CHAPTER ONE
SALT - THE WORLD, INDIA AND GOA

1.1 Introduction

As one of the oldest commodities used in man's food, salt occupies an important place in the history of human civilisation on earth. The value of salt was known long before man began to write history. One can state without much exaggeration that history of salt is the history of human civilisation. Salt is a mineral of universal distribution, which makes the production of salt as one of the widely distributed mineral industries. The earth which is rightly considered a water planet as land occupies less than one third of its surface, has 1350 million km$^3$ of water in its oceans which hold unimaginably huge quantities of salt. Although salt is available in different forms including rock salt deposits, brine, i.e. salty water, is the source of all salt on the earth. Man began to consume salt as an essential commodity in his diet, when, in the course of time, he substituted raw food by cooked food. Salt has come to occupy such a significant place in the modern world that salt and salt-based products have become important determinants of industrialisation all over the world.

Since ancient times, salt has played an important role in the economic life of India which is today one of the leading producers of salt. The country produces most of its salt by the method of solar evaporation of sea water and natural brines. Goa was known to the ancient India as one of the important salt-producing regions, situated on the west coast of India, and favourably suited to solar salt works. The present chapter discusses the varied aspects of salt and its importance in the context of the world, India and Goa.

1.2 Salt - Its Properties and Sources

Salt is a mineral substance whose chemical name is sodium chloride and its chemical formula is NaCL. Sodium Chloride is the simplest type of chemical salt. It consists of the elements sodium and chloride and its mineral name is Halite.$^1$ It is called common salt to distinguish it from a class of chemical compounds called salts. Salts usually form clear crystals that are almost perfect cubes.$^2$ Its physical form at room temperature is colourless, transparent or translucent cubic crystals. It is a clear
and brittle mineral. Although salt is colourless when it is pure, impurities in it may make it appear to be white, grey, yellow, red, brown or blue. It is hygroscopic in the sense it absorbs atmospheric moisture and in pure form will lump together unless counter measures are taken. Its density is such that it is 2.165 times as heavy as water at 0 degree C. (32 degree F). The melting point of salt is 800 degree C. (1472 degree F), which is bright red heat. Vapourisation begins near this temperature. It dissolves easily in cold water, a little more readily in hot water. 100 parts by weight of water dissolves 36.0 parts of salt at 20 degree C. (68 degree F). The specific gravity of such solution is 1.2. Salt is also soluble in glycerin, slightly soluble in alcohol or liquid ammonia, and insoluble in concentrated hydrochloric acid.³ Chemically, salt is a compound and, as such, it is formed when hydrogen ions of hydrochloric acid are replaced by the sodium ions(cations) of sodium hydroxide. A molecule of common salt contains an atom of chloride combined with 23 parts by weight of sodium to form 58.5 parts of common salt. Pure sodium chloride is not deliquescent. It, however, absorbs moisture on account of the presence of magnesium chloride. The specific gravity of salt crystals is 2.16. It is fairly hard. As per Moh’s table of hardness, the hardness of salt is 2.5. Salt has acoustic properties, i.e., it is a good medium of sound transmission. The smallest quantity perceptible to taste is 68 grains of salt dissolved in a gallon of water.⁴

The source of all salt - even deposits that are located underground - is brine(salty water) from seas, salt lakes and similar bodies of water. Salt deposits that now lie underground were formed by the evaporation of sea water, millions of years ago.⁵ Although the material that gives sea water its salty flavour is comprised of many substances, sodium chloride is the most predominant compound among these substances.⁶ The salinity of the ocean water is 33 to 38 parts per thousand, containing virtually, all elements although in minute amounts. The average salinity of sea water is about 3.5%. Sulphate, chloride, sodium and magnesium constitute major percentage of the dissolved substances. Sodium and chloride together forming common salt, however, contribute more than 85% of the substances dissolved in the ocean water.
Salt makes up almost 80% of the total dissolved solids in ocean water. The proportion of most dissolved elements are remarkably constant.

Sea water is salty because rain water dissolves minerals containing sodium and chlorine in rocks and soil, and rivers carry these minerals to the sea. Thus, the dissolved salts in the sea come from weathering on the continents. As mentioned above, earth is a water planet since land occupies less than 1/3rd of its surface and has 1350 million km$^3$ of water in its oceans. With a surface area of 362 million km$^2$ and a mean depth of 3.8 km., the oceans hold enough salt to cover Europe to a depth of 5 kms. If the oceans of the world were completely dried up they would yield at least 4500000 cubic miles of rock salt, or about 14.5 times the bulk of the entire continent of Europe above high-water mark. Sea water contains on an average about 3% of salt, although the actual concentration varies from about 1% (in the polar seas) to 5%. The other minerals contained in the sea water, which are mostly compounds of calcium, potassium and magnesium, are about 1%. The colour of sea water is affected by the percentage of salt in it. As the quantity of salt decreases, the colour changes from blue to green.

In the ancient world, almost all of the salt used in commerce was produced from the evaporation of sea water, although other sources were also tapped, but to a smaller extent. The people knew the technique of entrapping the sea water by damming off flooded areas, during high tides just before the dry season. This process was known to the Indian people during the Vedic age. The sea water was moved through a series of evaporating ponds in order to, finally, extract the crystals of salt. Much salt is now produced in the arid countries by this method. In almost all countries the process of solar evaporation of sea water is similar in principle, although details of evaporating ponds vary with local conditions.

The ancient world knew, also, the technique of extracting salt from the beds of rock salt. This process was known to the people of the Bronze age. This source is tapped by mining or quarrying the beds of rock salts by way of excavation. Much before 300 B.C., salt was extracted from the salt mines of the Northern India. Rock salt is now extracted not only by usual excavation methods, but also by dissolving the
rock salt by pumping water down the salt strata through the specially drilled wells and treating the returning brine the way the natural brines are done. Another source of salt extraction which was known to the ancient world, was the exploitation of natural brines found in large parts of the world. The method of solar evaporation was being adopted to extract salt from the brines. In modern times, on account of impracticability of manufacturing salt by means of solar heat, artificial heat is used to concentrate and evaporate the brines, in England, Germany, the U.S.A. and some other countries. Salt is also obtained from the artificial brines which are created by pumping water into wells drilled into underground salt beds and then pumping up the aqueous solution of salt.

As a mineral of universal distribution, salt is obtained from the following sources: (1) Sea. It is the biggest storehouse of salt. Common salt forms 76% of the total salts dissolved in sea. Sea contains 58,000 cubic miles of salt. (2) Salt lakes. It is another store of salt. Dead Sea and Sambar Lake (India) are the examples of salt lakes. (3) Brine springs. They are subterranean streams impregnated with salt from percolating through saliferous strata. They are found in the U.S.A., England, Germany and some other countries. (4) Spontaneous salt or naturally formed surface salt. It is found in many parts of the world. In India, Uttar Pradesh and Coromandel coast in Tamilnadu are the regions where such salt is found. (5) Rock salt. It is mined in many countries which include U.S.A., France, Pakistan etc. In Pakistan, Punjab Salt Range contains some of the richest deposits of rock salt in the world. In India rock salt deposits are found in Mandi in Himachal Pradesh. Leading producers of salt include the U.S.A., China, Russia, Germany, India, France, Great Britain and Canada. Poland, Rumania, Spain, Netherlands, Israel, Mexico, Brasil and Australia are also contributing substantially to the world production of salt. Among all these salt producing countries, the USA is the largest single producer of salt. In 1905 its annual production was 3,297,285 tons which increased to 23,320,000 tons in 1961 and to 35,819,000 metric tonnes in 1985. The world production of salt was 84,730,000 tonnes in 1961.
Salt is obtained by the following methods:-

1. Solar evaporation. Sea water, natural brine from lakes or wells, or brine obtained by lixiviation of salt earth are subjected to solar evaporation to produce salt.

2. Artificial evaporation: Brine is subjected to artificial evaporation in open pans. Evaporation of brine is undertaken by direct fire or by steam or in vacuum evaporators.

3. Freezing of sea brine. This leads to saturated brine and separation of salt.

4. Mining of rock salt. Rock salt is extracted by dry mining method or by injecting water into the deposits of salt through tubes sunk into these deposits and, thus, creating saturated brine.

As regards the sources of salt production in the world, one notices that the world production of salt is derived mainly from the natural brines. The proportion of the salt obtained from evaporation of sea water to the total world production is very small as compared to other sources. Extraction of salt through the method of solar evaporation of sea water is undertaken in France, Portugal, Spain, Italy, the USA, India, some of the formerly USSR countries and in almost all other maritime countries. The manufacture of salt by exploiting the natural brines takes place in the USA, Austria, France, Germany and in the Dead Sea. Great Britain also has natural brines. The rock-salt deposits are largely found and exploited in the USA and Europe. In Europe, Germany and Russia, in South America, Argentina, and Mexico and in Asia, China are the countries which have large deposits of rock-salt. Such deposits also occur in the Lower Cambrian of the Punjab Salt range in Pakistan and Iran. In India, some rock salt deposits are found in the areas near Mandi of Himachal Pradesh. However, production of salt here is not substantial. Interestingly, South American countries are exploiting their rock salt deposits rapidly, with Brasil being the largest producer among these countries.

1.3 SALT IN THE HISTORICAL PERSPECTIVE OF THE WORLD

The economic significance of salt is indicated by many facts in the history of the world civilisation. There are many theories explaining the origin of salt. But the
Aqueous theory is the present accepted theory. It explains the origin of salt by stating that salt deposits are the result of deposition from sea waters. The habitual use of salt is closely connected with the advance from nomadic to agricultural life. Man living in the primitive society did not know how to make salt. Since man in this society was eating raw or roasted meat he could get all the salts contained in his food and, so, there was no need to consume salt separately. As people started eating cooked food -- either vegetarian food or cooked meat, salt became an essential commodity in their daily diet. It began to be regarded as God's gift. Homer described it as a divine commodity, and for Plato and Pthagorous, it was God's favourite commodity. For Plinio, salt and soil were things more necessary in the world. Historically, salt is one of the oldest materials used in man's food. The Pen Ts'ao, a very early Chinese book on medicine gives more than forty uses of salt. The preservative qualities of salt made it a fitting symbol of an enduring agreement, and influenced the choice of this particular element of the covenant as that sealed an obligation to fidelity. Hence, the Greek saying, "Trespass not the salt and the board", the Arab avowal, "There is salt between us", the expression, "to eat the salt of the Palace", and the modern Persian phrase, "Namak Haram" (i.e. disloyal or ungrateful). In the olden days in Goa, whenever people suspected that a person was telling a lie, he was asked to swear on salt (or on betel leaf or cowdung) to prove that he was telling the truth. There was a time when people valued salt as much as rare minerals and oils. Salt was often traded 'ounce for ounce' for gold. In the ancient Greece, slaves were bought with salt. For Greeks, it was a sacred commodity and was used as a part of offerings to Gods. Thus, the economic significance of salt is indicated by the social, cultural and religious beliefs and attitudes of the people in the ancient civilisations. It is further revealed by the use of salt as money in many parts of the world extending from Africa to Far East. Marco Polo has described in his travelogue that salt was used as money in Siam, Borneo and China. Cakes of salt were being used as money in Abyssinia, Tibet and in certain other parts of the world. The Sama Nagas used flat cakes of salt for making small payments. Because of its extreme scarcity, the commodity was
measured equal to gold in Sahara and Sudan. In the 16th century, in the lands of Adilshah of Bijapur, salt was being purchased by its weight in copper.  

The importance of salt in the ancient period can be gauged by the fact that the world salary is derived from the Latin Salarium—the money allotted to Roman soldiers to buy their salt. During the ancient times, salt was an important commodity entering into international trade all over the world. It was a great merchandise of China. In the 16th Century which is a more recent period, 500 junks (Chinese ships) were carrying salt all over the world and salt trade was bringing huge profits to the Chinese traders. Salt trade tells us about the ancient highways of commerce. The via Salaria was one of the oldest roads in Italy through which "the produce of salt pans of Ostia was carried into the Sabine country". The caravan route uniting the salt Oases of the Lybian desert mentioned by Herodotus was mainly a salt route. The trade between the Syrian ports and the Persian Gulf involved the transport of the salt of Palmyra and the ancient trade between the Aegean and the coasts of Southern Russia was largely relying on the salt works at the mouth of Dnieper. A number of cities including Genoa, Pisa and Venice developed as centres for salt trade. In the middle of the 15th Century, Portugal's salt had attained international relevance and it was mostly exported to the Northern Europe. In India, Susruta, the father of Indian medicine speaks of 4 kinds of salt. In India, much before the invasion of Alexander, the Great, around 327 B.C., salt was extracted from the salt mines of the Northern India and transported to different parts of the country. Salt extraction from Sambhar lake in India started in the 6th Century A.D.

The economic significance of salt in the ancient as well as modern times is clearly indicated by the government policies in respect of salt. Salt was so important a commodity in the middle ages that governments in those days often took over the salt trade as a state enterprise. In many eastern countries, in the 9th century A.D., salt was a government monopoly. Many governments were exercising monopoly in the manufacture of salt. In many eastern countries, salt came first as a source of government revenue, followed by tea. As salt was a sure source of revenue on account of the commodity being a necessary, governments of all the times were always in fore-
front to impose its monopoly on the manufacture and sale of salt and/or levy heavy taxes, many a time oppressive imposts, on the manufacture and sale of this commodity. India was one of such countries which followed this oppressive practice and, thus, made salt a commodity beyond the reach of the poor people. Most of the countries were covering their military expenses, salaries of the government servants and many other items of expenditure by way of the receipts of salt tax. Since salt is a necessity of greatest importance, there are instances in the history of the world, in which countries have used salt as a weapon to bring their enemy countries into submissiveness. This they have done by cutting off the supplies of salt to the territories of their enemies. To force the rulers of Cylon into submission, the Portuguese had devised a plan to cut off the supply of salt, alongwith clothes and opium, to Cylon for three years. King Philip of Portugal had given orders to carry out this plan.

1.4 SALT IN THE INDIAN PERSPECTIVE

India is one of the leading producers of salt in the world. Most of the salt produced in India comes from solar evaporation of sea water and natural brines. Indian climate is conducive to salt production from sea water and natural brines. With an abundant source of salt water on both west and east coast of the country, availability of large tracts of lands for evaporating ponds with soil preventing the sipping of water into it, in many coastal regions, and hot climate to hasten evaporation, India is favourably suited for solar salt works. Salt obtained from evaporation of sea water in India constitutes about 75% of its total salt production. As mentioned above, in the ancient times, besides solar salt which was produced in coastal regions of the country, mining of salt was carried out in the Northern India, much before 300 B.C. This salt was transported to far and near places in India. Salt extraction from Sambhar lake had started in the 6th century A.D. Before the advent of Muslims, the people of India were procuring salt, which was an absolute necessity to them on account of hot climate of India, from the salt works on the sea coasts and from various rock salt deposits, notably in the Salt Range in Punjab.

Salt mines were found in an extensive area in Punjab. Kutch Runn was also an important area where salt was extracted. Solar salt works were operating on the west-
ern coast of India covering Gujarat, Maharashtra, Goa, Karnataka and Kerala. The coast of Madras also had solar salt works. However, there was no production of salt on the coast of Bengal, since in the Bay of Bengal water is comparatively sweet. As salt was a necessity of life, it was one of the most important sources of revenue for the governments in India. All the empires and kingdoms who ruled India levied heavy taxes on salt and a good number of them imposed their monopoly on salt production. In Kautilya's 'Arthashastra', the state is advised to keep both mining and commerce in minerals as state monopolies. Salt was also to be a state monopoly. The manufacture of salt was supervised by a state official named as Lavanadhyaksa. During the rule of Jayavarman, towards the end of the 3rd century A.D., salt mines of the country were government monopolies. During the period of the Pallavas, the manufacture of salt and jaggery was a royal monopoly and special licence had to be obtained for private manufacturing. In ancient India, the governments used to appoint superintendents of salt to regulate the sale of salt. He was collecting from the salt producers, rent in money and the quantity of salt, due to the government. Adulteration of salt was severely punished by the governments in those days.

In India, salt is extracted from the following sources:

1. Sea Salt. With the coastal line of about 3,500 miles, India is favourably placed to produce salt from sea water. 70% of the total production of salt in India is derived from sea water. Sea salt is produced in the following states of India: (a) Gujarat (Bhavnagar, Jamnagar, Kandla, Mithapur, Porbandar), Maharashtra (Bombay, Bhayindar, Bhandup, Uran, Shiroda), Tamilnadu (Cuddalore, Tuticorin, Nagarcoil), Karnataka (Sanikatta), Kerala (Mallipuram), Andhra Pradesh (Nanpada, Penuguduru, Kakinada), Orissa (Astrang in Puri district, Gangam, Surla, Sumadi-Huma), West Bengal (Midnapur district), Goa, Daman and Diu.

2. Lake Salt. The major salt lakes are Sambhar lake in Rajasthan and Chilka on the east coast. Sambhar lake is the principal source of lake salt.

3. Inland (sub soil) salt. Salt is produced from sub soil brine which contains four to five times more salt than sea brine. The brine is used to manufac-
ture salt by digging pits or tube wells. In Rajasthan (Didwana, Pachbadra, Phalodi), Rann of Kutch (Kharagoda, Dharangadhra) and Madras (Tuticorin), large tracts with sub saline water at a very shallow depth underground, are found.

4. Rock salt. Before independence India had large rock salt deposits. After partition of the country, most of the rock salt sources have gone to Pakistan and India is left with comparatively less rock salt deposits at Mandi in Himachal Pradesh.

Most of the solar salt works in India are concentrated on the coast of Saurashtra and Kutch, which contribute more than 50% of the total production in India. Tamil Nadu and Rajasthan were taking second and third place, respectively, in salt production. Maharashtra and Andhra Pradesh are the other major salt-producing states in the country. All the above five largest salt-producer states contributed about 98% of the total salt production of the country in 1982. Orissa, Goa, Karnataka, West Bengal and Himachal Pradesh were the other salt producing states. Salt was also being produced in the Union Territories of Pondicherry, Daman and Diu. The total area under salt farming in India was around 75,518 h.a with the five largest salt-producer states accounting for about 94.5% of the total area under salt cultivation. Among the Indian states, Gujarat was accounting for the largest area under salt production. In terms of sources of salt extraction, sea water was contributing 73.28%, inland water resources 24.33%, salt water lakes 2.33% and rock salt 0.06% to the total salt production. As rock salt deposits which are found near Mandi in Himachal Pradesh contribute negligibly less salt production to the total output of the country, its percentage share in the total salt production is less than 1%. Salt water deposits of India are also comparatively very less.

Before independence, internal production of salt was not sufficient to meet the domestic demand in India and, therefore, the country was importing large quantities of salt. In 1947 as against total production of 20.21 lakh tonnes of salt, imports were to the tune of 3.48 lakh tonnes. In 1951, the country opened up a new page in the history of salt industry when it started exporting this traditional commodity to other countries.
During this year, when the total internal production was 27.44 lakh tonnes and imports of the order of 50,000 tonnes, the country turned the corner and exported 1.12 lakh tonnes of salt. Imports of salt totally stopped after 1954. With the increased production, exports also increased, although a fall in the exports of the commodity was registered during some years.\textsuperscript{58} It may be of some interest to discuss the salt policy of the British India Government at this juncture to appreciate the importance of salt in its historical as well as socio-economic and political context.

1.5 SALT POLICY OF THE BRITISH INDIA GOVERNMENT

Till the beginning of the 17th century, salt industry in India was flourishing and had made the country self sufficient in salt production. With the advent of the British rule, the industry received great setback on account of the policy of the Britishers to restrict the manufacture of salt and create artificial scarcity of the product. In fact, one can state without any exaggeration that the history of salt industry during British period is the history of government monopoly and licencing system aiming at restricting the output of salt and levying exorbitant taxes on salt. It was also the policy of encouraging imports at the cost of indigenous production. The policy of interference in salt industry was initiated in Bengal during the East India Company's rule.

Salt was an important commodity in the interprovincial and internal trade of India. The low price at which Bengal salt could be conveyed through all the branches of the river Ganges, made it a profitable article of trade in the Northern India. Merchants from different parts of India were trading with each other in this and other commodities. However, the Indian traders and merchants who were dominating the internal, inter-provincial and Asiatic trade in India in the pre-Plassey period, started being, slowly, displaced by the English merchants in the post-Plassey period. Since the early years of the trading activities of the East India Company in India, the servants of the Company were engaged in private trade. In the course of time, this trade flourished at the cost of not only the indigenous traders but also, many a time, of the Company itself.\textsuperscript{59} The East India Company tried to put an end to this situation, albeit unsuccessfully. Clive as the Governor of the Company established in 1765 a monopoly of trade in salt, betelnut and tobacco, in the hands of an exclusive society formed
for that purpose. As Diwan, the Company was to receive from the society a duty of 35% on salt, 10% on betelnut and 25% on tobacco. In 1768, this Society was abolished and the indigenous Zamindars and merchants were permitted to manufacture salt under certain restrictions. They were required to pay a duty of 30% to the Company's Government. Thus, the British power in India, represented by the East India Company heavily depended upon salt as a source of tax revenue for the Government in India.

In fact, for all the rulers in India, prior to the advent of the Britishers, salt was one of the most important sources of Government revenue. Salt tax was an important component of the taxation system in the pre-British India. Realising the importance of salt in the mobilisation of resources for the Government, the East India Company's Government decided to create its monopoly in the production of salt in India. The production of opium was also monopolised by the East India Company. In Bengal, although the monopoly of salt started from the establishment of the Board of Trade in 1765, the strict monopoly of salt commenced in 1780 under a system of agencies. The monopoly of opium and salt enjoyed by the East India Company was most advantageous to the said company. There is reference in the Fort William-India House Correspondence to the improvement in the financial position of the Company because of the increase in the actual production of opium and salt towards the end of the 18th century. Thanks to the improvement in the financial position of the Company on account of the most advantageous sale of Company's opium, salt and import goods in Bengal, the East India Company decided not to receive any subscription to the Decennial Loan of the Bengal Presidency after 20-2-1799. Under the monopoly system of salt production, salt was produced in Bengal, by the Company's agents. Salt was manufactured by contractors who hired labourers for that purpose. They agreed to deliver to the Government the requisite quantity of salt and received advances to carry on their operations. The East India Company and, then, the Government under the British Crown, did their best to strengthen their monopoly power in the production of salt. Firstly, the authorities took great care to check the unremunerative character of production by ordering the abolition of the manufacture of salt in those areas where
the salt production was least profitable. Secondly, widespread smuggling of salt in Bengal, brought about by its high price and irregular supply, was sought to be wiped out through a number of measures. One of these measures was to abolish the manufacture of salt in those areas where smuggling was most extensively carried on. But, neither smuggling of salt nor illicit manufacturing of salt in Bengal (and in the rest of the country too) stopped, thanks to the oppressive prices of this commodity on account of the exorbitant duties charged by the Government. The East India Company's Government failed on one more front. It resisted the importation of salt into India, but despite its resistance, foreign salt began to be imported in 1819 and, on a large scale, in 1835 when 3 lakh maunds of salt landed on the Indian shores. However, it is to be noted here that salt imports from Portuguese India and French colonies in India, were going on, even before the advent of the British power in the Indian sub-continent.

Realising the limitations of the manufacture of salt on government account, the British India Government seriously applied its mind to substitute it by licensed manufacturing under a system of excise. This new system of excise was introduced in Bengal in 1863, under which manufacturing of salt was made free, subject to excise and other duties. With this, the monopoly of salt production by the Government was permanently abolished in India.

In Bombay Presidency, salt was produced almost entirely by solar evaporation under a system of excise. Sea-salt formed about 90% of the total quantity produced in this Presidency and the manufacturing was carried on in the island of Bombay, Ahmedabad, Kaira, Broach, Surat and the northern and southern Konkan. The manufacture of salt was generally free, but was subject to licence and payment of excise duty before the removal of salt from the place of manufacture. All the salt works in Gujarat except salt works at Cambay were owned by the Government. The owners of salt works in Konkan were mostly private individuals.

In Madras, salt was obtained exclusively by solar evaporation on the margin of the sea. In 1805, salt monopoly was created by the Government, under Madras Act I of 1805 whereby salt manufacturing was made illegal except on account of the Gov-
ernment or with its sanction. Under the monopoly system, salt could only be manufactured for sale to the Government and under the supervision and control of the Government authorities. The right to manufacture salt could be enjoyed by registered salt producers only. Madras Act VI of 1871 provided for the manufacture of salt under the excise system. The production of salt in Madras was subject to restrictions under which the quantity of salt to be manufactured was determined annually by the government authorities on consideration of the stock in hand and probable requirement of the trade. Those salt works owners whose salt works were closed by the Government authorities were entitled to receive compensation from the Government.

The policy of interfering in the salt industry of Bengal and other provinces was extended by the British government to other parts of the country. The free system of manufacture prevailing in Travancore Cochin salt sources, was changed to a monopoly system, whereby the Travancore salt could not enter the British India. By a treaty with the Nawab of Surat, the British government took over the control of Bombay salt sources in 1800. The Treaty granted to the British government the exclusive right of the Peshwas of the salt works situated in Gujarat. The British government took over the control of the salt works in Saurashtra and Kutch. As per an agreement signed with the states of Kathiawar and Dhragandhra, the salt works in these two states were compelled by the British government to reduce production and export of salt to the British territory. In 1900, by another agreement, the British Government totally prohibited the manufacture of salt in these two states. The British policy of securing the control of the salt sources in the Indian States was pursued in all respects by way of commercial treaties with these States. Accordingly, the Sambhar Lake in Rajasthan was taken over by the British government on lease from the Jodhpur and Jaipur States. By negotiating similar treaties, the said government took over on lease a large number of salt works existing in the territories of the Indian States in Rajasthan and Central India.

It is clear from the above presentation of the salt policy of the Government of the British India up to the later part of the 19th century, that the monopoly power of the Government followed either the system of manufacturing salt on government ac-
count or the system of licenced manufacturing of salt under which salt could be produced by the private individuals, subject to the payment of excise and other duties. Whatever be the system, the salt policy of the British Government was, undoubtedly, oppressive and totally unconcerned about the interests of the Indian people. Consumption of salt in India being greater, in proportion to other articles of diet, than in any other part of the world and, as an condiment, it being an absolute necessity of life, for human beings and also a necessity for cattle, the Government should have left salt production free from unjust restrictions and oppressive duties. The policy of the Government to restrict the output of salt, impose barriers on its trade and levy exorbitant rates of excise and other duties on its production and sale, worked against the interests of all classes, but more to the detriment of the poorer classes, as salt became out of their reach on account of its costlier prices. Repeated demands of the people to free the commodity from oppressive duties were not paid heed to, by the British India Government. A petition made by the cultivators from Bombay, to the Government of the Bombay Presidency, in 1852, describes vividly the plight of the farming class on account of the oppressive salt tax which was in force during those days. They pointed out in their petition that the produce of the agricultural fields supplied them with food, sufficient for only eight months in a year. During the remaining four months they had to subsist on vegetables they seasoned with chillies and salt. But, the salt duties with their exorbitant rates, were making the life of the farming class miserable, as the farmers had to forego even this poor comfort.

Totally insensitive to the sufferings of the people, the British India Government never paid sympathetic attention to the demands of the people to reduce the salt duties. On the contrary, one observes that the Bombay Government hiked the excise duty on salt from 8 annas per maund to Re.1 in 1844. The excise duty was further increased to Re. 1-8-00 in 1861 and to Re. 1-13-00 in 1869. In 1877, there was further rise in the excise duty which was, now, fixed at Rs. 2-8-00 per maund. However, the duty was later on reduced to Rs. 2 per maund. In Madras, cost price was 3 annas per maund of salt and excise duty was fixed at Rs. 2 per maund. The actual price for the consumers was between the range of Rs. 2-8-0 and Rs. 3-8-0. Salt manufacturers
and consumers did not suffer because of unreasonably higher excise duties alone. Severe restrictions imposed by the Government acted as an obstacle to the smooth functioning of the industry. The Government had power to suppress any salt work which had produced, as the average of any three years, less than 5,000 Indian maunds of salt per annum. The British India Government implemented this oppressive structure of salt duties and restrictions on production and sale, throughout the country, with the sole aim of earning more and more revenue from the salt industry in India. As a result, the people of India continued paying heavy excise and other duties on this article of daily necessity, to the tune of about 250 to 300 percent of the cost of production of the commodity. The duties gave to the East India Comapny and, then, to the Government under the British Crown, huge revenues. In 1793, the net revenue of East India Company derived from salt manufacture was 800,000 pounds. This increased to 1,300,000 pounds in 1844. Salt revenue collected by the British India Government increased between 1872 and 1880 from 5,966,595 pounds to 7,115,988 pounds.

One of the items of salt revenue collected by the British India Government was customs duties on export and import of salt by sea and inland routes. In 1850, by the Act XXXI of 1850, a duty equivalent to the excise was imposed by the Bombay Presidency on salt imported from or exported to the foreign territory. That the British India Government did not want to surrender this important source of tax revenue is apparent from the refusal of the British India Government to remove the import duty on British salt imported into India. The merchants and manufacturers of salt in Britain had launched an organised movement for the abolition of import duty on British salt imported into India. One of their arguments was that the British salt imported into India was of surperior quality as compared to the low quality salt produced in India. The British India Government's refusal to remove the import duties on British salt imported into India was not aimed at protecting the salt industry and the interests of the salt manufacturers of India. It was just one-point programme of tightening up the process of protecting salt revenue of the British India Government, which constituted an important component of the total public revenue of the Government treasury. This was also a major factor behind the policy of discouraging the imports of
salt from Portuguese India, by way of heavy import duties and other severe measures. Accordingly, the British India Government took stern measures to wipe out the smuggling of the Portuguese Indian salt into British India. These measures however, turned ineffective and the British India Government realised that it was necessary to extend its monopoly power in the production of salt, to the Portuguese settlements in India. The Government set itself on this task, on the basis of its experience with the French Colonies in this regard.

The efforts to bring French colonies in India under the salt monopoly power of the British Government had borne fruits in the first quarter of the 19th Century. Salt production in these colonies became the exclusive right of the British Government. The Government of these colonies was receiving, as per this arrangement, Rs. 441,600 per annum for not producing salt in the Pondichery territory. The French colony was receiving supplies of salt from British India and had to sell this salt at the same prices as they were ruling in the British Indian territory. With the signing of the Anglo-Portuguese Treaty in 1878, the British India Government was empowered to monopolise the production and sale of salt in the remaining European settlements too.

Salt tax was always condemned by the intellectuals and economists. Noted naturalist Buffon described the salt tax as a crime against one of the benefits of Nature. It was abolished in France during the revolution of 1793, but was again imposed there in the beginning of the 19th century. England abolished it in 1825. However, inspite of this opposition by the intellectual class and others, the British Government continued the monopoly of salt manufacture and sale in British India against the wishes of the Indian people.

The British India Government's salt policy of using salt as a major source of tax revenue continued in the 20th Century. It was not only severely condemned by the people of India, but also employed by Mahatma Gandhi and his Congress as a plank for its independence movement. The production of salt in India which was a Government monopoly was allowed only under severe restrictions on the manufacture and trade of this commodity. Salt was subject to heavy excise duty. In 1930, half of the retail price of salt represented tax. Salt had, thus, become a luxury commodity for
the poor people in India. Mahatma Gandhi and the Congress decided to agitate against this vexatious salt policy of the British Government and use this issue as a means to rouse the masses against the British rule. He recognised the fact that to rouse the masses against the British rule, it was necessary to use some symbol, the people could easily recognise. There was no point in slogans about dominion status, because the masses had no idea of what that was. So Gandhi gave a call to the Indian people to break the salt monopoly of the British India Government by making their own salt. On 12-3-1930 he marched off from Ahmedabad to the sea and broke the law by ceremoniously making the salt. On the same day, salt was made at about 5,000 meetings throughout the country. The breaking of the salt law provided the best focus for a symbolic revolution which would demonstrate the strength of the freedom movement.

It should, however, be stressed that even though the salt monopoly of the British Government was the major target of the Civil Disobedience movement launched by Mahatma Gandhi, it continued to be a stable source of revenue for the British Indian finance. Mahatma Gandhi's Salt Satyagraha did not have any unfavourable impact on the salt revenue of the British Government. On the contrary, salt revenue was the only item under the major heads of revenue which increased during the Great Depression. During 1929-30 the salt revenue amounted to Rs. 67 million which increased to Rs. 68 million during the next year, i.e. 1930-31, when Mahatma launched his salt march. This rise in the salt revenue shows that neither agitation against the salt monopoly of the British Government nor Great Depression diminished this important source of revenue for the British Government. It is also observed that after 1930-31, the salt revenue further increased. In 1931-32 and 1932-33, it was Rs. 87 million and Rs. 102 million, respectively.

Under the system of salt monopoly, the British Government’s efforts were always in the direction of deliberately enhancing the salt revenue. The Government was adopting this policy even though it had the option of increasing the income tax, as suggested by the Secretary of State. The policy of enhancing the salt revenue was preferred by the Government as it thought that, while the income tax was paid by the
most articulate sections of the people, the salt tax affected only the dumb millions whom one could afford to ignore. Even the provincial governments subscribed to this view when they were asked by the Central Government about their views on this matter.

1.6 SALT AND GOA

Goa, Daman and Diu, the three Portuguese settlements which were administered as a single unit under the name of Estado da India until they were liberated by Indian forces on the 19th December 1961, are three land blocks on the west coast of the Indian sub-continent separates from each other by a distance of over 480 kms. After liberation, these three land blocks continued to be administered as a single administrative unit, as a Union Territory, until Goa was separated from the other two and given the status of a full-fledged state in 1987.

1.6.1 GEOGRAPHICAL AND OTHER FEATURES OF GOA, DAMAN AND DIU

The territory of Goa, Daman and Diu covered an area of 3,706.72 square kms. The distribution of area for Goa, Daman and Diu was 97.4, 1.52 and 0.98 per cent, respectively. Goa, Daman and Diu covered 3571.08 square kms of land and 135.64 square kms of inland waters.

The territory of Goa has an area of 3,611.13 square kms and lies between 15 degree 47' 59" and 14 degree 53' 57" N. latitude, and 74 degree 20' 11" E and 73 degree 40' 54" E longitude. Its extreme length from north to south is 60 miles and its greatest breadth from east to west is 30 miles. Goa is bounded on the north by the Terekhol or Araundem river which separates it from Maharashtra, on the east by the Western Ghats which separate it from Karnataka State, on the west by the Arabian Sea and on the south by the district of North Kanara of Karnataka State. Goa's geographical area covers 3,479.65 square kms of land and 131.48 square kms of inland resources.

Goa has three main physical divisions:

(a) Mountainous region of the Sahyadris in the east, where lies the southern end of the Sahyadri range,
(b) The middle level plateaus in the centre, and
The terrain is intersected by a number of rivers flowing westwards, which provide a network of internal waterways. The land is interspersed also with plains, hills and valleys. The important rivers are Mandovi, Zuari, Terekhol, Chapora and Sal which are navigable for a total length of 230 kms. The major riverine plains in Goa are those of the Mandovi and Zuari. Those of Chapora in the north, and of the Kushawati and Sal in the south are lesser basins. The coastal plains are alluvial lowlands.

The soils are, in general, lateritic. The agricultural low lands, especially in the coastal tract, are alluvial flats formed through sedimentation along the principal rivers. Goa has a hundred kms. long coast which forms a segment of the western coastline of India. The coast is full of creeks and estuaries formed by the rivers. 81% of the soil is lateritic, 7.4% alluvial and the rest sandy.

The climate of Goa is warm and humid. It is monsoonic. Heavy rainfall is originated from the South-West monsoon and is concentrated in the months of June, July, August and September. On the western side of the territory, the rainfall varies between 2,800 and 3,500 millimeters (90 to 120 inches). The year-round temperature varies between 20 degree and 36 degree C. The eastern side of the territory, where hills and mountains rise to higher altitudes, experiences considerably heavier rainfall and wider temperature variations. In the high altitude areas near Dudhsagar, the annual rainfall is nearly 7,500 millimeters (300 inches). An important characteristic of Goan climate is that the areas closest to the sea have the lowest rainfall and the least year-round variation in temperature, and as one proceeds further inland, rainfall becomes heavier and temperature variations somewhat sharper.

Daman (area: 57.13 square kms) is a small territory situated on the west coast of India, north of Bombay. It is bounded on the north by the Bhagwan river, on the east by the territory of Gujarat State, on the south by the Kalem river and on the west by the Arabian sea. There are three west flowing rivers, namely, the Bhagwan river, the Kalem river and the Damanganga river. The Damanganga river divides the territory into two parts, Naeo Pargana (Grand Daman) and Calna-Pavari Pargana (Small
Daman). The climate of Daman is mild and humid. Soil is moist and fertile. Daman is little cooler and drier than Goa.

Besides Daman proper, Portuguese India possessed two small enclaves, Nagarhaveli and Dadra before 1954. During this year, they were liberated from the Portuguese yoke by the freedom fighters from different parts of India. These enclaves were separated from Daman by a narrow strip of 5 to 7 miles wide of Indian territory.

Diu (area: 38.46 square kms) is a tiny island situated in the gulf of Cambay near Veraval port. It is connected with the mainland at the southern extremity of the Saurashtra peninsula by a narrow channel on the north of the territory through a swamp. On the south of the island, there is a sandstone cliff washed by the sea. The topography is generally plain and the hillocks have a maximum height of 30.5 meters (100 feet). The climate is sultry and the soils are barren, sweet water being acutely scarce in the territory.

As regards the administrative set-up, since 1987, Goa is a full-fledged state of the Indian union with two districts - North Goa and South Goa and 11 talukas. They are as follows: Tiswadi(Goa Island), Bardez, Salcete, Pernem, Bicholim, Satari, Ponda, Sanguem, Canacona, Quepem and Mormugao.

When Goa was granted the status of a State, Daman and Diu were separated from it and were continued to be a single administrative unit as a Union Territory. Thus, until 1987 after its liberation from the Portuguese rule, Goa, Daman and Diu constituted a single administrative unit as a Union Territory with their own Legislative Assembly since 1963.

During the Portuguese rule, Goa, Daman and Diu formed three districts of the Estado da India which was regarded by Portugal as one of its different 'overseas territories', scattered in the continents of Africa and Asia. The Estado da India had 11 concelhos in Goa, namely, Ilhas (Goa Island with the area of 166.12 square kms), Salcete (277.19 square kms), Bardez (264.80 square kms), Pernem (242 square kms), Mormugao or Marmagoa (78.31 square kms), Bicholim (236.33 square kms), Satari (512.84 square kms), Ponda (252.28 square kms), Sanguem (886.59 square kms),
Quepem (347.31 square kms) and Canacona including Angediva island with the area of 0.26 square kms (347.36 square kms). Daman proper had the area of 57.13 square kms. Nagarhaveli and Diu had the area of 489.58 and 36.58 square kms, respectively. As mentioned above, Nagarhaveli was a part of the Estado da India upto 1954. Thus, inclusive of Nagarhaveli, the Estado da India's geographical area was 4,194.42 square kms.102

Portuguese India which was divided into three districts, namely, Goa, Daman and Diu was composed of 12 concelhos in 1881. They were as follows: Goa Island, Salsete, Bardez, Pernem, Sanquelim, Ponda, Sanguem, Quepem, Canacona, Daman, Nagarhaveli Paragana and Diu. The territory was divided into 18 provinces: Goa Island, Salsete, Bardez, Pernem, Bicholim, Satari, Ponda, Embarbacem, Astragar, Bally, Chandrawaddy, Cacora, Canacona, Angediva, Daman(Grande), Daman(Pequeno), Nagarhaveli Paragana and Diu. In 1897, a new concelho named Satari was formed by separating this province from the concelho of Sanquelim. In 1917 another new concelho by name Mormugao was formed by separating this area from the concelho of Salsete and in 1947 the concelho of Sanquelim was named as Bicholim.103

1.6.2 GOA IN ITS HISTORICAL SETTING

Goa was an integral part of the Indian sub-continent in its historical evolution. The first settlement of the Neolithic man in Goa must have been in the period 2000 B.C. It is, however, suggested that Kols, Kharwas and Mundaris were the first settlers of Goa, living on fishing, hunting and primitive form of agriculture since 3500 B.C.105 Along with these settlers, it is also suggested that the pre-Aryan society of Goa consisted of 'Mhars' and Asurs too. The majority of these tribes settled on the warm sea shores, islands, along the river banks, creeks and in the accessible valleys. 'Kharwa' tribe is believed to be the ancestor of the present day 'Kharwis'. Probably, Kharwas and Mundaris settled near the sea shores in Goa 3000 B.C.106 The neolithic culture was succeeded by the iron age (C. 1200 B.C.) which was known during the period of Mahabharat.107 Parashurama, the legendary hero of the western coast of India with his Parashu or axe represents the Iron age in this part of India. It is believed that he helped the clearance of dense forests and subsequent colonisation of the Konkan re-
tion. These axe-wielding Bhargavas might have brought the pre-Aryan tribes in Goa under their domination and started the process of exploitation of these tribes by taking over surplus production from lands cultivated by them. The myth of the reclamation of the Konkan region from the sea by Parashuram should be looked into, in the above context. Thus the early settlements in Goa are associated with the myth of Parashuram.

Goa was known as Govarashtra, the land of cows. It is believed that the name Goa is derived from the pastoral and cattle herding communities (Go_) of Gopa. They are probably the ancestors of present day Gaudas of the Western Ghats. Bhismaparva of the Mahabharat refers to the area as Gopakpatt or Gomant. Some historians have come forward with a theory that the name Goa is derived from Gohaladeva, the first ruler of Kadamba dynasty of Goa.

The name Gauba is mentioned in the Ptolemy's geography in the second century A.D.

As a commercial entrepot of great fame, Goa was known to the rest of India and to the outside world since time immemorial. However, it was known to the ancient world by different names. Goa had established commercial relations with the Egyptians, Phoenitians and Greeks during the ancient times. There is a reference to Gubi, which has been equated with Goa, in the records of Gudea (2143-2124 B.C.) the ruler of the Sumerian city-state of Lagash. Goa has been identified with a number of places on the Western Coast of India which the Greeks have mentioned in their writings. It is also believed that Ibn Batuta must have corrupted the name of the then capital of Goa, Chandrapur to Sindabur and used this term to mention Goa in his writings.

Goa is believed to have been ruled by Bhojas in the 3rd Century A.D. Their seat of power was Chandrapur which is present day Chandor and their kingdom included Shashti, Antruz, Bardez, North Kanara district, part of Belgaum district and some other areas around Goa. It is believed that they were also ruling the island of Goa. Bhojas were semi-autonomous rulers of the Deccan and the Konkan and they were ruling the above territories in feudal allegiance to the Mauryan Emperor of Patli-
During the Mauryan period, the influence of Jainism and Buddhism became predominant in Goa.

With the defeat of Konkan Mauryas in C. 578 A.D. at the hands of Chalukyas of Badami, Goa went into the hands of the latter. It was made a part of the province of Revatidvipa, the present day Reddi to the north of Goa. Chalukyas of Badami ruled Goa for about 2 centuries. By 753 A.D., Rashtrakutas held the sway over Deccan, Konkan, Karnataka and Gujarat. Under their overlordship, Goa was held by Shilaharas. When the Chalukyas of Kalyani became sovereign in Deccan, Konkan, Karnataka and Gujarat, Shilaharas ruling Goa, came under the overlordship of the Chalukyas. There were three houses of the Shilaharas: South Konkan or Goa, North Konkan or Thana and Kolhapur or Valvade. Goa passed in the hands of South Konkan Shilaharas in the 8th century, who after the defeat of Rashtrakutas at the hands of Western Chalukyas became the feudatories of the latter. Under the Chalukyas of Kalyani Kolhapur or Valvade Shilaharas and North Konkan Shilaharas ruled Goa before Kadambas overthrew the North Konkan Shilaharas.

Goa Kadambas (1020 -1350) ruled over Goa after taking over Sashti and a part of Konkan from North Konkan Shilaharas. However, the island of Goa and the port of Gopakapattana continued to remain with the Shilaharas. When in the early period of the 11th century A.D., the power of the North Konkan Shilaharas weakened, the Goa Kadambas defeated the North Shilaharas and annexed Gopakapattana, the Island of Goa and other areas to their territory. Although Kadambas continued to be the feudatories of the Western Chalukyas, the North Shilaharas accepted the overlordship of Kadambas. In the 11th century A.D., when Kadambas were ruling Goa, this territory had commercial relations with the ports of Gujarat, Kathiawar, Malabar, Cylon, Bengal, Malaca and other regions.

In the course of time, the rule of Kadambas reached the zenith of its glory. The port-capital of Gopakapattana prospered as a great trading centre. Under Jayakeshi II, the glory of the Goa Kadambas reached its meridian.

But, by the middle of the 13th century, the power of the Goa Kadambas declined. Their position dwindled from the "Lords of the Western Ocean" to the petty
chieftains. Their kingdom was annexed by the Yadavas of Devgiri, but soon Kadamba Shashtadeva was re-established in this kingdom by 1247 A.D. As the port-capital of Gopakapattana was looted and destroyed by the troops of Khilji's General Malik Kafur during the first quarter of the 14th century, the Kadambas transferred their seat of government to Chandrapur (Chandor). During the invasion of Mohammed Tughlak (1327 A.D.) this capital-city was destroyed, which resulted into the transfer of the seat of the government of the Kadambas back to Gopakapattana. The Kadamba country had to face the attack of the Nawab of Honavar by the middle of the 14th century.

Even though the Kadamba rule came under severe attacks of the Muslim invaders, the Kadamba dynasty continued, but they were now exercising their sovereignty over a much restricted kingdom. Between the years 1356 and 1378 A.D., the pendulum of the sovereignty over Goa oscillated irregularly from the Bahamanis to Vijayanagar, with a few interruptions from the Kadambas. Goa became a part of the Vijayanagar empire during the 14th century. Under Vijayanagar, Goa was a part of its Aragagutti province. The capital of this province was Govapuri though at times it was transferred to Chandragutti. The province comprised of, among others, Tiswadi, Salsete, Antruz, Sattari, Bardez, Bicholim, Pernem and Sawantwadi. It is believed that there was a revival of the Kadamba dynasty around 1445 either under Vijayanagar or as an independent state. The Portuguese chroniclers have mentioned in their writings that Goa had attained independence by 1440. It is, also, believed that as Zuari river became shallow because of silting and the port of Gopakapattana could not provide facilities to big ships to enter the port, Gopakapattana lost its commercial importance and in the last quarter of the 15th century, a new port was developed at the old Goa site of Ela village, along the Mandovi river. Gopakapattana was deserted by the traders and other people and the new port at Ela along Mandovi river prospered on account of its development as a great centre of trade and commerce.

Goa became a part of Bahamani kingdom in 1471. The Bahamanis merged it with their province of Junnar for administrative purposes. When the Bahamani kingdom split up by the end of the 15th century and five Deccani Sultanates emerged out
of it, Goa came under the rule of Adil Shah of Bijapur. Yusuf Adilshah was the founder of the Bijapur kingdom. Adil Shah developed the new port-town at Ela (Old Goa) as the capital of Goa. The new port-town of Goa attracted merchants and traders from all ports of the world. A large number of them settled down in the port-town of Goa itself to pursue their trading activities which were bringing them huge profits. Goa became an entrepot of great fame. The Goa port was being visited by ships from Mecca, Aden, Ormuz, Cambay, Malabar and many other places which wanted to establish commercial relations with this flourishing trading centre. It imported horses from Hormuz, Persia and Cambay, which were supplied to the rulers of Deccan and of South India. Ships laden with carpets were also coming from Arabia and Persia. Bengal, Gujarat, Malabar, the Deccan, Cylon, East Africa, Central Asia, China and other regions were dispatching to this port their merchandise consisting of precious stones like diamonds and rubies, pearls, tobacco, opium, textiles, spices, silver, gold, slaves etc. Goa was exporting calicos, fine muslins, rice, areca, spices, betel, salt etc. in exchange of horses and other merchandise imported. The ships of the traders who included Arabs, Baniyas, Malabaris, Jews and Persians were seen anchored at the port, loading and unloading a variety of goods. Goa port had better facilities for anchorage for larger ships which could sail 8 to 10 miles inside from the mouth of the Mandovi river and formed a good line of defence. The new port town at the Ela village became an important centre of ship building. With the flourishing trade, the town wore a prosperous look. Beautiful edifices came up. Handsome streets surrounded by walls and towers were built to add majesty to the town. At the time of the arrival of the Portuguese in Goa, this was the position of the port-town of Old Goa. During all the rules which preceded the advent of the Portuguese in Goa, salt was occupying an important place in the export trade of this territory. The economic significance of salt prompted all these regimes to implement measures protecting the salt industry and bringing about its development.

In 1505, the Portuguese captured the island of Angediva situated to the south of Goa along the Karwar Coast.
Realising the strategic importance of Goa from military point of view as a great trading centre, Afonso de Albuquerque, the Portuguese warrior conquered Goa from Adilshah of Bijapur in March 1510 and, after being driven out of Goa within two months, realigned his forces and recaptured it on 25-11-1510. Although the territory conquered by the Portuguese from the Adil Shah of Bijapur is referred to as Goa, it was only the Goa island that had fallen in the hands of the Portuguese in 1510. The present territory of Goa was carved out of the annexations and acquisitions made by the Portuguese in the subsequent period, which process continued upto 1788. After the conquest of Goa island, the Portuguese tried to extend their boundaries to the neighbouring territories, which, finally, led to the surrender of Salsete and Bardez provinces to them by Ibrahim Khan, in 1543.\textsuperscript{140} The following table indicates the years of conquest or take over of different provinces or areas which made up Portuguese India of later years.\textsuperscript{141}

\begin{table}
\centering
\caption{YEARS OF THE CONQUEST/TAKE OVER OF PROVINCES/AREAS OF PORTUGUESE INDIA}
\label{tab:1.01}
\begin{tabular}{ll}
\hline Province/Area & Year \\
\hline Anjediva & 1505 \\
Goa Island & 1510 \\
Salsete and Bardez & 1543 \\
Diu & 1535 \\
Daman & 1553 \\
Tiracol & 1746 \\
Ponda, Panchmahal, Canancona, Cabo de Rama & 1763 \\
Bicholim, Sanquelim and Satari & 1781 \\
Pernem & 1783 \\
\hline
\end{tabular}
\end{table}

1.6.3 THE INSTITUTION OF COMUNIDADES AND SALT

Salt production in Goa was closely associated with the system of Comunidades that was in force in this territory, from time immemorial. When the Portuguese conquered Goa in 1510, they found that a typical system of land ownership relations and land cultivation was an integral part of its rural life. It was known as Gaonponn. The Portuguese named it Gaoncaria or Comunidade. The ownership of land was vested not in individuals, but in village communities. The lands were cultivated collectively and the produce distributed among the villagers according to established customs and practices. The Comunidades were agricultural associations of the original settlers of the villages. They were collective farming societies as well as socio-political entities charged with public functions. They were performing political, administrative, social, economic, religious and cultural functions. The Comunidades were looking after the affairs of temples, were building and maintaining village roads and were performing most of the functions of village panchayats. The membership of the Comunidades was hereditary as only the descendants of the original settlers could become the members of this institution. They were called Gaoncars. To look into the administration of lands and other public affairs, the Gaoncars were electing from among themselves a managing committee - a Village Council. Although the village land was collectively owned by the villagers, each villager could own a little land, individually, on which he could build his house. Out of the total produce from the collective cultivation of the village lands, a certain proportion was earmarked for village expenditure such as land improvement, irrigation works, construction of bunds, flood control, maintenance and development of roads, maintenance of temples, payments to the village servants like washermen, tailors, barbers etc and to the temple servants. They were also spending on public assistance and education.

The Comunidades were regulating the distribution of agricultural and other lands such as waste lands, Khajan(reclaimed) lands and forest lands among Gaoncars. They were exercising municipal, civil and judicial powers. They settled disputes within the villages and punished the people committing offences. It was the responsibility of the Comunidades to manage the finances and funds of the villages.
collection of taxes from the villagers for the state was the responsibility of the Comunidade. Only the representatives of the Vangad or Class that descended from the first settlers of the village had the right to become the members of the Village Council or Gaoncars. Every male member of such a Vangad became a Gaoncar on attaining a certain age, say between 12 and 18 in most of the villages.  

Under the system of Comunidades, the state was collecting the tax revenue from the entire village through its Comunidade and not from each individual. The total output of the field was considered as one common pool and before distributing the shares of different people, the share due to the state in the form of land tax was kept aside. It was the duty of the Comunidade to pay the tax revenue to the government regularly. The surplus produce from agricultural cultivation over and above all the payments which included land tax and other expenses was shared by the Gaoncars, according to the number of adults (Janas) in the families. This share of each Gaoncar came to be known as Jon.

In Goa, as lands were subject to the system of Comunidades, the production of salt also came under this unique system of land ownership and land cultivation. In the ancient Goa, the lands under salt pans were owned and cultivated collectively in those villages where salt was produced by the method of solar evaporation of brine. The surplus production over and above the land tax and other expenses was distributed among the Gaoncars in the same way as was the case with the cultivation of rice and other crops.

The Portuguese, soon after they conquered Goa from the Adil Shah kingdom, found the system of Comunidades useful for the administration of villages and decided to retain it by guaranteeing the Comunidades their rights of ownership of their properties. The Portuguese made no alteration in the rural administration and the tax system. They retained the system of the Gaoncar (original settlers) sharing among themselves the surplus amount over and above the payment of land tax and other expenses. About 16 years after the take over of Goa by Afonso de Albuquerque on 16-9-1526, Afonso Mexia, the Vedor da Fazenda Real, granted to the people of Goa, in the name of King D. Joao III, "Foral de usos e Costumes dos Gaoncares e Lavradores
It was a charter of local usages and customs. This was the first document which codified civil rights, fiscal and penal legislation, property rights and land relations under the system of Comunidades. With the enactment of the Foral, the state became the controller of Comunidades.

In the course of time, the Comunidades lost their earlier characteristics. Collective farming gave way to the system of leasing the lands to the individual tenants. The Comunidades lost their functions related to the administration of the village and degenerated into the societies of property rights holders. A system of auctioning the lands annually or triennially, for the purpose of leasing the same to those who wanted to cultivate them was introduced by the Comunidades. Under this system, leaseholders were cultivating land individually and paying a fixed percentage of the total produce, as a rent to the Comunidades. This new system of individual farming by the lease holders of the Comunidades land, began to be used in the production of salt at the salt-pans on the lands owned by the Comunidades.

1.6.4 FACTORS FAVOURABLE TO SALT PRODUCTION IN GOA

Salt industry first developed in Goa more than two thousand years ago. It is humanly impossible to ascertain the exact year when the first salt-pan was constructed in Goa for extraction of salt from sea water. The art of manufacturing salt must have been introduced by the early settlers who colonised different coastal areas in the region or they must have learnt this art from the subsequent band of settlers who entered Goa in search of their means of livelihood. Since the days when the early settlers learnt or brought with them the art of manufacturing salt from sea water, the commodity has come to occupy a prominent place in the economy of Goa, particularly, in the export trade of this coastal region. This has been possible because of natural and other factors favourable to salt production in Goa. Goa's geographical position, its climate, the existence of large tracts of low lying lands on the banks of creeks and rivers, the salinity of the sea water, availability of skilled labour and expertise to produce salt from sea water, lack of favourable conditions for salt production in other neighbouring coastal regions and availability of markets in far and near places with cheaper modes of transport both through waterways and land routes, all
this has contributed to make Goa a favourable region for the growth of the salt industry.

As a coastal region with the coast of the length of about 100 kms., washed on its western side by the waters of the Arabian Sea, Goa has an abundant supply of sea water. However, the existence of abundant supply of sea water is, although a necessary condition, not a sufficient condition. The coast of Bengal proves this fact. Since water in the Bay of Bengal is, comparatively, with less salinity, there was, once upon a time, no production of salt on the coast of Bengal. The salinity of sea water in Goa is not only favourable for salt production, but is, also, ideally coupled with the existence of large tracts of low lying lands. In Goa, the coastal areas are interspersed with creeks and estuaries formed by the rivers. They supply abundant quantity of brine(salt water) for salt production. The availability of large tracts of low lying lands along the creeks and estuaries in both northern and southern parts of Goa, facilitates evaporation of the brine which is essential for the production of salt. To add to this, the climate of Goa is favourable for the evaporation of the brine. It is warm with the year-round temperature varying between 20 degree and 36 degree C. Although heavy rainfall is originated from the south west monsoon, it is concentrated in the months from June to September. As a result, most of the long non-monsoonic period of the year is available to the salt producers to undertake the cultivation of salt. The salt production season in Goa starts in the month of December and ends in the month of May with the onset of Monsoons. The importance of the availability of non-monsoonic period for the salt production season in Goa, can be gauged by one more fact. The salt production activity does not clash with the main productive activity of rice production. On the contrary, salt production is undertaken by the rice farmers as a supplementary source of income after the kharif season of rice production is over. A peculiarity of salt production in Goa is worth noticing. The salt pans are prepared on the Khazan lands which are situated on the banks of creeks and rivers. These lands are generally rice producing fertile lands which are cultivated during the rainy season and converted into salt pans when rice production kharif season is over.
To produce salt by solar evaporation, another important factor which is essential, is the existence of a strata of tough impermeable clay, or the means of constructing one. In many parts of the country, salt pans are shallow and with hard ground which is a favourable condition for salt production. In Goa, salt pans are deep and on soft ground. As such, the preparation of the ground for salt production is a time consuming process. It takes a couple of months to prepare salt beds in Goa. Despite this difficulty, the soil conditions in Goa for salt farming are not too unfavourable, as they are in the neighbouring coastal areas. Sindhudurg and Ratnagiri districts are two districts to the north of Goa having a large coastal length. Despite this favourable condition, these two districts do not produce salt on a large scale, except in Shiroda, a small village in Sindhudurg district, which was a major centre of salt manufacture in the erstwhile undivided Ratnagiri district. This was because soil in most of the coastal areas of these two districts is not favourable for salt production. However, small salt pans are found at Malvan, Ratnagiri and Vengurla talukas with a very small percentage of production of salt.

Goa's position as an important centre of salt manufacture and as an exporter of salt, could not be challenged by many other salt producing regions in India because of the expertise of the Goan skilled labour in the manufacture of this traditional commodity. Although after liberation of Goa, skilled labour coming from outside the territory are undertaking all the jobs related to salt farming, traditionally, Goa was a centre of skilled salt workers who were efficiently manning all the operations of salt farming. There was a very large number of families, in all the centres of salt manufacture, whose members were experts in this productive activity. The skills passed from generation to generation and, in this way, human factor played an important role in the survival of this traditional industry against all odds. It is worth mentioning here, in this respect, an important feature of salt manufacture in Pernem. There is a distinct community in this place, which is traditionally engaged in the manufacture of salt. The community is known as Mithgaudas which is a sub-division of the Gauda community. 'Mith' in the local language means salt. Thus, the very name of the community indicates its profession related to the manufacture of salt. It is pertinent to
note that this community is, also, largely found in the Konkan region, north of Goa, namely, Malvan, Vengurla, Deogarh, Sawantwadi and Kudal. The Mithgaudas are, generally, a self-employed community, many of them having their own salt pans for which they employ landless people of their own community. Family members including women and children generally assist in the salt manufacturing process and, also, in agricultural operations. The Mithgauda community is a classic example of how salt farming skills have passed from generation to generation within the same community. 163

Availability of markets to the Goan salt in the neighbouring and far off regions was another important factor which brought about the growth of the industry since time immemorial. In the absence of salt producing centres worth the name, and because of the easy availability of Goan salt, comparatively, at cheaper rates, there was always tremendous demand for Goan salt from the neighbouring states in India. Far off regions like Arabia, Africa, Macau were also providing markets for Goan salt. 164 The marketing of Goan salt was facilitated by the cheaper modes of transport both through waterways and land routes. Besides land routes, internal waterways in the form of navigable rivers in Goa, constituted an important and cheap mode of transport for the movement of salt from the producing centres to the market places within Goa. For the export of salt to the regions outside Goa, both within and outside India, a large number of country crafts loaded with salt were found sailing to the neighbouring and far off ports of India and other countries. Thus, salt was an important commodity entering into sea-borne and coastal trade of Goa. But, more than this, salt was an integral part of Goa's inland trade which was using cattle caravans to carry merchandise to and from the mainland interior of India, through different Ghat routes across the Sahyadri range of mountains. Salt as an export item in the inland trade through the Ghat routes, dates back to the early period of Goa's history.

1.6.5 AREAWISE CONCENTRATION OF THE SALT INDUSTRY IN GOA

Salt was produced in all the three districts of Portuguese India, namely, Goa, Daman and Diu. In Goa, out of 11 concelhos (now Talukas), only four concelhos - Goa Island(Tiswadi), Bardez, Salsete and Pernem were producing salt. The same
situation prevails today. All the four talukas are separated from each other by rivers descending from Western Ghats. Pernem has Chapora river to the south. Bardez is separated from Tiswadi by Mandovi river in the south and from Pernem by Chapora river in the north. Tiswadi lies between Mandovi river in the north and Zuari river in the south. Salsete lies south of Tiswadi and is separated from this Taluka by Zuari river in the north, and from its neighbouring eastern and southern regions by the river Sal. In the taluka of Tiswadi, the salt pans are located on the banks of Mandovi river in Panaji, Ribander and Santacruz and, on the banks of the Zuari river at Siridao, Curca and Santana. The location of salt pans in the taluka of Bardez is on the banks of Sinquerim at Arpora. The saltpans in Salsete are located on the banks of the river Sal. In Pernem, the saltpans are situated on the banks of the river Tiracol. In 1960, the area under saltpans in different talukas where salt cultivation was taking place, was as follows:

**TABLE 1.02**

AREA UNDER SALTPANS IN DIFFERENT CONCELHOS OF GOA (1960)
(in hectares)

<table>
<thead>
<tr>
<th>Concelho</th>
<th>Area</th>
</tr>
</thead>
<tbody>
<tr>
<td>Goa Island (Tiswadi)</td>
<td>197.3391</td>
</tr>
<tr>
<td>Salsete</td>
<td>102.5350</td>
</tr>
<tr>
<td>Bardez</td>
<td>92.7053</td>
</tr>
<tr>
<td>Pernem</td>
<td>18.0232</td>
</tr>
<tr>
<td><strong>Total (Goa)</strong></td>
<td><strong>410.6026</strong></td>
</tr>
</tbody>
</table>

Source: Statistical Year Book 1969, Government of Goa, Daman and Diu, Panaji p.79

Thus, total area under saltpans in Goa was 410.6026 h.a. in 1960. In Daman and Diu, area under saltpans, during the same year, was 9.2590 h.a. and 2.3133 h.a., respectively. Accounting for the area under saltpans of all the three districts, total area under saltpans in Portuguese India was 422.1749 h.a. in 1960. Although total area under saltpans in different talukas of Portuguese India did not remain the same, for the last so many years, it is worth noting that the localisation of the salt industry in Goa, did not undergo any change over this period. Salt pans were found being cultivated on the banks of the same rivers as before. However, over a period of many
centuries, the area under saltpans was found to have decreased because of several factors which were in operation during this period.

The figures of the areas under saltpans in different talukas of Goa in 1960, throw light on the relative position of different salt producing talukas as regards the coverage of land by saltpans. The share of Goa Island (Tiswadi) in the total area of land utilized for salt production in Goa was maximum (48%) followed by that of Salsete which was 25%, Bardez and Pernem had 22.5% and 4.5%, respectively, of the total land under saltpans in Goa.

The relative position of the total area under saltpans in Goa, in 1960, can be better understood if we compare it with the areas under rice fields, coconut trees and cashew trees during the same period. The figures of these areas were as follows:
Rice fields :- 44,699.1825 h.a; Coconut trees :- 18,496.1759 h.a; Cashew trees :- 32,517.0750 h.a. The area under saltpans was 0.42% of the total combined area under rice fields, coconut trees, cashew trees and saltpans, which was minimum among the percentages of the areas under other individual crops. The percentages of the other individual crops were as follows: Rice fields :- 46.5; Coconut trees :- 19.25; Cashew trees :-33.83. It is apparent from the above that the area under saltpans was not even one percent of the total combined area under the above four important crops of Goa.

1.6.6 THE PROCESS OF PRODUCTION OF SALT IN GOA: TECHNIQUE USED

Salt production had been a prosperous local industry in Portuguese India, particularly in Goa, since ancient times. Extracting salt from the saline sea-water has been even today a traditional occupation of many descendants of the salt-pans workers who, in the course of last many centuries, have sustained this industry against all odds. Inspite of the decadence set in, in this industry during the last 80 years of the Portuguese rule, the industry played an important role in the export trade of Portuguese India, during many years over this period. As an important traditional industry of Goa, salt production could have worked wonders to the economy of this tiny territory, if certain minimum requirements of the industry had been fulfilled at the production level and other levels including marketing of the product. Among the obsta-
cles that arrested the speedy growth of this industry, the outdated process of production of salt stands out as the most significant factor. Notwithstanding the favourable natural conditions for the production of salt in Goa, salt industry in this territory could not prosper on account of this primitive method of production which has come down to the modern times with marginal changes.\textsuperscript{168}

The process of production of salt from sea water, as followed in Goa, is the same traditional process followed in coastal regions to produce solar salt from sea water. The construction of salt pans is the first step in this process. The fields which are submerged with water during the rainy season are first cleared of water for the construction of pans. This is generally done during the month of December. Water is sucked out from the submerged fields with the help of a pump. Then the workers embark upon the task of constructing the pans by inserting a big pipe at the place where the water is let in from the rivulet.\textsuperscript{169} The salt pans are constructed at a slightly declining slope so that water from external reservoir can easily flow to the internal reservoir and, then, from this to the salt beds as a result of the gravitational force.\textsuperscript{170} The above mentioned big pipe is blocked by a mixture of muck with hay for a few days. The next step carried out in the construction of pans is building up of the bunds which is done with the help of a tool named ghor in the local language. The bunds are, then, moulded to give them the required shape. The most important work in the manufacture of salt lies in the formation of the crystallizing beds. The quantity and quality of the salt produced, chiefly depend on the impermeability and cleanliness of the flooring of beds. In order to make the beds of the salt-pan hard, superfluous mud is removed by the workers with the help of fhor. Hardness is imparted to the beds by a tedious and oft-repeated process of puddling with the feet, which is done at intervals of a few days.\textsuperscript{171} The stamping is continued until the pans are levelled up and become flat and solid. This process of puddling with the feet is aided in some places in India by the addition of mud or sand to the surface as the nature of the soil may render necessary.\textsuperscript{172} As salt pans in Goa are deep and on soft ground, unlike in many parts of the country where they are shallow and with hard ground, preparation of the ground for salt production, is the most time consuming process in this territory. It takes a couple
of months to prepare salt beds in Goa. As mentioned elsewhere, the saltpans in Goa are prepared on low lying khazan lands which are generally rice producing fertile fields, converted into salt pans when rice production kharif season comes to an end. The softness of the ground of the saltpans is, thus, the result of the nature of the khazan land that is used for salt production.

As described above, the first step in the process of salt farming consists of construction of pans by dividing the low lying areas at the mouth of the estuaries which are subject to tidal cycles, into different parts, and surrounding each part by bunds prepared very carefully. The second step in this process involves the collection of water into the salt-pans. After ensuring that the beds are imparted sufficient hardness and they have become flat, saline water from the estuary is made to flow into the first bed. Through an opening, the water from the first bed is allowed to let in into the second bed. Through an opening from the second bed, the water is allowed to let in into the third bed. The production of salt by solar evaporation requires sufficient supply of brine which is furnished by tidal backwaters. The formation of brine is an important step in salt production. The water is let in from the second bed into the third bed every day. It is allowed to stagnate and evaporate with the heat of the sun. The process of evaporation is continued until the point of crystallisation is reached and crystalline salts are formed. The sodium chloride is now seen distinctly in the form of a thin white coat of salt. These white crystals of salt are now ready to be collected. The bed is dried up for some days to allow the salt to harden. The crystals of salt are, then, collected with the help of a shovel and heaped at a place near the saltpans. The salt thus produced will be allowed to be dried up for a few days before it is dispatched to its destination in different markets. Before the crystals of salts are formed, the salt workers are required to take utmost care during the period when the brine is allowed to concentrate in the salt beds. When the water is allowed to stagnate and evaporate, it is stirred up constantly in order to rake up the muck. The mud is mixed with the help of teeth shaped tools. The pan which has soft muck is levelled with the help of smaller teeth shaped tools. This process is important for the formation of good quality crystals of salt.
The above description of the process of production of salt in Goa, focuses on the outmoded and outdated method of production employed by the saltpan owners. The process of production of salt has suffered on account of the refusal of the saltpan owners to effect technical developments in the methods of production. During the last eighty years of the Portuguese rule in Goa, when in many other parts of the country, improvements have been carried out to modernise the salt industry, the salt farms in Goa have not experienced any important change in the production method. In the beginning of this century, when Goan salt works were languishing under the weight of primitive methods of production, different parts of British India had adopted improvements in their salt farming and were trying to compete with the cheap Goan salt, by way of production of different grades of salt. Ernesto Fernandes in his book entitled "A India Portuguesa, Estudos Economico- Sociais ----" (publication year: 1905) mentions different improved methods of production of salt as adopted in British India during that period. In British India, during those years, the different grades of salt which were being taken up for production were inter alia, as follows: Thick and weighty salt; fine and light salt; and light and finest salt. To produce thick and weighty salt, when crystals appear in the salt bed as a result of the evaporation process, they are continuously stirred up with the help of a rake, leading to their desired thickening. There is no stirring up of the crystals when light and fine salt is produced. When the crystals are in the process of formation, a fine layer of salt which is formed on the surface of water is extracted every day. Whiteness is imparted to the crystals by ensuring perfection in the formation of the salt beds and by prompt and efficient collection of salt, before water in the bed is completely dried up. Light and finest salt is produced by subdividing the salt beds into smaller ones and, after the collection of the crystals of salt, by using the method of sifting to separate the thick crystals of salt from those which are very tiny. With the help of sifting, at least four to five types of finest salt are produced. The production of different types of salt depends also on the height of the water level in the salt bed. Goan salt industry was totally indifferent to the production of different grades or types of salt which could have secured larger and safe markets for its product, not only in British India during those
days, but also in other parts of the world. If Goan salt cultivators had learnt and adopted the above methods of producing different grades of salt, they would have also got remunerative prices for the product turned out by them, since superior quality salt would have fetched higher price.

It should, however, be stressed that outdated method of production was not the only serious limitation to the efficiency of the salt industry in Goa. Scale of production was also a serious obstacle to the growth and efficiency of the industry. Salt works in Goa were too small and too crudely laid out. Each salt work covered too small an area, an average area being about 8 acres. This factor coupled with the lack of mechanized and scientific process of production and indifference of the salt cultivators towards the desirability to produce different grades of salt or their inability to do the same, contributed to the production of inferior quality salt with insolubles often upto 5%. In the words of a Portuguese expert who had visited Goa in the later years of the Portuguese rule to study Goa's salt industry, Goan salt was unfit for human consumption. Goan salt was reddish or blackish in colour, depending on the soil. In the matter of improvements in or modernisation of the salt industry in Goa, the Portuguese Government could have contributed a lot, but it showed total callousness in this respect and did not take any measure to improve the quality of salt in the territory. The production of salt has suffered over a long period of time on account of the clogging of the mouths of the rivers, on the banks of which salt pans are constructed, with silt. This obstructed the flow of the sea water into the saltpans and, also, the movement of the country craft in the river through which salt is carried to various destinations. Measures on the part of the Government to prevent the silting of the river beds by way of dredging operations, could have solved this problem, but nothing was done in this respect.

The inferior quality of salt produced in Goa was closely related to an important deficiency in the process of evaporation of sea water. Even today the salt farmers in Goa have not perfected the process of evaporation of brine and, so, the rate of evaporation of brine is not adequately controlled by them, with the result that other
salts like calcium, magnesium and potassium crystallize along with the sodium chloride, making this commodity impure and, thus, of inferior quality.\textsuperscript{187}

1.6.7 SALT - ITS VARIOUS USES, IN GENERAL, AND IN THE GOAN CONTEXT

Salt is a necessity of life. It imparts an agreeable flavour, improves the taste of food and is used as a condiment. It promotes digestion and cell-formation, and acts as a stimulant to nerves. As salt has antiseptic properties, it prevents putrefaction. Salt is widely used in diet, medicine and industry. Consumption of adequate salt in man's everyday diet is necessary for good health. Human blood contains salt and body cells must have salt to function properly. The sodium component of salt regulates osmotic pressures in the body and helps prevent excessive water loss. The sodium and chloride, also, play a major role in the transmission of nerve impulses. The salts sodium chloride and potassium chloride supply ions (electrically charged atoms) needed by nerve cells.\textsuperscript{188} Depending upon the food habits and the living conditions of the people, each individual, generally, requires between 5 to 10 gms of salt. Where men live mainly on milk and raw or roasted meat, consumption of sodium chloride is unnecessary.\textsuperscript{189} The people living in the hot climate and those who have to exert physically, have to consume more salt as there is more sweating under those two conditions. The loss of salt existing in human body through urine and sweating should be compensated by the adequate intake of salt in man's everyday diet. Salt is also essential to the health of animals.\textsuperscript{190}

The use of salt in the medical treatment is universal and varied. Salt, particularly, table salt which is fine grained and of high purity is used as a condiment in the preparation of food and as a preservative in the kitchen since time immemorial.\textsuperscript{191} The meat-packing, sausage-making, fish-curing and food processing industries use salt as a preservative or seasoning or both. The pickle making industry is an important user of salt.\textsuperscript{192} If there is 8% or more salt in the pickles or the food preparation, it can be preserved for long, since bacteria cannot thrive when the concentration of salt is 8% or more. Salt was largely used as a manure for agriculture. The Romans used it as a manure on their agricultural farms. As it has germicidal properties its use in agric-
culture helps to destroy pests, parasitic fungi, weeds etc. and, thus, it promotes the growth of plants. It is also indispensable in fish curing.

Salt which is iodized, i.e. which has potassium iodide or sodium iodide added to it, is widely used in those regions where iodine is lacking from diet, a situation that can cause goitre.\textsuperscript{193} The use of salt for curing and preserving hides and as brine for refrigeration is well-known in the industrial field. Salt plays an important role in modern industries.

The chemical industry uses the largest quantity of salt. Salt is broken down and used to make a variety of sodium and chlorine products. It is essential for the manufacture of sodium bicarbonate (baking soda), sodium carbonate (washing soda), sodium hydroxide (caustic soda), hydrochloric acid, bleaching powder, chlorine and many other chemicals. Sodium compound called soda or soda ash is used to produce glass and soap.\textsuperscript{194} Salt is also employed in glaze and porcelain enamel manufacture. It is also useful in the metallurgical processes as a flux (a substance promoting fusing of metals) and in the manufacture of cement to recover potash as a bye-product.\textsuperscript{195} Chlorine products from salt are used in the manufacture of paper, plastics, pesticides, cleaning fluids and antifreeze and other fluids used in technology. Since the melting point of ice is lowered when salt is mixed with it, salt is used as a deicer to clear the road surface from snow and ice and make it safe for driving.\textsuperscript{196} It is also used in water-softening equipment that removes calcium and magnesium compounds from water.

Goa, which was a producing centre of salt of great renown, was, also, an important consumption centre of this commodity, since ancient times. Domestic use of salt was two-fold: Goans were using salt as a condiment in food preparation to give taste to food. Secondly, it was largely used as a preservative of food items. Goan households continue to use salt, for the above two purposes, to this date. During the Portuguese period, Goa did not have food processing industries worth the name and, so, the use of salt in the industries as a preservative or seasoning or both was minimum. The pickle making activity had not taken the form of an industry in the territory. Similarly, chemical and other manufacturing industries which use salt as a main
input or as a substance in the process of production, had not at all developed in Portuguese India. As a result, salt was used by the Goan people in their food preparations, either as a condiment to give taste to food or as a preservative for home-made food items. But, besides being used in food preparations as mentioned above, salt had two other most important uses in Goa. Salt was largely employed in the traditional fishing industry to undertake the process of fish curing whenever there was surplus catch of fish by the fisherfolk. Salted fish was in great demand not only in Goa but also in the rest of the country and abroad. Fish which is a perishable commodity could, thus, be preserved for a long period by the application of salt to it. The consumption of salt for salting the fish in Goa was substantial. In fact, the traditionally practised fishing industry's profitability was largely dependent upon the availability of cheap salt in Goa. Salt was also mixed with the food supplied to the cattle in order to compensate for the lower quantity of salt in the cattle food. 197

In recent times, agriculture and horticulture are increasingly using chemical fertilizers to increase the productivity of crops. During the ancient times and, subsequently, under the Portuguese rule, the only important and easily available manure to the farmers and fruit growing cultivators was salt. Salt was increasingly used as a manure not only in coconut and arecanut groves, but also in the production of other fruits and even in rice fields. Soda and potash are two mineral alkali which simultaneously exist in the plants. In Goa salt was being used as a manure, to compensate for the inadequacy of soda in the plants. 198 In fact, the type of salt which was being produced in Goa was not fit for human consumption, but fit to be used as manure for the plants and trees. Salt freshly produced from sea water evaporation ponds may contain large number of halophilic (salt loving) micro-organisms which occasionally cause spoilage of meat, fish, vegetables and hides when salt has been used in preservation. 199 Goan salt produced during the Portuguese rule, and even in the present times, had impurities which, as mentioned above, were arising out of lack of proper care in the process of production. 200 This inferior quality salt, fit to be used as manure only, was, however, used, on a large scale, in Goa for human consumption as a condiment and preservative.
The study of salt in the context of the world, India and Goa highlights the importance of this commodity not only in the history of the humanity, but also in the modern industrial world. The growth of the salt industry in the regions which have favourable natural conditions for salt production, can greatly contribute to the industrial development of these region. Salt producing centres in the developed countries have proved this fact beyond doubt.
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