3.0.0.0 HISTORY OF COLONISATION

Though Sunderban was infested with canines and other ferocious animals of both land and water only two hundred years back, yet its previous history was different. It is now widely accepted that there were human settlements in Sunderban in the early and the medieval historic periods.

The notions held by archaeologists and ancient historians frequently failed to make a distinction between South Bengal and Sunderban because in many instances the statements made about South Bengal are also held as true of Sunderban. The region that they refer to as South Bengal is a most unstable zone so far as the geology and the land building processes are concerned. Moreover, the area is hazard prone being susceptible to devastations by floods, tidal incursions, cyclones and squalls. It is in response to this geological and geographical instability that the human history of Sunderban is also unstable and chequered.

3.1.0.0 EARLY HISTORY

Sunderban exhibits evidences of early settlement in some of its parts. The nature of this settlement should not be confused with that of the present day settlement. In this section an attempt has been made to describe the early history and spatial distribution of settlement which was concentrated only in few regions. The early history includes a long span of time from Maurya through Kaniska, Gupta, Pala-Sena to the medieval period.

If we keep aside, for the time being, the well documented British colonial history of Sunderban which dates back to the late eighteenth century, then the following chief sources of facts will have to be relied upon in order to
construct a reasonable account of the early and medieval human configuration of the region.

3.1.1.0 ARCHAEOLOGICAL EVIDENCES

Scientific archaeological work has not been carried out widely in this region, but relics of old building and temples, burnt bricks, coins of different regimes and various icons found from archaeological excavations prove it beyond doubt that the areas was settled much before the British colonial times.

Ruins of old buildings and temples are considered to be the most valuable sources from which early history of settlements could be traced. Sunderban is a region having plenty of such sources as representatives of different periods, starting from Maurya, Kushan to the Mughal period.

Another set of invaluable documents comprises the coins which are found at different locations and which may contain some specific information about the contemporary conditions inscribed by respective rulers of the regional economy.

Before we refer to the archaeological evidences coming from different places in Sunderban it may be necessary to mention certain points about these evidences as precautionary remarks.

Firstly, it is to be noted that proper scientific archaeological investigations have not been done except in Chandraketugarh, or the present Berachampa village and one or two stray locations like Atghara, Ghoserchak, Nolgara and Mathbari. Moreover, Chandraketugarh is located well outside the northern boundary of the present Sunderban, therefore, we are compelled to base our conclusions on the disjointed evidences in the form of the ruins of old buildings, bricks,
or terracotta as well as on earthen wares and metal wares and statues which bear stray testimony to the chequered history of settlement in Sunderban in different times.

It may be always questioned whether it is scientific or not to rely on such evidences of terracotta, statues, metal-or-earthen wares and coins except on the remains of old buildings in drawing inferences about the location, continuity and spread of human settlements in a region; because it is always possible that such evidences may have been transported from other regions by purely temporal natural or artificial processes. However, given the constraints the application of both the inductive and deductive processes of reasoning on the repetitive occurrence of a particular type of evidence in a place, it may be possible to formulate some scientifically acceptable long term general principles which may help later research.

Though archaeological objects have not been collected from most parts of Sunderban, some specific locations do contain positive signs of early settlement. Ruins of buildings and temples frequently appear at the periphery of the forest area and also in the interior. Other evidences have been collected from places scatteredly distributed over the region. A brief description of such evidences found in different places is as follows:--

Boral is located to the south east of Garia at a distance of 8 km. Early historic potteries, and beads belonging to Maurya, Kushan, Gupta, Pala and Sena periods have been found here. Some beautiful stone sculptures of Vishnu, Saraswati, and Tripurasundari have also been collected from here.

Atghara, a village located at a distance of 8 km. to the north-east of Baruipur had been scientifically excavated by the Directorate of Archaeology. A ruin consisting of old
buildings and other archaeological materials were obtained. Roman pottery and figures red polished were, terracotta figures of Yakshini and Agni, terracotta seals of early historic period are the materials collected from Atghara. Beside these, gold coins of Kumargupta I and stone icons of Vishnu and Yama belonging to the medieval period are amongst the others.

Harinarayanpur is located almost 6.5 km away from the southeast of Diamondhabour. There are strong evidences of terracotta seals, archaic terracotta with beak headed female figures, silver punch marked and uninscribed cast copper coins, beads of semi-precious stones of Sunga, Kushan and Gupta period. Apart from these, some examples of stone icons of medieval period have been found.

Deulpota, located at a distance of 6.5 km south of Harinarayanpur contains objects of middle stone age (middle palaeolithic) comprising unifacially worked subtriangular points, borers, side scrapers and hollow scrapers. In addition to this early historic pottery, grey and red wares have also been collected from this place (MAP NO.6)

3.1.2.0 OLD LITERATURE

Old literature constitutes another very important source of a notion of knowledge which geographers and other social scientists have seldom utilised to their required extent. These old literature include, on the one hand the Punthis or the archaic documents, the different shastras or scriptures, as well as the more recent ballads like Chandimangal, Manasamangal, Raimangal, Annadamangal, etc., containing indirect information about the contemporary local cult and local geography and social conditions, though such quasi-documents about local conditions are often tainted through the personal Kaleidoscope of the authors, yet it is possible
to form a broad opinion about the contemporary society from such folk evidences after filtering them through the sieve of scientific reasoning.

A very cautious understanding and explanation should be made while accepting old literature as source of information already mentioned. The punthis or shastras were very few in number in the earlier stages. Apart from this, the available literature could be broadly categorised taking into account the period they were written. Only the old travel diaries and books written by foreign traders, navigators and globetrotters during the period between 4th century B.C. and 2nd century A.D., and the ballads and folk literature between 15th and 17th century A.D. are the sources Literature for the rest of the period is relatively insignificant.

Besides, none of these specifically mentions the period for which the episodes could be related. It can be at best surmised that they refer to the time either contemporary to or immediately preceding the time when these literatures were created. It is also possible that these literature speak of legends based on memory only. Such legends may not have contemporary relevance.

Considering old punthis and shastras relating to the earliest phase of history, a few place names have been considered by some historians as parts of the lower Ganga delta. As for instance the place rasatal, referred to in some puranas, is supposed to have been located somewhere in the lower Ganga delta.

For later periods, old travel diaries belonging to early history had descriptions regarding settlement in the lower Ganga delta. Many Greek and Roman authors and navigators mentioned about one prosperous settlement here, named Gangaridie (Halder, 1988).
The history of a long period following this is missing as far as the literary works are concerned. Sunderban was never referred in prose or poetry not even during the Pala and the Sena periods when the growth of settlement in the lower Ganga delta was evident from other sources. After a long gap, quite a substantial literary work began to emerge describing spatial and social conditions of this forest landscape. These are the old and rich folk literature in the Bengali language.

3.1.3.0 EVIDENCES FROM MAPS AND THEIR LIMITATIONS

Maps definitely provide more important clues than descriptive documents so far as social change over space is concerned. But a systematic picture of social change over space can be reconstructed if only maps are accurate.

Regardless of accuracy, in the period prior to British colonisation was produced a very few maps. The first map of southern Bengal is the one described by Ptolemy in first century A.D. After a long gap a few maps were prepared during 16th and 17th century (Mukherjee, 1938).

Not only the number of maps but their accuracy are questionable. The efficacy of those maps as a source of tracing the history entirely depends on the perception, intention and capability of individuals without scientific basis. Two basic components of maps, scale and direction were not properly calculated and described.

Whatever insignificant evidence can be had from the meagre mapped references of the area, about the period in question, can not be provide us with only a vague idea of the geographical locations of places of paramount importances.
These maps are very general, showing Bengal and adjoining areas with rivers. In few cases, few names of nodes or points and area have also been mentioned. A very broad idea about the physiographic condition can be made possible during this early period. A few maps generated some information regarding trade routes (Mukherjee, 1938) also. But all the names appear as uncommon and do not maintain any parity with the present names.

3.1.4.0 PROBABLE COURSE OF EVENTS

Based on the evidences already mentioned, a general idea about the old history of human settlement in Sunderban can be formed. The history of settlement can possibly be divided into three phases interrupted by some periods of obscurity. Evidences of settlements in early periods mainly from Maurya to Gupta, Pala-Sena and in medieval period are documented. Though the settlements exhibit temporal irregularities, the sites maintain some specific locational identities.

The articles by foreign navigators and merchants were generally written within the period extending from the late fourth century B.C. to the third century A.D. Eminent historians and social scientists like Dr. Dinesh Chandra Sarkar (1947), Binoy Ghosh (1948), Dr. Ramesh Chandra Mazumdar (1974) and Nalinikanta Bhattashali (1944) who worked on this topic mainly on the basis of Greek-Roman accounts were of the opinion that a prosperous settlement named as either 'Gangaridie' or 'Ganga' was situated in this part of the lower Ganga delta. According to some authors the settlements occupied a huge area and had port facilities. Some identified the entire southern Ganga delta between the Bhagirathi and the Meghna as the place of 'Ganga' urban settlement.
All the old literature and the recent historical research works failed to explain the real geographical location of the old settlements. Their suggestions regarding the extension of the settlements up to the estuaries of the Ganga-Padma river system was not substantiated by archaeological evidences found mainly from the north-western parts of the present Sunderban. The places follow almost a linear path, though discontinuous, from Boral in the north through Atghara, Deulpota, Hariharpur to Mandirtala in Sagar island.

There is a distinct gap in the continuity of historical evidences during the fourth century A.D. following which the region again emerged as an important place of settlement during the fifth or sixth-century A.D. Not only the old places which were dominant during the early historical era, the signs of new settlements had also been found further east and south-east of the nuclei. Pottery apart, icons, ornaments, coins and quite a number of structural evidences certainly establish the presence of old settlements in the central and the southern part of present Mathurapur police station mainly in Khari, lot 23 (Barbhanga), lot 24 (Raidighi), lot 26 (Kankandighi), lot 116 (Jatardeul, Madhabpur, Deulbari) and lot 28 (Manirtat, Nolgora). According to archaeologists, the region was developed during Gupta period and was further extended during the Pala-Sena period. The copper-coin, one of the five coins of Lakshman Sena was named "Sunderban Copper Coin". It clearly shows the prosperity of Kharimondal located to the east of the river Adiganga covering the entire south-western part of Poundrabhukti. After being in darkness for about 200 years, the region's history came back to prominence since the early medieval period. But the centres which were important in earlier periods provide us with innumerable archaeological evidence pointing to the conclusion that the growth started in early medieval period. The succeeding period has
substantial documents ranging from literature to maps and archaeological evidences which provided ample clues to find the facts of settlement history of Sunderban during medieval period. Throughout the muslim period which followed the medieval, the name Sunderban was not used even for once but the word 'bhati' which means a lowland regularly inundated by tidal floods was frequently used (Sherwill, 1859). A much clearer connotation is a lowland which surfaces only after the recession of 'tides' or during the ebb time.

Our experience of the spread of civilisation in different parts of the world tells us that for the purpose of permanent or even temporary habitation and associated life supporting activities for fulfilment of want man has always preferred to choose areas which are relatively free from the problems of droughts and floods. In many cases this tendency coincides with the avoidance of forests whether these be upland forest developing on areas draining out water received from local rainfall or riverine and littoral forest flourishing in areas draining in excess water from other areas. In so far as Bengal is concerned, all evidences point to the fact that the first instances of human settlement of Bengal were located in the old alluvial terrain, i.e. the northern part of the South Bengal Basin. The most ancient inhabitants were not cultivators but might be fishermen and other unclean folk as depicted in the ancient literature relating to this area (Mukherjee, 1938). Fishing activities made them adopt in roaming through watery habitats. Subsequently with the ascendancy of agricultural activities they became aware of the need for settling permanently in the fertile parts near delta head of the Ganga. The peripheral watery tract was occupied by people who failed to get absorbed within the realm of agriculture and were forced to persist with water-based economies, principally fishing supported by other kinds of gathering activities. Increase in population caused the formation of large human settlements within the areas of established agriculture.
With the expanding population in the northern tract along with the cultural exchange there appeared the real confrontation between different communities for their survival. In the process of changing occupation and acceptance of land as the source of livelihood, a large section of population could not enter this land based profession. They were retained in their ancestral occupation based on water. This section of population subsequently became displaced from their original abode and migrated towards the south. They were bound to take shelter in the woody and watery environment. These people normally termed as Adikaibartas (Adi means old and Kaibartas are those who are associated with the watery land-form) dominated the entire southern Bengal till the Maurya invasion.

While such broad regional differences in the pattern of occupation emerged, it is to be remembered that the relatively greater prosperity of sedentary farming led to surplus formation giving rise to the necessity for exchange not only between individual agricultural settlements but also between the agricultural region as a whole and other distant regions. The navigability of such rivers like the Bhagirathi-Hooghly, Saraswati, Adiganga, Bidyadhari, and others provided the opportunity for the development of a trade route across the littoral parts of Bengal connecting the Rarh with the coastal plains of Chittagong or Chattagram and neighbouring areas if not further south-east. This trade activity also provided the scope for the inhabitants of the watery habitat of Sunderban to be engaged in different trade-based occupations and services and no wonder that quite a significant number of people developed their expertise in selling water-crafts including river and seagoing vessels. Simultaneously, this opened up and avenue through which the local surplus found its way to extra-regional markets. Moreover, the entire experience help them to develop an independent system of intra and
interregional trade through waterways, the scale of which was presumably smaller than that which existed between the Rarh and the other areas.

According to some historians, the colonisation and aryанизation of Bengal were completed under the rule of the Mauryas (Mukherjee, 1938). In competition with this different type of civilisation, the original settlers or Adikaibartas were driven out of their homeland and pushed into the forest belt which separated the cultivated part from the sea. They began to cling along the borders of Sunderban. The sites and locations of the earliest settlements were definitely influenced by the course of the river Adiganga. All the earliest settlements like Atghara, Deulpota, Hariharpur, Mandirtala etc. are located almost on the natural levels of the Adiganga which used to protect the centres from regular inundation. Besides, these places enjoyed opportunities for developing trading posts or intermediate halting stations.

During the Gupta period, human settlements probably extended somewhat towards the east. But the occurrences were scattered, if places of archaeological evidences are to be considered as places of old settlements. The absence of historical evidences of settlements after the Gupta period implies that this region again became uninhabited for reasons which are not very clear. The anarchic situation that prevailed in Bengal after the Gupta period might have led to the decline of inter-regional water-borne trade. As a consequence, the significance of the southern trade centres was reduced. The Pala-Sena period was the golden period of Bengal. Stable administration improved the economic activities. The boundary of Pala Kingdom extended towards the east and the south. If we have to accept that Sunderban had a history of human settlement much before the modern phase commence, then it was probably during the
golden age of Palas that a limited area along and in proximity of a specific navigation route in the western part of the present Sunderban developed a character of its own. Though Palas were Buddhist but their sympathetic attitudes towards all other religions indirectly helped the emergence of a brahmanical cult in the extreme southern part of Bengal. It can also be guessed that these settlements developed a complex social hierarchy having the upper castes (Brahmins) though in small numbers compared to low castes and tribe in larger and more prosperous villages.

The literary documents and maps of medieval era fervently expressed that Bengal was quite rich in trade and commerce (mainly naval trade) even during the period from 12th to 16th century through the Adiganga. This trade had significant impact upon the establishment of quite a number of settlements along the banks of the Adiganga. Two merchants as referred to in Mongalkabyas, Chandsaudagar in Manasamongal and Srimant Dhamapati in Chandimongal used to follow this trade route. The southern extremities of the settled part were Chhotrabhog and Barasi beyond which no other names of settlements were mentioned in any of the old literature.

Two very important trade routes were developed in Sunderban since early historic times; namely, the inner route and the outer route. Jessuit missionaries and Fernandes (1558) and Fonseca (1599) who travelled through Sunderban on their way from the Hooghly to Chittagong and Bakla to Chandecan had mentioned about the existence of dense forests. Based on their travelogues, Beveridge (1876) commented that there was no settlement at all in Sunderban except a very few places. If these travellers used the outer route, then there was very little chance of finding any settlement amidst the thick mangrove vegetation. There is no archaeological evidence too, in this southern most part of Sunderban.
Different maps which were prepared during mid-16th century (De Barrow, 1550) to mid-17th century (Van Den Brouke, 1660) showed some centres in the south western part of the Ganga delta. But these maps were not really any proof which could justify that Sunderban was very populous even during that period. Besides, the place names appearing on their maps, are not found in any other documented sources of information. For the period following the above there is no information to suggest that Sunderban was anything but thick forest lying as a no-man's land till the Company took a keen interest in colonising this area.

3.2.0.0 BRITISH COLONISATION

The year 1757 marked the beginning of political subjugation of Bengal by the British as well as the cession to them of the 24-Parganas. By gaining the grant of Diwani in 1765, the British East India Company acquired the rights of revenue collection and thus came to control the economy of the province to a large degree. The main motive of their rules was extraction of maximum revenue for the purpose of the company's trade. For this, they made various land settlements in different parts of the country. The imperial policy of profit maximisation was explicit from the very beginning in the British efforts at bringing within their purview every bit of land capable of yielding revenue. Sunderban, as a part of 24-Parganas drew British attention, even if large parts of it were too saline, marshy and forested and thus not suitable for cultivation.

3.2.1.0 RATIONALE BEHIND RECLAMATION OF SUNDERBAN

The British motivation behind the land reclamation policy in Sunderban was a double-edged sword of colonialism. They pretended to display a noble intention for the eradication of black fever, malaria and pirates through the reclamation
of Sunderban and to improve the condition of the nearby human settlements, as in Calcutta. But by their settlement measures which were meant to be connected directly with the interests of the ryots (Westland, 1871) they assumed the role of a benevolent overlord, and, by bringing such new lands under cultivation where they had to make virtually no investments, they were able to extract a considerable revenue from the new settlers.

3.2.2.0 LAND SETTLEMENT AND TENURE SYSTEM

The modern phase of colonisation of this area dates back to 1773 when Claude Russell, the Collector-General of the 24-Parganas (Pargiter, 1934) granted leases against some preconditions and the lands leased out were called patitabadi taluks. The professed idea was to prevent the operation of smugglers and pirates and to convert their natural shelters into revenue yielding tracts. He granted leases which allowed the lessee an initial period free of rent until he made some progress in cultivation. The next effort was made by Tilman Henckell, Judge and Magistrate of Jessore in 1783 (Pargiter, 1934), whose name is associated to a great extent with the welfare and development of this region (Westland, 1871). Mr. Henckell granted about one hundred and fifty leases during 1785. He held very sanguine expectation of success and did his utmost to advance the scheme, but it was opposed by all the neighbouring zamindars. In 1792 the lessees except only sixteen had all disappeared. These lands were called Henckell's taluk consisting of three villages - Bangalpara, Chandkhali and Kachhua, presently known as Hingalganj. Henckell's taluk became one of the foci of reclamation activities in the entire Sunderban (Hunter, 1877).

About the year 1810, there were various schemes for improvement of the port of Calcutta. These schemes drew the
government's attention to Sunderban and the government was determined to reassert its rights which were dormant till then. During those years, various surveys had been conducted in Sunderban and these have been of inestimable value ever since. The survey of Sunderban commenced in 1811 by William Morrison and carried on by his brother Hugh till the end of 1818. This survey had been conducted to meet the demand of revenue officers and showed all the creeks and cultivation on one inch scale. It stretched across Sunderban through the districts of 24-Parganas and Jessore excepting Backerganj (Phillimore, 1954). This survey played the most vital role in forming a basis for future surveys in Sunderban. A law was passed in 1816, sanctioning the appointment of an officer designated as Commissioner in Sunderban with all the power and duties of a collector (Pargiter, 1934).

Enquiries and measurements were first begun by Mr. Scott, the first Commissioner in Sunderban, in the country south and east of Calcutta, and it was found that encroachment and reclamation had been continuously progressing, partly by lessees partly by the zamindars, and partly by unauthorized persons. All this increase of area brought under cultivation was held without payment of any revenue to the state. The proposal to levy revenue upon it naturally aroused the opposition of all interested persons, especially the zamindars who claimed the whole of the forest (Rainey, 1858).

In 1821, the office of Sunderban Commissioner was reconstituted under Mr. Dale and was reinforced by a survey party under Ensign Prinsep. Prinsep surveyed the line of the dense forest from the river Jamuna to the Hooghly in 1822 and 1823. He divided all forest lands between these rivers into blocks and numbered them. This was the beginning of Sunderban lots (Pargiter, 1934).
With the development of reclamation in Henckell's taluk and the marginal area of permanently settled zamindary, attention was given to promote clearance of jungles and reclamation in the extreme western part of Sunderban in Sagar Island. The project of clearing the island was started by the government in 1811 but in vain. Subsequent attempts made by Mr. Jones and Mr. Beaumont also failed (Lahiri, 1934). Despite the common interest of extraction of maximum revenue from this virgin land, Sagar had other significance which attracted due attention. The government considered that reclamation of such a land may be usefully utilised due to its favourable climate. Cotton might be grown. The damaged ships could be repaired here and it would no longer be necessary to drag them all the way to Calcutta. The animals which were exported to Britain might be brought here in instalments and could be despatched after collection was complete. In such a scenic location by the sea, a sanatorium or health resort could also be built. After much consideration the then government decided to lease out the land free of charge for the purpose of cultivation and residential use. In 1817-1818, a Joint Stock Company of the Europeans and Indians was formed with a capital of 2.5 lakhs of rupees to carry out the reclamation. The collector proposed to lease out the lands free of revenue for 30 years and thereafter at a final rate of 4 annas per bigha (Re. 1/.528 hectare). The company was started in 1819 under the name of the "Saugor Island Society" and the lease was executed on 10th June, 1819. Considerable progress in reclamation was made in 5 portions namely Mudpoint, Ferintosh, Trowerland, Shikarpur and Dholbat. Thus Sagar began to function as a focus of new colonisation and exploitation of Sunderban with another centre at Henckelganj in the east. But severe cyclones and successive floods in 1833, and 1867 destroyed the human habitation and cultivated lands in Sagar.
With the considerable progress in reclamation and cultivation, next came the question of the claim of the state to demand revenue both from the lately reclaimed lands and from the forest. It seemed that the land had been reclaimed since the Permanent Settlement, but those in possession claimed to hold both land and forest as part of their estates at the revenue already fixed during Permanent Settlement. Asking for revenue from reclaimed lands became difficult because of intricacies of the claims, lack of trustworthy documents, etc. The British officers however overcame the difficulties, and by 1828 the state recovered all the lands surreptitiously encroached upon, and all the forests in 24-Parganas. Regulation III of 1828 also declared the rights of the state over the recent cultivation and the forest. It enacted that the boundary of the Sunderban forest should be determined by the Sunderban Commissioner and laid down by correct survey.

William Dampier, the Commissioner and Lt. Hodges, Surveyor, with their jurisdiction covering the entire Sunderban in Khulna and Backerganj, defined and surveyed the line of forest from the Jamuna up to the eastern limit of Sunderban during 1829 and 1830 (Philimone, 1954). Mr. Dampier formally affirmed Prinsep's line in 24-Parganas in 1832-33. 'Prinsep's line' and 'Hodges line' are the authoritative limits of the then Sunderban forest, while the map prepared by Lt. Hodges in 1831 from surveys made by himself and his predecessors has been the standard map of Sunderban ever since. He, too, like Prinsep, divided all the forests as far as the river Passur into blocks, and revised the numbering of Prinsep's blocks into a series numbered from 1 to 236. The aggregate area of these 236 Sunderban lots covered 1,702,420 acres or 6756.4 sq.km. No detailed survey of the forest had been made beyond the river Passur. After determination of the forest line till 1836, big encroachments were dealt with and smaller ones were left for future
action. The estates so resumed were settled and thus up to 1844 revenue was increased roughly by 2.5 or 3 lakhs rupees (Das, 1981). But the revenue of 8 annas per bigha (Re.1/.264 hectare) seemed to be very high for lotdars. The reclamation work in the wild animal infested marshy lands was hindered. So the scheme to reclaim about ¼th of the leased-out lots within five years from the date of arrangement failed. This failure caused rejection of quite a large number of grants (Devi Mahasweta, 1986).

3.2.2.1 RULES OF 1853

The grantees begged for more liberal terms and in 1853 new rules were published (Lahiri, 1924-33) the salient features of which were: (i) the grants were to be made for 99 years and were to be sold to the highest bidders;

(ii) the revenue assessed on them was reduced to about 6 annas per acre (Rs.36/.405 hectares) and did not become payable till the 21st year after a long and gradual enhancement commencing from the 21st year; and

(iii) reclamation was more carefully provided for, the grantee being required to have 1/8th of his grant fit for cultivation in five years, ¼th ten, 1/3rd in twenty and the whole in thirty years under pain of forfeiture. The earlier grantees had the option to give up their old leases and take fresh leases under the new rules. About 70 of the former grantees accepted it. Though there was much promise at the beginning, enthusiasm flagged and about 70 grants were forfeited, and from these and others, about 90 fresh grants were made.

In order to promote the settlement of Europeans in India, first after the Mutiny, Wasteland Rules were promulgated, in which two proposals were brought before the public for
the disposal of wastelands generally - either by selling them outright or by allowing land owners to redeem their existing land revenue by paying it off once for all by one capitalised sum. This scheme had mixed success. Applicants for land, preferred the Grant Rules of 1853, and wished to go back to them. F. Schiller's scheme of Sunderban reclamation was also a good proposal. He and eight other persons, European and Indians applied to the government in 1865 for purchasing the remaining ungranted wastelands, proposing to raise a capital of not less than one million sterling and to reclaim the lands by means of labour imported from China and Madras. But the public could not be induced to join and his effort proved unsuccessful.

About the year 1853, a proposition was made there to start a subsidiary port to Calcutta on the river Matla (Pargiter, 1934). The river was surveyed, and lot no. 54 was bought up for Rs.11000/- at the head of the river on the west side with an area of about 3345.3 hectares for constructing a ship canal and railway to connect the river with the Hooghly. Reclamation was started and the establishment of the Port Canning began about 1858. In 1862 the Port Canning Municipality was formed and formally obtained the rights of the land from the government. Attempts were made to raise public loans for the improvement of the town and port, but they were not attended with success. The company called the Port Canning Land Investment Reclamation and Dock Company Ltd., bought several lots. A railway was constructed between Calcutta and Port Canning but the port failed to attract trade and the scheme failed. Upto the year 1870, the rules of 1853 and 1863 had resulted in little additional reclamation, though considerable advantages were given to the lessee. The rules remained unpopular and the area leased upto 1870, i.e. 946 sq. miles (2403 sq km) with an ultimate revenue of Rs. 1,77,458 had by the year 1880
decreased to 787 sq. miles (2038 sq km) with an ultimate revenue of Rs.145,880. Only 5 fee-simple grants were in existence, covering an area of 27 sq. miles (70 sq km).

In 1870 however the policy of government was completely altered. Permanent settlement of government estates was forbidden and Khas management was encouraged wherever possible.

3.2.2.2 RULES OF 1879

The rules of 1853 had been discarded and the new rules were based on the draft rules of the Committee of 1871. This marked the origin of the Large Capitalist Rules of 1879. With some modifications Mr. Gomes' rules were forwarded by the Board to Government in May 1878. In view of the altered circumstances since 1853, the increase in population and the rise in the value of land, material alterations from the system of 1853 had been proposed. During this period, the whole of the available wasteland had been declared "protected forest". In order to prevent sporadic reclamation, it was suggested that 5,000 bighas (666 hectares) would be preferable as the maximum area. The Large Capitalist Rules introduced important new principles from their past experience of the outcome of the 1853 rule. The first important change was the limitation of the area of a grant to 5,000 bighas with a minimum of 200 bighas (26.64 hectares) the unlimited grants of 1853 had merely opened the way to the speculator. On the other hand, the clearance conditions of 1853 had been admittedly very severe. In order to relax this severity, a single clearance condition of 1/8th of the area by the end of the 5th year of the lease was inserted. To ensure early clearance the revenue-free period was reduced to 10 years and the succeeding rates fixed at higher rates and the term of lease was accordingly reduced to 40 years. The rules were
made for the whole of Sunderban excepting the protected forests which needed prior permission from the forest conservator. Government reserved to itself all rights go to mineral and its proprietary rights, giving to the grantee what was termed as 'hereditary and transferable occupancy right'. One fourth of the total area was forever exempted from assessment as an estimated allowance for unassessable land; the balance was leased free of assessment for 10 years (Ascoli, 1920).

The Small Capitalist Rules of 1853 were an attempt to cultivate virgin soil. Inspite of strong advice by the committee of 1871, direct settlement with cultivators was not successfully operative in practice, (excepting Henckell's plan of settlement with ryots in 1783). It had been realised that introduction of ryotwari settlement was not possible where expensive work was required for reclamation and where embankments might be necessary over an extensive area. The rules were only applicable to the marginal area of protected forest where no embankment would be required and no lease would be given without the permission of the forest conservator. Two forms of leases, one cultivation lease and the other a haoladari lease were prescribed. The former would presumably be given the status of ryot, the latter that of a permanent tenure holder. (Board of Revenue, 1913, 1916).

Though small capitalist rules were severely criticized but in some specific places such as Backerganj where both the systems were applied, the small capital system became more popular; the area taken up by small capitalist rules was twice that of the large capitalistic rules. The revenue taken up by the former was more than eight times that of the latter. Under the Small Capitalist Rules 86 per cent of the area leased had been cleared against 55 per cent under the Large Capitalist Rules. The great defect of the Large
Capitalist Rules was that it made no provision for the maintenance of embankments and thus tenants were placed at the mercy of the grantees or lotdars. Not only that, this rule created a series of middlemen between lotdars and tenants or cultivators in each case whether it was 200 or 5000 bighas. Above all, this rule did not satisfy the prime motive of the government, i.e. extraction of maximum revenue from this land.

3.2.2.3 RYOTWARI SETTLEMENTS

Under the above circumstances, a Committee appointed by the Board of Revenue during 1903 decided that it was essential to abolish the system of leases to capitalists, large or small and to proceed by direct settlements with cultivating raiyats and thereby, Ryotwari Settlement was introduced on an experimental basis. Small areas (maximum 75 bighas (20 hectares) and minimum 10 bighas (1.33 hectares) were let out to actual cultivators with government assistance by means of advance, by constructing tanks and embankments and by clearing jungles. This settlement rule began to operate at Backerganj in eastern, and Fraserganj, in western Sunderban. Although great success was achieved in Backerganj, Fraserganj did not show any significant success in reclamation. Here, the money expended for clearing the jungle surpassed its original estimation. So it was proposed that, while ryotwari settlements should be the ordinary method of reclamation, the Board of Revenue should be authorized to make settlements with capitalists in special cases. The Government of India accepted these proposals and on 15th February, 1919 the new rules were published. These rules are still in force.

Although from time to time different land settlement rules had been introduced in Sunderban, the major part of the reclaimed lands were settled according to 1879 and 1853
rules. Between 1894 and 1904 almost 1406 sq km of land in 188 numbers of lots was leased out according to the 1879 rule (Bartika, 1986).

By the end of the last century, almost the whole of the Patitabad area had been reclaimed and settlements evolved in groups at places. People from the districts of the northern part of 24-Parganas, Midnapore, Cuttack and Chotanagpur migrated into these tracts for the purpose of cultivation. The principal immigrants to the 24 Parganas-Sunderban were Oriyas from Cuttack and other parts of Orissa, Bunas from Chotonagpur or western Bengal. A bulk of immigrants came from Midnapore to the west Sunderban at Sagar and Kakdwip police station area. They originally came as malangis or salt manufacturers and as wood-cutters. Because of the abolition of government salt monopoly many of them had settled down as cultivators in various parts of western Sunderban (Hunter, 1875). The only immigrants in the extreme eastern Sunderban were Maghs from the Arakan coast. Many of them had settled down as cultivators.

Santhals, Bhumij, Mundas were also present in the Sunderbans. They were all immigrant labourers who had reclaimed the tiger and snake infested Sunderban by cutting jungles under very trying conditions. These nomadic tribes seldom liked to settle down at one place and they used to move from lot to lot.

3.2.3.0 SPATIAL NATURE OF COLONISATION IN SUNDERBAN

The process of colonisation had been extremely slow for a virgin land like Sunderban. It had always been lacking in communication facilities and facilities of sweet water supply which hindered any sort of activities and growth of settlement. Besides, the region suffered from very high incidence of deaths from attacks of wild animals, from malarious fevers, etc.
During the period of reclamation between the early 19th century till the introduction of the rule of 1853, reclamation work was satisfactory. The northern boundary of the mangrove forest shifted towards the south. But the rate of growth was much higher in the eastern Sunderban in Jessore and Backerganj than the western Sunderban in 24 Parganas. The factor which had severely restricted the cultivation in the west was very high salinity in the soil and water. Compared to the west, the eastern part enjoyed a lesser rate of salinity accompanied by an abundance of fresh water. Thus the reclamation process was very successful in the east where cultivated land extended up to the Bay of Bengal to the south. Within this period, an exceptional case, i.e. Sagar Island, in the west witnessed fluctuations in the reclamation of land. Quite a substantial amount of land had been cleared and cultivation was successfully started when repeated gales and cyclones in the years of 1833, 1834, 1842, 1863, 1867 ravaged the island (Pargiter, 1934).

Though Henckel was not totally successful in his plan but it opened up new avenues in the process of reclamation. Since 1783, the cultivated area had increased very fast. Apart from the lands leased out to individuals, zamindars in the adjoining area extended their zamindary into swampy forests by illegal reclamation. Within 40 years or so a vast tract constituting of Patitabadi taluk, Jangalbari taluk and also the extended southern part of old zamindary areas showed slow progress in reclamation. Excepting a few cases early reclaimed lands were naturally confined to the southern part of the Permanent Settlement zone i.e. to the northern part of Sunderban. Apart from 'Henckelganj in the present Hingalganj, the parganas Hatiyagarh, Shahpur and Khari (presently within the Diamond Harbour sub-division) were first to experience substantial reclamation (Board of Revenue to Sunderban Commissioner, 20th December 1816). Continuous reclamation and extension of old zamindaries led to acute boundary disputes between neighbouring zamindars and also the state. The
government thus felt it necessary to demarcate by a line public lands from private property in order to prevent future encroachment. Prinsep's map which was made on the basis of his survey between Pranpur on the river Jamuna to the Hooghly a little below Kulpi (290 km.) during 1822-23, covered about 65,300 hectares of which all was jungle except some 666 hectares that had been reclaimed in the previous three or four years. (Pargiter, 1934). The work resumed after 1867 when some compulsory measures for protection were introduced.

In the Basirhat sub-division, reclamation proceeded on a considerable scale. The reclamation work was done through the agency of zamindars, companies and private individuals. Considerable amount of reclamation work was carried on by the zamindars namely Nagchaudhuries of Arbarlia, the Babus of Taki and the Ghoses of Sripur. Among private individuals Babu Ashutosh Dhar, a pleader of the Calcutta High Court deserves mention. By the end of 1885, almost 31 lots were wholly reclaimed and about 10 lots were partially reclaimed (Secretariat Press, 1886).

The early reclamations were made by ryots who originally came from Doro, Gumgarh, Mahisadal and other places in the districts of Midnapore and Hazaribagh, and permanently settled themselves in the reclaimed tracts. The reclamations which were being carried on during the mid 1880s were made by ryots who came from some neighbouring abad and settled down in the tracts under reclamation. There were cases especially in the southern part of Basirhat sub-division, in which people from Jessore and Nadia districts, and also from the northern part of the sub-division temporarily immigrated during the harvesting season and returned home thereafter.

The difficulties which were practically found to exist in the way of different schemes of reclamation in Sunderban
were want of sweet water for drinking and sufficient number of ryots who could be induced to come and settle down. In one case about 5000 bighas of land were cleared at Helancha, but the cleared tract relapsed into jungle within a short period because of want of sweet water.

In spite of successive gales and cyclones, as already mentioned, Sagar Island showed a remarkable development in reclamation. Six portions of the island viz. Mudpoint, Perintosh, Shikarpur, Trowerland, Bamankhali and Dhoibelat were granted in 1875. The reclamation started steadily. Under the rules of 1897, 14 grants were available for settlement. Of these, Chak Phuldubi, Ramkerer Chak (W), Goaliachak (first), Manasadwip (first) and Manasadeip (third) were settled strictly (Lahiri, 1934). Under special terms Trowerland (second), Shikarpur (second) and Goaliachak (second) grants were made. In 1904, the early rules were suspended when it was decided to introduce a system of ryotwari settlement rules. Thought it was suspended in 1910 it was again introduced in 1919 inspite of the failure of ryotwari settlement in Fraserganj. By this time the island had gained about 17,000 people distributed over its different parts. Most of the people were brought in from the district of Midnapore mainly from Kanthi sub-division.

In the extreme eastern part Sir Daniel Hamilton got four Sunderban lots, under the Gosaba Estate, viz. Gosaba island, lot no.149, lot no.143 and lot no.148. Of these he took the leases of the first three lots in 1903 for a period of 40 years and the last one was taken by him in 1909 for the same period. He had to import labour from distant places as there was no habitation close by. (Mazumdar, 1932). In the census of 1911, the population of this estate was about 900 and by that time about 10,000 bighas (1332 hectares) of land were enclosed. There was no income of the estate at that time. By 1920, the population rose to about 666
hectares and the total bunded and reclaimed area was about 3466 hectares. During the period of 1921 to 1928 the total reclaimed land increased up to about 4933 hectares. Within next 10 years the bunded area had increased to 6533 hectares and the population had gone up to more than 10,000 (Mazumdar, 1932).

3.3.0.0 GROWTH OF POPULATION

The growth of population in any part of the world corresponds with two facts: the first is the natural increase; and the second, the continual migrations which take place under a great variety of circumstances. In case of Sunderban, dearth of data regarding birth rate, death rate and migration restrict a proper analysis of the natural increase and the character of migration. The available data relating to the total population in different census periods and inter-censal growth rate certainly produce quite a significant picture about the spatio-temporal variations in population growth in Sunderban.

It is difficult to be precise about the growth of population in Sunderban, as the boundaries of different police stations frequently changed even in recent part. However, it can be estimated that Sunderban had 2,96,045 people in 1872, 7,54,421 in 1931, 11,59,559 in 1951 and 32,05,528 in 1991 (Table 7 and 8). These tables show an increasing growth of population. Prior to the independence in nearly seventy years from the first census (1872) about eight and half lakhs of people were added to Sunderban whereas in the post-independence period, only within forty years than twenty lakhs of people have been added to the population increased by more than 20 lakhs.

The process of colonisation has gone on for more than hundred and fifty years with a slow growth of population due
to different reasons. Small peasants, share-croppers and landless labourers were among the first who immigrated into Sunderban from the western parts of Midnapore and Bankura and from Purulia of West Bengal, as well as Singhbhum and Santal Parganas in Bihar and from Cuttack district in Orissa (Hunter, 1877).

Initially cultivators did not stay permanently. Their presence was dependent on the agricultural season of Sunderban when they came to plough their respective plots of land. During the rest of the year they remained in their homelands outside Sunderban. Landless agriculturists and labourers who came here to clear and reclaim the lands were the first to settle permanently.

The Oriyas, Bunas, Oraons and Santals originally came as malangis or salt manufacturers and wood cutters. They along with other tribal people played a very significant role in the reclamation of Sunderban. They, later, settled in various parts of Sunderban. Apart from these immigrants, a huge population came from the adjoining areas mainly from the northern part of 24-Parganas, Nadia and from Jessore and Khulna. In fact, these immigrants account for the major section of population in Sunderban.

The growth of population has been directly related to the development of reclamation activities in the initial years. The success of reclamation at any place was broadly dependent on several factors like favourable natural conditions, strategic locations from where people thought they could exploit the resources and could create provisions for economic activities other than jungle clearing. The northern part of Sunderban had the privilege of having all these facilities. Being a part of the more mature section of the delta, the entire-northern part enjoyed an uninterrupted stretch of land with lesser salinity which accelerated the process of reclamation. Moreover, the nearness of the tract to the old settled area prompted the zamindars of the
adjoining tracts to extend their landed property. Apart from this, the tidal creeks and channels mostly terminated before reaching this northern peripheral area. So both the agricultural crops and the forest products collected from the interior could easily be brought in through those rivers upto this zone. As a consequence, quite a number of collecting centres sprung up as important markets. These markets situated at the end of landroutes, either through roadways or railways or even through waterways like the river Bidyadhari and Piali used to supply the resources to Calcutta from Sunderban. They later on, exerted a tremendous impact upon the growth of population in the surroundings and turned into such big clusters of settlements as Hingalganj, Hasnabad, Kaliganj, Nezat, Canning, Joynagar, Nalua, Khari and Raidighi. These market settlements attracted a continuous flow of population till dale to become exceptionally large villages or towns. The growth of population at the northern margin was accelerated by the construction of railway lines (Calcutta-Sonarpur-Magrahat-Diamond Harbour and Calcutta-Sonarpur-Canning) in the year 1862-63 and external economic developments connected with the proposed establishment of port Canning as a subsidiary port to Calcutta at Canning on the left bank of the river Matla. Though the project failed, the infrastructural facilities created for the development of the port attracted significant number of people to settle in this part. All these interacting factors led to a significant population growth in the northern and north eastern part starting from Mathurapur in the west to Joynagar, Canning, Haroa, Hasnabad and Hingalganj in the east. Table 8 shows a huge population concentration in the central part in Joynagar and Canning which alone contained 47 per cent of the total population of Sunderban. It should be mentioned here that only the northern part (present Canning and Joynagar) was occupied by human habitation leaving the entire southern part (present Basanti and Kultali) unexploited. The north and north-eastern Sunderban (present Haroa,
Minakhan, Hasnabad, Hingalganj, Sandeshkhali, Gosaba) constituted about 28 per cent of the total population of which the lion's share went to Haroa, Hasnabad, Sandeshkhali and northern part of Hingalganj. The entire southern part entire present Gosaba was unexplored. The western Sunderban (except northern Mathurapur) were mostly under marshy conditions, not fit for agriculture. Out of its 25 per cent share of the total population northern Mathurapur accounted for the maximum number of people.

Throughout the pre-independence census period from 1872 to 1931 different tracts maintained almost a constant proportion of population of the total of Sunderban. The growth of population was maximum in the central part throughout. The percentage never dropped below 40 per cent upto 1911 (Table 7) after which the figure slightly decreased. On the contrary, the western and southern part never exceeded 30 per cent. During the early phase the figures were much lower. Northern and north-eastern parts accounted for 30-32 per cent of the total population on an average.

Though the growth of population of different tracts in relation to the total population of Sunderban maintained some constancy early, the intercensal growth rates of different police stations exhibited remarkable temporal variations. The central tract, the most populous tract showed ups and downs in the intercensal growth rates. The period 1872-81 saw a low growth rate followed by rising rates in 1881-91 and 1891-1901. This rise in population growth owed much to the new excavation of three important drainage schemes namely Charial bil, Balli bil and Satpukur-Kulpi-Tangrabichi drainage schemes during this period resulting in further reclamation of extensive acres of swamps for agriculture in Kultali, Canning and a small portion in Basanti. The successive period from 1901 to 1921 observed a sharp decline. The growth rate started increasing since 1921 onwards. The north and
north-eastern parts witnessed very high growth rates during 1872-1881 (40 per cent) which dropped down sharply in next two census period. The period 1901-11 observed a high growth rate in the north and north-east as huge activities started in Gosaba island after Sir Daniel Hamilton had taken lease of land in 1903-4 in a part of Gosaba which was commonly known as 'Hamilton's abad'. After a slow start the work progressed steadily and the island witnessed a considerable population growth. During 1911-21 this part experienced a steady rise especially in Sandeshkhali.

In case of the western part the growth rate was moderate during 1872-91 which sharply increased during 1891-1901 as new areas were rendered fit for agriculture in southern Kakdwip and Namkhana. In the subsequent period, this tract enjoyed further reclamation largely due to the Magrahat drainage scheme which was executed between 1904 and 1911. During this period, the extreme southern part of Patharpratima under 'G' plot, 'L' plot and 6th portion were cleared and rendered fit for cultivation resulting in an impressive growth of population at the delta face. Table 8 brings out an interesting feature showing increasing population growth rate in the western part while in rest of the area the population had been growing at a significantly declining rate. The intercensal period of 1921-31 observed a steady growth rate with an unprecedented rise in Sagar. The authenticity of the 1941 census being questioned widely, no definite statement can be made about the 1931-41 and 1941-51 intercensal periods. While concluding the discussion on the early growth of population in Sunderban a simple feature comes out: the northern tract stretching from the north-west to the extreme east had become quite populous by the time India got independence. Though the western and southern tracts lagged much behind yet the population started increasing in this part also.
# TABLE 7

## DECADAL GROWTH OF POPULATION IN SUNDERBAN FROM 1872 TO 1931

<table>
<thead>
<tr>
<th>Police Stations</th>
<th>1872</th>
<th>1881</th>
<th>1891</th>
<th>1901</th>
<th>1911</th>
<th>1921</th>
<th>1931</th>
</tr>
</thead>
<tbody>
<tr>
<td>Canning</td>
<td>71133</td>
<td>75409</td>
<td>84401</td>
<td>97694</td>
<td>109305</td>
<td>115527</td>
<td>131632</td>
</tr>
<tr>
<td>Joynagar</td>
<td>68344</td>
<td>76140</td>
<td>91020</td>
<td>107969</td>
<td>123866</td>
<td>130930</td>
<td>146289</td>
</tr>
<tr>
<td>Mathurapur</td>
<td>43438</td>
<td>50453</td>
<td>58638</td>
<td>72137</td>
<td>87646</td>
<td>108025</td>
<td>132764</td>
</tr>
<tr>
<td>Kakdwip</td>
<td>22399</td>
<td>26919</td>
<td>31755</td>
<td>40266</td>
<td>45370</td>
<td>51970</td>
<td>65804</td>
</tr>
<tr>
<td>Sagar</td>
<td>8381</td>
<td>10072</td>
<td>11881</td>
<td>15065</td>
<td>16975</td>
<td>19445</td>
<td>31505</td>
</tr>
<tr>
<td>Haroa</td>
<td>27523</td>
<td>38943</td>
<td>47500</td>
<td>51552</td>
<td>62739</td>
<td>74451</td>
<td>74839</td>
</tr>
<tr>
<td>Hasnabad</td>
<td>32063</td>
<td>45366</td>
<td>55335</td>
<td>60055</td>
<td>73086</td>
<td>86729</td>
<td>90872</td>
</tr>
<tr>
<td>Sandeshkhali</td>
<td>22764</td>
<td>32210</td>
<td>39288</td>
<td>42639</td>
<td>51891</td>
<td>61577</td>
<td>88295</td>
</tr>
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<td>355512</td>
<td>419818</td>
<td>487377</td>
<td>570878</td>
<td>648654</td>
<td>754421</td>
</tr>
</tbody>
</table>

### TABLE 8

**Decadal Growth of Population in Sunderban Since 1951**

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Haroa</td>
<td>64340</td>
<td>83836</td>
<td>101749</td>
<td>134143</td>
<td>151100</td>
</tr>
<tr>
<td>Minakhan</td>
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<td>49255</td>
<td>63367</td>
<td>76564</td>
<td>137361</td>
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<tr>
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<td>142483</td>
<td>159265</td>
<td>181536</td>
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<td>142291</td>
</tr>
<tr>
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<td>103443</td>
<td>140844</td>
<td>168335</td>
<td>200514</td>
</tr>
<tr>
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<td>19475</td>
<td>248754</td>
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<tr>
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<td>96369</td>
<td>136043</td>
<td>172353</td>
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</tr>
<tr>
<td>Joynagar</td>
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<td>175231</td>
<td>216761</td>
<td>254473</td>
<td>382823</td>
</tr>
<tr>
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<td>81248</td>
<td>119809</td>
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<td>156450</td>
</tr>
<tr>
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<td>161616</td>
<td>208426</td>
<td>244609</td>
<td>314870</td>
</tr>
<tr>
<td>Patharpratima</td>
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<td>160493</td>
<td>197686</td>
<td>245601</td>
</tr>
<tr>
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<td>127701</td>
<td>166777</td>
<td>190088</td>
</tr>
<tr>
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<td>29775</td>
<td>41609</td>
<td>56678</td>
<td>74156</td>
<td>134354</td>
</tr>
<tr>
<td>Sagar</td>
<td>51643</td>
<td>73629</td>
<td>91229</td>
<td>115228</td>
<td>154202</td>
</tr>
</tbody>
</table>

| Sunderban       | 1159559| 1532102| 2003097| 2455365| 3205528 |

**Source:**
- Census of India,
- District Census Handbook: 24-Parganas
  - 1951
  - 1961, Vol.II
  - 1971, Series 22, Part-XB
  - 1991, District primary census abstract
    (National Information Centre Network)
Since independence the demographic character has changed a lot. Apart from natural increase, the population influx caused by refugee immigration due to the partition of undivided Bengal caused a serious problem of population in the whole state also affecting Sunderban. The eastern districts bordering the then East Pakistan were overburdened with refugees from East Pakistan. Police stations like Hasnabad, Hingalganj, Haroa, Minakhan and Sandeshkhali had to share the major part of the additional population. Some of this refugee population, later moved to other parts to settle permanently in Basanti, Gosaba, and Kultali.

The decade 1951-1961 saw the maximum growth rate in almost all the police stations with a few exceptions. Sunderban gained about four lakhs of additional population during this period. If we consider the numerical figures, the northern peripheral zone of Sunderban extending from Kakdwip in the west through Mathurapur, Joynagar, Canning, Haroa, Minakhan, Hasnabad to Hingalganj in the east, enjoyed the maximum growth of population. This was the oldest and the most populated part of Sunderban which shared about 61 per cent of the total population of Sunderban as against its 49 per cent share of total geographical area. On the other hand, the southern delta face consisting of Sagar Namkhana, Patharpratima, Kultali, Basanti and Gosaba shared only 30 per cent of Sunderban's total population while covering 51 per cent of the total area. But if we consider the rate of population growth during this period (1951-61) then it is observed that the western and southern Sunderban had higher growth rate much above the average of Sunderban whereas the population growth for the same period is below the average of Sunderban in case of the northern strip of land. (Table 8).

In the period between 1961-71 Sunderban had an additional growth of more than four and a half lakhs of people though the growth rate was slightly lower than in the previous
period. The south-western part excluding Sagar witnessed the highest growth rate as shown in table 9. In four police stations of Kakdwip, Namkhana, Patharpratima and Mathurapur, growth rate exceeded Sunderban's average. The four police stations of Canning, Basanti, Kultali and Gosaba in the central part attained high growth at a faster rate compared to the early records. The northern parts had a very large population growing at a declining rate and below the average for Sunderban.

The subsequent period between 1971-81 saw a surprisingly low growth. Not only the rate of growth but also the absolute increase was also lower than in the previous decade. Except Haroa, Hingalganj and Sagar, in all police stations the growth rate had declined compared to 1961-71. Areas with higher growth rates such as, Canning, Kultali, Basanti, Gosaba in the previous census suffered from declining rates. Haroa and Hingalganj had a large additional population with a high growth rate. But in the adjoining areas in Hasnabad, Minakhan and Sandeshkhali the rate of population growth dropped down at a significant rate.

The decade from 1981 to 1991 added about 8 lakh persons and recorded a rise of 30.56 per cent. Tremendous increases were recorded by Minakhan, Joynagar and Namkhana while Kakdwip, Kultali and Haroa recorded a steep decline in growth rate.

The above review of the growth of population in Sunderban collectively and in its different parts and police stations throws up some generalisation. Firstly, Sunderbans have two periods of population growth, the first is a period of slow growth between 1872 to 1931 and the second is the period of exceptionally fast growth between 1931 and 1991. In this respect one should not forget that almost the whole of present West Bengal suffered the same lot during the same period (Biswa, 1981). It implies that Sunderban did not escape
from the phenomenon of a total agro-ecological degeneration that started from the middle part of the nineteenth century to the end of the first quarter of the present century in the permanently settled areas of Bengal. Secondly one can very well see the ascendancy of the northern peripheral areas during the early part of colonisation but the late growth of the southern areas during the post independence era. The most plausible explanations may be sought from the tendency of all reasonably well populated areas to curve their growth rates after the carrying capacity of land is fully exploited and of all less populated areas increased their rate of growth as an inevitable reaction to the processes operating beyond their own limits, which is why spatial redistribution of population in Sunderban in relative terms started taking place only after the most densely settled areas reached their point of saturation at the given level of technology. Fourthly, there are some methodological issues concerning the area of different police stations, their absolute population size, their densities and their activities all of which are expected to make a logical interrelationship. These issues are likely to clarified when we shall discuss the homogeneity and diversity of the occupational mix of the work force in Sunderban and the spatial variations therein.

3.4.0.0 RELATIONSHIP BETWEEN PHYSICAL ECOLOGY AND HISTORY OF COLONISATION

As we have already examined the physical ecology as an integral of several components and history of colonial processes with distinct spatio-temporal characteristics, we shall now pass on to the inter-relational aspects of these two. In the previous chapter, special attention was given to discuss the ecology of two extreme parts, the north-eastern and the south-western tract of Sunderban. The discussion on colonial history has pointed out that these two tracts containing Sagar and Hingalganj were the foci of early colonisation and
land reclamation. The origin of the activities of human settlement and cultivation in these two places were the outcome of a favourable relationship between physical ecology and history of colonisation. These two regions exhibit a favourable ecological set up so that reclamation processes through jungle clearing and felling of trees could be easier and successful. The north-eastern tract was the most mature part which provided stable terrain with some source of fresh water which really favoured the labourers during their work and the settlers. This region was relatively free from salinity and tidal ingress which means that while the plot was cleared it remained so for quite a time because fresh mangrove seeds could not be immediately supplied to the land due to the relative absence of tides. Otherwise, the process of jungle clearing in Sunderban normally became impossible as the cleared lands turned into jungles very soon if it remained fallow for a few months. It has also been mentioned that Sagar island exhibits quite an atypical character which never attained the estuarine-deltaic vegetational climax. The forest even being dense was never luxuriant making the clearing easier. Moreover, even the damages caused by frequent floods and tidal ingressions were compensated for at a faster rate than in any other part of Sunderban due to the fresh water supply through the Hooghly. The entire southern and south-central part did not provide opportunities due to their unfavourable natural condition. The saucer-shaped islands and their proneness to tidal ingress would increase the stagnation of water. This process stimulated the re-growth of mangroves on cleared plots even within a few weeks. Scarcity of fresh water and the salinity of water and soil, further enhanced the problem of reclamation. Thus, we find that almost the entire southern part consisting of Namkhana, southern Kakdwip, Patharpratima, Kultali, southern Canning, southern Basanti and Gosaba registered the modern reclamation process only during the early part of the present century.