status, played an active role in the meetings of the Gram Sabha/Gram Sansad. Interestingly, the political interference was found to be very limited in the village. Overall community participation and inclusiveness were found satisfactory in the study village.

Every household comprised of 9.93 members in 1987, which came down to 5.73 members in 2019. The couple within the age group of 25-30 years preferred to have 2-3 children only, as emerged from the Group Discussion.

Village infrastructures like road, electricity, medical facility, *etc.* had improved a lot during the intervening period. It was seen that almost all the roads within the village were constructed by the local bodies during last five years under different Government schemes. Nearly, 96.56 per cent of the households were provided with electricity in 2019, while it was only 12.10 per cent in 1987.

The study of social dynamics amply demonstrates that the socio-economic conditions of the villagers underwent marked changes during the period under study in terms of educational attainment, style case of living, infrastructure support and of course material well-being.

Chapter V

Economic System

Etymologically, an economic system is a system of production, resource allocation and distribution of goods and services within a geographical unit. This chapter deals with analyzing the economic activities undertaken by the people of Nam Deuri village during the reference period. Traditional livelihood options like, crop cultivation, livestock rearing, fishing and salaried jobs were examined with special focus on land utilization, cropping pattern, crop productivity, irrigation facility and use of farm machinery and implements. Attempts have also been made to capture the changes in occupational pattern from primary to tertiary sector over time and for that matter, changes in income, expenditure and saving patterns of the people of the village.

5. 1 Livelihood and Employment

5.1.1 Labour force and workforce distribution and changes therein

The workforce is considered as the total number of people in an area or region who are physically able to do a work or job. Distribution of working population in Nam Deuri village during 1987 and 2019 is presented in Table 5.1. The Table indicates that the population of the village had increased from 1231 persons (1987) to 1501 persons (2019). The Compound Annual Growth Rate of population was found at 0.60 per cent. It may be noted that there was an emigration of 14 (fourteen) OBC families which was also taken into consideration in counting of population in the village.

Table 5.1 shows that 54.35 per cent of the population was engaged in either main or marginal works during last survey 1987, while it was 74.28 per cent in the current survey 2019. The working population of the village had increased during the intervening period with a CAGR of 1.51 per cent. On the other hand, the proportion of non-workers had decreased by 1.02 per cent. The increase of working forces in the village is a good indicator to achieve the multiple strategies of various livelihood options.

However, the percentage of main worker during the period had declined marginally, while marginal workforce in the village had increased considerably. It was reported that the underlying economic, social and political factors were responsible for the in abated increase in unemployment in the village. The Government assistance like

free supply of rice, wheat grain, sugar, *etc.* available under different schemes had kept a major share of population away from the working area.

Table 5.1
Distribution of working population in Nam Deuri village during 1987 and 2019

(Figures in numbers and per cent)

Particulars	In 1987				In 2019				CAGR
	(During last survey)				(During current survey)				
	Male	Female	Total	Per cent	Male	Female	Total	Per cent	
Total Population	621	610	1231	-	754	747	1501	-	0.60
Total Workers	324	345	669	54.35	558	544	1102	73.42	1.51
Main Worker	268	294	562	45.65	445	236	681	45.37	0.58
Marginal Worker	56	51	107	8.69	113	308	421	28.05	4.20
Non worker	297	265	562	45.65	158	203	399	26.58	-1.02

5.1.2 Livelihood pattern and distribution (Primary/Secondary/Tertiary)

Livelihood refers to a person's means of earning the basic necessities of life. Farming has traditionally been the pre-dominant livelihood for the people of Nam Deuri village. Other livelihood options included fishing on commercial or subsistence basis in local river Brahmaputra and other water bodies, rearing of livestock (pig, cattle, poultry, *etc.*) and sale of animals, animal products like eggs and meat *etc.*; collection of fire woods and other timber or non-timber forest produce for self-use or exchange.

Secondary occupations involve manufacturing of finished goods, wage earners, *etc.* Weaving was found to be the most common cottage industry of the village. Almost all women of the village knew how to weave in their looms and they feel proud of their traditional industry. Besides, handloom weaving, cane and bamboo works were yet other important industries in Nam Deuri village.

The occupations like services and salaried job (both Government and private), professionals, *etc.* are included under the tertiary sector occupations.

Distribution of households by occupation/livelihood in the village for the year 1987 is presented in Table 5.2a (last survey). Table shows that out of the total households, 86 (69.35 per cent) households were involved in primary occupation *i.e.* agriculture and allied sectors; 22 (17.75 per cent) households were engaged in secondary occupation and only 16 (12.90 per cent) households were involved in tertiary sector.

Distribution of households by occupation/livelihood for the year 2019 (current year) in the village is shown in Table 5.2b. The Table indicates that out of the total

households, 149 (56.87 per cent) households were involved in primary occupation, 65 (24.81 per cent) household were engaged in secondary occupation and only 48 (18.32 per cent) were involved in tertiary sector during the reference year.

Distribution of adult population by occupation/livelihood in the village for the year 1987 is presented in Table 5.3a. Table shows that out of the total adult population, as many as 524 (86.61 per cent) adult persons were involved in primary occupation, 56 (9.26 per cent) adult persons were engaged in secondary occupation and only 25 (4.13 per cent) persons were involved in tertiary sector occupations. On the other hand, 799 (76.17 per cent) adult persons were engaged in primary occupation, while 168 (16.02 per cent) were engaged in secondary occupation and 82 (7.82 per cent) were involved in tertiary sector during the year 2019, as indicated Table 5.3b. Caste based profession and Household workers were not reported during the field investigation.

5.1.2.1 Livelihood pattern

As indicated in Table 5.2a and 5.2b, the people of the village were involved in various occupations to sustain their life. By and large, majority of the villagers were involved in crop cultivation (61.29 per cent), followed by trade and business (12.91 per cent), salaried job (11.29 per cent) and agriculture and allied activities (8.06 per cent) in the year 1987.

Table - 5.2.a
Distribution of households by occupations/livelihood in Nam Deuri village, 1987

Livelihood Groups	Caste Hindu								Minority		All	
	General		SC		ST		OBC		No. of HH	%	No. of HH	%
	No. of HH	%	No. of HH	%	No. of HH	%	No. of HH	%				
Cultivator	0	0.00	0	0.00	76	61.29	0	0.00	0	0.00	76	61.29
Agricultural labour	0	0.00	0	0.00	2	1.61	0	0.00	0	0.00	2	1.61
Dairy/Fishing/Poultry keeping	0	0.00	0	0.00	10	8.06	0	0.00	0	0.00	10	8.06
Govt Salaried	0	0.00	0	0.00	14	11.29	0	0.00	0	0.00	14	11.29
Private Salaried	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
Pensioner	0	0.00	0	0.00	2	1.61	0	0.00	0	0.00	2	1.61
Caste based profession	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
Trade & business	0	0.00	0	0.00	16	12.90	0	0.00	0	0.00	16	12.90
Entrepreneur	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
Casual labour	0	0.00	0	0.00	1	0.81	0	0.00	0	0.00	1	0.81
Marginal labour	0	0.00	0	0.00	2	1.61	0	0.00	0	0.00	2	1.61
Household worker	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
Others(Weaving, Private tutor etc.)	0	0.00	0	0.00	1	0.81	0	0.00	0	0.00	1	0.81
Overall	0	0.00	0	0.00	124	100.00	0	0.00	0	0.00	124	100.00

Note: Based on main occupation only for households.

Table - 5.2.b
Distribution of households by occupations/livelihood in Nam Deuri village, 2019

Livelihood Groups	Caste Hindu								Minority		All	
	General		SC		ST		OBC		No. of HH	%	No. of HH	%
	No. of HH	%	No. of HH	%	No. of HH	%	No. of HH	%				
Cultivator	0	0.00	0	0.00	116	46.77	1	7.14	0	0.00	117	44.66
Agricultural labour	0	0.00	0	0.00	2	0.81	5	35.71	0	0.00	7	2.67
Dairy/Fishing/Poultry keeping	0	0.00	0	0.00	31	12.50	1	7.14	0	0.00	32	12.21
Govt Salaried	0	0.00	0	0.00	33	13.31	0	0.00	0	0.00	33	12.60
Private Salaried	0	0.00	0	0.00	8	3.23	1	7.14	0	0.00	9	3.44
Pensioner	0	0.00	0	0.00	6	2.42	0	0.00	0	0.00	6	2.29
Caste based profession	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
Trade & business	0	0.00	0	0.00	28	11.29	1	7.14	0	0.00	29	11.07
Entrepreneur	0	0.00	0	0.00	1	0.40	0	0.00	0	0.00	1	0.38
Casual labour	0	0.00	0	0.00	15	6.05	2	14.29	0	0.00	17	6.49
Marginal labour	0	0.00	0	0.00	7	2.82	2	14.29	0	0.00	9	3.44
Household worker	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
Others(Weaving, Private tutor etc.)	0	0.00	0	0.00	1	0.40	1	7.14	0	0.00	2	0.76
Overall	0	0.00	0	0.00	248	100.00	14	100.00	0	0.00	262	100.00

Note: Based on main occupation only for households.

Table - 5.3 a
Distribution of adult population by occupations/livelihood in Nam Deuri village, 1987

Livelihood Groups	Caste Hindu								Minority		All	
	General		SC		ST		OBC		No. of Persons	%	No. of Persons	%
	No. of Persons	%	No. of Persons	%	No. of Persons	%	No. of Persons	%				
Cultivator	0	0.00	0	0.00	452	74.71	0	0.00	0	0.00	452	74.71
Agricultural labour	0	0.00	0	0.00	17	2.81	0	0.00	0	0.00	17	2.81
Dairy/Fishing/Poultry keeping	0	0.00	0	0.00	72	11.90	0	0.00	0	0.00	72	11.90
Govt Salaried	0	0.00	0	0.00	20	3.31	0	0.00	0	0.00	20	3.31
Private Salaried	0	0.00	0	0.00	3	0.50	0	0.00	0	0.00	3	0.50
Pensioner	0	0.00	0	0.00	2	0.33	0	0.00	0	0.00	2	0.33
Caste based profession	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
Trade & business	0	0.00	0	0.00	16	2.64	0	0.00	0	0.00	16	2.64
Entrepreneur	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
Casual labour	0	0.00	0	0.00	2	0.33	0	0.00	0	0.00	2	0.33
Marginal labour	0	0.00	0	0.00	4	0.66	0	0.00	0	0.00	4	0.66
Household worker	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
Others (Weaving, Private tutor etc.)	0	0.00	0	0.00	17	2.81	0	0.00	0	0.00	17	2.81
Overall	0	0.00	0	0.00	605	100.00	0	0.00	0	0.00	605	100.00

Note: Based on the main occupation of individual adult members.

Table - 5.3 b
Distribution of adult population by occupations/livelihood in Nam Deuri village, 2019

Livelihood Groups	Caste Hindu								Minority		All	
	General		SC		ST		OBC		No. of Persons	%	No. of Persons	%
	No. of Persons	%	No. of Persons	%	No. of Persons	%	No. of Persons	%				
Cultivator	0	0.00	0	0.00	646	63.96	5	12.82	10	0.00	651	62.06
Agricultural labour	0	0.00	0	0.00	5	0.50	17	43.59	0	0.00	22	2.10
Dairy/Fishing/Poultry keeping	0	0.00	0	0.00	145	14.36	3	7.69	0	0.00	148	14.11
Govt Salaried	0	0.00	0	0.00	50	4.95	0	0.00	0	0.00	50	4.77
Private Salaried	0	0.00	0	0.00	20	1.98	2	5.13	0	0.00	22	2.10
Pensioner	0	0.00	0	0.00	10	0.99	0	0.00	0	0.00	10	0.95
Caste based profession	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
Trade & business	0	0.00	0	0.00	57	5.64	2	5.13	0	0.00	59	5.62
Entrepreneur	0	0.00	0	0.00	1	0.10	0	0.00	0	0.00	1	0.10
Casual labour	0	0.00	0	0.00	32	3.17	2	5.13	0	0.00	34	3.24
Marginal labour	0	0.00	0	0.00	15	1.49	5	12.82	0	0.00	20	1.91
Household worker	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00
Others (Weaving, Private tutor etc.)	0	0.00	0	0.00	29	2.87	3	7.69	0	0.00	32	3.05
Overall	0	0.00	0	0.00	1010	100	39	100.00	0	0.00	1049	100

Note: Based on the main occupation of individual adult members.

This livelihood pattern underwent changes in 2019. Because of shifting of occupation, the village households involved in cultivation had come down to 44.66 per cent, which was followed by Government salaried job (12.60 per cent), agriculture and allied activities (12.21 per cent), trade and business (11.07 per cent) and casual labour (6.49 per cent)

5.1.2.2 Livelihood diversification

Livelihood diversification is a process by which rural families create a varied selection of activities and social support capabilities in order to live and to improve their standards of living. The changes of socio-economic condition of the people have pushed the households and communities to consider alternatives to their existing traditional livelihoods, which are being rendered less viable with the passage of time. From the data presented in Table 5.1a, it is seen that in the year 1987, 69.35 per cent of the households were involved in primary occupation sector, while only 30.65 per cent households were engaged in secondary and tertiary sectors. But in 2019, there was a decline in the number of households engaged in primary sector occupations (56.87 per cent), whereas there was a significant increase in the number of households in other sectors (43.13 per cent) as evident from Table 5.1b. Thus, one can very well see the process of livelihood diversification in the village during the intervening period.

5.1.2.3 Shift in livelihood pattern

Details of occupational distribution of adult members by sex in the village are presented in Table 5.4a and Table 5.4b for the year 1987 and 2019, respectively. Data indicate that 86.61 per cent of the adult persons were engaged in primary occupations out of which 83.45 per cent were male and 89.64 per cent were female in 1987 (Table 5.4a). Similarly, in 2019, 76.17 per cent the adult persons were engaged in primary occupations, of which, 64.65 per cent were male and 87.88 per cent were female (Table 5.4b). Thus, it clearly indicates that there was shift of occupation to the tune of 10.44 per cent from primary to other sectors in 2019, compared to the year 1987.

Similarly, 9.26 per cent of the adult population of the village were involved in secondary livelihood in 1987, of which 9.12 per cent were males and 9.39 per cent were females. This percentage in 2019 increased to 16.02 with 24.01 per cent male and 7.88 per cent females. Thus, the adult population with secondary occupation had increased to the tune of 6.76 per cent during these two point of surveys *i.e.* 1987 and 2019.

Available data also indicate that there was an upward shift of about 3.41 per cent in tertiary sector occupation as well.

Table - 5.4 a
Occupational distribution of adult members by sex in the village, Nam Deuri, 1987

Livelihood Groups	Male		Female		Total	
	Numbers	Per cent	Numbers	Per cent	Numbers	Per cent
Cultivator	223	75.34	229	74.11	452	74.71
Agricultural labour	5	1.69	12	3.88	17	2.81
Dairy/Fishing/Poultry keeping	24	8.11	48	15.53	72	11.90
Govt Salaried	17	5.74	3	0.97	20	3.31
Private Salaried	3	1.01	0	0.00	3	0.50
Pensioner	2	0.68	0	0.00	2	0.33
Caste based profession	0	0.00	0	0.00	0	0.00
Trade & business	16	5.41	0	0.00	16	2.64
Entrepreneur	0	0.00	0	0.00	0	0.00
Casual labour	2	0.68	0	0.00	2	0.33
Marginal labour	2	0.68	2	0.65	4	0.66
Household	0	0.00	0	0.00	0	0.00
Others	2	0.68	15	4.85	17	2.81
Overall	296	100.00	309	100.00	605	100.00

Note: Based on occupation of individual adult members.

Table - 5.4 b
Occupational distribution of adult members by sex in the village, Nam Deuri, 2019

Livelihood Groups	Male		Female		Total	
	Numbers	Per cent	Numbers	Per cent	Numbers	Per cent
Cultivator	317	59.92	334	64.23	651	62.06
Agricultural labour	25	4.73	123	23.65	148	14.11
Dairy/Fishing/Poultry keeping	38	7.18	12	2.31	50	4.77
Govt Salaried	14	2.65	8	1.54	22	2.10
Private Salaried	8	1.51	2	0.38	10	0.95
Pensioner	0	0.00	0	0.00	0	0.00
Caste based profession	59	11.15	0	0.00	59	5.62
Trade & business	1	0.19	0	0.00	1	0.10
Entrepreneur	3	0.57	29	5.58	32	3.05
Casual labour	11	2.08	11	2.12	22	2.10
Marginal labour	33	6.24	1	0.19	34	3.24
Household	20	3.78	0	0.00	20	1.91
Others	0	0.00	0	0.00	0	0.00
Overall	529	100.00	520	100.00	1049	100.00

Note: Based on occupation of individual adult members.

5.1.3 Pattern of migration and changes therein

Migration is a process through which people move from a permanent place of residence to another more or less permanent one for a considerable period of time. It was reported that the village was previously affected by frequent floods during the summer, for which a sizeable number of families had migrated from the village to different parts of the state/country permanently. Extent of migration by caste and economic status in the village is presented in Table 5.5.

Table - 5.5
Extent of migration by caste and economic status in the village Nam Deuri
(% of respondents reporting migration)

Particulars	Economic Categories		
	APL	BPL	Overall
General Caste(Hindu)	0.00	0.00	0.00
OBC	(1) 50.00	0.00	(1) 7.14
Scheduled Caste	0.00	0.00	0.00
Scheduled Tribe	(9) 4.15	(2) 6.45	(11) 4.44
Minorities	0.00	0.00	0.00
All Categories	(10) 4.57	(2) 4.65	(12) 4.58

Note: Figures within brackets indicate numbers of households.

The Table shows that out of the total households only 12 (twelve) respondents reported that their family members had migrated to other places in quest of job and services. Among the migrated lots, 7.14 per cent belonged to OBC and 4.44 per cent belonged to ST categories (Table 5.5). It was observed during the field survey that the migrated persons were mostly engaged in Government services like police/military

services in different parts of the country/ State. It is the dynamic set of economic and technological factors that affect the agricultural practices, based on which different system develop in an area depending on the natural and social condition of the locality.

5.2. Agrarian System

5.2.1 Distribution of land ownership and changes therein

Agriculture is the mainstay of livelihood of the people of Nam Deuri village. So, land is the main resource which determines the economic condition of the people, providing employment opportunity to the family members. Therefore, it is essential to study their land holdings and land use pattern in the context of income and employment generation. Distribution of land holdings in the village is presented in Table 5.6. The Table shows that out of the total farms, 12.90 per cent were marginal, 27.42 per cent small and 59.68 per cent were medium and above farms in the last survey, 1987. In 2011 survey, the corresponding figures underwent changes to 53.51 per cent marginal farms, 34.65 per cent small farms and 11.84 per cent medium and above farms. During the recent survey (2019), the figure had further changed to 59.16 per cent marginal farms, 35.88 per cent small farms and 4.96 per cent medium and above farms.

Table - 5.6
Distribution of land holdings in Nam Deuri village

Particulars	In 1987	In 2011	In 2019	CAGR
	(Last survey)	(Census)	(Current survey)	
Total number of holdings				
Marginal farms	16 (12.90)	122 (53.51)	155 (59.16)	7.35
Small farms	34 (27.42)	79 (34.65)	94 (35.88)	3.23
Medium & Above	74 (59.68)	27 (11.84)	13 (4.96)	-5.29
All Farms	124 (100.00)	228 (100.00)	262 (100.00)	2.37
Total area operated (Ha.)				
Marginal farms	8.73 (2.48)	67.42 (26.90)	85.35 (34.60)	7.38
Small farms	49.79 (14.17)	111.60 (45.54)	129.98 (52.70)	3.04
Medium & Above	292.89 (83.35)	71.56 (28.56)	31.33 (12.70)	-6.75
All Farms	351.41 (100.00)	250.58 (100.00)	246.66 (100.00)	-1.10
Average size of holdings (Ha.)				
Marginal farms	0.55	0.55	0.55	0.00
Small farms	1.46	1.41	1.38	-0.18
Medium & Above	3.96	2.65	2.41	-1.54
All Farms	2.83	1.28	0.94	-3.39
Gini co-efficient of land holding distribution	0.38	-	0.35	-

Source: Household survey data, 2019

Note: Figures within brackets indicate percentage of households.

The data clearly indicates that the number of marginal and small farm had increased considerably during 2011 census and the current survey 2019 in the village. However, the percentage of medium and above farms had decreased from 59.68 per cent to 4.96 per cent during the corresponding period. Figure-5.1 depicts the changes of size group wise farmers in percentage and Figure 5.2 indicates Lorenz Curve for distribution of per-household operational holding of the village.

Figure 5.1
Distribution of number of holdings according to farm size groups (percentage)

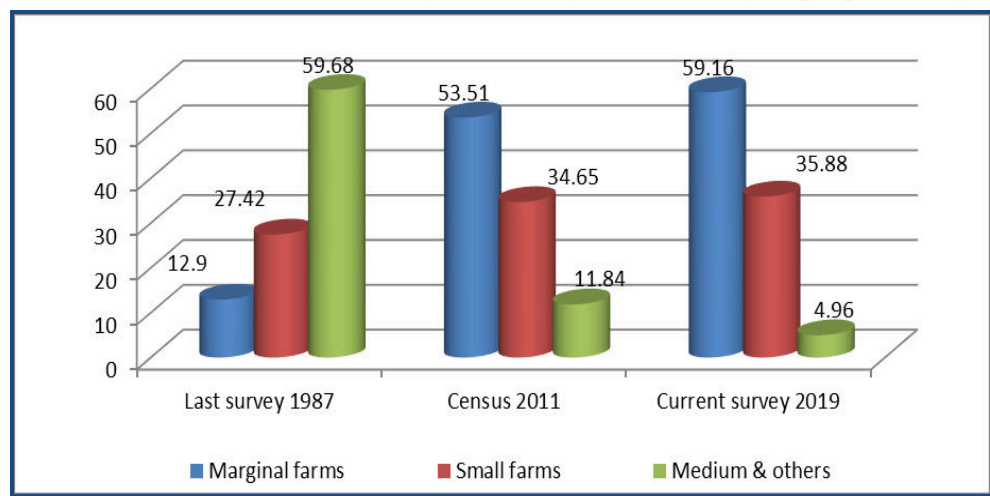


Figure 5.2
Lorenz Curve of distribution of per household operational holding

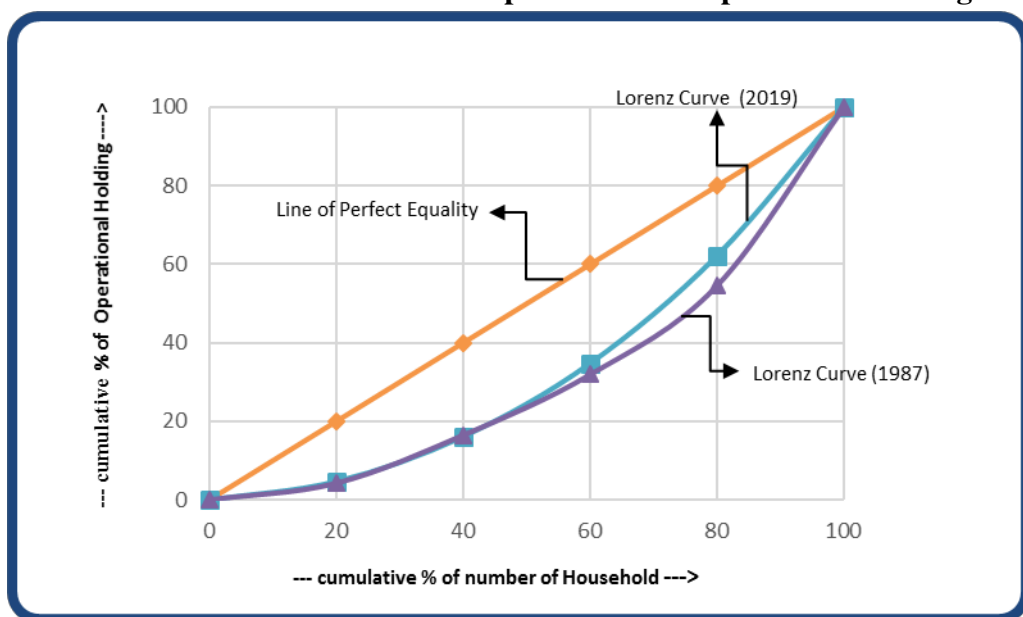


Table 5.6 indicates that the average size of land holdings for all classes of farmers of the village was worked out at 2.83 hectare in the last survey 1987; it went down to 1.28 hectare in the census 2011 and further down to 0.94 hectare in the current survey 2019. With the increase in population and consequent land fragmentations, the average size of land holdings of village had become smaller and smaller during the intervening period.

The values of Gini Co-efficient for household wise operational holdings were found at 0.35 (in 2019) and 0.38 (in 1987), which indicates moderate inequality for both the years. The inequality in 2019 was a little lower as compared to 1987.

From the figure 5.2, it is clear that there exists a moderate inequality in household wise operational holdings of Nam Deuri village for the years, 1987 and 2019.

5.2.2 Major land tenure system in the village and changes therein

Land tenure refers to the way in which the land is held by an individual from the Government. Land in the village is held mainly under the two systems, *viz.* Periodic Khiraj ‘Myadi’ and Annual Khiraj ‘Temporary’. Periodic Khiraj land is held as full time revenue paying, permanent heritable and transferable land. In Annual Khiraj there is no permanent right and they cannot be transferred officially. Apart from Periodic Khiraj and Annual Khiraj land, there were some Government lands in and around the Nam Deuri village; the Government land is mostly occupied by religious institutions, schools, hospitals, playground, club, *etc.* In course of group discussion, it was also pointed out that a part of the Government land is also occupied by some farmers for cultivation purpose. Moreover, some villagers’ occupied ‘Char’ area (small river island) land of the river Brahmaputra, which are mainly used for grazing of their cattle and also to collect thatches.

Like all other plains villages of Assam, the practice of leasing out or leasing in of cultivate land is common in Num Deuri village. In most cases, cultivable land is leased out by the farmers to the co-villagers mainly due to shortage of man power. The prevailing terms of such leasing out land is kind rent, *i.e.* fifty per cent of the total produce has to be paid to the owner.

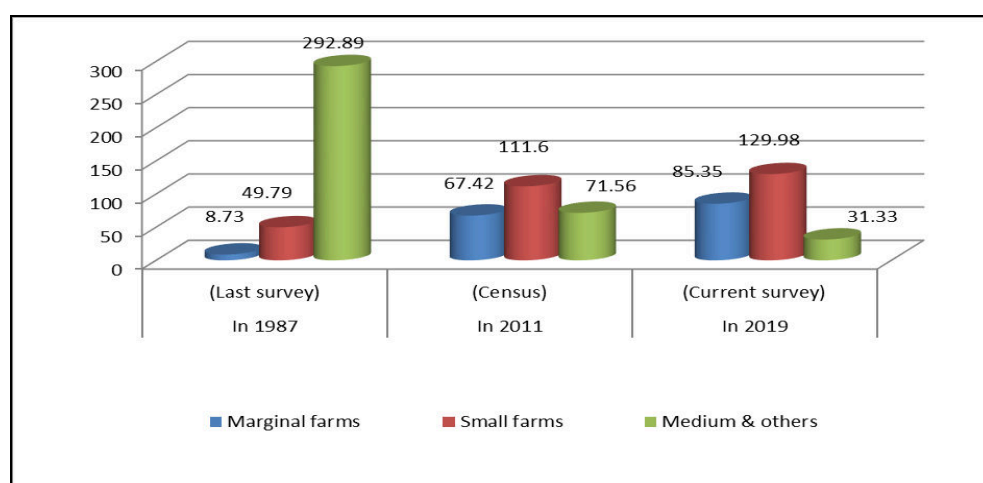
5.2.3 Operational holding and size distribution (including changes therein)

Distribution of operational holdings in the village Nam Deuri according to farm size groups is presented in Table 5.6. The Table reveals that out of the total operated area, 8.73 hectares were under the operation of marginal farms, 49.79 hectares under small farms and 292.89 hectares under the medium and above size farms during the last survey 1987. Similarly, during Census 2011, out of the total operated area, 67.42 hectares were operated by marginal farms, 111.60 hectares were operated by small farms and 71.56 hectares were under the medium and other farms. The corresponding figures for the current survey (2019) were 85.35 hectares under marginal farms, 129.98 hectares under small farms and 31.33 hectares of land were under the medium and other farms.

The Compound Annual Growth Rates (CAGR) of operational land holdings, according to the farm size groups were also worked out (Table 5.6) and were found to be 7.38 per cent for marginal farmers and 3.04 per cent for small farmers, while the CAGR in respect of medium and other farms were worked out to be (-) 6.75 per cent with an overall CAGR of (-) 1.10 per cent during the intervening period from 1987 to 2019.

The distribution of operational holdings according to farm size groups is presented in Figure 5.3.

Figure - 5.3
Distribution of operational holdings in Nam Deuri village according to size groups



Foregoing analysis amply indicates that during the intervening period from 1987 to 2019, the marginal and small farmers had increased considerably. It may be due to

disintegration of traditional joint families and ownership of land shift in among the nuclear families.

Basic characteristics of farm households in the village are presented in Table 5.7. It is noted that the family size in three different categories of farms were recorded at 5, 6 and 10 against marginal, small and medium & above farms, respectively, with an average family size of 6 persons.

Further, the average operated area was 0.55 hectare, 1.38 hectares and, 2.41 hectares in respects of marginal farmers, small farmers and medium and above farms, respectively. The average operated area across the farm sizes stood at 0.94 hectare for the village (Table 5.7). At the farm level, the land-man ratio was worked out at 0.15 in marginal farms, 0.24 in small farms, 0.28 in medium and above farms with an average of 0.19 for all farm sizes (Table 5.7). Cropping intensities were worked out at 167 percent in small farms, 149 per cent in marginal farms and 139 per cent in medium and above farms with an overall cropping intensity of 157 per cent across the farms.

Table 5.7 also reveals that net irrigated area were 1.65 per cent in marginal farms, 6.28 per cent in small farms and 11.88 per cent in medium and above farms, with an average of 5.38 per cent for all farm sizes. Obviously, the irrigated area in the village was far from satisfactory level.

Table 5.7
Basic characteristics of farm households in Nam Deuri village

Category	Average family size	Average operated area (In Ha)	Land man ratio	Cropping intensity	Net irrigated area (%)	Education of head of family	Average nos. of crop grown
Marginal	5	0.55	0.15	149	1.65	2	3
Small	6	1.38	0.24	167	6.28	1	5
Medium & above	10	2.41	0.28	139	11.88	1	5
Total	6	0.94	0.19	157	5.34	1	4

Source: Household survey data, 2019

Note: Codes for level of Education: 0 = Illiterate, 1 = Primary, 2 = Secondary, 3 = Intermediate, 4 = Technical (ITI/Polytechnic), 5 = Graduate, 6 = Professional (MBBS, MBA, Ph.D)

The educational level of head of the family was reasonably good enough in the sense they were educated at least up to primary level. Available data also indicate that the farmers of the village used to grow 3 to 5 crops in a year.

5.2.4 Land utilization and changes therein

Land utilization pattern in Nam Deuri village for the year 1987 and 2019 are depicted in Table 5.8. The Table shows that the Gross Cropped Area was 438.18 hectares, of which 86.77 hectare was sown more than once and net area sown was 351.41 hectares. The per capita net cultivated area was 0.29 hectare only for the year 1987. The percentage of area sown more than once to the net area sown was 24.69. The cropping intensity was 124.69 per cent during 1987.

Table- 5.8
Land utilization pattern in Nam Deuri village from 1987 to 2019

Particulars	<i>(Area in hectares)</i>	
	In 1987 (Last survey)	In 2019 (Current survey)
Net area sown	351.41	246.66
Area sown more than once	86.77	139.54
Gross cropped area	438.18	386.20
Per capita net cultivable area	0.29	0.16
Percentage of area sown more than once	24.69	56.57
Cropping intensity (per cent)	124.69	156.57

However, in 2019 the gross cropped area declined to 386.20 hectares, with 139.54 hectares of double cropped area, resulting in a net crop area of 246.66 hectares. Due to population pressure, the per capita net cultivable area was reduced from 0.29 hectares (in 1987) to 0.16 hectares (in 2019). But the percentage of area sown more than once had increased to 56.57, resulting in an increase of cropping intensity to 156.57 per cent in 2019.

The decline in the net area sown from 351.41 hectare to 246.66 hectare during the period was due to the flood havoc that took place in the year 1989, rendering a considerable amount of land uncultivable.

5.2.5 Major farming system in the village and changes therein

The farming system of Nam Deuri village is similar to other rural areas of the state of Assam. Agriculture is the primary livelihood for the people of the village. Farming system of the village comprised of crop cultivation, rearing of livestock, poultry, duckery and fishery. Crop components included field crops, horticultural crops and livestock components included cattle, goat, pig, fowl *etc.* Among the marginal farmers of the village, crops + livestock + poultry was the most dominant farming system, while

crops + livestock + poultry + fishery was the widely accepted system among the medium and other farms. In case of small farmers, three different farming systems were observed, namely, crops + livestock, crops + livestock + poultry and crops + livestock + fishery with equal weight age.

It was observed from the available records that the farming system in the village continued to remain unchanged during the period under reference, with little changes in terms of crop cultivation and animal husbandry.

5.2.6 Cropping pattern and changes therein

During 1987, there was no irrigation facility in the village for crop cultivation. There were two pump-sets in the village and were used to supply water to the seed beds only. So, all crops were cultivated under rainfed condition. The cropping pattern of the village is depicted in Table 5.9. The Table clearly shows that paddy was the dominant

Table 5.9
Changes in cropping pattern in Nam Deuri Village

(Units in hectares)

Particulars	In 1987	In 2014	In 2019	Percentage Changes
	(Last survey)	(Five years before)	(Current survey)	
Irrigated				
1. Cereal Crops				
Paddy	0.00	7.01	8.76	-
Wheat	0.00	0.00	0.00	-
2. Pulses				
Black Gram	0.00	0.00	0.00	-
3. Oilseeds				
Mustard	0.00	0.00	0.00	-
3. Fruits & Vegetables				
Mixed Vegetables	0.00	8.31	9.24	-
Potato	0.00	0.00	0.00	-
Rainfed				
1. Cereal Crops				
Paddy	364.52	208.80	202.71	-44.39
Wheat	0.95	0.00	0.00	-100.00
2. Pulses				
Black Gram	10.04	0.00	0.00	-100.00
3. Oilseeds				
Mustard	36.49	13.51	12.28	-66.35
4. Fruits & Vegetables				
Mixed Vegetables	13.88	96.20	101.26	629.53
Potato	5.22	22.32	21.89	319.28
Peas	6.10	24.04	30.05	392.64
5. Others				
Arecanut	1.03	0.70	0.67	-34.95
Coconut	0.72	0.65	0.61	-15.28
Jute	0.71	0.00	0.00	-100.00
Tobacco (Green)	0.27	0.00	0.00	-100.00

crop cultivated by the farmers in 364.52 hectares of land in 1987. They also cultivated wheat, black gram, mustard, vegetables, potato, peas, jute and tobacco (green). Arecanut and coconut were two major horticultural crops in the village in 1987.

The cropping pattern in the village underwent radical changes during last two decades. The farmers of the village no longer cultivated all those crops cultivated in 1987. The traditional crops like wheat, black gram, jute, tobacco *etc.* were not cultivated by the farmers in 2019, because they realized that these crops were not economically viable for which they shifted towards vegetable crops. The vegetable crops were considered as more remunerative than those of traditional crops.

During the last decade, a number of shallow tube-wells were installed in the village which covered about 5.34 per cent of the total net cropped area since 2014. The irrigated paddy area had increased from 7.01 hectares in 2014 to 8.76 hectares in 2019. Similarly, irrigated area under vegetable crops also increased from 8.31 hectares in 2014 to 9.24 hectares in 2019.

Table 5.9 shows that paddy was the dominant crop which was cultivated by the farmers in 364.52 hectares of land in 1987 had declined to 208.80 hectares in 2014 and 202.71 hectares in 2019, showing an area decrease of 44.39 per cent during the intervening period. In this regard, it was reported by the villagers' that during 1989, severe flood had devastated the area, rendering a large track of cultivated area in to a barren land.

Additionally, some cultivable land were also occupied for homestead purpose as most of the nuclear families were separated out from their traditional joint families, resulting in considerable decrease in cultivable land in the village.

The farmers of the village cultivated wheat in 0.95 hectare, black gram in 10.04 hectares, jute in 0.71 hectare and tobacco (green) in 0.27 hectare during 1987 (Table 5.9). Mustard was cultivated by the farmers in 36.49 hectares in 1987, 13.51 hectares in 2014 and 12.28 hectares in 2019. Thus, the mustard area had decreased by 66.35 per cent during the intervening period. Instead of those traditional crops, the farmers opted for vegetable crops in the year 2019, which were found to be more remunerative.

5.2.6.1 Cropping pattern

Cropping pattern determines the level of agriculture of the farmers in the village. It refers to the proportion of land under cultivation of different crops at different point of time. The crop cultivation in Nam Deuri village continued to remain traditional. The major crops grown by the farmers were paddy and *kharif* vegetables in *kharif* season and mustard, potato, peas and *rabi* vegetables during *rabi* season of the year. Although, the irrigation facility was not adequate enough in the village, a number of vegetables namely, potato, peas *etc.* were grown by the farmers in large scale for commercial purpose.

Table 5.10
Cropping pattern in Nam Deuri village in 2019

(Units in hectares)

Particulars	<i>Kharif</i>	<i>Rabi</i>	Summer/ Zaid/Boro	Perennial crops	Total
Irrigated					
1. Cereal Crops					
Paddy	8.76	0.00	0.00	0.00	8.76
2. Oilseeds					
Mustard	0.00	0.00	0.00	0.00	0.00
3. Fruits & Vegetables					
Mixed Vegetables	4.15	5.09	0.00	0.00	9.24
Potato	0.00	0.00	0.00	0.00	0.00
Rainfed					
1. Cereal Crops					
Paddy	202.71	0.00	0.00	0.00	202.71
2. Oilseeds					
Mustard	0.00	12.28	0.00	0.00	12.28
4. Fruits & Vegetables					
Mixed Vegetables	41.56	59.70	0.00	0.00	101.26
Potato	0.00	21.89	0.00	0.00	21.89
Peas	0.00	30.05	0.00	0.00	30.05
5. Others					
Arecanut	0.00	0.00	0.00	0.67	0.67
Coconut	0.00	0.00	0.00	0.61	0.61

Thus, the farmers of the village cultivated the crops under both irrigated and rainfed condition. In *kharif* season, area under paddy was 8.76 hectares and mixed vegetables accounted for 4.15 hectares. Similarly, *rabi* vegetables were grown in an area of 5.09 hectares.

Under rainfed condition, *kharif* paddy was grown in an area of 202.71 hectares and mixed vegetables were grown in 41.56 hectares.

During *rabi* season, the cropping pattern was dominated by 12.28 hectares of mustard crop, 59.70 hectares of mixed vegetables, 21.89 hectares of potato crop and

30.05 hectares of pea in rainfed condition (Table 5.10). It was reported by the farmers that they used to raise pea as a relay crop after harvesting of *kharif* paddy.

The major horticultural crops of the village were arecanut and coconut. The areas under arecanut and coconut stood at 0.67 hectare and 0.61 hectare, respectively (Table 5.10).

5.2.6.2 Crop diversification

Because of demand and market opportunities, several new varieties of vegetables were grown by the villagers as evidenced from the field survey. The status of crop diversification in the village at two different point of time is depicted in Table 5.11. The Table reveals that the value of Herfindahl Index (H) was 0.3894 in 2019 while it was recorded at 0.6953 in 1987.

Table 5.11
Extent of crop diversification in Nam Deuri village

Sl. No	Particulars	In 2019			In 1987		
		Ai	Pi	Pi ²	Ai	Pi	Pi ²
1	Paddy	211.48	0.5458	0.2979	364.52	0.8286	0.6866
2	Wheat	0.00	0.0000	0.0000	0.95	0.0022	0.0000
3	Black Gram	0.00	0.0000	0.0000	10.04	0.0228	0.0005
4	Mustard	12.28	0.0317	0.0010	36.49	0.0829	0.0069
5	Mixed Vegetables	110.50	0.2852	0.0813	13.88	0.0316	0.0010
6	Potato	21.89	0.0565	0.0032	5.22	0.0119	0.0001
7	Peas	30.05	0.0776	0.0060	6.10	0.0139	0.0002
8	Arecanut	0.67	0.0017	0.0000	1.03	0.0023	0.0000
9	Coconut	0.61	0.0016	0.0000	0.72	0.0016	0.0000
10	Jute	0.00	0.0000	0.0000	0.71	0.0016	0.0000
11	Tobacco (Green)	0.00	0.0000	0.0000	0.27	0.0006	0.0000
Herfindahl Index (H)		-	-	0.3894	-	-	0.6953

Source: Field survey data

Note: Ai indicates actual area under each crop,
Pi indicates proportionate area under each crop.
n indicates number of crops.

Therefore, it can be stated that the extent of crop diversification was high in 2019 as compared to 1987. It was observed that the traditional crops like wheat, black gram, jute and tobacco of 1987 were replaced by different new varieties of mixed-vegetables, potato and peas in 2019. These new vegetable crops yielded more returns per unit of land as compared to traditional crops.

5.2.6.3 Shift in cropping pattern

The cropping pattern of the village underwent perceptible changes over the years. With changes in taste, habit and demand, the villagers started growing a variety of vegetable crops and for that matter, newer areas were brought under vegetables through shifting of land from traditional crops. Overall changes in shift in cropping pattern at three different points of time, *i.e.* 1987, 2014 and 2019 can be seen in Table 5.12 for the village. It is seen that the area under vegetables along with potato and peas had increased by 6.42 per cent. On the other hand, the area under cereal crops, oilseeds and other crops had declined by 1.30, 2.96 and 1.02 per cent, respectively during the period from 1987 to 2019 (Table 5.12). One could very well see that Nam Deuri village is one of the most potential areas for vegetable production, may be because of the fact that the soil structure of the village is sandy alluvial and more fertile. Moreover, that may be the reason why the farmers of the village allocated maximum area of their cultivable land to grow vegetable crops both in *kharif* and *rabi* season of the year, next to cereals (paddy).

Table - 5.12
Trends/shift in cropping pattern in Nam Deuri village during 1987 to 2019
(Figures in percentages)

Crop groups	Share in total cropped area (%)			CAGR of Area (%)
	In 1987	In 2014	In 2019	
	(Last survey)	(Five years before)	(Current survey)	
Cereals	83.08	56.56	54.58	-1.30
Pulses	2.28	-	-	-
Oilseeds	8.29	3.54	3.17	-2.96
Cash crops (Jute)	0.16	-	-	-
Fruits	-	-	-	-
Nuts	-	-	-	-
Condiments & Spices	-	-	-	-
Vegetables+(potato & peas)	5.73	39.54	41.92	6.42
Others (arecanut, coconut & tobacco)	0.46	0.36	0.33	-1.02
Total	100.00	100.00	100.00	-

5.2.7 Irrigated area by sources and changes therein

Although the village, Num Deuri is situated in the flood-prone area, many a time, it suffers from scarcity of water especially for raising winter paddy. So, the people felt the need of irrigation for their crop field. At the same time, it must be accepted that irrigation is the most essential input for modern cultivation practices. But the irrigation facility was very poor in the village. Out of the total net cultivable land, only 13.18 (5.34 per cent) hectares of land was under irrigation. Farm size-wise irrigated area along with

its sources in the village is presented in Table 5.13. Table shows that there was no irrigated land in the last survey, 1987. During 2014, 11.00 hectares of land was brought under irrigation and the area went up to 13.18 hectares in 2019.

Farm size-wise irrigated area clearly indicates that the percentage-change in use of marginal farm was recorded at 33.33 per cent, followed by small farms (25.00 per cent) and medium and above farms (5.26 per cent) during the period from 2014 to 2019. Shallow Tube-wells (STW) were the only source of irrigation as revealed by Table 5.13.

Table 5.13
Farm size-wise irrigated area and sources in Nam Deuri village

(Areas in hectares)

Farm Size Groups	Net Irrigated Area			Source of Irrigation			Percentage Change
	1987	2014	2019	1987	2014	2019	
Marginal	0.00	1.05	1.41	-	STW	STW	33.33
Small	0.00	6.64	8.29	-	STW	STW	25.00
Medium & Above	0.00	3.31	3.48	-	STW	STW	5.26
Over All	0.00	11.00	13.18	-	STW	STW	19.86

Further, all Shallow Tube-wells were run by diesel. Due to high price of diesel, most of the farmers found it difficult to purchase it. Though electricity has been extended to the village, it has not yet been extended to the area with the Shallow Tube-wells points. Figure 5.4 indicates a diesel driven STW in Nam Deuri village. Records indicate that, one minor irrigation project was initiated few years ago, but due to some unknown reason it is yet to be completed till date.

Figure - 5.4
One STW point in Nam Deuri village



5.2.8 Average yield of different crops and changes therein

The productivity or yield of crops depends mainly upon rainfall, climatic condition and other independent variable factors. As there is very limited irrigation potential in the village area, productivity of major crop *i.e.* Sali paddy depended on rainfall only and hence most of the crops were grown as rainfed crops.

The yield of major crops in the village for the years 1987, 2014 and 2019 is presented in Table 5.14. The Table reveals that the yield rate of paddy under irrigated condition was 37.05 qtls./hectare in 2014 and 37.77 qtls/hectare in 2019, recording an increase of 0.72 qtls/hectare.

Table 5.14
Yield of major crops in Nam Deuri village

(Unit: Qtl/Hectare)

Particulars	In 1987	In 2014	In 2019	Percentage Changes
	(last survey)	(Five years before)	(current survey)	
Irrigated				
1. Cereal Crops				
Paddy	0.00	37.05	37.77	-
2. Fruits & vegetables				
Mixed Vegetables	0.00	0.00	65.61	-
Rainfed				
1. Cereal Crops				
Paddy	15.24	27.64	27.42	79.92
Wheat	12.11	0.00	0.00	-
2. Pulses				
Black gram	2.90	0.00	0.00	-
3. Oilseeds				
Mustard	9.92	17.93	17.18	73.19
4. Fruits & vegetables				
Mixed Vegetables	41.15	48.56	55.27	34.31
Potato	19.59	62.75	69.57	255.13
Pea	9.03	13.45	14.65	62.24
5. Others				
Arecanut (35Nos.= 1 Kg)	67.20	63.79	62.13	- 7.54
Coconut (in Nos.)	4,675	4,501	4,443	- 4.97
Jute	10.85	0.00	0.00	-
Tobacco	5.41	0.00	0.00	-

Under rainfed condition, the per hectare paddy productivity was 15.24 qtls in 1987, 27.64 qtls in 2014 and 27.42 qtls in 2019, *i.e.* there was an increase of 79.92 per cent in 2019 over 1987. Similarly, average yield of mustard crop was 9.92 qtls/ha. in 1987, 16.58 qtls/ha. in 2014 and 17.18 qtls/ha. in 2019, registering an increase of 73.19 per cent in 2019 over the year 1987. Similarly, the yield of vegetables, potato and peas

had increased considerably from 1987 to 2019. The percentage change in respect of vegetables, potato and peas were recorded at 34.31 per cent, 255.13 per cent and 62.24 per cent respectively. The farmers used new varieties of seeds with modern techniques, resulting in more production and productivity in the village.

As against this, the yield of arecanut and coconut were found to decline by 7.54 per cent and 4.97 per cent, respectively in 2019 as compared to 1987 (Table 5.14). Important to note is that, the other traditional crops like jute, tobacco, wheat, black gram, *etc* were not cultivated by the farmers in 2019.

5.2.9 Average value of input use per hectare (crop-wise) and changes therein

In this section, an attempt has been made to present the average input cost against different crops raised in the village during 2014-2019. Details of crop-wise average value of input use per hectare are shown in Table 5.15. It is to be mentioned that no input cost data could be found in the survey undertaken in 1987. In case of input cost, all operational cost from tilling to harvesting are taken in to consideration and data are estimated on the basis recall of farmers response from their memory and experience.

Table shows that per hectare average input cost for irrigated paddy crop was Rs. 30,352 in 2014 and Rs. 32,643 in 2019, registering an increase of 7.55 per cent. At the same time, the input use cost of vegetable crops under irrigated land was Rs. 31,150 per/ha. in 2014 and Rs. 34,613 per/ha. in 2019, showing an increase of input cost to the tune of 11.12 per cent.

Table 5.15
Crop-wise average value of input use per hectare in Nam Deuri village
(Value in Rupees)

Particulars (Major Crops)	Average value of input use per hectare			Percentage change during 2014-2019
	1987	2014	2019	
Irrigated				
Paddy	-	30,352	32,643	7.55
Mixed vegetables	-	31,150	34,613	11.12
Rainfed				
Paddy	-	29,090	30,988	6.52
Mixed vegetables	-	27,200	31,010	14.01
Potato	-	35,442	39,802	12.30
Pea	-	9,935	10,642	7.12
Mustard	-	23,747	25,926	9.18

Table 5.15 also reveals that per hectare average input value for paddy under rainfed condition was Rs. 29,090 in 2014 and Rs. 30,988 in 2019 *i.e.* it meant there was an increase in input cost by 6.52 per cent over the year, 2014. Similarly, in vegetable crops under rain fed land, the average value of input cost was Rs. 27,200 per/ha. in 2014 and Rs. 31,010 per/ha. in 2019, showing an increase of 14.01 per cent over the year 2014. In a similar vein, the per hectare average input value, in case of potato, pea and mustard were recorded to be increased by 12.30 per cent, 7.12 per cent and 9.18 per cent, respectively during the period from 2014-2019.

From the foregoing analysis, it can be said that per hectare average input value in vegetable crops was comparatively higher than that of paddy crop. It may be attributed to the fact that vegetables were labour intensive crop and the prices of vegetable seeds were much higher than that of the traditional crop like paddy seed.

5.2.10 Distribution of livestock resources and changes therein

Like many other villages of the country, rearing of livestock is a very important activity in Nam Deuri village of Assam as well. It provides the villagers with handsome amount of additional income and employment. Draught animals were also equally important for the farmers with agricultural field activities. Bullocks and buffaloes were the main draught animals in Num Deuri village. Livestock composition of the village is presented in Table 5.16 for the years 1987 and 2019. Table shows that there were 386 number of work cattle in 1987 which ultimately declined to 172 in 2019. Thus, the percentage decline in work cattle during last 32 years was recorded at 55.44 per cent. Similarly, as compared to 1987, the decline in respect of milch cattle and buffalo were found at 69.28 per cent and 92.86 per cent, respectively in the year 2019.

Contrary to this, during the period under reference, increase in percentage was reported against goat (103.30 per cent), pig (166.80 per cent), duck (80.63 per cent), fowl (59.47 per cent) and pigeon (50.00 per cent). It was reported during the field survey that horse was no longer being reared by the people in the village at present, although it was an important animal for ploughing purpose in 1987 (Table 5.16). It was also observed that among these animals, rearing of pigs was most popular in the village as it fetched good and stable income to the households by selling of high value meat and meat products.

Table - 5.16
Livestock composition in Nam Deuri Village

Major Livestock (Including Young stock)		Crossbreed		Improved		Indigenous/ Desi		Total		Percentage Changes in composition during 1987-2019
		1987	2019	1987	2019	1987	2019	1987	2019	
Work cattle	Nos.	0	0	0	70	386	102	386	172	-55.44
	%	0.00	0.00	0.00	40.70	100.00	59.30	100.00	100.00	
Milch Cattle	Nos.	0	19	0	0	690	193	690	212	-69.28
	%	0.00	8.96	0.00	0.00	100.00	91.04	100.00	100.00	
Buffalo	Nos.	0	0	0	0	70	5	70	5	-92.86
	%	0.00	0.00	0.00	0.00	100.00	100.00	100.00	100.00	
Goat	Nos.	0	0	0	45	212	386	212	431	103.30
	%	0.00	0.00	0.00	10.44	100.00	89.56	100.00	100.00	
Sheep	Nos.	0	0	0	18	0	0	0	18	-
	%	0.00	0.00	0.00	100.00	0.00	0.00	0.00	100.00	
Pig	Nos.	0	274	0	25	247	360	247	659	166.80
	%	0.00	41.58	0.00	3.79	100.00	54.63	100.00	100.00	
Duck	Nos.	0	0	0	89	160	200	160	289	80.63
	%	0.00	0.00	0.00	30.80	100.00	69.20	100.00	100.00	
Fowl	Nos.	0	0	0	0	1219	1944	1219	1944	59.47
	%	0.00	0.00	0.00	0.00	100.00	100.00	100.00	100.00	
Pigeon	Nos.	0	0	0	0	82	123	82	123	50.00
	%	0.00	0.00	0.00	0.00	100.00	100.00	100.00	100.00	
Horse	Nos.	0	0	0	0	33	0	33	0	-100.00
	%	0.00	0.00	0.00	0.00	100.00	0.00	100.00	0.00	

5.2.11 Tools, implements and machinery use in agriculture

Agricultural tools and implements are very important assets for the farming community. Crop production, to a great extent depends on the efficiency of the tools and implements used by the farmers. The ownership of improved tools and implements in contrast to traditional ones showed that the cultivation practices of the village remained by and large, traditional. Only a nominal breakthrough has been achieved towards

Table 5.17
Tools, implements and machinery used by the farmers in Nam Deuri Village

(Figures in numbers)

Tools, implements and machinery↓	Last survey 1987	Current survey 2019	Percentage increased/decreased
Tractor	0	5	100.00
Power tiller	2	18	800.00
Harrow/ Cultivator	129	103	-20.16
Bullock cart/ Thella	31	9	-70.97
Plough (Wood/iron)	356	182	-48.88
Water pump (Diesel operated)	14	63	350.00
Threshers	0	0	0.00
Sprayers	15	108	620.00
Other farm machine (Rice Mill)	0	3	100.00
Other Tools (Spade, Sickle etc.)	1359	2404	76.89

modernization and commercialization. Among the improved tools and implements, the number of power tiller (800.00 per cent), water pump (350.00 per cent) and sprayers (620.00 per cent) were increased considerably in 2019 as compared to the year,1987 (Table 5.17).

There were no tractor or rice mills in the village during 1987. There were additions of 5 tractors and 3 rice mills in the village during 2019.

The number of traditional tools and implements like harrow, bullock cart/*thella*, and plough (wood/iron) were decreased by 20.16 per cent, 70.97 per cent and 48.88 per cent, respectively in 2019. And the other implements like spade, sickle *etc.* were increased by 76.89 per cent in 2019 as compared to the year 1987.

5.2.12 Input use (fertilizer, pesticide, *etc*) in agriculture and changes therein

The importance of inorganic fertilizers as soil nutrients is well established in the field of new agricultural technologies. However, it is also a fact that consumption of fertilizers in the State is still much lower in comparison to the other States of the country. It is also observed that there was no uniformity in consumption of fertilizers among the farmers of Assam. One can find wide variation in fertilizer consumption within the districts and or even in different size of operational holdings.

Table - 5.18
Crop wise fertilizer use *vis-a-vis* recommended doses as per
Soil Health Cards in Nam Deuri Village

Major crops	Recommended Doses				Actual Application			
	Nitrogen	Phos-phorous	Potash	Total	Nitrogen	Phos-phorous	Potash	Total
<i>Kharif</i> Paddy	60	20	40	120	11.21	5.60	2.80	19.61
<i>Kharif</i> Vegetables	50	50	50	150	29.88	14.94	7.47	52.29
Rabi Vegetables	120	60	60	240	37.35	18.68	8.96	64.99
Potato	60	50	50	160	44.82	22.41	7.47	74.70
Pea	20	46	0	66	0.00	0.00	0.00	0.00
Mustard	60	30	30	120	22.41	14.94	7.47	44.82

Note: 1. Recommended doses of fertilizers as per the “Package of Practices for *Kharif* Crops”, 2015 published by the Directorate of Extension Education, AAU and Department Agriculture, Govt. of Assam.

2. Package of Practices for *Rabi* Crops, 2015” published by the Directorate of Extension Education, AAU and Department Agriculture, Govt. of Assam.

Crop wise fertilizer use *vis-a-vis* recommended doses as per the Soil Health Cards in the village is presented in Table 5.18. It was found during the field survey that Soil Health Cards were yet to be obtained by the farmers of the village and they did not know the reason behind. As such, the farmers of the village were not aware of the

recommended doses of fertilizers. They used to apply fertilizers as per their own knowledge or as advised by the fellow farmers.

Table 5.18 reveals that the farmers of the village applied the fertilizers in combination *i.e.* Nitrogen+Phosphorous+Potash (NPK) fertilizers. The highest amount of fertilizer was applied in potato crop (74.70 kg. per/ha.), followed by *rabi* vegetables (64.99 kg. per/ha.), *kharif* vegetables (52.29 kg. per/ha.) and mustard crop (44.82 kg/ha.).

For *kharif* paddy, only 19.61 kg/ha of fertilizers were used by the village farmers. Village land was found to be fertile enough for which fertilizer consumption was reported to be little lower as compared to other parts of the district.

5.2.13 Production and disposal of farm outputs

Production and disposal of major farm produces and price realization in the village are presented in Table 5.19. Table shows that out of the total paddy production (5,889qtl.), 32.85 per cent were sold by the farmers to the Middle man/Commission Agent @ Rs. 1,350 /qtl. It is to be noted here that the consumption of rice was comparatively more in the village because rice and rice-made beer constituted major food item for the tribal people of the village.

Table 5.19
Production and disposal of major farm produces and price realization in Nam Deuri Village

Particulars	Total Production (Qtl.)	Per cent of produce sold (Qtl.)	Average price received (Rs.)	Units	Sold to whom?
Crops					
Paddy	5,889	32.85	1,350	Rs./Qtl	Middle man/Commission Agent
Mixed Vegetables	6,381	91.92	1,543	Rs./Qtl	Retailer/Middle man/ Consumer
Potato	1,523	54.05	1,300	Rs./Qtl	Retailer and Middle man
Pea	440	85.70	2,123	Rs./Qtl	Retailer and Middle man
Mustard	211	72.21	2,753	Rs./Qtl	Middle man/ Commission Agent
Others					
Arecanut (35Nos= 1 Kg)	42	50.20	6,475	Rs./ Qtl	Retailer and Middle man
Coconut (in Nos.)	2,710	73.25	25	Rs./Piece	Consumer/ Retailer/ Co. Agent
Allied					
Meat (pork)	245.41	71.23	240	Rs./kg	Consumer/middlemen
Fish	16	60.58	175	Rs./kg	Retailer and Middle man
Poultry	38	41.98	220	Rs./kg	Retailer and Middle man
Egg (in Nos.)	11,520	20.00	90	Rs./dozen	Retailer and Middle man

The farmers of the village grew vegetables in commercial line and out of the total vegetable production (6,381qtl.), 91.92 per cent were sold by the farmers either to the retailer or to the middlemen. Some of the vegetable producers directly sold to the consumers also. The average price of vegetable was Rs. 1,543/qtl. Similarly, of the total production of potato and pea, 54.05 per cent and 85.70 per cent respectively were sold by the farmers at an average prices of Rs. 1,300/qtl. (potato) and Rs. 2,123/qtl. (pea), respectively.

Table 5.19 also reveals that 72.21 per cent of the total production of mustard was sold @ Rs. 2,753/qtl. Similarly, 50.20 per cent and 73.25 per cent of the areca nut and coconut were sold at an average prices of Rs. 6,475/qtl. and Rs. 25/piece respectively.

Meat (pig), fish, poultry and eggs were the important components of the food baskets for the Deuri community. Hence, a significant amount of these non-vegetarian items were used for home consumption. Out of the total production of pork meat, fish and poultry, 71.23 per cent, 60.58 per cent and 41.98 per cent, respectively were sold by the farmers at an average price of Rs. 240/kg. (meat), Rs. 175/kg. (fish) and Rs. 220/kg. (poultry), respectively. Total eggs production during the reference year was 11,520 numbers and of the total, 20.00 per cent of eggs were sold by the farmers @ Rs. 90/dozen. It was observed that consumption of eggs were considerably high among the tribal population.

5.2.14 Prevalent marketing channels and procurement arrangements

Paddy cultivation in Nam Deuri village, by and large, was subsistence in nature. But, a limited number of farmers used to sell their produce (paddy) after meeting their family requirement. The surplus paddy was sold by the farmers to the nearby shops which were found within the village at a reasonable price, when ever needed. As such, there was no such fixed marketing channel for selling of paddy in the village.

However, Nam Deuri, being a vegetable production area with commercial touch, presence of marketing channels was quite conspicuous.

Like any other perishable commodity, there were separate channels of flow of vegetables from the point of production to the point of consumption. The flow took place immediately after harvest due to lack of cold storage facility. In the process, a group of market functionaries appear to facilitate collection and distribution. The market

functionaries are responsible for deflating the consumer price. Due to lack of knowledge and market information on the part of the growers, the middlemen manage to extricate a greater part of the consumer's rupee. The studies conducted in various parts of the country reveal that the marketing systems of perishable commodities are exploitative, economically insufficient, marketed by high profit margin, depriving the growers from their share.

The following three marketing channels were identified in Nam Deuri village.

- I. Producer-Retailer-Consumer
- II. Producer-Middlemen-Retailer-Consumer and
- III. Producer-Middlemen-Wholesaler-Retailer-Consumer.

Among these three marketing channels, the highest amount (53.15 per cent) of marketable surplus of vegetables were sold through the Channel II, followed by Channels I (26.33 per cent) and Channels III (20.52 per cent).

The marketing of perishable commodity like vegetables is a delicate issue and hence every market functionaries are required to be careful in handling the product.

5.3. Poverty, Income and Consumption

5.3.1 Distribution of households by income and poverty level

Annual household income data, which is an aggregate of expenditure of households and savings data, is an important indicator of economic standard of the villagers. Annual household income data for all the households of the village were collected against six different income groups. The number of households in the first three income groups *i.e.* below Rs. 0.75 lakh, Rs. 0.75 lakh to Rs. 1.50 lakh and Rs. 1.50 lakh to Rs. 3.00 lakh were clubbed and classified as population belonging to the 'lower' income group. The next two income groups *i.e.* Rs. 3.00 lakh to Rs. 5.00 lakh and Rs. 5.00 lakh to Rs. 10.00 lakh were added up and classified as 'middle' income group and beyond Rs. 10.00 lakh was classified as the 'upper' income group.

Distribution of households by income groups in Nam Deuri village in 2019 is presented in Table 5.20. Table indicates that 85.11 per cent of the total households of the village belonged to lower income groups, of which, 24.43 per cent household were below the Rs. 0.75 lakh; 49.26 per cent of the families belonged to below the Rs. 1.50 lakh and 11.07 per cent were below the Rs. 3.00 lakh limit. On the other hand, 13.74 per cent of

the total households belonged to middle income group and only 1.15 per cent households belonged to upper income group. Overall analysis indicates that majority of the households in the village belonged to lower income group.

Table 5.20
Distribution of households by income groups and poverty level
in Nam Deuri village in 2019

Income groups		No. of household	Percentage
Lower	Below Rs. 0.75 Lakh	64	24.43
	Rs. 0.75 Lakh – Rs.1.50 Lakh	130	49.62
	Rs. 1.50 Lakh – Rs. 3.00 Lakh	29	11.07
Middle	Rs. 3.00 Lakh – Rs. 5.00 Lakh	24	9.16
	Rs. 5.00 Lakh – Rs.10.00 Lakh	12	4.58
Upper	Rs. 10.00 Lakh & above	3	1.15
Total		262	100.00

5.3.2. Changes in poverty and income level

The changes in the income level of the village households are depicted in Table 5.21 for the surveys under taken in 1987 and 2019. The Table reveals that the percentage of households in the lower income group was much more in 2019 as compared to other income groups. The percentage of households in lower income group had increased from 53.23 per cent in 1987 to 85.11 per cent in 2019. It indicates that the percentage of households in the lower income group

Table 5.21
Changes of poverty and income level in the village from 1987 to 2019

Particulars	All farms, 1987		All farms, 2019	
	No. of HH	Percentage	No. of HH	Percentage
Lower income group	66	53.23	223	85.11
Middle income group	58	46.77	36	13.74
Higher income group	0	0.00	3	1.15
Total	124	100.00	262	100.00

had increased by 31.88 per cent in 2019 over that of 1987. Also the Table shows that the household in the middle income group of the village had taken a downward trend over the years. The figure had come down from 46.77 per cent to 13.74 per cent during the period. However, 2019 registered enlistment of upper income group by 1.15 per cent, which was conspicuous by absence in 1987 in the village.

Thus, unequal distribution of income was all over the households for both the surveys. Growing population pressure and fragmentation of holdings had pushed the majority of the village households into abject poverty.

5.3.3. Asset profile of the rural households

Etymologically, an asset is an item of property owned by a person, regarded as having value and available to meet debts, commitments or legacies. In the present study, there were two types of assets *i.e.* one productive asset like land, livestock, poultry, household industries, agricultural implements *etc.* and others are non-productive assets like household durables goods. From the productive assets, the people obtain gainful employment and earn income for their livelihood.

Table 5.22
Farm size wise asset profile of Nam Deuri village in 2019

(Value in Rupees)

Farm Size →	Marginal (HH-155)		Small (HH-94)		Medium & Above (HH-13)		Total (HH-262)	
	No	Value	No	Value	No	Value	No	Value
Assets profile ↓								
Bicycle	152	283,250	136	284,200	22	44,100	310	611,550
Rickshaw	0	0	0	0	0	0	0	0
e-Rickshaw/Auto	0	0	0		1	80,000	1	80,000
Two wheeler	43	1,526,500	34	1,597,000	12	500,000	89	3,623,500
Four wheeler	10	2,815,000	10	2,085,000	0	0	20	4,900,000
Other vehicle (Carrier)	2	117,000	5	806,000	0	0	7	923,000
Sewing machine	9	24,300	21	63,400	6	28,800	36	116,500
Radio	3	1,900	0	0	3	2,600	6	4,500
TV	44	316,700	29	315,000	10	102,500	83	734,200
Computer with accessories	2	125,000	1	23,000	0	0	3	148,000
Refrigerator/WM	5	56,000	7	119,000	8	86,000	20	261,000
LPG set	139	310,420	90	223,900	13	34,100	242	568,420
AC machine	0	0	0	0	0	0	0	0
Jewellery (Sets)	54	2,854,500	39	3,199,000	12	2,125,000	105	8,178,500
Furniture	156	20,440	102	33,320	67	48,440	325	102,200
Overall value		8,451,010		8,748,820		3,051,540		20,251,370
Per farm/average		54,523		93,073		234,734		77,295

Source: Primary survey data

On the other hand, the consumer durable goods are those assets which do not have direct effect on income or employment of the family; but these assets help indirectly in raising the standard of living of the people like, good housing condition, electrical appliances, furnitures *etc.* Farm size wise asset profile of the village in the year, 2019 is presented in Table 5.22. The Table shows that bicycle and furnitures are the common assets possessed by almost all the households of the village. As many as 242 households of the village had LPG connections; two wheelers were found amongst 89 households; 20

households possessed four wheelers and seven other households were the proud owners of carrier vehicles. Farm size wise average value of assets were Rs. 54,523 amongst the marginal farmers, Rs. 93,073 amongst the small farmers and Rs. 2,34,734 amongst the medium and above farmers. The average value of assets across the farm size stood at Rs. 77,295 for all farms (Table 5.22).

5.3.4. Pattern of income, expenditure and savings and changes therein

The important sources of income of the village included agriculture and allied sector, cottage industries, profession and service and salaried jobs. In a traditional tribal village like Nam Deuri, rearing of pig, poultry and milch animals were very common, which help them earn a reasonable level of income. Fishing constituted yet another economic activity practiced by the villagers.

The major source of income of the village was agriculture & allied sectors. From the total value of output, the actual expenses incurred towards all inputs, both fixed and variable, seed, hiring of drought animals/power and wage paid to hired labours, *etc.* were deducted to arrive at the net income from agricultural products. The total value of agricultural products was worked out by adding the imputed value of home consumed goods at farm harvest price to the actual return from sale of agricultural commodities.

The source of non-agricultural income of the people of Nam Deuri was very limited. In the village, the non-agricultural sources of income included salaried job, wage employment, business and cottage industry to name a few. The service holders were mainly school teacher, police and military personnel and office bearer in the Government Departments or private agencies. The income from business usually came from grocery shop, retail seller of vegetables and milk/meat sellers in the locality.

Distribution of farm income (per farm) by farm size groups is presented in Table 5.23 with a comparative scenario of per farm annual income during 1987 survey and 2019 re-survey of the Nam Deuri village. The farm income under 3 different heads in 1987 was worked out as per the (then) prevailing rate or money value against each economic activity. With the help of price relative index taking 1987 as base year, the relative money value for the year 2019 were estimated on the basis of published data in Statistical Hand Book of Assam in the respective years (Directorate of Economics and Statistics, Govt. Assam) to capture the real change in income of the village during last 32

years (1987-2019). On an average, price relative index was fixed at 120 per cent and calculation was done at five years interval up to 2017 and the last two years calculation was done on the basis of annual average price index.

Table - 5.23
Distribution of income of the farmers in Nam Deuri village by farm size groups
(Rs. /farm/annum)

Sl. No.	Particulars	1987		2019				Overall CAGR (at Current Price)
		Over all (at Current Price)	Estimated Relative value in 2019 (using 1987 as base year) at overall level	Marginal	Small	Medium & Above	Over all	
1	FARM INCOME (Total)	10,431	33,640	56,977	1,12,446	1,10,087	79,514	6.55
	Crop farming	9,438	30,438	23,582	67,080	56,233	40,809	
	Fishing	121	390	910	1,152	2,954	1,098	
	Livestock/Poultry/Duckery	872	2,812	32,485	44,214	50,900	37,607	
2	OFF FARM INCOME (TOTAL)	19	60	2,351	5,021	8,831	3,631	17.90
	Ag. Labour earning			396	0	0	234	
	Asset hiring	19	60	761	4,234	7,062	2,320	
	Farm income support (Like PM-KISAN)			1,194	787	1,769	1,076	
3	NON FARM INCOME (Total)	4,067	13,115	76,548	1,11,135	3,05,938	1,00,339	10.54
	Service/salary/Pension/Widow pension	2,671	8,615	49,699	88,063	2,71,154	74,451	
	Wage-earning	36	117	12,662	1,590	5,577	8,338	
	Business/trade	787	2,537	11,296	20,506	25,500	15,305	
	Other non-farm (Weaving/ Tutors/CRD/Misc)	572	1,845	2,891	976	3,708	2,244	
4	Total (Per Farm Annual Income)	14,517	46,815	1,35,876	2,28,602	4,24,856	1,83,484	8.25

Note:: Average Price Relative index (120 per cent at five years interval) is estimated on the basis of Statistical Hand Book of Assam published in respective years and the study report on "Economic Development of Assam,1990", AERC for NE India, AAU, Jorhat

The Table shows that the average farm income at current price (2019) was highest amongst the small farmers (Rs. 1,12,446), followed by medium and above farmers (Rs. 1,10,087) and marginal farmers (Rs. 56,977). At overall level, the average per farm income was recorded at Rs. 79,514. The overall CAGR of per farm income at current prices in respective years (1987 to 2019) stood at 6.55 per cent per annum. Considering price relative index (on estimation), the average farm income was found to be increased by 2.36 times during last 32 years (1987-2019). Similarly, in respect of off-farm income, the Table 5.23 indicates that the average household income at current price (2019) was highest amongst the medium and above farmers (Rs. 8,831), followed by small farmers (Rs. 5,021) and marginal farmers (Rs. 2,351), with an average income of Rs. 3,631 per farm. The overall CAGR of per farm off-farm income at current asset hiring rate in

respective years (1987 to 2019) stood at 17.90 per cent. Using price relative index (on estimation), the average off-farm income was found to increase by 60.17 times during last 32 years (1987-2021). It might be because of hike in asset hiring rate and receipt of cash benefits under various Government-sponsored Schemes.

On the other hand, average non-farm income of the households at current price (2019) was found to be highest amongst the medium and above farmers (Rs. 3,05,938), followed by small farmers (Rs. 1,11,135) and marginal farmers (Rs. 76,548). In aggregate, the average non-farm annual income per household was worked out at Rs. 1,00,339 (Table 5.23). The overall CAGR of non-farm income at current prices or money value was found at 10.54 per cent during the reference period. The average per farm non-farm income was found to be increased by 7.65 times during last 32 years (1987-2021). It indicates that a fairly good number of villagers had shifted from farm activities to non-farm activities for better livelihood support.

Covering all sources of income, the annual average highest income was noted against the medium and above group of farmers (Rs.4,24,856), followed by small farmers (Rs. 2,28,602) and marginal group of farmers (Rs. 1,34,876). In aggregate, average annual income from all sources was recorded at Rs.1,83,483 for the year 2019. The overall CAGR of income from all the sources at current prices or money value stood at 8.25 per cent during the reference period. The corresponding annual average income for the year, 1987 was recorded at Rs. 14,517 only at the (then) current prices. The price relative for the year 2019, with 1987 as base price, was estimated at Rs.46,815, registering a 3.92 fold increase in income during last 32 years (from 1987 to 2019) thereby revealing a reasonable level of improvements in the village in terms of annual income of the farm household.

For estimation of expenditure, the household expenditure incurred by a family for food and non-food items in the month preceding to the period of survey was collected from each household and the annual expenditure was computed on the basis of monthly expenditure. Expenditure on home produced food items was estimated by considering the prevailing market rate. Expenditures on non-food items, like clothing and footwear, education, medicine, ceremonials and entertainments, *etc.* were collected for the year preceding to the period of survey. This expenditure on non-food items was added to that

of food items to arrive at the total annual expenditure of a household. In order to capture the changes in expenditure level over the years (1987-2021), CAGR and the price relative were estimated, taking the price of 1987 as base year price.

Gross income, expenditure and savings of the farmers in Nam Deuri village are shown in the Table 5.24. The total annual expenditure at current price (2019) for an average farm family for the year was computed at Rs. 1,28,724, of which 48.20 per cent was accounted for food items. The expenditure per family was highest on medium and above farms (Rs. 2,68,138), followed by small farms (Rs. 1,67,137) and marginal farms (Rs. 93,736), covering both food and non-food items (Table 5.24). The overall CAGR of expenditure stood at 7.73 per cent and there was a 3.36 fold increase in expenditure in 2019 over the year 1987.

Table - 5.24
Pattern of income, expenditure and savings of the farmers in Nam Deuri village

(Rs. /farm/annum)

Sl. No.	Particulars	1987		2019				Overall CAGR (at Current Price)
		Over all (at Current Price)	Estimated Relative value in 2019 (using 1987 as base year) at overall level	Marginal	Small	Medium & Above	Over all	
1	Gross Income	14,517	46,815	135,876	228,602	424,856	183,484	8.25
2	Expenditure							
	on Food items	6,977	22,500	49,873	78,361	89,101	62,040	7.73
	Non-food Items	4,907	15,824	43,863	88,776	1,79,037	66,684	
	Total	11,884	38,324	93,736	1,67,137	2,68,138	1,28,724	
3	Savings	2,633	8,491	32,657	46,945	1,41,334	43,175	9.95
4	Per Capita							
	Income	1,462	4,715	25,020	33,878	42,928	30,005	9.90
	Expenditure	1,197	3,861	18,556	26,449	28,111	22,469	9.60
	Savings	265	854	6,465	7,429	14,817	7,536	11.03

Annual average savings per farm at current price (2019) were Rs. 32,657 in marginal farms, Rs. 46,945 in small farms and Rs.1,41,334 in medium and above farms. The average savings across the farm-size was recorded at Rs. 43,175 per farm per annum (Table 5.24). The CAGR of savings grew @ 9.95 per cent during the reference period and per farm savings had increased by 5.08 times in 2019 over the year 1987. At household level, per capita income, expenditure and savings were worked out at Rs.

30,005, Rs. 22,469 and Rs. 7,536 per annum, respectively. Thus, one can very well see that, there was a positive relationship between all the parameters (gross income and per capita income, expenditure and savings) and the farm sizes. The CAGR of per capita income, expenditure and savings stood at 9.90 per cent, 9.60 per cent and 11.03 per cent, respectively. And the per capita income, expenditure and savings had increased by 6.36 times, 5.82 times and 8.82 times, respectively during last 32 years (1987-2019).

5.3.5 Food security issues at village level

Assam, at the time of independence, produced enough food for its population. Afterward, the production gradually decreased because of varied reasons. Only after 1983, the per capita availability of food grains started increasing with the adoption of modern cultivation practices *viz.* use of high yielding varieties, use of fertilizers, irrigation *etc.*

During the survey, the food security issues of the village were examined by asking different questions to the households to ascertain the availability of food and individual's ability to access it. The response to those questions were recorded as 'never', 'rarely', 'sometimes' and 'often' and are presented in Table 5.25.

Table 5.25
Food security issues in the village Nam Deuri during 2019

(Percentage of respondents)

During last 12 months any member of the household	Never	Rarely	Some-times	Often	Total
a. Went a whole day and night without eating due to poverty?	100.00	0.00	0.00	0.00	100.00
b. Went to sleep hungry due to inability to purchase food?	100.00	0.00	0.00	0.00	100.00
c. Ever worried that the households would not have enough food?	100.00	0.00	0.00	0.00	100.00
d. Ate some poor quality foods that you really did not like?	70.61	22.90	6.49	0.00	100.00
e. Were not able to eat the kind of food you preferred?	37.02	49.24	13.74	0.00	100.00
f. Did you offer food to your neighbors and guests?	6.11	47.33	35.88	10.69	100.00
g. Went for outside eating in hotel/restaurant?	0.00	37.02	45.42	17.56	100.00
h. Are you eating too much packed food/purchased food like ice-cream, cold-drinks, etc?	37.02	62.98	0.00	0.00	100.00

These responses clearly indicate the food availability and food habit of the villagers. None of the villagers ever went to bed without food. Only a marginal percentage of households (6.49 per cent) reported about taking poor quality food stuff

sometimes. About 13.74 per cent of the household sometimes did not have access to the food they preferred to. Some of the household (11 to 36 per cent) usually offered food to the neighbors' and guests. Eating out in hotel and restaurant was a new development among the new genre of the village (18 to 45 per cent).

Thus, the foregoing analysis amply demonstrates that the poverty, in its true sense of the term, was not there in Nam Deuri village. Although the villagers had witnessed changes in food stuff and food habit over the years, they were equally concerned about quality food and a large majority of the people had limited access to good food. The villagers however, acknowledged the receipt of benefits under the ongoing welfare schemes like *Antyodaya Anna Yojana* and *Mukhya Mantri Anna Suraksha Yojana* (MMASY) etc.

5.3.6 Returns from non-farm outputs

Nam Deuri village is characterized by the presence of a number of village industries like weaving, bamboo and bamboo products and forest products, to name a few. Among the cottage industries, weaving is the most common and tradition-based industry in the village and is a part of art and culture of the Deuri community. The women of the village are hard working and much caring. In addition to their regular routine work of cooking, feeding and looking after their children and many other domestic works, they also find time for weaving their traditional clothes besides involving themselves in de-husking of paddy crop. The return from these non-farm outputs are presented in Table 5.26. It is to be noted here that majority of the products were primarily used for household purpose only. There was no record of any production figure against these items. As a result, only the disposal records of the products are shown in Table 5.26.

At overall level, the average annual income emanating from all three activities was estimated at Rs. 2,107 in the year 2019, after meeting the home requirements. Weaving accounted for Rs. 1,578 /farm followed by forest products (Rs. 339 /farm) and bamboo & bamboo products (Rs. 191/farm). It can very well be seen that out of these three activities, weaving really contributed much to the growth and welfare of the village people. The CAGR of annual income from weaving, bamboo & bamboo product and fire-wood were computed at 5.60 per cent, 1.62 per cent and 1.96 per cent, respectively with

the overall CAGR of 4.16 per cent during the reference period. The overall per farm income from non-farm outputs had increased by 1.14 times in 2019 over the year 1987.

Table - 5.26
Disposal of Non Farm outputs in Nam Deuri village

(Rs. /farm/annum)

Sl. No.	Particulars	1987		2019				Overall CAGR (at Current Price)
		Over all (at Current Price)	Estimated Relative value in 2019 (using 1987 as base year) at overall level	Marginal	Small	Medium & Above	Over all	
1	Weaving	276	890	1994	750	2,596	1,578	5.60
2	Bamboo & Bamboo Product	114	368	213	78	742	191	1.62
3	Fire Wood	182	587	452	148	371	339	1.96
	Total	572	1,845	2659	976	3708	2107	4.16

5.4 Financial Transactions and Borrowings by the villagers

At the time of need, the villagers used to borrow from the commercial bank/private bank and the Self-Help Groups (SHGs) located in the vicinity of the village area.

5.4.1 Borrowings details during last 5 years

The villagers in the lower rung of the society were really capital-starved and they possessed no adequate cultivable land for which they need to borrow either cash or stuff from the bank, SHG or from the co-villagers. Type of borrowings source-wise and farm size-wise during the last five years are presented in Table 5.27.

The Table clearly indicates that the villagers mainly borrowed from commercial bank, private bank and from SHGs for six different purposes, viz. agricultural loan, educational loan, loan for medical treatment, loan for purchasing of assets and doing business and also for domestic needs. Agricultural loan was availed off exclusively from the commercial bank by 15 numbers of households in the village, amounting to Rs 3.62 lakh. The highest amount of commercial loan was availed off by the marginal farms (Rs. 1.75 lakh by 7 households), followed by small farms (Rs. 1.17 lakh by 5 household) and medium and above farms (Rs. 0.70 lakh by 3 household). Altogether 23 households (8.78 per cent) took loan for investment in agriculture, 9 families (3.44 per cent) for educational purpose, 7 families (2.67 per cent) for medical purpose and 10 families (3.82

per cent) took loan for business purpose. Moreover, 7 families (2.67 per cent) borrowed fund for purchase of assets like livestock, two wheelers *etc.* and as many as 35 families (13.39 per cent) took loan for repairing of their dwelling houses or to fulfill their family needs.

Table 5.27 also reveals that out of the total loan amount, Rs. 4,02,000 was taken from the commercial banks, Rs. 5,75,000 was taken from the private banks and Rs. 14,81,000 was taken from the Self-Help Groups by 66 families during last five years. It was also observed that highest amount (Rs. 12,98,000) was borrowed by the marginal farmers, closely followed by small farmers (Rs. 10,57,000) and medium and above farmers (Rs. 1,03,000).

Table 5.27
Borrowing details of the village households for last five years
according to farm size groups in 2019

(Amount in Rupees)

Sl. No.	Purpose of loan	Source of loan	Marginal		Small		Medium & Above		Over all	
			No. of HH	Total Loan Amount	No. of HH	Total Loan Amount	No. of HH	Total Loan Amount	No. of HH	Total Loan Amount
1	Agricultural	Commercial Bank	7	175,000	5	117,000	3	70,000	15	362,000
		Private Bank	2	60,000	2	45,000			4	105,000
		Self Help Group	1	20,000	1	12,000	2	33,000	4	65,000
2	Educational	Commercial Bank							0	0
		Private Bank							0	0
		Self Help Group	7	164,000	2	56,000			9	220,000
3	Medical	Commercial Bank							0	0
		Private Bank							0	0
		Self Help Group	5	106,000	2	57,000			7	163,000
4	Purchase of Assets (Livestock, Bike, Four wheeler etc.)	Commercial Bank			1	40,000			1	40,000
		Private Bank	3	105,000	2	365,000			5	470,000
		Self Help Group	1	12,000					1	12,000
5	Business	Commercial Bank							0	0
		Private Bank							0	0
		Self Help Group	7	169,000	3	70,000			10	239,000
6	Domestic Need (House Repairing, Family Need etc.)	Commercial Bank							0	0
		Private Bank							0	0
		Self Help Group	22	487,000	13	295,000			35	782,000
Total		Commercial Bank	7	175,000	6	157,000	3	70,000	16	402,000
		Private Bank	5	165,000	4	410,000	0	0	9	575,000
		Self Help Group	43	958,000	21	490,000	2	33,000	66	1,481,000
Grand Total	All Sources	55	1,298,000	31	1,057,000	5	103,000	91	2,458,000	

5.5.1 Economic condition of the villagers & the driving force for the change, if any

An attempt was made in course of field investigation, to ascertain the perceptions of the villagers over a Group Discussion and the results are given in Table 5.28. For a majority of respondents opined that the economic conditions of the villagers have been marginally improved due to acceptance of non-farm activities such as salaried job,

business *etc.* and other allied farm activities like livestock rearing, especially piggery on commercial basis. However, there was marked improvement in village infrastructure in terms of roads, power, educational and medical facilities. Agricultural condition in the village also improved marginally as perceived by the villagers through partial adoption of improved agricultural practices in the village. Sporadic improvements could be seen in certain pockets only, especially on vegetable production.

Table 5.28
Perception of various groups and households about different changes in Nam Deuri village

Particulars	Yes/No	Nature & Driving force/reason thereof
Change in economic condition of the villagers Improved/ Deteriorated/ No Change	Yes	Improved Non-farm activities such as salaried job, business <i>etc.</i> and allied farm activities like livestock rearing, especially piggery
Change in village infrastructure (Road/Electricity <i>etc.</i>) Improved/Deteriorated/No change	Yes	Improved Ongoing Govt. policy/scheme
Change in agricultural condition Improved/Deteriorated/No change	Yes	Improved Partial adoption of improved agricultural practices in certain pockets
Any other change	Yes	Improved educational status Also, there was improvement in medical facilities/services.

5.5.2 Village infrastructure (Road/Electricity *etc.*) & the driving force for the change, if any

Village infrastructures like Road, Electricity *etc.* were improved considerably over the years, as observed during field investigation. Almost all the roads within the village were constructed by using paver blocks and cement concrete during last five years

Figure - 5.5 Road of Nam Deuri village



under the ongoing Government schemes. On the other hand, 96.56 per cent of the households were covered by electricity. In this regard, ongoing Government policy support was the main driving force for such a change. Figure 5.5 indicates the road condition of Nam Deuri village.

5.5.3 Agricultural development in the village & the driving force for the change, if any

Economy of the Nam Deuri village is essentially based on agriculture. The traditional variety of seeds, manure and bullock powers still continued to dominant the crop cultivation in the village as evident from the Group Discussion. All the cultural practices from sowing to harvesting were done manually and out of the total net cultivable land, only 13.18 (5.34 per cent) hectares was under irrigation. Use of fertilizers and pesticides was also found to be insignificant. As such, there was no much headways in agriculture, except for a few promising areas of vegetable production.

5.5.4 Any other changes in the village & the driving force for the change, if any

The literacy rate of the village was good enough as compared to State average. The figure stood at 81.28 per cent which was much higher than that of the State average (72.19 per cent as per 2011 census). Measures under new educational policy adopted by Government might be the main driving force for such a difference, as reported by the villagers. Further, there was a perceptible change towards improvement in medical facilities in the village as well.

Summing-up

The findings of the study indicate that the natural increase of population during the intervening period from 1987 to 2019 had gone up from 1231 persons to 1501 persons, the Compound Annual Growth Rate (CAGR) of population being worked out at 0.60 per cent.

Out of the total working force, 54.35 per cent was engaged in main/marginal works in 1987, which shot up to 74.28 per cent in 2019. The CAGR of working population is worked out at 1.51 per cent.

Out of the total 262 households, 149 (56.87 per cent) were involved in primary occupation (agriculture & allied), followed by 65 (24.81 per cent) in secondary occupation (manufacturing of finished goods, trades, wage earners, *etc.*) and 48 (18.32 per cent) were involved in tertiary sector (services and pensioners *etc.*) in 2019.

In terms of number of adult persons, 799 (76.17 per cent) were engaged in primary occupation, 168 (16.02 per cent) were engaged in secondary occupation and 82 (7.82 per cent) were involved in tertiary sector during 2019.

Coming to land ownership, the study reveals that there were 12.90 per cent marginal farms, 27.42 per cent small farms and 59.68 per cent medium and above farms in the last survey, 1987. The corresponding figures in the year 2019 were recorded at 59.16 per cent, 35.88 per cent and 4.96 per cent. Further, the average size of land holdings for all classes of farmers was worked out at 2.83 hectares in 1987 which further declined to 0.94 hectare in 2019.

Regarding operational holdings, the study reveals that out of the total operated area, 8.73 hectares were under marginal farms, 49.79 hectares under small farmers and 292.89 hectares were under medium and above farmers during the last survey (1987). The corresponding figures for the current survey (2019) were 85.35 hectares, 129.98 hectares and 31.33 hectares only.

The CAGR of operational holdings was worked out at 7.38 per cent for marginal farmers and 3.04 per cent for small farmers, while the CAGR in respect of medium and other farms was recorded at -6.75 per cent between two different surveys. The values of Gini Co-efficient for operational holdings was found at 0.35 (in 2019) and 0.38 (in 1987), which indicates moderate inequality for both the years. The inequality in terms of operational holdings in 2019 was little lower as compared to 1987.

Basic characteristics of farm households indicate that the average family size was 6 persons and the average operated area across the farms was 0.94 hectares in the village. At the farm level, the land man ratio was worked out at 0.19 for all farm sizes. Cropping intensity was worked out at 157 per cent and the net irrigated area was 5.38 per cent for all farm sizes. The head of the family was found to be reasonably educated, at least up to primary level. On an average 3 to 5 crops were grown annually by the farmers of the village.

In the year 1987, the Gross Cropped Area was 438.18 hectares, of which 86.77 hectares was sown more than once and as such, 351.41 hectares was the net sown area. The per capita net cultivated area was 0.29 hectare and the percentage of area sown more

than once to the net area sown was 24.69. The cropping intensity for the year 1987 was 124.69 per cent (last survey).

In 2019 (current survey), the gross cropped area declined to 386.20 hectares, out of which 139.54 hectares was double cropped area. Due to population pressure, the per capita land was reduced from 0.29 hectare (in 1987) to 0.16 hectare (in 2019). The percentage of double cropped area was recorded at 56.57 per cent and cropping intensity at 156.57 per cent in the year 2019.

Paddy was the most dominant crop cultivated by the farmers in 364.52 hectares of land in 1987 and 202.71 hectares in 2019, indicating a decline in area by 44.39 per cent during the intervening period. However, the area under vegetable crops had increased from 13.88 hectares in 1987, to 96.20 hectares in 2014 and further to 101.26 hectares in 2019. The percentage area under vegetable crops had increased significantly by 629.53 per cent during the intervening period.

The cropping pattern of the village by and large, remains traditional with little change. The area under *kharif* paddy was 8.76 hectares, 4.15 hectares was under mixed vegetables and the area under *rabi* mixed vegetables was 5.09 hectares under irrigated condition. On the other hand, under rainfed condition, *kharif* paddy and mixed vegetables occupied 202.71 hectares and 41.56 hectares, respectively.

During *rabi* season, major crops grown by the farmers included 12.28 hectares of mustard crop, 59.70 hectares of mixed vegetables, 21.89 hectares of potato crop and 30.05 hectares of peas under rain fed condition.

Analysis of the extent of crop diversification reveals that the value of Herfindahl Index was 0.3894 in 2019 as against 0.6953 in 1987. Therefore, it can be stated that the extent of crop diversification was higher in the year 2019, as compared to 1987.

The study further indicates that the yield of paddy under irrigated condition was 37.05 qtls./hectare in 2014 and 37.77 qtls/hectare in 2019, showing a marginal increase of 0.72 qtls/hectare only between two different point of time.

As against this, under rainfed condition, per hectare yield of paddy crop was 15.24 qtls in 1987, 27.64 qtls in 2014 and 27.42 qtls in 2019, registering an increase of 79.92 per cent in 2019 over 1987. Similarly, average yield of mustard crop, was 9.92

qtls/ha. in 1987, 16.58 qtls./ha. in 2014 and 17.18 qtls/ha. in 2019, with an increase of 73.19 per cent in 2019, as compared to the year 1987.

The percentage change in yield of vegetables, potato and peas were recorded at 34.31 per cent, 255.13 per cent and 62.24 per cent respectively for the period under reference.

The study also clearly indicates that there were marked changes in livestock composition during 1987-2019. The work cattle, milch cattle and buffalo population in the village declined by 55.44, 69.28 and 92.86 per cent, respectively while the number of goat, pig, duck, fowl and penguin increased substantially, to the tune of 103.30 per cent, 166.80 per cent, 80.63 per cent, 59.47 per cent and 50.00 per cent, in the same order.

The study shows that out of the total paddy production, 32.85 per cent was sold by the farmers to the Middle man/Commission Agent @ Rs. 1,350/qlt. Similarly, 91.92 per cent of vegetables were sold either to the retailers or to the middlemen at an average price of Rs. 1,543/qlt.

Of the total potato and pea production, 54.05 per cent and 85.70 per cent respectively were sold by the farmers at an average prices of Rs. 1,300/qlt. (potato) and Rs. 2,123/qlt. (pea). Also, 72.21 per cent of mustard crop, 50.20 per cent of arecanut and 73.25 per cent of coconut were sold by the farmers @ Rs. 2,753/qlt., Rs. 6,475/qlt. and Rs. 25/piece (coconut), respectively.

Paddy cultivation by the farmers of Nam Deuri village was observed to be at a subsistence level in general. They cultivated paddy for home consumption only. Hence, there was no marketing of paddy as such. But, the farmers of the village cultivated vegetables in a commercial mode.

And, the major marketing channels identified for the vegetables were

- I. Producer-Retailer-Consumer,
- II. Producer-Middlemen-Retailer-Consumer and
- III. Producer-Middlemen-Wholesaler-Retailer-Consumer.

The study further reveals that the percentage of households in the lower income group in 1987 (53.23 per cent) had substantially increased to 85.11 per cent in 2019. It indicates that percentage of households in the lower income group has increased by 31.88

per cent during the period. Unequal distribution of household income was common and prominent both in 1987 and 2019.

The study shows that bicycle and furniture were common household items for the people of Nam Deuri, and were available to almost all the households of the village. Farm size wise, average value of assets was Rs. 54,523 for marginal farmers, Rs. 93,073 for small farmers and Rs. 2,34,734 for medium and above farmers. The average value of assets across all sizes of farms stood at Rs. 77,295.

When considered all sources of income, the highest annual average income was found among the medium and above farmers (Rs. 4,24,856), followed by small farmers (Rs. 2,28,602) and marginal farmers (Rs. 1,34,876). In aggregate, the average annual income for all farms was recorded at Rs.1,83,483 in 2019.

The overall CAGR of income from all the sources at current prices or money value stood at 8.25 per cent during the reference period. The corresponding annual average income for the year, 1987 was recorded at Rs. 14,517 only at then current prices and values. The price relative to the corresponding year, the figure stood at Rs. 46,815, registering a 3.92 fold increase during last 32 years (from 1987 to 2019) revealing a poor economic development of the village in terms of annual income of the farm household.

Total annual expenditure for an average family of 6 was estimated at Rs. 1,28,724. The expenditure per family was highest for medium and above farms (Rs. 2,68,138), followed by small farms (Rs. 1,67,137) and marginal farms (Rs. 93,736), covering both food and non-food items.

Annual average savings was Rs. 42,141 in marginal farms, Rs. 61,466 in small farms and Rs. 1,56,718 in medium and above farms, with an average savings of Rs. 54,759 for all farms. The per capita income, expenditure and savings were worked out at Rs.32,027, Rs. 22,469 and Rs. 7,536 per annum respectively. Per capita savings was found to increase from Rs. 265 in 1987 to Rs. 7,536 in 2019 at aggregate level.

The CAGR of per capita income, expenditure and savings stood at 9.90 per cent, 9.60 per cent and 11.03 per cent, respectively. And the per capita income, expenditure and savings had increased by 6.36 times, 5.82 times and 8.82 times, respectively during last 32 years (1987-2019).

Overall economic condition of Nam Deuri village was fairly good, if not bad. Nobody in the village passed a day without food and nobody went to bed with empty stomach during last twelve months.

It was further emerged that the villagers had to borrow from different sources to meet a variety of commitments. During last five years, nearly Rs 4,02,000 was borrowed from the commercial banks, Rs. 5,75,000 from private banks and Rs. 14,81,000 was taken from the Self-Help Groups of the village. It was also observed that the highest loan amounting Rs. 12,98,000 was borrowed by the marginal farmers, while Rs. 10,57,000 was taken by the small farmers and only Rs. 1,03,000 was borrowed by the medium and above farmers.

Overall findings of the study indicate that the villagers of Nam Deuri are yet to reap the economic benefits of different development programmes in existence. However, they were a satisfied lot because of their limited wants and limited means. Baring a limited few, most of the agricultural practices followed by the villagers continue to remain traditional. Only a few changes could be seen in vegetable production. But there were marked improvements in rural infrastructures, including roads and electrification in the entire village area. Also, educational and medical facilities developed during the interim period from 1987 to 2019 were substantial, which ultimately contributed towards ease and comfort of life to the villagers.

Chapter VI

Ecology, Vulnerability and Sustainability

Nam Deuri is a plains tribal village in Assam. The village is characterized by high density of population, small land holdings, weak market infrastructure, traditional production practices and high dependence on natural resources. More than 90 per cent of the population of the village earns their living from farming. Employment of people in the non-farm sector is negligible. This chapter broadly deals with ecology, vulnerability and sustainability issues in the context of the village under study.

6.1. Natural Resource Profile of the Village

6.1.1 Flora and Fauna in the village and changes therein

Flora and fauna and their interaction with the surroundings usually determine the ecology of a region. Nam Deuri is also no exception to this. However, there was no such large track of jungle or plantation in the vicinity of the village area. There were medicinal plants like *neem* tree, fruit tree like mango, jackfruit and small kinds of herbs and shrubs including plantain, areca nut, normally grown by the side of the roads and other Government schools boundary, play ground, *etc.*

6.1.2 Land, Water, Soil, Forest and Livestock resources in the village and changes therein

The village is situated near river Brahmaputra which is flowing only at a distance of about 2 km in the northern side of the village. It has created larger *char* area (small river islands) with luxuriant green fields sufficient enough to feed the cattle population of the village. Agriculture is the mainstay of livelihood for the people of Nam Deuri. A variety of crops, usually for home consumption are grown by the villagers in traditional manner. However, mixed vegetables were raised in certain pockets on commercial scale. Moreover, every family is rearing some livestock and birds *viz.* cattle (work cattle/milch cattle), goat, pig, duck, fowl, pigeon, *etc.* from which the people of the village are earning additional income. It was also observed that almost all kinds of animals were indigenous in nature. In this regard, the villagers are of the opinion that the mortality of hybrids animals was a bit high in the region.

The soil of the village is sandy alluvial in nature which may be a facilitating factor towards creating a natural drainage system. Rain is the only source of water for cultivation of crops. However, some low lying areas of the village suffer from water logging during the most part of the year. These water logged areas caused health hazard to the inhabitants as these are the breeding place of mosquitoes and other insects. These areas are badly affecting the village environment and its surroundings.

Out of the total geographical area, around 3 per cent (8.73 hectares) are under forest (un-class forest). The people of the village collect fire woods and other timber or non timber forest produce for self use or for exchange with others. At overall level, there were no much noticeable changes in the village in regard to land, water, soil and forest.

6.1.3 Ground water level, pollution and changes therein

Ground water level is the depth below the earth's surface that is saturated with water. It was reported that the ground water in the village is iron free and can safely be used as drinking water. There is no scarcity of water in the village as the river Brahmaputra flows throughout all the season of the year. However, quality of water needs to be considered from scientific point of view. While evaluating geochemical association, Saikia, *et.al.* found the distribution of environmentally significant fluoride and arsenic content in the area and opined that the findings bear significant imprint not only in health sector but also with wider implication in societal and economic perspectives.

6.1.4 Input use (fertilizer, FYM, pesticide, etc) in agriculture and changes therein

It was really strange to note that the villagers are yet to get the Soil Health Cards from the State Agriculture Department till the date of field investigation. However, the farmers have been using fertilizers, particularly nitrogen, phosphorus and Potassic fertilizer as advised by their fellow friends and fertilizer dealers nearby. Pesticides use in cereal crops was bare minimum. Farmers are using agro-chemicals on vegetable crops only, depending on the gravity of the pest-attacks.

Farmers mostly used Farm Yard Manure at least @ 4 to 5 qtl/ha along with vermi-compost. They have started realizing the importance of using organic inputs in recent years.

6.2. Land use Classifications and Changes Therein

Land use classification of the village, Nam Deuri for 1987, 2011 and 2019 are presented in Table 6.1. It can very well be seen that the geographical area of the village has declined from 376.60 hectares in 1987 to 290.91 hectares in 2019, may be because of creation of *Char* area (small river island) through deposition of sand and silt, following the devastating flood of 1989. With the decline in the total geographical area, there has been a decline in net cultivable area of the village from 351.41 hectares in 1987 to 246.66 hectares in 2019. On the other hand, along with the increase in the number of households, land under homestead and courtyard has increased from 14.49 hectares (3.85 per cent) in 1987 to 26.99 hectares (9.28 per cent) in 2019. It is to be noted here that except for the geographical area and forest area, no other relevant data could be found in Census 2011.

Table 6.1
Land use classification of Nam Deuri village

(Unit: area in hectares)

Particulars	In 1987	In 2011 Census	In 2019
	(last survey)		(Current survey)
Geographical Area	376.60	290.91	290.91
Agricultural/ Cultivable Land			
Net Sown Area	351.41	NA	246.66
Uncultivated area			
Barren Land	NA	NA	NA
Forest Area	NA	8.73	8.25
Pasture and Grazing Land	NA	NA	NA
Cultivable Waste	NA	NA	NA
Misc. Trees & Crops	5.87	NA	3.18
Current Fallow	3.65	NA	1.43
Others (Homestead)	14.49	NA	26.99
Other lands (Land under Thatch)	1.18	NA	4.41
Gross Cropped Area	438.18	NA	386.20
Net Irrigated Area	0.00	NA	13.18
Gross Irrigated Area	0.00	NA	26.10
Area under irrigation (%)	0.00	NA	13.18
Cropping Intensity (%)	124.69	NA	156.57
Irrigation Intensity (%)	0.00	NA	198.03
Agricultural land in geographical area %	93.31	NA	84.79
Current fallow in geographical area %	0.97	NA	0.49
Main sources of irrigation	NA	STW	STW

Note: (a) NA=Not available.

(b) STW= Shallow Tube-Well.

Table 6.1 amply demonstrates that nearly 2.84 per cent (8.25 hectare) of the geographical area (2019) constituted un-classed forest area. The area under miscellaneous trees & crops has declined from 5.87 hectares (1.56 per cent) in 1987 to 3.18 hectare only

(0.68 per cent) in 2019. The current fallow land has also declined from 3.65 hectares (0.97 per cent) to 1.43 hectares (0.49 per cent) during the intervening period. Thatched area which covered 1.18 hectare (0.31 per cent) in 1987 was increased to 4.41 hectare (1.51 per cent) in 2019.

However, the cropping intensity of the village has increased from 124.69 per cent in 1987 to 156.57 per cent in 2019. It is a clear indication of growing more number of crops per unit area.

Like all other plains villages of Assam, the practice of leasing out and leasing in cultivable land was followed by the farmers of Nam Deuri village as well. In most cases, the cultivable land was leased out by the farmers mainly due to shortage of man power/draught power. The prevailing terms of leasing out land is on kind rent basis, *i.e.* fifty per cent of the total produce has to be paid to the owner of the land.

6.3 Natural and Manmade Disasters

6.3.1 Frequency, pattern, magnitude and changes over time

Agriculture in Assam is mainly weather dependent. As per records available, there were no report of occurrence of any flood, drought, cyclone *etc.* during last five years, but erratic rainfall was quite rampant in the village. As indicated earlier, crop production in Nam Deuri village is predominantly rainfed, and thus, making it more vulnerable to the changes in rainfall pattern. The net potential effect of changes in rainfall pattern is the disturbance in crop production leading to food insecurity, joblessness and poverty in the village. Erratic rainfall patterns mean both an increase or decrease of precipitation amounts. The impact of unpredictable rainfall was observed in all stages of crop growth, *viz.* sowing stage, early vegetative stage and flowering stage of *kharif* crops, pulses and other *rabi* crops cultivated by the farmers. Table 6.2 indicates the frequency and exposures to shocks experienced by the farmers during last five years.

The farmers of the village are found to be the losers from both the ends. When the weather is unfavorable, there are crop losses, and when the weather is good enough, there is bumper production resulting in market glut and price crash. Under both the situations, the farmers get marginalized and fail to recover the cost of production even. Shocks with frequency as experienced by the APL/BPL category of people are indicated in Table 6.2.

Table 6.2
Frequency and exposures to shocks during last 5 years

Extreme Events	Change in occurrence (Increased/Decreased/ No change)	Frequency during last 5 years	Most vulnerable groups	Least vulnerable groups	Most vulnerable crops or enterprises	Least vulnerable crops or enterprises
Drought	No	No	No	No	No	No
Flood	No	No	No	No	No	No
Cyclone	No	No	No	No	No	No
Erratic Rainfall	Yes	3 times	Farmers	Petty Traders	<i>Kharif</i> (Paddy)	<i>Rabi</i> Crops
Heat wave	No	No	No	No	No	No
Cold wave	No	No	No	No	No	No
Land slides	No	No	No	No	No	No
Epidemic	No	No	No	No	No	No
Major accident	No	No	No	No	No	No
Suicide	No	No	No	No	No	No
Robbery	No	No	No	No	No	No
Violence	No	No	No	No	No	No
Loss of job	No	No	No	No	No	No
Price crash	Increase	4 to 5 times	BPL People	APL People	All crops	No
Any others	No	No	No	No	No	No

Note: Consider only relevant shocks if there was any during last 5 years only; Groups may be as per livelihoods or any other groups

6.3.2 Vulnerability of rural groups to extreme climatic events and coping measures

Table 6.3 presents the degree of hardship faced by the farmers due to erratic rainfall and price crash. Although, no precise study was done to assess the extent of crop losses, it was estimated by the stakeholders that nearly 25 per cent to 30 per cent crops were damaged for most of the households. Similar kind of losses was also observed for the fish farmers of the village. Severity of damages caused to crop and fishery sector was considered to be moderate, as evident from Table 6.3.

Table 6.3
Degree of hardship faced (vulnerability) during last 5 years (in 0-5 scale)

Climate Extremes	Damages to crops	Hardship to cattle	Hardship to small ruminants	Damages to fisheries	Hardship to poor	Hardship to children	Hardship to aged people	Hardship to women
Drought	0	0	0	0	0	0	0	0
Flood	0	0	0	0	0	0	0	0
Cyclone	0	0	0	0	0	0	0	0
Erratic Rainfall	3	0	0	3	1	0	0	0
Heat wave	0	0	0	0	0	0	0	0
Cold wave	0	0	0	0	0	0	0	0
Land slides	0	0	0	0	0	0	0	0
Epidemic	0	0	0	0	0	0	0	0
Major accident	0	0	0	0	0	0	0	0
Suicide	0	0	0	0	0	0	0	0
Robbery	0	0	0	0	0	0	0	0
Violence	0	0	0	0	0	0	0	0
Loss of job	0	0	0	0	0	0	0	0
Price crash	3	0	0	1	3	0	0	0
Any others	0	0	0	0	0	0	0	0

Note: Rank (0=Nil; 1=Negligible; 2= Low; 3=Moderate; 4=High; 5=Extreme); Consider only relevant shocks if there was any during last 5 years

6.3.3 Vulnerability of crop and livestock and coping measures

The main coping measures at household level to face with the climatic vulnerability are presented in Table 6.4. It was reported that flood, drought, cyclone, *etc.* were not observed during last five years in the village, other than erratic rainfall. Due to erratic rainfall the crop production has declined considerably as compared to the previous years, for which, the borrowings of the farmers has also increased. Similarly, the fishermen incurred losses due to low fish production and many a time, family functions had to be deferred, as reported by the stakeholders. The poor people of the village got some relief under various welfare schemes launched by the Government (*e.g.* providing essential commodities free of cost).

As a supporting measure, the Government also came forward with installation of STW in the village. But, running of STW was an expensive affair, as no electrical connectivity was provided to the STW points. It runs on diesel and the expenditure is to be borne by the farmers, which they could not afford to. Hence, the initiative was not that successful in Nam Deuri village.

Table 6.4
Main coping measures at household level

Climate Extremes	Crop farming Community	Dairy farmers	Fish farmers	Labour class	Poor people	Others 1 (Family festival)	Others2 (.....)	Others3 (.....)
Drought	-	-	-	-	-	-	-	-
Flood	-	-	-	-	-	-	-	-
Cyclone	-	-	-	-	-	-	-	-
Erratic Rainfall	5	-	6	7	7	8	-	-
Heat wave	-	-	-	-	-	-	-	-
Cold wave	-	-	-	-	-	-	-	-
Landslides	-	-	-	-	-	-	-	-
Epidemic	-	-	-	-	-	-	-	-
Major accident	-	-	-	-	-	-	-	-
Suicide	-	-	-	-	-	-	-	-
Robbery	-	--	-	-	-	-	-	-
Violence	-	-	-	-	-	-	-	-
Loss of job	-	-	-	-	-	-	-	-
Price crash	5	-	6	7	7	8	0	0
Any others	-	-	-	-	-	-	-	-

Note: 1=Mortgaged assets; 2=Sold assets; 3=Used savings; 4=Migration; 5=Borrowing; 6=Reduced consumption; 7=Rely on help/relief; 8=Postpone family festivals; 9=Increase working hours; 10=Change crop/livelihood; 11=Change lifestyle; 12=Passive sufferings; 13=Suicide; 14= Any other (specify)

6.3.4 Adaptation strategies by the Government, non-Government & other stakeholders

Although, agriculture and allied activities continue to dominate the livelihood pattern of the villagers, the new genre of the locality seemed to lose interest in it, may be because of low return, uncertainty involved and lack of any glamour in it. They had tilted towards other livelihood option outside the farm sector.

There were a few cases of crop diversification as well, particularly in horticultural crops, which fetched them reasonably good returns. It was mainly the result of self drive of the villagers. The Government through different line Departments is also supporting the farmers in terms of extension and training, input supply and irrigation, soil testing and insurance together with credit and marketing supports. However, the impacts of these development programmes are yet to become visible.

Table 6.5 indicates some of the adaptation strategies adopted by the Government and individual households to cope with the gaps here and there. Yes, it has to be accepted that there has been marked improvement in road-connectivity to Nam Deuri village during the last two decades. This not only contributed towards ease of living, but also significantly helped the farmers in handling their farm produce.

Table 6.5
Adaptation strategies by different stakeholders

Climate Extremes	Individual level	Government level	By NGO	Community level
Drought	-	-	-	-
Flood	-	-	-	-
Cyclone	-	-	-	-
Erratic Rainfall	1	13	-	-
Heat wave	-	-	-	-
Cold wave	-	-	-	-
Landslides	-	-	-	-
Epidemic	-	-	-	-
Major accident	-	-	-	-
Suicide	-	-	-	-
Robbery	-	-	-	-
Violence	-	-	-	-
Loss of job	-	-	-	-
Price crash	-	-	-	-
Any others	-	-	-	-

Note: 1=Livelihood diversification; 2=Crop diversification; 3=Crop insurance; 4= Health insurance; 5=General insurance; 6=Pond making; 7=Relief programme; 8=Income support schemes; 9=MGNAREGA; 10=Livelihood creation; 11=Afforestation; 12=Immunization; 13= Infrastructure (road, irrigation, storage) development; 14=Easy lending; 15.=Loan waiving; 16=Community preparedness; 17=specific (mention)

6.4. Perception of various groups in the village about ecological changes in the village

6.4.1 Change in rainfall pattern, drought, flood, heat & cold waves.

During last 5 years, there was no report of any incidence of natural calamity in Nam Deuri village. However, there was a devastating flood in the year 1989 in the village, as reported, which really engulfed a large track of land area by the River Brahmaputra. Erratic rainfall pattern during the recent past was a major concern of the villagers, for which, most of the families had to incur crop losses to the tune of 25 to 30 per cent, as per a conservative estimate.

6.4.2 Change in incidence of diseases and medical expenditures

The perceptions of the village groups and individual households on natural calamity and disease incidence were obtained through group discussion and personal interaction and are presented in Table 6.6. As reported, there was moderate increase in the medical expenditure during last 5 years due to rise in the number of T.B. patients in the village. There were a few cases of Cancer as well, besides the common ailments like fever, cough, dysentery and worm infestation.

Table 6.6
Perception of various groups and households in the village about different changes in Nam Deuri village

Particulars	Yes/No	Nature & Driving force
Is there any change in rainfall pattern, heat/cold waves, air pollutions in the village during last 5 years? If yes, Nature?	Yes	Change climate
Is there increased incidence of disease and medical expenditure in the village during last 5 years? If yes, Nature?	Yes	Increased (Moderate)

6.4.3 Timeliness and accuracy of weather forecasting and warnings for extreme events

Timeliness and accuracy of weather forecasting and warnings for extreme events in the State is presented in Table 6.7. The information on any extreme events like cyclone/storm, erratic rainfall, epidemic, *etc.* are highlighted by all the social and electronic media. Forecasting is also done through TV, Radio, Newspaper and India Meteorological Department (IMD) before 2 or 3 days. Now-a -days, such information is also made available through Mobile phones in advance. However, weather forecasting in many cases, were found to be unpredictable. Premonitions on infectious disease

(epidemic) *etc.* are also widely circulated in mass media beforehand. As such, it may be summarized that weather forecasting in the study area is fairly good.

Table 6.7
Timeliness and Accuracy of Weather Forecasting and Warnings for Extreme Events

Media	Drought	Flood	Cyclone/ storm	Heat wave	Cold wave	Erratic rain	Epidemic	Others
TV			2/3 days			2/3 days	5/6 days	
Radio			2/3 days			2/3 days	5/6 days	
Newspaper			2/3 days			2/3 days	5/6 days	
Campaign								
Social Media			1/2 days			1/2 days	1/2 days	
Other (IMD)			2/3 days			2/3 days	5/6 days	

6.4.4 Availability, adequacy and efficacy of relief measures after calamity events

The Government of Assam is having structured machineries to deal with the emergent situation with branches in all District and Sub-divisional Headquarters. At the time of need, under the aegis of Civil Administration, relief operations are undertaken, as reported.

6.4.5 Socio-economic and ecological sustainability

Disadvantage Indicators of un-sustainability

Table 6.8 summarizes the situation under three different aspects of sustainability, *viz.* 1. Natural resource base, 2. Production flows connected to economic activities, 3. Resource use and management practices.

It was mentioned earlier that the village is situated near the river Brahmaputra. Previously, there were several waves flood every year in the village. The Government, to control it, constructed spur dyke during 1990, to save the village. But a large area of the village still remains water-logged during the summer. These, water-logged areas caused health hazard to the inhabitants as these are the breeding ground of a number of insects, including mosquitoes.

The soil of Nam Deuri village is sandy-alluvial in texture. This has contributed in creating a natural drainage system in the village. Due to sandy-alluvial nature soil erosion is more in summer.

So far as production flows are concerned, very little change could be observed in the mode of farming, irrigation status, farm input use and in the status of livestock during the period.

Table 6.8
Disadvantage indicators of un-sustainability in the village Nam Deuri

Indicators	Effects	Causes
A. Resource base	i. Flood and water logging	Water-logged areas caused health hazard to the inhabitants as these are the breeding place of a number of insects.
	ii. Creation of river island (<i>char</i> area)	Due to recurring floods of river Brahmaputra, considerable amount of land was converted into small river island which reduced the cultivable area in the village.
	iii. Soil erosion	As the land of the village is sandy-alluvial in texture, soil erosion was common in winter season.
	vi. Encroachment of Govt. land	Implementation of slackness in the laws and rules of the Government in remote areas.
B. Production flows	i. Relatively low yield of crops and livestock	Very limited areas are covered under irrigation.
		Use of chemical fertilizers and pesticides are very limited.
		Almost negligible stall feeding of animals. Inadequate feeding of fodder to cattle.
		Traditional breeds of animals are dominant.
ii. No change in input use pattern	Traditional crop cultivation is dominant.	
iii. More time taken in collection of harvested products.	Crops fields are located at distant places, so more time is required to carry farmers the harvested product.	
C. Resource and management practices	i. Cultivation practice	Modern cultivation practices are limited. Traditional systems of cultivation are still continued by majority of the farmers.
	ii. No change in resource management	Though lands are fertile, the farmers are not that interested to grow more crops.
	iii. Proper cultural practices are not followed	All the cultural practices from sowing to harvesting are done manually.
	iv. Erratic rainfall	Due to erratic rainfall, the crops yields are low.

In the case of resource use and management practices, no noticeable shift in cropping pattern could be seen, which mostly remained traditional. All the cultural operations right from sowing to harvesting were done manually. Also, due to erratic rainfall in the region, the yields of crops were found always lower and uncertain.

Advantage attributes as Indicators of sustainability

Advantage attributes as indicators of sustainability issues are presented in Table 6.9. While analyzing the social, economic and environmental situation of the village Nam Deuri, it could be doubly assured that the region has plenty of fertile land to grow a variety of crops in both *kharif* and *rabi* seasons. But because of the lack of genuine interest on the part of the young male population, a large track of land remains barren and uncultivated. Moreover, there were enough potentialities to integrate fish farming with duckery/poultry/piggery, for optimum utilization of available manpower. The villagers

Table 6.9
Advantage attributes as indicators of sustainability in the village Nam Deuri

Indicators	Potential	Factor responsible
A. Resource base	i. Large quantity of cultivable land available	Reluctance of male young geane towards farming. Vast areas of land remain uncultivated.
	ii. Adequate natural resource base	Low lying areas of the village are suitable for fishery at the individual/community/Government level.
		There are huge potentialities for integrated farming <i>i.e.</i> fish cum duckery/poultry/piggery.
		Topographically and climatically the entire area is rich enough with water, land and natural vegetations.
	iii. 'Char' area (small river island)	The 'char area' is used for grazing of cattle and collection of thatch.
iv. Adequate manpower	Out migration of people for non-farm avenues is very limited.	
	High value crops like vegetables can be grown abundantly.	
B. Production flows	i. High potentiality for diversification	Use of improved breeds of pig, goat, duck <i>etc</i> has vast potential for development of the area.
	ii Scope of harnessing natural resource management	Different types of medicinal plants are grown naturally in the public land.
	iii. Regional advantage	Soil and climatic condition are suitable for the production of medicinal plants.
C. Resource and management practices	i. Transportation	Good surface road runs across the village to connect with different marketing points.
	ii. High amount of disposable income generation	Ample scope for growing high value vegetables.
	iii. Strong social organization	Deuri Autonomous Council and Self Help Groups are very strong social organization.
	iv. Electrification of village	This has increased use of various electric power operated equipments/appliances.
	v. No air pollution	As there is no major/minor industry, so the air is free from all pollution. Moreover, fresh air flows over the river Brahmaputra day and night.

were seen to rear traditional livestock only, in spite of having scope of adopting improved breeds. The climatic conditions of the village are equally conducive of growing medicinal crops.

On review of the strengths and weakness of the village, one can readily infer that there is a lack of concerted and coordinated effort for its overall development. Strategic issues as discussed above can very well be taken care of to motivate the people to go for modern agriculture and allied options, ably supported by the Government and other local bodies to make it a place of worth-living, with juxtaposition of pristine traditional values and modern amenities.

Summing up

Nam Deuri is a plains tribal village of Assam. The village is characterized by high density of population, small land holdings, weak market infrastructure, traditional production practices and high dependence on natural resource. Employment of the villagers in non-farm sector of the economy is very limited.

Except for a few Assam Type semi *pucca/pucca* house, all the dwelling places of the village have been constructed on raised platforms (*Chang Ghar*). Due to growing population the homesteads of majority of the families are small and per capita cultivable land is found at 0.16hectare only.

The ground water in the village is reported to be iron free and can safely be put to drinking and other uses.

It was strange to note that the farmers of the village are yet to receive Soil Health Card (SHC) issued by the line Department. However, the farmers have been using N.P.K. fertilizers as per the advices of the fellow-friends and fertilizer dealers located nearby. Pesticide use in the field is bare minimum. The farmers mostly use Farm Yard Manure (FYM) or other organic matter @ 4 to 5 quintals per hectare on an average.

Because of a devastating flood wave, the geographical area of the village had declined from 376.60 hectares in 1987 to 290.91 hectares in 2019, resulting in creation of small river island. Out of the total geographical area, around 3 per cent (8.25 hectares) of land was clubbed under forest (un-class forest). However, the cropping intensity of the village increased from 124.69 per cent in 1987 to 156.57 per cent in 2019.

Field investigation shows that no major calamities like flood, drought, cyclone *etc.* were observed during last five years in the village except for erratic rainfall. The study also reveals that due to unpredicted rainfall, on an average, 25 per cent to 30 per cent crop losses were reported to every farm household of the village.

In aggregate, across all the sources of livelihood, the Weighted Exposure Index (vulnerability) stood at 2.97. This indicates that a little bit of efforts on the part of the Government and local bodies can bring in desirable changes in the economy of the village.

To meet the irrigation requirements of the village a number of Shallow Tube Wells (STW) have been installed by the Government. But the diesel-operated STW were considered to be expensive for the poor villagers.

Quite a good number of T.B. and cancer patients were reported in the locality. Fever, cough, dysentery *etc.* were the common ailments. Infestation of round and thread worm was found to be most common among the children and the elders. With the growing incidence of diseases in the village, the medical expenditures shot up in recent years.

It was reported that all extreme events like cyclone/storm, erratic rainfall, epidemic, *etc.* were highlighted by all the social and electronic media in advance, so that the people can take precautionary measures. However, weather forecasting, in many a time, turned out to be far from reality.

A large track of land in the village remains water-logged during the summer. These, water-logged areas caused health hazard to the inhabitants as these are the breeding ground of a number of insects, including mosquitoes. The soil of village is sandy-alluvial in texture. The sandy-alluvial nature of the soil contributed in creating a natural drainage system in the region, because of which there was more soil erosion in the summer.

So far as production flows are concerned, very little change could be seen in the mode of farming, irrigation status, farm input use and status of livestock during the period.

There was no noticeable change in the cropping pattern from the resource use and management point of view. All the cultural operations right from sowing to harvesting

was done manually. All these were observed due to absence of appropriate development strategy for upliftment of the village at micro level. There is a felt need for improvement of agriculture by using modern tools and equipments, acceptance of HYV and improved livestock breeds, encouraging the farmers to go for cultivation of medicinal plants and other cash crop and linking road connectivity to the production sites of the village.

By going through all those comparative advantages and limitations, one can very well deduce that there lies ample potentiality of bringing in tangible changes in the life of the villagers with proactive support from the Government departments and local bodies.

Chapter VII

Policy and Governance

Etymologically, policy is a course of action or principle of action adopted by an organization or individual and governance is the process of decision-making and implementation of the decision taken. The Government, in a country like ours, launches a number of plans and programmes for welfare of its subjects in conformity with the development policy. Nam Deuri, a traditional village in Assam is also no exception to the process. The Government through the line Departments has implemented large many schemes relating to agriculture, livestock, health and infrastructure development for uplift of the economy. The chapter deals with different developmental schemes which are implemented in the village and the opinion and attitudes of the people towards its implementation.

7.1. Nature and Coverage of the Government Schemes

Different Government sponsored schemes implemented in Nam Deuri village, their coverage and people's satisfaction level are presented in Table 7.1. All important schemes like *Pradhan Mantri Gram Sadak Yojana* (PMGSY), *Pradhan Mantri Awas Yojana-Gramin* (PMAYG), National Horticultural Mission (NHM), National Food Security Mission (NFSM), *Pradhan Mantri Kisan Samman Nidhi* (PM-KISAN), Integrated Child Development Scheme/Mid Day Meal Scheme have been implemented in the village. Open Defecation Free (ODF) programme/scheme and Free Government Electricity Connection (*Saubhagya*) are also implemented in the recent past. Widow pension, old-age pension and disability pension scheme are in operation in the village. In addition to these, beneficiaries are also there under *Atal Amrit Abhiyan* Scheme and Mahatma Gandhi National Rural Employment Guarantee Act depending on the economic conditions of the families.

7.2. Perception about Government Schemes

Pradhan Mantri Awas Yojana-Gramin or *Indira Awas Yojana* (IAY) is a flagship scheme of the Government of India. Since inception of the scheme, it has been providing assistance to the BPL families who are either homeless or having inadequate housing facilities for constructing durable shelter. The available records indicate that there were

67 households under Economically Weaker Section (EWS) *i.e.* below the annual income of Rs. 1,00,000, out of which 43 households are benefited under the scheme. The percentage of coverage was 64 per cent and all the beneficiaries were satisfied with their lot (Table 7.1).

Further, out of the total households (203) only 37 households could availed off the benefits under KCC, registering coverage of 18 per cent only. The level of satisfaction of the beneficiaries stood at 66 per cent.

Mahatma Gandhi National Rural Employment Guarantee Act. was initiated with the objective of enhancing livelihood security, in rural areas by providing at least 100 days of guaranteed wage employment in a financial year, to every household whose adult members volunteer to do unskilled manual work. In the village, out of 138 applications, 75 person got benefited under the scheme, with a coverage of 54 per cent and beneficiary satisfaction level of 66 per cent (Table 7.1).

With 100 per cent coverage and 100 per cent satisfaction level, as many as 146 children of the village got the benefits under the ICD Scheme/ Mid-Day Meal Scheme.

The minikits of seeds and fertilizers were distributed by the State Agricultural Department amongst the farmers of the village under the NHM. The study shows that 170 farmers, out of a total 251 households got benefited under the scheme. Beneficiary coverage and satisfaction level were recorded at 68 per cent and 100 per cent, respectively. Similarly, farm machinery or implements were provided to 86 number of households under the scheme, coverage percentage being 34 per cent only. However, all beneficiaries were satisfied with their lot.

Pradhan Mantri Kisan Samman Nidhi (PM-KISAN) is a central sector scheme. Under the scheme, an income support of Rs. 6,000/- per year is provided to all the farmer families across the country in three equal installments of Rs. 2,000/- each in every four months. With 100per cent coverage, as many as 48 farmers were benefited under the PM-KISAN scheme.

Old age pension and widow pension schemes were implemented by covering all the eligible beneficiaries of the village. Beneficiary satisfaction level against both the schemes was recorded at 69 per cent for old age pension scheme and 64 per cent for widow pension scheme. Besides these, the benefits under *PM-Ujjwala Yojana* were

received by all eligible BPL families (148 in numbers) of the village, with 100 percent satisfaction level.

Open Defecation Free (ODF) programme under the *Swachh Bharat Abhiyan* was also implemented in the village. Under the programme, a large majority of households (225 out of 232 households) were covered, as a part of Clean India Campaign. However, the perception of the villagers towards the scheme was not that encouraging because the toilets were reported to be very small and unhygienic. Nearly, 69 per cent of the households were satisfied with the ODF scheme. The benefits under PM-*Sahaj Bijli Har Ghar Yojana*, popularly known as *Saubhagya* were availed off by all eligible household of the village (39 numbers).

Table 7.1
Coverage under different Government Sponsored Schemes
in the Nam Deuri Village

Name of the scheme	Number of entitled households	No of households/ beneficiaries availed of the facility	% coverage	% of beneficiaries satisfied with the scheme
1. BPL Card	67	43	64%	100%
2. KCC Card	203	37	18%	66%
3. Public Health Insurance Card	176	15	9%	100%
4. Soil Health Card	238	0	-	-
5. MGNREGA Job Card	138	75	54%	66%
6. ICDS/Mid Day Meal	146	146	100%	100%
7. Govt. Scholarship Schemes	35	35	100%	100%
8. Govt. Housing Scheme (IAY/PMAY)	67	43	64%	100%
9. Crop Insurance: PMFBY/Others	108	0	-	-
10. Irrigation: PMKSY/Others	131	28	21%	100%
11. Seed Minikit scheme	251	170	68%	100%
12. Farm machinery or implements	251	86	34%	100%
13. Life Insurance (Govt. sponsored)	0	0	-	-
14. CG Farm Income Support (PM-KISAN)	48	48	100%	100%
15. SG Farm Income Support Schemes	48	38	79%	100%
16. Old Age Pension Schemes	57	57	100%	69%
17. Farm Pension Scheme (PM-KMY)	51	0	-	-
18. Widow Pension Scheme	53	53	100%	64%
19. Farm Loan Waiver Scheme	0	0	-	-
20. LPG scheme (PM UJJALA)	148	148	100%	100%
21. PMKVY/Organic Farming	21	21	100%	24%
22. MSP/PM-AASHA Scheme	78	0	-	-
Any Other (Specify)				
1. ODF (Open Defecation Free)	232	225	97%	69%
2. Saubhagya-PM-SahajBijliHarGharYojana	39	39	100%	100%

The PMGSY was launched by the Government of India to provide road connectivity to unconnected habitations as a part of poverty reduction strategy. The most of the roads in the village were constructed under the PMGSY. The road connectivity created under the scheme has given a real boost to the economy and life of the villagers. Good surface road running in front of the school and linkage to the market points had changed the outlook of the young generation to think outside the box. They were found to be happy with the implementation of PMGSY.

Thus, one can readily see that almost all anti poverty schemes are being implemented by the Government for improvement of the village economy, covering almost all needy families of the village.

7.3 Participation in Local Governance

Local Government is the public administration of town, cities, countries and district. In line with their objective of promoting local economic development and social justice, local Government bodies have the power to prepare development plans for the areas they serve and implement a wide range schemes relating to as many as 29 core areas for rural local Governments, and 18 for urban local bodies.

Panchayati Raj is the system of local self Government of village in rural India as opposed to urban and sub-urban municipalities. It consist of *Panchayati Raj* Institution (PRI) through which, the self governance of villages is realized. *Panchayati Raj* inaugurated by Pundit Jawaharlal Nehru, former Prime Minister of India on 2nd of October 1959 gives a plate form for direct political participation of the people at the grass root level.

Gram Panchayats are responsible for identification of the projects in Gram Panchayat area to be taken up under a scheme as per the recommendation of the Gram Sabha and Ward Sabha and for executing and supervising such works. For Nam Deuri village, 39 No. *Uttar Baligaon Parbatia Gram Panchayat* is responsible for such development activities. The available records indicate that Gram Sabha in Nam Deuri village sits at least twice a year to propose the development plans for the village in presence of all categories of village people. These plans and programmes are sent to *Zila Parishad* along with budget estimate through the Block Development Officer. On receipt

of necessary approval and budgetary allocation, the Gram Panchayat carries out the development activities according to the plan estimate.

In addition to implementation of development programmes, the *Gram Panchayat* also selects the beneficiaries for the old-age pension scheme, widow/er pension, disability pension, child development plan, *etc.* under the social care schemes and submit to the *Zila Parishad* for final approval. The study shows that a sizeable number of beneficiaries have been benefitted as per the Government norms.

7.4 Opinion and Attitudes towards Rural Change

Overall opinion and attitudes of the village people towards the rural change in the village are discussed in the following paragraphs.

7.4.1 Opinion and their significance

Opinions are the views or judgments formed about something, not necessarily based on facts or knowledge. But whatever changes that are taking place around the area or region are best known to the inhabitants. On that count, opinion always matters. As such, based on the information made available during the survey, attempt has been made to capture the changes of the village on diverse fronts.

Accordingly, it was emerged that the village people had realized the value of education with time which is well reflected in the fact that all children of Nam Deuri village go to school at least up to the age of 12 years, and also in the literacy rate of 81.28 per cent which is even higher than the State average (79.19 per cent). Even the school dropout rate has come down from 18.26 per cent (1987) to 0.71 per cent in 2019.

With the spread of education, the family size had declined from 9.93 in 1987 to 5.73 numbers in 2019. With the changes in socio-demographic structure, per capita land availability of the village also reduced from 0.29 hectare (1987) to 0.16 hectare (2019), adversely affecting the agriculture production.

There were also marked improvements in rural infrastructure which include road connectivity throughout the village area and electrification with coverage of 96.56 per cent.

Inspite of so many changes in the societal life, the economy of the village is yet to catch up a satisfactory level. Agriculture still continues to remain traditional and all those

development benefits under different Government schemes are yet to be reaped by the villagers.

Only with a coordinated on effort the part of the Government, local bodies and people themselves could bring in perceptible changes into the village life.

7.4.2 Knowledge and awareness about Government schemes

It must be accepted that umpteen numbers of schemes and programme have been endeavored by the Government at different point of time for rural development. But the people at large either are not aware of it or the programme in essence, does not reach its clients. The situation is no different for Nam Deuri village as well.

Some of the welfare schemes launched by the Government are known to the villagers; but many of the programmes still remain in dark, not to speak of deriving any benefit out of it. As such, massive awareness campaign is a must to educate the people of Nam Deuri village wherein Gram Panchayat and NGOs can play a vital role.

7.4.3 Perception about major Government schemes

People of Nam Deuri village, by and large, are happy enough with implementation of a number of benevolent activities under the aegis of Government Departments. However, a large chunk of the population still remain ignorant about lot many schemes and programmes particularly in social security sector.

There lies enough scope of promoting those schemes and provisions through both print and visual media or by mobile technology. The popular articles could be published in the vernacular language to reach larger audience/clients.

7.4.4 Suggestions for better implementation of schemes

Although notable impact could be seen under the Departments of Education, Agriculture, Animal Husbandry and Veterinary Sciences, Health and Family Welfare and Public Works Department, full potentials of all those development strategies are yet to be realized. As such, some suggestions are proposed herewith for better implementation of the schemes in operation.

1. Massive awareness programmes should be launched at Government/Local Bodies/NGO Level to sensitize the village people about the ongoing development programmes and their entitlements.

2. Programme under *Swachha Bharat Abhiyan* may be invigorated to maintain proper hygiene and sanitation in the village area, particularly in the water-logged zone to get rid of disease and insect-infestation.
3. Extension and training programme may be arranged at the behest of the agriculture Department on modern agricultural practices *viz.* use of High Yielding Variety, integrated nutrient management and marketing linkages.
4. Livestock rearing is a part and parcel of tribal culture and it also contributes handsomely toward additional income generation. As such, adoption of improved breed of animals and birds, importance of feeding and fodder crops may be promoted. Accordingly, required veterinary facilities are also to be created and delivered at the farmer's doorsteps.
5. Commerce stream may be introduced at Higher Secondary level with enhanced emphasis on vocational areas.
6. There is a felt need of placing additional staff (Doctor, Nurse and Paramedicos) under the Primary Health Centre located in the village, as the lone Doctor could not cater to the needs of the villagers.
7. Although the road connectivity in the village is found to be really good, it has the inherent problem of drainage. As such, the matter needs to be taken up on priority to create adequate drain outlets.
8. It was found that most of the STW of the village remain unused due to high price of diesel, which is to be borne by the farmers. As such, the authorities with power distribution may come forward to extend electricity supply to the STW points, which will be much cheaper.
9. The State Department of Agriculture should take immediate action for distribution of Soil Health Cards to the villagers, with no further delay.

7.4.5 Perception about caste/gender/political bias or deprivation

There are a number of single-caste and single-tribe villages in Assam and Nam Deuri is one of them. Dominance of upper caste on lower caste or oppression therefor are absent in such villages. Considering the rural power structure, one can readily see equal status for all the people, who essentially belong to *Dibongia* group of clan.

Also, no gender biasedness has been reported from the village. Rather, the women folk of the village are more powerful in the sense that they used to take active role in decision-making particularly on household matters, education, health and food consumption. As many as 63 numbers of women SHGs have been reported at the time survey, involving 200 households of the village. Micro-finance was found to be the most important activity of the SHGs, with which the member started the income generating activities like weaving, poultry and livestock *etc.*

The tribals are normally exploited by others because of power game and petty politics. A sense of deprivation is always smelled under the given situation. The condition of the village, however, is little better at the time of survey. Over the years, due to spread of education, there was improvement in the life style and outlook of the people. They also do not follow a particular political philosophy. They used to remain contented with their lot, without much grumbling.

7.4.6 Perception about major socio-economic problem of the village

Problem is a part of life, it is said. Like any other village of the country, Nam Deuri is also having some problem areas. The major difficulties perceived by the villagers are enumerated in the following paragraphs.

1. A large part of the village remains underwater-logged condition during the summer, causing health hazard to the villagers.
2. The soils of the village being sandy-alluvial in texture, soil erosion in certain part of the village are quite rampant, which can be considered as a crawling peril.
3. Use of fertilizers and pesticides is very limited in the village, may be because of lack of irrigation and other associated factors. Also, the villagers are yet to get the Soil Health Cards issued by the line Departments.
4. The already installed STWs remain unused for most of the time, because of high price of diesel and there is no electrical connection to the STW points.
5. Only traditional breeds of livestock and birds are raised by the villagers, which yielded low returns. There was lack of knowledge of improved feeding or fodder.
6. Agricultural crops are cultivated in traditional manner, without much use of HYV.
7. Crop losses are estimated to the tune of 25 to 30 per cent to every household due to erratic rainfall pattern.

8. Large quantities of vegetables are produced in some pockets of the village, with no market outlet. There is no storage and processing facilities for which heavy losses are to be incurred by the farmers. Low price and inadequate market support have put the farmers in a precarious position.
9. Weaving happened to be an important cottage industry of the village. This has been hard hit in recent years, because of scarcity of raw materials and organized market support.

7.4.7 Suggestions for overall development of the village

The probable interventions for overall development of Nam Deuri village may be in the following line:

1. The village was previously flood affected area and a large track of land still remain water-logged throughout the summer. Therefore, raising fishery in the water-logged areas of the village can be a useful proposition which may also act as water harvesting structure and can help in supplying water to the crop fields during dry periods. Moreover, Integrated Farming System (IFS) with crop, livestock and fisheries components may be promoted to earn more income on sustainable basis.
2. The Departments of Agriculture and Irrigation may work hand in hand in order to provide irrigation water at the time of need in one hand and recommending optimum crop-combination after the plot-auditing on the other, infusing commerce to agriculture.
3. Need-based training and demonstrations on balanced use of fertilizer, improved package of practices and pest and disease control measures, artificial insemination, balanced feed for livestock and fish, establishment of fish hatchery, raising piggeries may be arranged to motivate the farmers towards modern culture.
4. The farmers may be encouraged to go for crop diversification, with inclusion of high value, low volume, quick return enterprises considering the abysmally low per capita land availability and income security.
5. Taking into account the fertile land scenario and complementary and supplementary nature of enterprises, resource recycling may be advocated through

vermi-compositing, biogas preparation, liquid manure production, *etc.* within the systems which would generate additional income and reduce the pressure on procurement.

6. It has been established that the village has the potential of growing fruits and medicinal plants besides having ample scope for sericulture. As such, these may be promoted under different ongoing development programmes.
7. Electricity connection may be extended to the Shallow Tube-Well points in order to reduce the maintenance cost, so that the farmers can availed off the benefits of irrigated water on affordable terms.
8. Womenfolk of the village were found to be an empowered lot. They have the traditional skills of weaving and pig rearing since long, besides playing a big role in group activities through SHGs. As such, they may be supported through capacity building programmes and credit-marketing aids.
9. The farmers of the village were constrained to sell their produce at unremunerative prices because of the presence of a number of intermediaries for which the Government agencies may come forward to provide required marketing support.
10. The vegetable production in Num Deuri village has gone up considerably in recent years, particularly in a few pockets. Considering the potential, vegetable growers' cooperative society may be promoted to protect the interest of the growers and for that matter, adequate measures may be taken to create storage and processing facilities in strategically important location.
11. Taking a cue from Government priorities, Skill Development Programme may be organized in the village to sensitize the young generation to garner entrepreneurial skills in trades like raising nursery, wood carving, spinning of cloths, cane and bamboo related works, hospitality management and eco-tourism to improve their standing and lifestyle.
12. It was observed that major part of the land in the village is held mainly under Annual *Khiraj* 'Temporary' category. It is suggested that the Annual *Khiraj* land may be converted to periodic *Khiraj* land by the Government.

Appropriate and timely action in the line of the suggestions given above, if taken and implemented in true sense of the term, can really bring about desirable changes in the life and living of the poor villagers in this part of the country.

Summing Up

The economy of the people of Nam Deuri is basically depends on agriculture & allied sectors. The important economic activities of the villagers include crop production, animal rearing and fishing. For upliftment of the economy of the village, there were quite good number programmes implemented by different Government Departments during last two decades.

Locally, the Gram Panchayat is responsible for executing and supervision of these welfare programmes, and a large chunk of the villagers got benefitted under those schemes.

Naturally, general perception of the villagers towards these programmes was found to be satisfactory. However, a sizeable section of the households were unaware of many of the flagship programmes of the Government, meant for them.

Organizing sensitization programme under *Swachha Bharat Abhiyan*, ensuring safe water supply in the village, placing additional staff (Doctor, Nurse, Para-medicos) in the Primary Health Center, are some of the important actionable points for improvement of the health of the villagers.

Introduction of commerce stream in the Higher Secondary School with enhanced emphasis on vocational education may be pursued to give a new horizon to the system under the changed situation.

Extending power connectivity to the STW points can very well reduce the maintenance cost, thereby giving adequate relief to the farmers in arranging irrigation water.

The study clearly indicates that prolonged water-logging, soil erosion, limited irrigation facility, lack of stall feeding of animals, traditional systems of cultivation, erratic rainfall, lack of storage and processing facilities for vegetables, shortage of raw materials for weaving, frequent power cuts and lack of organized market are the important constraints being faced by the village people.

In spite of all limitations, there lies enough potentialities for making the village a model one through scientific improvement of crop (horticulture), livestock and fishery in an integrated manner. Creating adequate support, ensuring safe water supply, adopting a judicious combination of crop and livestock enterprises can bring in visible changes in the rural economy.

Need-based training and village level demonstrations on balanced use of fertilizer, improve package of practices and pest and disease control measures, artificial insemination, balanced feeding for livestock, establishment of fish hatchery and market intelligence can go a long way in helping the farmers in earning higher income.

Small land holder farmers may be encouraged to go for diversified farming which may include high value, low volume, low-cost, quick return and high income generating enterprises, taking into consideration the relationship among the enterprises and market potentials.

Resource recycling through vermi-compositing, biogas preparation, liquid manure production, *etc.* can generate additional income and reduce the expenses on input procurement.

Considering the potential, fruits and medicinal plants may be promoted for commercial cultivation in the village. Sericulture can be a yet another viable economic activity in the study area.

Relatively more active womenfolk of the village may be trained for modern weaving techniques and improved livestock rearing, besides encouraging formation of Vegetable Growers' Co-operative Societies.

Finally, Skill Development Programmes may be conducted for the youngsters in acquiring entrepreneurial skills in the trades' like- scientific nursery making, wood carving, spinning of clothes, bamboo and cane craft, hospitality management, market intelligence and eco-tourism to make a decent living with pride, while maintaining the age-old traditional culture of the village life.

Chapter VIII

Summary and Policy Recommendations

The present study has been undertaken at the behest of the Ministry of Agriculture & Farmer's Welfare, Government of India in order to capture the changes that have taken place in the selected village over the years. These village surveys or resurveys are conducted by the Agro Economic Research Centres/Units spread across the country, as a part of continuous effort of the AER Division of the Ministry. The Agro Economic Research Centre for NE India located at Jorhat, Assam conducted its first ever village study way back in 1980 at Nam Deuri Village. As desired by the AER Division, the village was resurveyed in the year 1987 and then Nam Deuri was once again reconsidered for a fresh study in 2019, after a gap of long 32 years.

Assam is a land of numerous ethnic groups and the Deuris are one of them. The Deuris constitute one of the major tribal communities of Assam and the village, Nam Deuri is inhabited exclusively by the Plain Deuri Tribe. In olden days, the Deuri community was engaged in priest activities of the society.

The Deuri community is sparsely distributed in all the districts of Upper Brahmaputra Valley Zone of Assam. Historically, the Deuri tribe had migrated from Dibang, Lohit and Kundil valleys and had settled in Upper Assam long ago. The community has been maintaining its racial traits, language, religion, folk tales and traditional beliefs for centuries. They have a unique style of living, which separates them from other plain tribes of the State. Thus, undertaking a kind of periodic survey in the selected village can generate valuable information which can very well be utilized by the planners and policy makers to chart out the development agenda for the region.

Methodology

The study was accomplished using both primary and secondary level data. As accepted in principle, complete enumeration of the village was done instead of sample survey. The primary level data were collected in 3 (three) different stages with the help of 3 (three) sets of specially designed questionnaires through personal interview method. A total of 262 households were covered by the study.

Information on socio-economic profile of the households, land use pattern and cropping pattern, irrigation status, sources of income and livelihood pattern were collected from the respondents of each household. Similarly, data on use of fertilizer, variety selection, input purchase, weather/rainfall related information, durable consumer goods, income and expenditures, borrowing *etc.* were also collected. However, the data on social changes, demographic changes, agrarian changes, livelihood changes, economic changes, and ecological changes were collected for the reference year 2019 from the available records. Attempts were also made to identify the driving forces of such changes in consultation with the respondents.

In addition to these, information on Government schemes, status of implementation, benefits accrued; price and market were obtained from Panchayat office bearers, Village Head and other knowledgeable persons of the village.

Findings of the study

The data emerged from village enumeration indicate that the educational level and health facilities have improved considerably during the intervening period. However, the use of modern agricultural tools and implements was found to be limited and the irrigation facility was far from satisfactory. Some noticeable changes like drinking water facility, modern housing and furnishing, construction of village roads, power connectivity to village households, selection of BPL/APL households and establishment and extent of ICDS centres have been observed. Moreover, setting up of Customer Service Point (CSP) under State Bank of India and the emergence of Self-Help Groups (SHG) were considered to be the major changes towards upliftment of the economy of the village. Increase in agricultural production and rise in prices of agricultural produces together with earnings from non-agricultural vocations like business; salaried job *etc.* have helped them in raising the households' income.

The natural increase of population during the intervening period from 1987 to 2011 had gone up from 1231 persons to 1444 persons, which further rose to 1501 persons in 2019. Out of the total population (2019), 50.23 per cent were male and 49.77 per cent were female population, with a sex ratio of 991 per thousand males.

The number of households in the village had increased from 124 in 1987 to 228 as per 2011 census and had further increased to 262 households in 2019. In 2019, of the

total inhabitants, nearly 74.28 per cent were recorded to be workers. The literacy rate of Nam Deuri village was 44.68 per cent in 1987, 78.90 per cent in 2011 census and 81.28 per cent during 2019. The educational attainment by the people of the village was found to be satisfactory with an average standard of higher secondary level.

The percentage of married persons was 27.70 in 1987 and 50.57 in 2019 and that of unmarried persons were 68.72 in 1987 and 44.77 in 2019. The percentages of widow/er were 3.49 in 1987 and 4.60 in 2019.

So far as Body Mass Index (BMI) was concerned, it was found that taking all social classes together, nearly 70.00 per cent of the children were of normal weight, 22.00 per cent under-weight, 6.00 per cent severely under-weight and only 2.00 per cent were overweight. By and large, the child nutrition in the village could be considered as satisfactory.

The average family size in 1987 was 9.93 members which came down to 5.73 members in 2019. One important observation was that the couple at present, within the age group of 25-30 years, preferred to have 2-3 children only.

The village infrastructures like road, electricity, medical facility, *etc.* had considerably improved. Almost all the roads within the village were constructed by the Development Block within last five years under various Government programmes. Concurrently, 96.56 per cent of the total households were covered under rural electrification in 2019, while it was only 12.10 per cent in 1987.

Overall economic conditions of the villagers were not up to the expectation level. Agriculture & allied activity continued to be the principal means of livelihood and crop husbandry was characterized by use of traditional variety, manure and bullock power in the village.

The study indicates that out of the total households, 149 (56.87 per cent) households were involved in primary occupation (agriculture & allied), followed by 65 households (24.81 per cent) in secondary occupation (manufacturing of finished goods, trades, wage earners, *etc.*) and 48 households (18.32 per cent) households were involved in tertiary sector (services and pensioner *etc.*) during 2019.

In terms of head counts, 799 (76.17 per cent) adult persons were engaged in primary/main occupation, while 168 (16.02 per cent) were engaged in secondary

occupation and only 82 (7.82 per cent) adult persons were engaged in tertiary sector in the year 2019.

The study reveals that there were 12.90 per cent marginal farms, 27.42 per cent small farms and 59.68 per cent medium and above farms in the last resurveys undertaken in 1987. There were marked changes in the corresponding figures with 59.16 per cent marginal farms, 35.88 per cent small farms and 4.96 per cent medium and above farms during the current survey, 2019. The study also indicates that the average size of land holdings for all classes of farmers was worked out at 2.83 hectare in 1987 and 0.94 hectare in the current survey, 2019.

Out of the total operated area, 8.73 hectares were under marginal farms, 49.79 hectares under small farms and 292.89 hectares were under the operation of medium and above farms during the last survey (1987). As against this, there were 85.35 hectares under marginal farms, 129.98 hectares under small farms and 31.33 hectares under medium and above farms as per the survey conducted in 2019.

The CAGR of operational holdings was worked out at 7.38 per cent for marginal farmers and 3.04 per cent for small farmers, while the CAGR in respect of medium and other farms was recorded at -6.75 per cent between two different surveys. The values of Gini Co-efficient for operational holdings was 0.35 in 2019 and 0.38 in 1987, which indicates moderate inequality for both the years. The inequality in terms of operational holdings in 2019 was little lower as compared to 1987.

At the farm level, the land man ratio for agricultural land was worked out at 0.19 hectare for all farm sizes. Cropping intensity was recorded at 157 per cent. The net irrigated area was 5.38 per cent for all farm sizes and on an average 3 to 5 crops were grown annually by the farmers in the village.

It was recorded that the Gross Cropped Area of the village was 438.18 hectares, of which 86.77 hectares was the double cropped area and 351.41 hectares was the net sown area during 1987. The per capita net cultivated area was 0.29 hectare and the percentage of area sown more than once to the total net area sown was 24.69, with a cropping intensity of 124.69 per cent.

In 2019, the gross cropped area declined to 386.20 hectares, but the double cropped area was increased to 139.54 hectares. The net cropped area stood at 246.66

hectares only. Due to population pressure, the per capita net cultivated area was reduced from 0.29 hectares (in 1987) to 0.16 hectares (in 2019). The percentage of double cropped area was 56.57 and the cropping intensity was found at 156.57 per cent (in 2019).

The study shows that paddy was the most dominant crop cultivated by the farmers in 364.52 hectares of land in 1987, which declined to 202.71 hectares in 2019, registering a decline of 44.39 per cent during the period under reference. The area under the vegetable crops was 13.88 hectares in 1987, which was then increased to 96.20 hectares in 2014 and further to 101.26 hectares in 2019. Thus, the area under vegetable crops has increased significantly, recording 629.53 per cent increase during the intervening period.

The cropping pattern in the village continued to remain traditional in nature. The area under *kharif* paddy was 8.76 hectares and another 4.15 hectares was under mixed vegetables. The area of *rabi* vegetables (mixed) under irrigated condition was 5.09 hectare. On the other hand, under the rainfed condition, the area of *kharif* paddy and mixed vegetables were recorded at 202.71 and 41.56 hectares, respectively.

During *rabi* season, the major crops grown by the farmers included 12.28 hectares of mustard crop, 59.70 hectares of mixed vegetables, 21.89 hectares of potato crop and 30.05 hectares of peas under rainfed condition.

The value of Herfindahl Index was 0.3894 in 2019, while the same was recorded at 0.6953 in 1987. Therefore, it can be stated that the degree of crop diversification was higher in 1987 as compared to 2019.

The yield of paddy under irrigated condition was 37.05 qtls./hectare in 2014 and 37.77 qtls/hectare in 2019, indicating a marginal increase of 0.72 qtls/hectare only.

As against this, per hectare yield of paddy under rainfed condition was 15.24 qtls in 1987, 27.64 qtls in 2014 and 27.42 qtls in 2019. That is, there was a yield increase of about 79.92 per cent in 2019 over the year 1987. Similarly, average yield of mustard crop was 9.92 qtls/ha. in 1987, 16.58 qtls./ha. in 2014 and 17.18 qtls/ha. in 2019, resulting in 73.19 per cent increase over the year 1987.

The percentage increase in yield of vegetables, potato and peas for the corresponding period (1987-2019) were recorded at 34.31 per cent, 255.13 per cent and 62.24 per cent, respectively.

Also, the change in composition of work cattle, milch cattle and buffalo during 1987-2019 was -55.44 per cent, -69.28 per cent and -92.86 per cent, respectively. At the same time, notable increase was observed in case of goat (103.30 per cent), pig (166.80 per cent), duck (80.63 per cent), fowl (59.47 per cent) and pigeon (50.00 per cent) for the corresponding period.

Out of the total paddy production, 32.85 per cent was sold by the farmers to the Middle man/Commission Agent @ Rs. 1,350/qlt. As against this, 91.92 per cent of the vegetable produced were sold either to the retailer or to the middlemen at an average price of Rs. 1,543/qlt.

Also, in the year 2019, 54.05 per cent of potato and 85.70 per cent of peas were sold by the farmers at an average price of Rs. 1,300/qlt. (potato) and Rs. 2,123/qlt. (pea), respectively. Similarly, 72.21 per cent of mustard crop, 50.20 per cent of arecanut and 73.25 per cent of coconut were sold by the farmers @ Rs. 2,753/qlt., Rs. 6,475/qlt. and Rs. 25/piece (coconut), respectively.

Paddy in the village was cultivated at a subsistence level following traditional patterns. But, the farmers of the village used to cultivate vegetables on commercial line and the marketing channels adopted by them are as follows:

IV. Producer-Retailer-Consumer.

V. Producer-Middlemen-Retailer-Consumer and

VI. Producer-Middlemen-Wholesaler-Retailer-Consumer.

The study also reveals that the percentage of households in the lower income group was more as compared to other economic groups. The number of households in lower income group had increased from 53.28 per cent in 1987 to 85.11 per cent in 2019, causing great concern to the social scientists and local leaders.

Bicycle and furniture were the common households assets for the people of Nam Deuri village and were in available in almost all the households of the village. Farm size wise average value of assets stood at Rs. 54,523 in marginal farms, Rs. 93,073 in small farms and Rs. 2,34,734 in medium and above farms. The average value of household assets was worked out at Rs. 77,295 for all farms.

Covering all sources of income, the highest annual average income was noted amongst the medium and above group farmers (Rs.4,24,856), followed by small farmers (

Rs. 2,28,602) and marginal group of farmers (Rs. 1,34,876). In aggregate, the average annual income across all farms was worked out at Rs.1,83,483 in 2019, as against Rs.14,517 only in the year 1987.

The total annual expenditure for an average family of six was estimated at Rs. 1,28,724. The expenditure per family was found to be higher in medium and above farms (Rs. 2,68,138), followed by small farms (Rs. 1,67,137) and marginal farms (Rs. 93,736) covering both food and non-food items.

Annual average savings per family was Rs 42,141 for marginal farms, Rs 61,466 for small farms and Rs 1,56,718 for medium and above farms, with an average savings of Rs. 54,759 for all farms. The per capita income, expenditure and savings were worked out at Rs. 32,027, Rs. 22,469 and Rs. 9,558 per annum, respectively.

As reported, nobody in the village passed a day without meal and none of them went to bed with empty stomach during last twelve months.

The villagers used to borrow monies to meet their exigencies at different point of time. It was noted that an amount of Rs 4,02,000 was borrowed from the commercial banks, Rs. 5,75,000 from the private banks and Rs. 14,81,000 was borrowed from the Self-Help Groups by the families during last five years covering all farm size groups. It was also observed that the highest amount of loan (Rs. 12,98,000) was taken by the marginal farmers, while the small and medium and above farmers borrowed an amount of Rs. 10,57,000 and Rs. 1,03,000, respectively.

The findings of the study show that the village is characterized by high density of population, small land holdings, traditional production practices, high dependence on natural resource and weak market linkages. Employment of people in the non-farm sector in the village was also found to be negligible.

Except for a few Assam Type semi *pucca/pucca* houses, all other houses in the village are constructed on raised platform popularly known as *Chang Ghar*.

The ground water in the village was reported to be iron free and good for drinking and other uses.

It was strange to note that the farmers of the village are yet to be provided with the Soil Health Card (SHC) by the line Department. The farmers usually go for applying fertilizers in a limited scale, as advised by the fellow farmers and fertilizer dealer(s).

They were habituated with applying Farm Yard Manure (FYM) and other organic manure @ 4 to 5 quintals per hectare.

Findings of the study did not show any report of flood, drought, cyclone *etc.* during last five years, except for erratic rainfall pattern. Due to unpredictable rainfall, nearly 25 per cent to 30 per cent of crop damage was reported to every farm household.

In aggregate, across all sources of livelihood, the weighted exposure index (vulnerable) stood at 2.97. This indicates that a little more effort on the part of the authority could bring in changes in the economy of the village by pursuing the existing policy initiatives at the Government in true sense of the term.

To meet the water requirement of crops, a good number of Shallow Tube-Wells (STW) were installed by the Government in the village. But majority of the STWs remain unused because of the high cost of Diesel which is to be borne by the farmers.

There was the report of maladies like tuberculosis and cancer in the village in the recent past. Fever, cough, dysentery and worm infestation were the common ailments and as such, the medical expenditures of the village people had gone up over the years.

The system of weather or disease forecasting and warning process in the village was assessed to be fairly good. Forecasting or alerts are highlighted in print and visual media for the benefits of the village dwellers. Now-a-days, mobile technology is also being used extensively.

A large track of land of the village continues to remain under water-logged condition during the summer. These areas many a time, caused health hazards to the inhabitants, as these are the breeding place of mosquitoes and other insects. The soil of the village is sandy-alluvial in texture. Alluvial nature of soil contributes towards creating natural drainage system. Concurrently, soil erosion was also found to be more in the summer.

So far as production flows are concerned, very little change could be seen in terms of mode of farming, irrigation status, farm input use or livestock development during the period.

The study reveals that a significant number anti poverty schemes are being implemented by the Governments for improvement of the village economy covering

almost all families in the village. Local-Self Government/Panchayat is responsible for a range of vital services and activities under those programmes.

Overall perceptions of the village people towards the major Government schemes were found to be satisfactory. But, the people of the village still remained ignorant about many of the development programmes launched by the Government, may be because of lackadaisical approach of the implementing machinery.

8.2 Policy Recommendations

On the basis of findings of the study, and in the light of the personal interactions held with different stakeholders, the following policy recommendations have been offered, with a clear conviction that the measures, if executed in true sense of the term, will improve the socio-economic conditions of the villagers. The appropriate agency/ departments which can take timely action on the suggestions are also indicated in the interest of the villagers.

Agricultural Development

The findings of the study show that the economy of Nam Deuri village is agrarian in nature and agriculture and allied activities, can play an important role in bringing in socio-economic transformation of the farmers. Agriculture is the major contributor to the village economy and it is providing livelihood to a substantial part of the population. About 84.79 per cent of the total land area is utilized for cultivation and majority of the households (around 87.40 per cent) of the village depend directly or indirectly on agricultural activity, providing employment to more than 73.42 per cent of the total workforce. The net cultivable area of the village is 246.66 hectares and the per capita availability of net sown area stands at 0.16 hectare only. The average size of operational holding is 0.94 hectare and about 95.04 per cent of the farmers belong to small and marginal categories. Thus, agriculture is the core of the village economy.

However, the crop cultivation in Nam Deuri village continues to remain nature-dependent and the cropping pattern of the village remains mostly traditional. All the cultural practices right from sowing to harvesting are accomplished manually and the crop fields are dominated by traditional seeds and traditional tools and implements. Inadequate irrigation facility and low or no consumption of fertilizers/pesticides has led to low yields for most of the crops. Therefore, following suggestions are put forwarded

to draw attention of different **line Departments, namely, Agriculture, Veterinary, Fishery, Irrigation, Marketing Board under the Government of Assam and Directorate of Extension Education, Assam Agricultural University.** Further, co-ordination among these departments is considered most essential for realization of the desired goals.

1. Findings of the study clearly show that there lie enough potentialities for development of crop (horticulture), livestock and fishery in an integrated manner.
2. The Departments of Agriculture and Irrigation should come forward to supply irrigation water in crop field at the time of need and should recommend optimum crop-combination for the locality after a thorough plot-auditing.
3. Need based training and demonstrations on balanced use of fertilizer, improved package of practices, pest and disease control measures, balanced feeding of fish and livestock and establishment of fish hatchery should be arranged to motivate the farmers and young people to go for modern agriculture.
4. Small land holder farmers need to be encouraged to go for crop diversification with inclusion of low volume, low-cost, quick return, high income generating enterprises taking into account the relationship of complementary and supplementary enterprises, marketing possibility and existing farming system.
5. Considering the inherent potentiality of the village, fruits trees and medicinal plants may be promoted along with focused priority on sericulture.
6. Resource recycling through vermi-compositing, biogas preparation, liquid manure production, *etc.* may be encouraged to generate additional income.

Livestock Development

It was revealed that the economy of the people of Nam Deuri basically depends on agriculture & allied sectors. Among the allied sectors, animal husbandry and veterinary has significant role, particularly on employment and additional income generation. Further, livestock helps on food supply, family nutrition, assets saving, soil productivity, livelihoods transport, agricultural traction, crop diversification and sustainable agricultural production. Therefore, following suggestions are offered to draw attention of the **Department of Animal Husbandry and Veterinary, Government of Assam.**

1. Rearing of livestock is a traditional culture for tribal farmers, so it is a way of their living. Therefore, the Government machinery should devise useful strategies to expose the farmers to modern and scientific methods of livestock production and management, with an element of commerce.
2. Strengthening of extension services to sensitize the livestock rearers about balanced feeding, disease diagnosis and treatment and adoption of improved breeds, so that the people could move forward from tradition to trade.
3. The study shows that there exists considerable demand for livestock products and birds in the village. But the district is not self sufficient in egg, chicken and meat production. As such, there is a great opportunity for the farmers, particularly, the young educated lot to start up new ventures in the line indicated above. For that matter, Banks and other agencies may come forward to provide institutional credits and insurance coverage on easy terms.
4. Considering the existence of grazing ground and abundant availability of green fodder, the young farmers may be encouraged to go for co-operative livestock farming with adequate support.

Manpower (Human Resource) Development

Human development is the process of enlarging people's freedom and opportunities and improving their wellbeing and the function of Human Resource Development is to improve performance and ability. Since the educational level of the people of Nam Deuri village is fairly satisfactory, it will be easier to inculcate in them new traits of personality development to cope with the changing situation. Therefore, following suggestions are given to draw attention of the **Department of Agriculture, Animal Husbandry and Veterinary and Industry, Government of Assam.**

1. The women folk of the village are found to be front runner in all sort of socio-economic settings. Because of their historical involvement, they may be encouraged to go for livestock rearing (mainly piggery) and weaving in the village. Awareness on market intelligence, grower's co-operative society and creation of vegetable storage and processing facilities can very well improve the socio-economic condition of the village.
2. Skill Development Programme may be organized to sensitize the young generation to garner entrepreneurial skill in trades like raising nursery, wood

carving, spinning of cloths, cane and bamboo related works, hospitality management, and eco-tourism to improve their standing and lifestyle.

Institutional Development

Institutions are the formal and informal rules and norms that organize social, political, and economic relations. And every community has an array of local public, private and non-profit institution. Each one of them has resources, such as personnel, space, expertise, equipment and economic power that can potentially contribute towards overall growth of the village. The following suggestions are offered to draw attention of the **Department of Education, Health and Family Welfare, Assam Power Distribution Company Ltd., Local Panchayat and Rural Development Agencies.**

1. A large tract of land of the village remains under water-logged condition for the entire summer and it happens to be the breeding ground of disease-borne insects. This area can be developed as fishery by the local bodies *under the ongoing development programmes like MGNREGA and Swachh Bharat Abhiyan*. At times, it may serve as water harvesting structure and may supply irrigation water to crop field during dry spell.
2. Considering the need, the school premises should be expanded to include commerce stream at Higher Secondary level and vocational education should be promoted for skill development.
3. Adequate staff may essentially be placed in the Primary Health Centre, which should include Doctor, Nurse and Paramedicos.
4. Electricity connection may be extended to the STW-points, so that the farmers can avail off the benefits of irrigation water at affordable terms. Because of the prohibitive price of diesel, many of the STWs, at present, remain unused.
5. Although the road connectivity to the village appears to be fairly good, the drainage part still remains unattended to. As such, the local *Panchayat* may come forward to make necessary provisions for the same.

Conclusion

The findings of the study amply demonstrate that the literacy percentage, health facilities, drinking water facility, road connectivity, power supply position and networking of Government machinery have improved considerably in Nam Deuri village over the years. The study also indicates that there lies vast potential to increase the

productivity and performance of agriculture and other allied sectors, with the intervention of Government Departments and other agencies under a receptive environment.

However, in case of resource use and management practices, no noticeable shift could be observed, particularly in the cropping patterns and no modern tools and implements could find entry into the village. Most of the field operations were done manually for which the cultivation practices almost remain traditional.

May be with an integrated approach, through appropriate development strategy, can change the face of the village with adoption of improved cultivation practices, use of HYV, replacement of livestock breeds, promotion of medicinal plants and other cash crops, ably supported by credit-insurance and market linkages. In this regard, the local Government can play a vital role to bring the villagers out of the morass of age-old backwardness. Social organizations and SHG can add value to the entire process through people's participation.

Appropriate and timely action, if taken and implemented in true sense of the term, can really bring about desirable changes in the life and living of the people of Nam Deuri village.

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Photograph of Nam Deuri Village





Action Taken Report on Comments

Agro-Economic Research Centre
(For the States of West Bengal, Sikkim and Andaman & Nicobar Islands)
Visva-Bharati
Comments on the Draft Report received from AERC, Jorhat

1. Title of report: Village Survey Study in Assam (Nam Deuri Village)

2. Date of receipt of the draft report: 31 March 2021 (Through e-mail)

3. Date of dispatch of the comments: 10 May 2021 (Through e-mail)

4. Comments on the Title of the Study:

The title of the study is in line with the title proposed by the coordinating centre.

5. Comments on the objectives

The overall objectives of the study are appropriate and kept unchanged as supplied by the Coordinating Centre (AERC, Visva-Bharati). Since, it was neither changed nor any specific objectives included, the report is reviewed based on stated objectives.

6. Comments on the methodology

Methodology followed in the study is, by and large, in tune with the stated objectives and as supplied by the co-coordinating centre. This village survey/re-survey has been one of complete enumeration of 262 households. The study has used all the suggested analytical tools except, ASER tool kit. The ASER tool kit for assessing the educational attainment of children, though optional, is not used. However, there is a minor typographical error in the formula used for Herfindhal Index of crop diversification ($P_i = A_i / \sum P_i$). Similarly, the study used five different categories of BMI but mentioned only four categories in the methodology section.

Action: Done as per suggestion.

7. Comments on analysis, organization, presentation etc.

a. The overall presentation of the report is very good. Detailed and worthy presentation is undertaken as to the overview of the Nam Deuri village. Also, detailed analysis is undertaken and organized as required to satisfy the objectives of the study.

b. However, following corrections are needed:

i. In chapter-3, the reference year for demographic data (Table 3.2) is 2011 but for land use (Table 3.3) and livestock (Table 3.4) it is 1987. Try to maintain uniformity as far as possible.

ii. In table 4.4, the last two rows are confusing. Either remove last two rows or present the gender distribution separately (better using a figure).

iii. Please check the title of Table 4.12. The content of the table are based on quantitative information rather than subjective perception.

iv. In Fig-5.2, proper labeling for two Lorenz curve is missing.

v. Table 5.7 is basically a part of Table 5.6 and hence seems repetitive. You can add a column for CAGR in Table 5.6 itself.

vi. As for the Table 5.19 the cells allotted for recommended doses of N, P & K are left blank. Its fact that SHC is not issued in the village but there must be some recommended doses for different crops in neighboring villages/districts. Try to provide that information, to the most possible.

vii. In Table 5.24, it appears that incomes across various activities of 1987 and 2019 have been presented without considering for the price relatives and inflation. Comparing nominal income between 1987 and 2019 and inferring that it has increased by 12 folds during last 32 years makes no sense. Necessary corrections are needed.

viii. Table 5.25 and Table 5.27 require corrections as mentioned above in case of Table 5.24 as income, expenditure, savings and disposal of output are expressed in monetary terms (nominal price) over a period of thirty-two years from 1987 to 2019.

ix. Table 5.29: Contradictory. If the answer to the questions is yes, how it can be concluded in the very next column as no-change or no much general change? Pl. check.

x. Table 6.3 (b) is not in conformity with the data provided in Table- 5.2 (b); 6.2 & 6.3 (a). The authors have used the model table supplied by the coordinator. However, the livelihood groups (Table-5.2b), observed livelihood shocks (Table 6.2) and their magnitudes (Table 6.3a); are altogether different. There are 11

different types of livelihood groups & only two livelihood shocks (erratic rainfall & price crash) are there with impacts mostly nil (0). So, it is better to remove. (Also delete from methodology section).

xi. Table 7.1: Why not a single member/household is entitled for schemes like SHC, PMFBY, PMKSY, PMKMY, PMKVY, PM-ASSHA, *etc* is not clear. A large number of households must be entitled but are not getting the benefits.

xii. There are a few typographical errors in write-up that needs correction.

Action: Noted the comments and all issues addressed accordingly.

8. Overall view on acceptability of report

The overall quality of the report is good and covered most of the issues decided during the Initiation Workshop held at IEG, Delhi and in the Methodology Workshop held at AERC, Visva- Bharati, Santiniketan. The report provides many insights and it is in formative. The researchers have collected huge information and deserve credit for conducting the field survey even under Covid-19 situation. The report may be accepted after making necessary corrections as suggested above.



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