REGIONAL DISPARITIES IN ECONOMIC DEVELOPMENT OF GOA : A TALUKA WISE SECTORAL ANALYSIS

A Thesis Submitted To Goa University

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CERTIFICATE

This to certify that **Ms. Radhika Shrikant Nayak** has worked on the thesis entitled, **"Regional Imbalances In Economic Development Of Goa : A Taluka Wise Sectoral Analysis",** under my supervision and guidance. This thesis being submitted to Goa University, Taleigao Plateau, Goa, for award of the degree of Doctor of Philosophy in Economics, is a record of an original work carried out by the candidate herself and has not been submitted for the award of any degree, diploma, a scholarship or fellowship of this or any other university.

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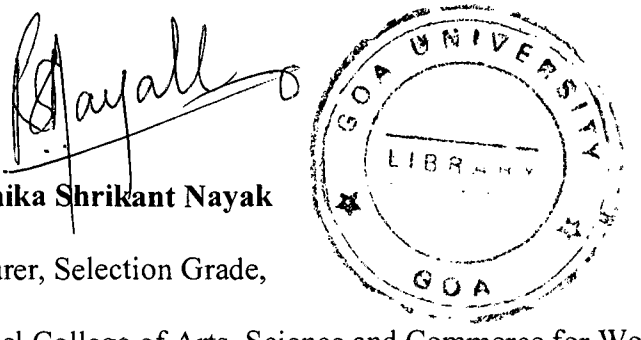
DECLARATION

I declare that the present thesis entitled, **"Regional Imbalances In Economic Development Of Goa : A Taluka Wise Sectoral Analysis"**, is a consolidation of original work which has been carried out by me under the guidance of **Dr. P. K. Sudarsan,** at the Department of Economic, Goa University, and that the same has not been submitted to any other University or Institution for the award of any other degree, diploma or other such title.



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CHAPTER I

INTRODUCTION

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INTRODUCTION

1.1 The Research Problem

Goa, the 25th state in the Republic of India, 3702 sq. kms. in area, nestled on the slopes of the western ghats, divided into 11 talukas which make up the 2 districts of the State, is no exception to the universally observed and accepted reality of regional and sectoral inequalities in economic development, the causes for which can be traced back to the more than 450 years of colonial rule of the Portuguese in Goa. The Portuguese conquest and policies have left a deep impact on the economic development of Goa, creating and perpetuating a staggering difference in the levels of development between the coastal and hinterland regions of Goa.

It is an undeniable fact that Goa has made substantial socio-economic progress since its liberation from colonial rule in December 1961 and subsequent attainment of statehood in May 1987, ranking high on several socio-economic indicators in a comparison of Indian states. Goa is held up as a shining example of being the healthiest state in the western region of India (as compared to Daman & Diu, Gujarat, Maharashtra, Dadra & Nagar, Rajasthan and Madhya Pradesh) while considering its performance across 8 criteria-budget and prosperity, agriculture, consumer markets, primary education, primary health, law & order, infrastructure and investment environment. Goa is also ranked second among 10 small states (those with area less than 35,000 sq. kms. and population of less than 5 million).

Goa has amongst the lowest percentage of population living below the poverty line at 0.16 percent as against Delhi (2.44 percent), Tripura (1.03 percent) or Puducherry (0.24 percent) among the small states while the big states like Uttar Pradesh, Bihar and Maharashtra have 59.39 percent, 37.48 percent and 31.57 percent respectively.

The per capita Net State Domestic Product at current prices (New Series) is the highest in Goa (Rs.58, 677) with Delhi (Rs.51, 644) and Puducherry (Rs.40, 947) being way behind. Amongst the bigger states, Harayana (Rs.29, 963) and Maharashtra (Rs.29, 204) barely reach the half way mark.

Goa (83.71) is ranked 1st on the basis of a Composite Index prepared by the National Commission on Population while Puducherry (82.70) is ranked 2nd and Delhi only 6th on the basis of performance on population indices such as Infant Mortality Rate (17/1000), Sex ratio (961 females/1000 males), Literacy Rates (82.01 percent), Female Literacy Rates (75.37 percent) and Life expectancy at birth (male 68 years and female 72 years).

It is however, equally true that the benefits of this development are not evenly distributed over the entire State. The state is divided into three regions, that of the coastlands, consisting of the talukas located along the coastline, namely, Pernem(to the extreme north of the state), Bardez, Tiswadi, Murmugao, Salcete and Canacona(to the extreme south of the state), the midlands, consisting of the talukas of Bicholim, Ponda and Quepem and the hinterlands, consisting of the talukas of Sattari in the north of Goa and Sanguem in the south of Goa.

The coastland region (with the exception of the talukas at the extreme north and south of the state) is the one which is more developed, be it in agriculture, manufacturing or service activities, particularly that of tourism. Consequently, the coastland region, with the exception of the talukas of Pernem and Canacona enjoys the benefits of high development which recede progressively as one moves towards the midland and the hinterland regions. Thus, wide regional imbalances are observed in the economic development of Goa.

The core subject matter of this study deals with understanding the nature of regional inequalities existing in Goa across the talukas in various segments of the economy and the measurement of the extent of inequalities.

1.2 Economic Development: Meaning and Nature

Economic Development can be understood in the context of (a) The traditional approach or (b) The new welfare oriented approach. The traditional approach viewed development strictly in economic terms, as a sustained annual increase in the Gross National Product (GNP) at rates varying between 5 to 7 % together with changes in the structure of the economy from being predominantly agricultural to an increase in the prominence of manufacturing and services. Policy measures in such an economy were, therefore, to do mainly with the promotion of industries and objectives of poverty elimination, reduction in economic inequalities and employment generation were referred to only in passing, presuming that an increase in GNP with resultant increase in per capita national product would percolate down to the grass roots in one way or another.

The new welfare oriented approach emphasised that reduction or elimination of poverty has to be the indispensable indicator of development. Jacob Viner, in the 1950's, argued that as long as poverty remained undiminished, one could not claim that a country was achieving economic progress. Viner wrote "Were I to insist ..... that the reduction of mass poverty be made a crucial test of the realisation of economic development, I would be separating myself from the whole body of literature in this field" (Viner, 1953). It was not until the 1970's that Viner's views got the recognition they deserved, as almost 40% of the developing countries realized that they were not benefiting from the growth of the GNP and per capita national product and neither from the structural changes that were taking place in their respective economies during the 50's and 60's.

Thus, during the 1970's economic development was redefined in terms of reduction or elimination of poverty. "Redistribution with growth" was the popular slogan of the times. Kindleberger and Herrick (1977) reflected this thinking in their assertion that "Economic development is generally defined to include improvements in material welfare, especially for persons with the lowest incomes, the eradication of mass poverty with its correlates of illiteracy, disease, and early death; changes in the composition of inputs and outputs that generally include shifts in the underlying structure of production away from agricultural towards industrial activities; the organization of the economy in such a way that productive employment is general among the working age population rather than the situation of a privileged minority; and the correspondingly greater participation of

broadly based groups in making decisions about the directions, economic and otherwise, in which they should move to improve their welfare".

Seers (1972) confirmed this further when he said "The questions to ask about the country's development is therefore: What has been happening to poverty? What has been happening to unemployment? What has been happening to inequality? If all three of these have declined from high levels, then beyond doubt this has been a period of development for the country concerned. If one or two of these central problems have been growing worse, especially if all three have, it would be strange to call the result 'development' even if per capita income doubled".

Mahbub-ul-Haq (1971), a leading Pakistani economist, endorsed this view when he observed "the problem of development must be defined as a selective attack on the worst forms of poverty. Development goals must be defined in terms of progressive reduction and eventual elimination of malnutrition, disease, illiteracy, squalor, unemployment, and inequalities. We were taught to take care of our GNP because it would take care of poverty. Let us reverse this and take care of poverty because it will take care of the GNP. In other words, let us worry about the content of GNP even more than its rate of increase".

Viewed in the above context, the concept of economic development was definitely superior to the traditional view, however, some economists still see it as restricting the concept to being only an economic phenomenon. In their opinion, the phenomenon of

development or lack of it, is not merely a question of economics or the quantitative measurement of incomes, employment and equality. Underdevelopment, according to them, is to be seen as a state of mind, as much as a state of national destitution.

Thus, economic development, as explained by Todaro (2000), must be conceived as a multi-dimensional process involving major changes in social structure, popular attitudes, and national institutions, as well as the acceleration of economic growth, the reduction of inequality, and the eradication of poverty. Development, in its essence, must represent the entire gamut of change by which an entire social system, tuned to the diverse basic needs and desires of individuals and social groups within that system, moves away from the condition of life widely perceived as unsatisfactory and towards a situation or condition of life regarded as materially and spiritually better".

1.3 Inequalities In Economic Development

Inequalities in economic development exist not only between nations but also within the nations, between different regions and sub-regions.

The development gap between nations is an unfortunate reality. All countries (regions) including the modern industrial ones in the West, were once at subsistence level. In fact, till the industrial revolution there were little international (regional) inequalities. However, the industrial revolution accompanied by rapid technological development caused wide international (regional) disparities in development. The situation was further aggravated by the drain of wealth from colonies to the western countries, whose

development was, thus, further boosted. The extent of inequalities is reflected in GNP per capita measured at PPP (Purchasing Power Parity), which was $ 27,450 in developed countries, and in sharp contrast was an appalling $ 1,990 in under developed countries in 2000.

Low-income level countries share amongst themselves peculiar characteristics which differentiate them from the high-income economies, most common among which are (i) Low levels of Gross National Income (GNI) per capita and slower GNI per capita growth. The World Bank, in 2000, estimated that there were 64 low income economies where the GNI per capita at current prices was $775 or less, worse still, 16 countries in this category had GNI per capita which was even less than $250 (World Bank, 2002), (ii) Larger income inequalities and widespread poverty; in a comparison of the poorest 60 per cent of a country's population with that of the richest 20 per cent, as a rough indicator of income inequalities, in as many as 14 low income countries (out of the 25 for which data is given in the World Development Report 2000-01) the poorest 60 per cent accounted for less than one third of the national income while the richest 20 per cent accounted for more than 40 per cent of the national income and (iii) Low levels of labour productivity, which Myrdal (1968), in his well known "theory of circular and cumulative causation" suggests, is the effect of low levels of living in such economies. (iv) Leibenstein (1958) pointed out that developing economies excessively depend on agriculture and have a backward industrial structure. He estimates that 30-80 per cent of the labour force is engaged in agriculture and allied activities in these countries (regions). (v) Kuznets (1979) highlights that low income countries have a high proportion of consumption

expenditure and low saving rate. "The shares in net national product are 90 per cent for ultimate consumption and 10 per cent for net national capital formation in underdeveloped countries (regions) and 84 and 16 per cent respectively in developed countries". (vi) The demographic trend of population growth rates in such countries varies in between 2 to 3.5 percent per annum and results in a high dependency burden. (vii) According to Todaro (2000), the combined urban and rural labour forces in underdeveloped countries which remain "unutilized" is approximately 35 per cent of the total labour force (Sabalo, 1995). (viii) Technological backwardness and lower participation in foreign trade are also highly evident in underdeveloped countries.

Apart from these common characteristics certain other distinguishing features of less developed regions are (a) The social life in such regions is tradition bound and orthodox, hampering any kind of change in the outdated socio-economic relations. (b) The social organisations in such countries (regions) is characterised by negative features such as high degree of illiteracy, extensive prevalence of child labour, general weakness of middle class and inferiority in the status of women and, (c) As Myrdal (1968) points out underdeveloped regions are invariably "Soft States", implying that they lack social and legal discipline, on account of high levels of corruption.

Not only is there vast economic distance in levels of development between developed and developing countries, but extreme inequalities also exist within developing nations themselves and within the constituent regions of these nations.

In a study conducted of 43 developing countries, Adelman and Morris (1973) based on data of the late 1950's and 1960's, pointed out that in 41 countries, the share of national income of the top 5 per cent of the population was more than that of the bottom 40 per cent of the population. A study of inequalities of income for 66 countries conducted by Ahluwalia (1975) substantiates that most underdeveloped countries exhibited greater relative inequality than the developed countries.

The World Development Report 2000-2001, presents data which reveals that there are extreme inequalities of income distribution in developing countries, for example, in India, the lower 20 per cent of the population received only 8.1 per cent of the national income in 1997 while the top 20 per cent received as much as 46.1 per cent of the national income.

Personal income inequality trends in India underlie the existence of regional inequalities within the country. Rao and Kalirajan (1999) examining the period 1965-95, found that the State Domestic Product (SDP) for the 14 major States (excluding Goa and all the special category States) were diverging (using standard growth regressions for conditional convergence), even when one controlled for differences in initial conditions (Singh, 2003).

Goa, the 25th State of the Republic of India, also exhibits such regional inequalities in economic development, the cause for which can be traced back to the colonial rule of the Portuguese in Goa. Traditionally an agricultural economy, Goa became a prominent trade

port for the Portuguese after it was conquered by them on 25th November 1510 and remained so till it was liberated on 19th December 1961, ending 451 years of colonial rule in the region. The Portuguese conquest has left a deep impact on the economic development of Goa, creating a big gulf in the levels of developments between the coastal and interior regions of the State.

All the four talukas which are situated in the coastal region are the areas that were conquered by the Portuguese first ('old conquests') and the Portuguese Government made special efforts to develop them. These were also the areas where large scale religious conversions took place. At one time more than 80 per cent of the population of these areas was made up of religious converts. The Portuguese Government provided several economic facilities and concession to the religious converts, for almost 300 years of their rule. The Portuguese also opened up maritime trade and commerce, especially with Europe for the Goan population, which brought rich dividends. Many Goans from the coastal region migrated to Europe, Africa and other parts of the world, and the remittances that they sent home, enriched the local population. Similarly, local trade in imported goods, including gold, flourished and extra dividends were earned by channelising the imported goods to Bombay and other parts of India, at much higher prices. All these trading activities which flourished in coastal Goa under the patronage of the Portuguese administration brought unprecedented prosperity to these areas.

In contrast, areas in the interior hilly region of Goa were annexed to Portuguese Territory only after two hundred fifty years of the initial settlement of Goa by the Portuguese. By

which time coastal Goa or the 'old conquests' had already reached the pinnacle of its social growth and economic prosperity. The people of the "nova conquistas" or 'new conquests' where religious conversions were among the least, were viewed with suspicion by the alien administration. In fact, numerous revolts against the Portuguese administration had taken place in these areas, especially, in the north-eastern borders of the territory. Consequently, these areas did not fully enjoy the confidence of the Portuguese administration neither did they get a fair deal at their hands. It was only after the upsurge of the nationalist movement in India, which began to resound in Goa, in the first half of the last century, that the Portuguese Government adopted a more liberal attitude towards the 'new conquests'.

The pertinent fact to be noted is that the import oriented trade which brought rich dividends to the coastal areas did not penetrate to the interior regions. Neither modern education nor non-farm employment opportunities were extended to the 'new conquests'; means of communication and industry were also conspicuously absent in these areas. Little wonder then, the areas on the eastern boundaries of Goa remained economically backward.

Present day Goa can be hardly recognized from pre-liberation Goa. It is true that Goa has made substantial socio-economic progress in the past 45 odd years after liberation; from being an agricultural and trading economy it has transitioned into a rapidly developing industrial and service-oriented economy. However, it appears that it is the coastal areas of Goa that are well developed, economically and socially, the interior regions remain as

backward as the most backward regions in other parts of the country, the causal roots of which can be traced back to the historical events that took place particularly after the Portuguese colonisation of Goa, until the liberation of the territory in 1961.

1.4 Relevance of the Present Study

The present study is of extreme relevance because even a cursory observation indicates that the historical antecedents of regional imbalances in economic development of Goa, have persisted, if not become worse, inspite of over 45 years of liberation, of which for approximately 25 years, Goa was a Union Territory, receiving generous financial support for development activities.

Since the declaration of Statehood, elected representatives, in the consecutive governments ruling the State, have framed policies for development and have carried out development of physical and social infrastructure, to such an extent that a study conducted by economists Bibek Debroy and Laveesh Bhandari for the leading fortnightly India Today, (India Today, May 19, 2003) ranks Goa as No.1 State amongst the 19 States that were studied, giving importance, to both, business environment and quality of life, while framing 46 parameters across 8 categories. The question that looms large across the mind of a close observer of Goa is whether these development indicators are evenly spread across the length and breadth of the State or has Goa bagged the status of No.1 State on the basis of averages, which push the reality of unequal regional development to the background? Unfortunately, the development gap in Goa, is a harsh reality. The level

of development of the coastal talukas is disproportionately higher than that of the interior talukas of Goa.

A cursory glance at the distribution of population alone is sufficient to prove the point; more than 57 per cent of the population resides in the four coastal talukas. The density of population in these four talukas is almost two and a half times higher than the State average of 272 people per square kilometer. The coastal talukas have the highest concentration of urban population, with 83 per cent of the population of 15 towns in the State being concentrated in just 8 towns along the coast. On the other hand, the interior talukas have just about 17 per cent of the population.

As urbanisation is closely associated with growth in the secondary and tertiary sectors of the economy, the four coastal talukas exhibit a pronounced spurt in these activities with approximately 70 per cent of large and small scale industries and developed industrial estates located in the coastal talukas. In the tertiary sector, it is tourism that has a dominant presence with Goa having emerged as the foremost tourist destination in the country for not only foreign tourists but also for the growing number of domestic tourists. Tourism as the major activity in the service sector has not only propelled the growth of the service sector but also that of the economy of the state as a whole, generating foreign exchange earnings, employment, intra-sectoral linkages and higher standards of living through a multiplier effect which percolates down to the lower strata of the population. Yet again, the benefits of tourism too, have accrued mainly to the coastal regions of the state on account of an overwhelming focus on beach tourism, with very little attention

having been paid to developing other forms of tourism such as heritage tourism or eco-tourism, which could benefit the interior regions of the state.

Given the above situation, the present study becomes highly relevant to suggest a development strategy that shall assist in the reduction of the regional disparities existing within the State. Such a development strategy shall proceed on the presumption that while coastal talukas shall continue to maintain their dominant position, the focus of new development will have to shift to the interior talukas.

1.5 Objectives of the Study

1. To study the nature of regional imbalances in the economic development of Goa by developing an index.
2. To measure the nature and extent of taluka wise inequality in the development of the agriculture sector in Goa, both spatially and temporally.
3. To measure the nature and extent of taluka wise inequality in the development of the manufacturing sector in Goa, both spatially and temporally.
4. To examine the inequality in the service sector development as compared to the other sectors in various talukas, spatially and temporally.
5. To assess the overall inequality in the economic development of Goa and to suggest measures to bridge the gap in the economic development of Goa.

1.6 Hypotheses

1. Regional disparity exists among the various talukas in Goa in all sectors of the economy.
2. The inequality among talukas exists in all sectors of the economy.
3. The extent of inequality among talukas differs widely in agriculture, manufacturing and service sector of Goa's economy.
4. The extent of inequality in the service sector is high and the tourism driven growth in the service sector is the major cause for inequality in this sector.
5. The inequality is on an increase in all sectors of the economy over the period of study.

1.7 Data and Methodology

The study is based on secondary data for 20 years, from 1987 to 2006, for all the 11 talukas (Tiswadi, Bardez, Pernem, Bicholim, Sattari, Ponda (in North Goa) and Sanguem, Canacona, Quepem, Salcete and Murmugao (in South Goa) of Goa pertaining to the agriculture, manufacturing and service sectors, collected from Directorate of Planning Statistics and Evaluation, Government of Goa, Panaji.

13 parameters are considered in agriculture, 8 in manufacturing, and 27 parameters in the Service Sector (13 in education, 6 in public health, 5 in banking and 3 in tourism). Thus, a total of 48 parameters are considered over the three sectors, for the 11 talukas over the 20 year period 1987 to 2006. In all, 10,560 observations are taken into consideration for the analyses.

The study involves the construction of a development index for each taluka for agriculture, manufacturing and service sectors and composite index for the entire state. The 11 talukas are then ranked and classified on the basis of these indices into high, medium and low development categories. Measure of rank correlation coefficient is used to understand whether the ranking is consistent over the years.

The study uses the coefficient of variation to determine the extent of inequalities within a taluka over the period of study (a temporal analysis) and between all the talukas (spatial analysis) in the selected years from the period of study. The study also uses the Gini-coefficient to measure the inequalities over talukas during the period of study in the agriculture, manufacturing and service sectors of Goa. Main objective behind using Gini coefficient is to measure the inequality in terms of the population of that taluka.

1.8 Outline of the Thesis

The whole study is organized into eight chapters. Chapter I, being an introductory chapter, states the research problem and then gives the background, objectives, methodology and the outline of the study.

Chapter II gives review of literature on the nature and extent of inequalities that exist across countries and within them; inter state inequalities, intra state and intra district inequalities in India.

The chapter III describes the methodology used in the study.

The chapters IV deals with the regional imbalances in the development of the Agricultural Sector in Goa.

The Chapter V deals with the regional imbalances in the development of the Manufacturing Sector in Goa.

In the Chapter VI, the inequality in the development of the Service Sector, comprising of the four sub-sectors, namely, Education, Public Health, Banking, and Tourism is examined and followed by that the composite development of the Service Sector. It also examines the inequality in overall development of Goa by considering the development of the three sectors, namely Agriculture, Manufacturing and Services.

The chapter VII gives the major findings and the conclusions of the study. The chapter also highlights the implications of the study.

1.9 Limitations of the Study

The study is limited to examining the sectoral development of the State with relation to only those parameters for which taluka level data is available. The analyses is also restricted to data available after 1987, as taluka-level data pertaining only to Goa is only available after Goa attained Statehood, separating it from the union territories of Daman and Diu. The study presumes the authenticity of the data made available by the Department of Planning, Statistics and Evaluation, Government of Goa.

CHAPTER II

REVIEW OF LITERATURE

CHAPTER II

REVIEW OF LITERATURE

2.1 Introduction

Economic Development, in its connotation, has evolved from being understood in the traditional context, strictly in economic terms, as a sustained annual increase in Gross National Product (GNP) at rates varying between 5 to 7 per cent together with the structure of the economy changing from being predominantly agricultural to prominence of manufacturing and services, to being understood in the context of the new welfare oriented approach which emphasises that reduction of elimination of poverty has to be the indispensable indicator of development (Viner,1953) 'Redistribution with Growth' became the popular slogan of the time (Kindleberger and Herrick,1977). Seers (1972) reiterated this further by saying that if poverty, unemployment and inequalities have been growing, then it would be strange to call the result "development" even if per capita incomes doubled. Thus, the content of GNP, and not so much its rate of increase, became the focal point (Mahbub-Ul-Haq, 1971). Modern Economists went a step further and emphasised that economic development implied, a multi-dimensional change towards a condition of life that was regarded as "materially and spiritually better" (Todaro, 2000).

Understood as above, we can observe a development gap between nations, within-nations and even within sub-regions (States) of nations.

In terms of Gross National Income (GNI) per capita, the extent of inequalities between nations measured as Purchasing Power Parity (PPP) showed a stark contrast, with $ 27, 450 in developed countries as against an appallingly low $ 1990 in developing countries in 2000 (World Bank, 2002). There is also vast economic distance within the developing nations themselves, as seen in the case of China, with a GNI per capita of only $ 840 as against Mexico on the one hand, with a GNI per capita as high as $ 5080 and countries such as India and Ethiopia, on the other hand, with GNI per capita as low as $ 460 and $ 100 respectively.

Inequalities within the constituent regions (States) of the nations have also been the focus of several studies. Padoshi (1995) has compared the performance of 17 individual States in India, in the growth of Net State Domestic Product (NSDP) and found that only 6 States had growth in NSDP above the overall average (i.e. 53 percent) and that the remaining had growth in NSDP less than the overall average, indicating significant disparities within the constituent regions (States) of India.

However difference in incomes can indicate difference only in economic growth and not economic development, which led Morris (1979) to develop the Physical Quality of Life Index (PQLI) and paved the way for the construction of the Human Development Index (HDI) by the United Nations Development Programme (UNDP) in its first Human Development Report (HDR). Economic Development which has now come to be considered as being synonymous with Human Development is "a process of widening peoples' choices as well as raising the level of well-being achieved" (UNDP, 1997).

Mahbub-ul-Haq (1996) clarifies that "the defining difference between the economic growth and the human development schools is that the first focuses exclusively on the expansion of only one choice, income; while the second embraces the enlargement of all human choices, whether economic, social cultural or political".

The argument that the expansion of income can enlarge all other choices as well is belied by a comparison of HDI rankings of developed and developing countries as against the GDP per capita rankings of the respective countries. The differences are substantial in the case of a number of countries. Eleven countries have an HDI rank at least 20 places higher than their GDP rankings. On the other hand, for 18 countries the GDP rank is at least 20 places higher than their HDI ranks.

Attempts have also been made at the national level, to rank States in order of Human Development, a prominent study conducted by Debroy and Bhandari (2001) evaluated 19 States on the basis of 46 parameters across 8 categories for 1991 and 2001 and ranked their performances.

Therefore, assessed on the basis of income as well as Human Development, it is quite evident that inequalities exist not only among nations, but within them, and within the constituent regions of these nations as well.

It is in order to understand the nature and extent of inequalities that exist across countries and within them that the researcher has undertaken a review of related literature and for the purpose of convenience has classified the same into:

I. Inequalities in Economic Development Across-Countries (Global Studies)

II. Inequalities in Economic Development Within-Countries (Global Studies)

III. Inequalities in Economic Development Within-Nation (Inter-State Studies in India)

IV. Inequalities in Economic Development Within States in India (Intra-State and Intra-District Studies).

2.2 Inequalities in Economic Development Across-Countries (Global Studies)

Historically, all countries, including the modern industrial ones in the West, were once at subsistence level. In fact, till the Industrial Revolution there were little regional (across-countries) inequalities. It was the Industrial Revolution accompanied by rapid technological development that caused wide regional (across-countries) disparities in development, which were further accentuated by the addition of wealth to the western countries by the riches they drained off from their respective colonies.

Bairoch (1981), examined historically the main trends in economic disparities across-countries, grouped into Developed and Third World countries, on the basis of secondary data from the (former) System of National Accounts (SNA) for the period 1750-1977. He reiterated the knowledge that differences in the international levels of income were limited before the Industrial Revolution. A significant gap emerged between the

developed countries of the industrialised world and the third World countries. Using data of Real GNP per capita, the study estimated that the gap in the ratios of Developed countries and Third World countries, widened from 1.0: 2.0 in 1830s to 1.0 : 7.0 in 1913. Even within the Developed countries, the gap between the three poorest and the three richest countries in 1800 was only 1.0 : 1.5, but by 1860 it reached 2.9 and by 1913 to 4.0 (and by this time the United States had sixteen times the physiological minimum per capita GNP). The First World War saw the gaps between the countries widening considerably. The United Kingdom (U.K.) in fact, lost its supremacy. The Second World War further widened the across-countries disparities. The 30 year after the II World War saw rapid development of the poorer developed countries and thus there was a notable bridging of the gap in ratios to 1.0: 3.0. In the Third World countries, however, the situation of inequalities was more severe. On a continental basis (for lack of country wise date) Bairoch estimated the disparities in national levels of income are greater in the Third World, the ratios being as wide as 1.0 (poorest):12.0 (richest) less developed countries. He also identified certain other factors which influenced long-term inequalities in economic growth across-countries such as (a) differences in human resource endowments, (b) effects of localisation of production activities (c) the social environment and (d) historical accidents which could play a crucial part in affecting the countries growth pattern.

Adelman and Morris (1973) conducted an important study to measure economic growth and social equity in income distribution. The study based on secondary data for the late 1950s and 60s analyses income distribution in terms of the percentage of income

received by distinct size (quintile) groups in the population for 43 countries. The findings of the study have been used most frequently in discussions of regional imbalances in economic development. The study, which combined the first two quintiles and split the last quintile to give the share of income of the top 5% of population found that, of the 43 countries included in the study, in 41 countries, the share of the top 5% of the population, in income, was greater than that of the lowest 40% of the population. In 26 countries (of the 43) the share of the top 5 percent of population was more than the lowest 60 percent of the population. Only in 2 countries, the share of the lowest 40 per cent of the population, in income, was greater than the top 5 percent. In an alarming finding, the study estimates that in all the 43 countries, the top 20 per cent of the population shares 50 per cent or more of National Income. Therefore, this study corroborated the fact that severe inequalities existed across countries in terms of distribution of income.

Ahluwalia (1975) studied the problem of income inequalities for the period 1960s and 70s on the basis of secondary data pertaining to percentage of income received by distinct size (quintiles) groups over 66 countries. By evaluating the GNP per capita in the various countries, the study classified the countries into (i) those in which there was an incidence of 'High' inequality of incomes, where less than 12 per cent of GNP per capita accrues to the lowest 40 per cent of the population (ii) those in which there was 'moderate' inequality where 12 to 17 percent of GNP per capita accrues to the lowest 40 per cent of the population and (iii) those in which there was 'low' inequality, where more than 17 per cent GNP per capita accrues to the lowest 40 per cent of the population. The study

observed that the extent of inequalities vary considerably not only across-countries, but also within-countries (globally). The developed countries were evenly distributed between categories of low and moderate inequality, the average share of the lowest 40 per cent being approximately 16 per cent of the GNP per capita. Most of the underdeveloped countries showed up greater relative inequality than developed countries. Notably the socialist countries had the highest degree of equality with average income share of the lowest 40 percent of the population being almost 25 per cent of GNP per capita. The disparities within-countries was significant in the underdeveloped countries where in half the underdeveloped countries, the lowest 40 percent of the population share around 18 per cent of GNP per capita while in the other half, the share of the lowest 40 percent of population is only 9 percent of the GNP per capita.

The Royal Commission on the Distribution of Income and Wealth (1980) conducted a study to compare the distribution of income in the United Kingdom (U.K.) and eight selected countries, that is, Australia, Canada, France, West Germany, the Republic of Ireland, Japan, Sweden and the United States (U.S.) in order to determine the levels of inequality and changes in the level of inequality. The study for the time period 1950-1973 relied on secondary data from 50 different data sources classified into income tax based data, census of population data, large scale labour force surveys, budget surveys, specific employee surveys and 'Model' estimates. The study evaluated total personal income and taxable income of distinct size (quintile) groups (percentages), inner families, households, consumer units and individuals (as defined) and with the help of Gini coefficients found that inequalities of incomes were more unequal in the United States

than in United Kingdom and in the Republic of Ireland. The degree of inequality was marginally less in Canada, though the 70s, saw a reversal in this trend, however, the degree of inequality increased more in the U.S. than in the U.K. and was least in the Republic of Ireland. While comparing the distribution of incomes by consumer units, the study revealed lesser disparities in U.K. than in the U.S. and Canada. A comparison of pre-tax personal incomes between the mid 60s and the mid 70s showed lesser level of inequality in Australia and the U.K. as compared to any of the other countries, France displayed the highest inequalities of incomes during this period.

Jantti (1977) undertook a comparative study of five countries, namely, Canada, the Netherlands, Sweden, the U.K. and the U.S. to examine income inequalities amongst them in 1980s and to identify the causes for such inequalities. Relying on secondary data from the Luxembourg Income Study (LIS) tables for two years, that is, in early 1980s and mid-80s, the study examined percentages of unemployment, inflation and Real GNP growth, disposable incomes, income sources by factor shares and income sources by population groups by using (i) decomposition methods by using squared coefficient of variation i.e. $CV^2 = \sigma^2 / \mu^2$ where α^2 is variance and μ is the mean of income (ii) decomposition of factor shares and levels of income inequality of the various income sources and (iii) decomposition of levels of inequality by population groups and changes in inequality by population groups. The study revealed that inequalities increased between early 1980s and mid 80s in Sweden, the U.K. and the U.S. and remained more or less stable in Canada and the Netherlands, what is interesting to note is that the rise in inequalities were due to increased labour earnings, and due to earnings inequality

between household heads and spouses. The study pointed out that taxes and transfer policies, contrary to expectations, were in fact responsible for a decreasing effect on income inequality. The study also concluded that demographic shifts were not found to have any major impact on the rising inequalities.

Summers et. al. (1981) examined the consequences of the differential growth rates, which are investigated, for their implications on the world distribution of income over the period 1950-1975. Making use of secondary data on real GDP comparisons reported in their earlier publication (Kravis, Heston and Summers, 1978b) and on data made available in the World Bank Real Product Series of the International comparison project of the United Nations, 106 industrialised and developing countries are evaluated in a time series between 1950-1975 with the help of Gini coefficient and Lorenz Curve by taking into account the Real GDP, Purchasing Power Parity (PPP) and Real Gross Domestic Income (GDI). The findings of this study summarize the findings of earlier studies in that, the world income increased significantly during the 25 year period over all countries, however, notably, the share of increase has not been the same in all the countries. Equalities increased considerably among the developed countries and decreased sharply within developing countries. The "between group" differences in incomes, as found in earlier studies as well, produced relatively high world Gini coefficients in 1975.

Ever since Nobel Laureate Simon Kuznets (1955) initiated the debate on economic growth and income inequalities, innumerable investigations have been carried out to

study regional imbalances in income inequalities, across-countries and within them (globally) The Kuznets 'U' hypothesis has been confirmed by several studies, however, **Anand and Kanbur (1997)** have investigated the empirical and economic basis for Montek S. Ahluwalia's estimation of the inequality development relationship as considered in his articles Ahluwalia (1976b) and Ahluwalia, Carter and Chenery (1979) as they have been used for two important purposes, that is, (i) to 'confirm' Kuznets 'U' hypothesis and (ii) for projections of inequality and poverty by the World Bank in its World Development Reports (1978, 1979, 1980). Relying on secondary data for 60 developed and developing countries and rigorous statistical methodology and using non-tested functional forms, Anand and Kanbur come to the highly debatable finding that Ahluwalia's estimates lack robustness with respect to variations in functional form and data set. They point out that alternative forms which are equally well supported by the data, imply very different shapes for the inequality development relationship. Inequality projections of Ahluwalia, Carter and Chenery (1979) are also very sensitive to the choice of functional form. In fact an alternative minimally consistent data set from the original sample of 60 countries reject the log quadratic form in favour of a straight quadratic form. What is even more alarming is that this form displays a reversal of the commonly accepted 'U' hypothesis.

In fact, **Adelman and Fuwa (1992)** took up a study pertaining to 1980, to reinvestigate whether there is a trade-off between income inequalities and growth. Relying on secondary data available in World Bank Reports for 41 countries, made up of 20 developing, 3 East-European and 18 Organisation of Economic Co-operation and

Development (OECD) countries, the study examines decile shares of income (percentage), per capita GNP, Initial condition variables such as population, population density, per capita natural resource abundance etc., structural variables such as share of primary exports in total exports, share of agricultural employment in total employment, share of value added in GDP, the extent of productivity differentials among sectors, share of government expenditures in total GNP as an indicator of government involvement in the economy, government social expenditures in total government expenditures as an indicator of re-distributive government policies, Primary and Secondary schooling, a communism dummy, extent of socialist influence on government policy in the previous ten years, ranging from none (e.g. Brazil and Hong Kong) to significant (e.g. India) and Macro economic variables such as inflation rate, outstanding foreign debt, cumulative net foreign investment in the preceding 10 years and a Latin American dummy variable, to find that, in the 1980's the Kuznets 'U' becomes a Kuznets 'J' curve, because income shares of the poor decline very steeply in the early stages of development, reaching a minimum around income levels characteristic of semi-industrial countries, and continue to remain there, for all practical purposes. The study points out that recovery towards pre-development shares is very slow and is not achieved until well after countries become fully developed, moreover, the structural adjustment policies and financing methods used to support growth in the 1980's have exacerbated the growth equality trade-offs for the poor; an even more disturbing finding is that the prospects of the bulk of the poor in developing countries can hardly be considered satisfactory. The study has led to the conclusion that in lowest income countries merely accelerating the countries growth rates

will not do much for the poor, but rather, the countries, in fact, need a change in the structure of assets of the poor.

The structural adjustment policies of the '80s led to the era of libralisation, privatisation and globalisation, which according to several studies have accentuated inequalities across-countries and within-countries, particularly among the developing ones.

An interesting study by **Williamson (1977)** reviews the historical debate about the first globalisation boom in the late 19th century and attempts to relate it to the globalisation boom in the late 20th century, where inequalities rose in resource-rich, labour-scare countries such as Argentina, Australia, Canada and the United States, and fell in resource poor, labour abundant agrarian economies such as Ireland, Italy, Portugal, Scandinavia and Spain and remained stable in industrially leading countries of Europe. The study relies on secondary data from published works and examines countries across the globe, in three time periods, that is 1850-1913, 1913-1950 and 1950-2000, with regard to real wages, land values and the migration impact on labour force, and uses statistical techniques such as coefficient of Variations, Dispersion and Ratios to show that there was a strong correlation between inequalities and globalisation which was broken during the inter-world war period which gave rise to the assumption that it was rising inequality trends in rich countries during globalisation that led to the inter-world war retreat from globalisation. Notably, the study observes that inequalities in rich countries stopped exactly when immigration was choked off by quotas, global capital markets collapsed and international communities retreated behind high trade barriers. The all important

questions that the study asks is whether there is a lesson to be learnt from history? Will history repeat itself? Will the world economy retreat from commitment to globalisation due to rising inequalities.

Post-globalisation, several important studies have analysed across-country inequalities in the light of the evolved understanding of economic development, which included not just a widening of economic choices, but equally, social, cultural and political ones as well.

Li, et al (1998) took up one of most comprehensive studies to explain international and intertemporal variation in income inequality, across-countries, in the post globalisation era. They relied on secondary data from National Household Surveys of the respective countries, although they started out with construction of Gini Coefficients for 112 developed and underdeveloped countries, their rigorous methods to cleanse data from possible errors, left them with a set of 573 observations of per capita expenditure and income for 47 countries. The study which evaluates the data for four points in time between 1947-97 points out that higher levels of inequalities are due to inequalities in land distribution and lower levels of civil liberties. Further, the study concludes that educational advancement and financial development serve to reduce inequalities.

We can note here that, there is now an emerging emphasis on the non-economic factors that contribute to economic development. **Rao (2003)** also explores across-countries variation in income inequalities using Gini ratios, constructed however, on the basis of more comparable data than national and sub national surveys, that is on per person and

per household income distribution and income and expenditure distributions. His across-countries study relies on secondary data pertaining to world development indicators such as level of per capita income at purchasing power parity (PPP 1990-97) literacy (secondary school enrolment 1980) educational achievement, export orientation, extent of land concentration, indicators of financial depth and index of civil liberties (i.e. freedom index) for 1999. The study identifies globalisation, with the free flow of trade and investments on the one hand and the not so free, flow of manpower on the other, as being the cause of inequalities. To further aggravate the situation, free market economies do nothing to reduce the disparities, moreover as has already been shown in previous studies, Rao also points out that economic growth does not automatically reduce inequalities. Socialism, according to the study, is the remedy as it makes for greater equality, however as acceptance of socialism is on the decline, the study suggests that the mindsets of the people have to evolve in the direction of welfarism in order to bring about a reduction in inequalities and highlights the important role that public policy needs to play for this purpose.

The World Bank publishes annually the World Development Report (WDR) to take stock of the relative performances of various countries in the different development indicators. The **World Development Report (2002)** presents data for 133 countries (reproduced in Table 2.1) to highlight inequalities in basic indicators across-countries for the year 2002, which is indicative of inequalities in other areas as well. Regional disparities having been established beyond doubt, both across-countries and within countries, recent studies have concentrated on trying to analyse the causes for inequalities and in establishing evidence

Table 2.1 Basic Indicators

	Population (million) 2000	GNI per capita Dollars 2000	GDP per capita % growth 1999-2000	PPP estimates of GNI per capita Dollars 2000	Poverty % of people living on less than $ 1 a day (PPP) 1990s
World	**6054S**	**5150W**	**2.9W**	**7350W**	
Low-income economies	**2459**	**420**	**3.1**	**1990**	
Middle-income economies	**2693**	**1970**	**4.8**	**5650**	
Lower middle income	2046	1140	5.5	4580	
Upper middle income	647	4620	3.9	9170	
Low & Middle income	**5152**	**1230**	**4.2**	**3890**	
South Asia	1355	460	3.8	2260	
Sub-Saharan-Africa	659	480	0.5	1560	
East Asia & Pacific	1853	1060	6.5	4120	
Middle East & North Africa	296	2040	-	5170	
Europe and Central Asia	475	2010	6.3	6620	
Latin American & Caribbean	516	3680	2.3	7030	
High income economies	**903**	**27510**	**3.2**	**27450**	
	Population (million) 2000	GNI per capita Dollars 2000	GDP per capita % growth 1999-2000	PPP estimates of GNI per capita Dollars 2000	Poverty % of people living on less than $ 1 a day (PPP) 1990s
Low income economies					
Ethiopia	64	100	2.2	660	31.3
Nepal	24	220	3.1	1360	37.7
India	1016	460	3.9	2390	44.2
Pakistan	138	470	3.4	1960	31.0
Lower middle income economies					
China	1261	840	7.3	3940	18.5
Sri Lanka	190	870	4.2	3470	6.6
Upper middle income economies					
South Africa	43	3020	1.4	9180	11.5
Malaysia	23	3380	6.0	8360	-
Brazil	107	3570	3.2	7320	90
Mexico	98	5080	5.4	8810	12.2
High income economies					
Portugal	10	11060	3.0	16880	<2
Greece	11	11960	3.8	16940	-
Australia	19	2530	3.0	25370	-
Canada	31	21050	4.0	27330	-
United Kigdom	60	24500	2.6	23550	-
Singapore	4	24740	8.1	24970	-
Germany	82	25050	2.9	25010	-
Japan	127	34210	1.7	26460	-
United States	282	34260	4.0	34260	
Switzerland	7	38120	2.7	30350	

Note : 'S' means sums of data available ; 'W' means weighted average.
Source : World Bank, World Development Report, 2002, New York, OUP, 2002, pp. 232-3 and 234-5.

between inequality and non-economic choices that are necessary to ensure human development.

Deaton (2003) in his study attempts to explore the theoretical basis and empirical evidence for a connection between inequality and health among poor as well as rich countries. Deaton uses secondary data from World Development Reports, the Luxembourg Income Studies (LIS), the Klaus Deninger and Lyn Squire (DS) (1996) data set available on the World Bank web site, National Longitudinal Mortality Studies, U.S. (NLMS) and the National Death Index (NDI) to conduct an across-countries study by evaluating GDP and life expectancy, world development indicators with the help of Preston Curve (life expectancy versus GDP per capita) and Gini coefficients, to establish a positive relation between income inequality and mortality. According to Deaton Income inequalities deserve the attention of policy makers, not per se, but rather for the adverse impact that they have on the health of the people, narrowing an essential "choice" for a better quality of life.

Acemoglu (2003) undertakes a study to account for the differential trends in wage inequalities across the U.S., U.K. and Europe by making use of the two most common explanations, which are that (i) relative supply of skills increased faster in Europe, and more important that (ii) labour market institutions prevented inequalities from increasing. Relying on secondary data available from the database of the Luxembourg Income Studies (LIS) for the 20 year period from 1980-2000, Acemoglu studies the supply of and demand for skills with the help of differential inequality trends to point out that the U.S.

is faced with greater inequalities as compared to the U.K., and European countries, because labour market institutions in Europe encourage more investment in technologies which increase the productivity of the less skilled workers, resulting in a less skill-biased technical change in Europe than in the U.S. This study is specially cited in this review of literature as it offers important lessons that can be learnt by developing countries having abundant supply of less-skilled workers in order to reduce disparities within them.

To conclude this section, a relatively new area is examined in context of regional inequalities in a recent study by **Iyigun** and **Owen (2004)**. They examine whether income inequality is associated with the short run volatility of consumption and output growth. Making use of secondary data on Real GDP per capita and consumption available in Penn World Tables, Mark 5.6, Deninger and Squire (1996)DS income inequality, measures and a country's price level data available from International Financial Statistics (1969-1992) of IMF, the study compares (i) a set of 14 low and high income countries between 1969-71 and 1981-83 (i.e. after 9 years), and (ii) a set of 27 countries with relaxed data between 1967-73 and 1979-1983 (i.e. after 6 years). The study relies on real GDP per capita and consumption per capita and price levels for these countries and with the help of Gini coefficient, quintiles percentage share in income and standard deviation of annual growth rates to show that in low income countries higher levels of inequality appear to be associated with less fluctuations in consumption growth and in higher income countries, greater income inequalities are associated with greater fluctuations; variability in GDP growth also appear to be related to economic inequality in the same way.

2.3 Inequalities in Economic Development Within-Nations (Global Studies)

In this section, it is once again pertinent to begin with an examination of the historical belief that the industrial revolution has caused an increase in relative inequality among all income groups within a region (Great Britain). In a study conducted by **Soltow (1980)** on the basis of secondary data prepared by two separate investigations, income distribution, income-tax data and land ownership data are examined with the help of Arithmetic mean concentration, coefficient and cumulative frequency distribution over eight time periods 1688, 1801-3, 1812, 1867, 1880, 1913 and 1962-63. The study emphatically states that there was no change in the position of relative inequalities between 1688-1801-3. In fact, some data available does prove that income inequalities in 1436 was marginally greater than in 1801. Again, relative income inequalities in 1867-1880 were similar to that in 1801. Inequalities in 1911 and 1913 were also found to be not greater than in 1867-1880, actually, they could be considered 10 per cent less, corroborating the findings of across-countries studies in the earlier section which found inequalities in the U.K. less than elsewhere. The study also shows a substantial decrease in inequalities over a period 1911-13 to 1962-3. Income tax data also shows evidence of continuous decline in relative inequalities among all income groups based on various data for the eight time periods.

The above study concentrated on relative inequalities of incomes, however an analyses of distribution of incomes in the United Kingdom to estimate inequalities of incomes in absolute terms was conducted by the **Royal Commission on the Distribution of Income and Wealth (1979)** on the basis of secondary data from the National Income and

Expenditure Blue Book prepared by the Controller of Her Majesty's Stationery Officer (CSO) for the period 1949-1976-77. The study considered data for income distribution before and after tax and with use of percentage share of income by distinct size (quintile) groups in population and Gini coefficients, showed that 60 percent of the population in the U.K. had income levels below the average incomes of the region. It was also evident from the study that a majority of the population were concentrated in a relatively narrow band of income, while a minority of the population, who were recipients of higher incomes, were spread over a much wider income band. The study also showed that the post-tax incomes were less dispersed. In the context of the previous study, this study accounts for a decrease in the over all inequalities as being on account of a fall in share of incomes of the top 10% of the population, the lowest income units within the region, however, did not register a rise in their shares in incomes.

Yet another study which attempts to analyse inequalities in the U.K. by assessing eight explanations for income inequality trends between 1971 and 1986 also tries to determine the causes for the changing trends. This study by **Jenkins (1995)** examines secondary data of the Family Expenditure Surveys (FES) for the years 1971, 1976, 1981 and 1981 to conduct a 15 year analyses of family income and expenditure data with the use of decomposition methods to cover (i) income recipient influences and (ii) income package influences. The study is able to divide the 15 year period into 3 sub-periods on the basis of the trends that were observed in income inequalities, that is (a) Pre-1977 – where inequalities were falling (please note the conformity with earlier studies) (b) 1977-1984 – where inequalities started rising and (c) Post 1984 – where inequality growth increased.

The study found that secular changes in age distribution, secular changes in household consumption, changes in distribution of cash social security benefits, income tax payments, employee national insurance contributions and changes in industrial structure have influenced regional inequalities of incomes whereas, aggregate inequalities were influenced more by changes in earning inequalities, employment structure and unemployment.

Among the early studies of regional inequalities conducted in the United States, the one that attracts greater attention is the one conducted by **Bowles** (1973) because he attempts to understand the degree of economic inequality, not so much in terms of inequalities in the distribution of incomes (as so many studies have done in the previous section) but more in terms of the processes by which inequalities arise, that is, inequality of opportunity (the significance of this study is all the more important as it concerns a country which is recognised as the land of opportunity !) The study is based on secondary data available in the Current Population Survey (CPS) and National Opinion Research Centre for the year 1962. The study analyses data regarding socio-economic backgrounds and incomes with the help of a statistical model of intergenerational mobility, decomposition methods and regression coefficients. The study helped to establish early enough that genetic inheritance of IQ in intergenerational transmission of economic status had a very trivial role. Surprising though it may seem, Bowels attributes inequality of educational opportunity also, as accounting for less than even half of the correlation between the socio-economic background and incomes. It is inequality of opportunity, that Bowles feels, is deeply rooted in social relations of production and which is a cause of

inequalities. In a way, this study could well be considered a fore-runner to studies of the human development school of economists, who believe that economic development is all about widening the 'choices' that are available to individuals. Way back in 1973 itself Bowles had emphatically concluded that as long as there is hierarchical division of labour, there can neither be equality of opportunity nor equality of incomes.

Moving across to southern Europe, a study of **Tsakloglou (1993)** aims to identify the sources of inequality in Greece and also to examine how inequality in Greece changes between 1974 and 1982. On the basis of secondary data, that is, published Household Expenditure Surveys in 1974 and 1981/82 by the National Statistical Survey of Greece (NSSG), the study analyses consumption expenditure with the help of Two Theil indices (T and N), variance of the Logarithms (L) and Decomposition Methods – by region, by sub groups (age of head of household) and by education (education level of head of household head) to arrive at the finding that aggregate inequalities declined quite significantly between 1974 and 1982. Inequalities in Greece declined both 'within' and between population sub groups. This reduction in inequalities was on account of a considerable proportional increase in the relative expenditure share of poorest population decile and substantial decrease in expenditure share of top population decile. The study also found a close positive relation between education and equalities in Greece for the period under consideration.

In the middle-east, **Achdut (1996)** examines income inequality trends in Israel during 1979-93. The study relies on secondary data complied by the Central Bureau of Statistics

(CBS) Israel, that is, the IS-Income Survey Data Compiled annually since 1965 and FES-Family Expenditure Survey conducted every 5-6 years. The study analyses data of wages and salaries for each household member aged 15 and over, Incomes, from other sources for each household, demographic and employment characteristics of household members and expenditure patterns of households with the use of Gini coefficients (G), Extended Gini coefficients (EG) [as formulated by Yitzhaki (1983)] Coefficient of variation (CV), Atkinson measure (A) and Lorenz Curve / ratios and by carrying out decomposition of Gini coefficient and time series regression on macro-economic variables. The study identifies 1979-84 to be an inflation period and 1985-93 to be a period of stabilisation. A slight increase in inequalities was found during the entire period due to opposing forces of inequality, that is, reducing effect of direct taxes increasing in the period 1979-84 and decreasing between 1985-93. Unemployment was found to have a regressive impact on inequality whereas, inflation was found to act as a progressive tax during the first period.

A study with reference to a sub-group of population of Israel carried out by **Amiel, et al (1996)** has been included in this review, as there is an attempt to examine economic inequality among the group known as the "Kibbutzim", but more relevant is the emphasis on the study of the distribution of well-being among the 'Kibbutzim' and changes in the distribution of well-being among this particular group during 1989-90. The study relies on secondary data available from the annual financial reports (inclusive of balance sheets and profit and loss reports) submitted to the Audit Union of the Workers' agricultural co-operative societies to derive 20 variables from the raw variables representing (i) consumption (ii) income and (iii) wealth. To study 185 Kibbutzim (however data

available for only 106 in the United Kibbutz movement and 63 in the National Kibbutz movement) with the use of statistical techniques such as mean, standard deviation, absolute Gini, absolute mean deviation, Coefficient of variation, Gini coefficient, relative mean deviation, standard equivalence scale and the Lorenz Curve. The study reveals that the 'Kibbutzim' is an economically interesting sub-population within the State of Israel. The end of the 1980s was an economically traumatic time for the 'Kibbutzim' although there was low inequality of living standards as measured by consumption per equivalent adult, yet substantial inequality of income and wealth existed (as per definitions). The 'Kibbutzim' also faced a peculiar problem of negative incomes and negative net worth (as per definition) in both the years under consideration. What is worth noting however, is that though the Kibbutz arrangement was supposed to decrease inequalities, the net result during 1989 and 1990 was an ambiguous change in income inequality among the members, which probably would have been higher without this arrangement.

A study with pertinent implications for economies implementing the economic liberalisation guidelines of the World Bank and International Monetary Fund (IMF) is the one conducted by **Glewwe (1986)** in which he aims to identify the characteristics of distribution of incomes in Sri Lanka and to determine the changes in distribution of income in Sri Lanka from 1969-70 to 1980-81 (consequent to the implementation of WB's and IMF's restructuring programme). The study relies on secondary data gathered from social economic surveys undertaken by the Sri Lankan Department of Census and Statistics in 1969-70 and 1980-81. The study uses decomposition methods by groups, by income sources and by shared household earnings and also the Thiel entropy measure

(T), the second Thiel entropy measure (L), the Variance of logarithm of income (LV), the Variance of untransformed per-capita income (V) and the Gini coefficient to analyse income and expenditure data in the specified years. The Expenditure data reveals a decline in inequality in the decade in question. Interestingly, income data however displays opposite movement, most probably due to under reporting which came more from non-wage income earners than wage earners, due to which the result can not be relied on. The study however indicates that the reduction in inequality was quite broad-based, that is inequalities fell in all three sectors of the economy, for all the three ethnic groups. It is concluded that the reduction in inequality of shared household earnings was mainly due to the reduction in the inequality of earnings per worker on account of the implementation of economic liberalisation guidelines of the World Bank and the IMF.

The last study in this section has also been reviewed with the particular intention of drawing a parallel between it and the topic of research at hand **Mayer (1981)** examines the evolution of regional disparities in Portugal with reference to demographic and socio-economic indicators. The study also analyses the plan documents to establish an industrial bias towards the two urban metropolises of the well-off coastal regions. The study also aims to suggest a reversal of trend and adoption of a radically different development strategy for more balanced regional development. The study relies on secondary data from the publication of Joao Evangelista, 'Population of Portugal over a century' pertaining to the period 1929-1977 to make a comparative analysis on the basis of population data and sectoral contributions to GDP in terms of percentages. The study reveals an excessive concentration of population in the coastal regions of almost upto 80

percent. The production structures are also excessively concentrated in the coastal regions, together accounting for 86 per cent of GDP (with one region alone accounting for 48%). Notably, the interiors received only 20% investments under the programmes of Public Administration (PIAP) and only 32% under the programme of Sector of State Enterprises (PISEE). This was apparently due to deeply rooted administrative practices (which can be seen replicated in Goa, very clearly, right until the time of liberation, in 1961, from Portugal, having been its colony for more than 450 years). In 1977 the PISEE programme did not provide any investment in agriculture for three of the backward regions and neither for industry in two of the less developed regions. Disparities in productivity are also evident with contribution to GDP per person employed, being twice as high in the most developed region as compared to the less developed regions put together. Productivities between the more developed regions as compared to the less developed regions are also two extremes. What is evident is a systematic regional bias. The Interior regions were grossly neglected with very little efforts to distribute the fruits of progress. It is the democratisation of economic and social life since April 1974 that has made it constitutionally mandatory for regions to be able to participate in decision planning and development and it is through this and the initiation of the medium term plan of 1977-80 that the study anticipates development of the backward regions and a halt to the increasing marginalisation of neglected regions and social groups.

2.4 Inequalities In Economic Development Within-Nation (Inter-State Studies in India)

Regional disparities in India have always been a sensitive topic of debate between policy makers at the Centre and the governments in the States, whether India should follow a

balanced growth approach as proposed by Ragnar Nurkse (1986) and others, on account of paucity of resources, it would be more judicious to adopt the strategy of unbalanced growth, advocated by A.O. Hirshman, Hans Singer, Paul Streeten and other (Streeten, Paul 1961). The debate remains unresolved, yet several studies have been undertaken to test the validity of each of the schools of thought. **Kumar and Krishnamurthy (1981)** examine historically the Indian data on national and regional incomes and other indicators of levels of living to see whether it conforms to the theory that (a) regional disparities increase within a country in the early stages of development since the process of growth starts in a few areas and in time spreads, causing regional incomes to converge, or that (b) the process of increasing disparity is cumulative and that differentials widen over time. The study relies on secondary data of the National Statistical Survey Organisation (NSSO) and the National Council of applied Economic Research (NCAER) and other sources, for 14 states between the time period 1860-1960 in terms of per capita incomes, Net State Domestic Product (NSDP), shares of broad sectors in the male working force of the Indian States and levels of development. The study points out that Indian data for the period after 1860 does not validate the theory that growth in other parts of the world economy or even in international trade will lead to the growth of Low Development Countries (LDCs). In fact, the Indian experience shows that the development gap between India and the advanced countries (U.S. and U.K.) widened significantly. It is pertinent to note that upon 1960, the study finds that regional disparities in India were relatively low, and that there was no marked growth of regional disparities in overall terms.

Ever since, several studies have been undertaken within the country, to assess the performance of the States / Regions within India in comparison to one another, to establish their individual performance in terms of economic development as also to establish, both the level and extent of disparities (if any) between the States / Regions. Some studies go beyond and aim to suggest measures that would help in reducing regional disparities.

Padoshi (1995) assesses the performance of the 17 States in India with reference to economic growth in each of them by studying the Net State Development Product (NSDP) of each of them. The study relies on NSDP data, considering it a more reliable indicator of productivity than Net State Domestic Income (NSDI), particularly in a developing economy like India. The study compares the performance of the 17 States in two time periods, that is 1975-76 and 1986-87 to determine disparity levels with the help of simple ratios of share of NSDP : share in population, i.e.

$$\left(\frac{\text{Share in NSDP}}{\text{Share in Population}} \right)$$

whose results can be either = 1, >1 or <1, that is growth in population in a State could be proportionate to its contribution to growth in NSDP or it could be more than proportionate (>1, i.e. favourable) of less than proportionate (<1, i.e. unfavourable). The findings of the study reveal that 6 States exhibit Growth in NSDP higher than that of the average National Growth (i.e. 53 percent in the period under study) and therefore are considered to be More Developed States (MDS) and 11 States exhibit growth less than the national average and are therefore considered to be Less Developed States (LDS).

The study on the basis of its findings concludes that there is considerable disparity in economic growth in India.

Another study that examines how the contribution of each State in India towards economic growth compares with its contribution to population growth is by **Devi (1995).** This study is based on secondary data made available by the Central Statistical Organisation (CSO) pertaining to Net Domestic Product (NDP) and State Domestic Product (SDP) for 15 States for 3 time periods, that is 1961, 1971 and 1981. The study employs the Hauser (1958) Method ratio showing in percentage terms whether the State is contributing more to NDP or population.

The equation is written as:

$$IRG = \left(\frac{\frac{y_1}{y}}{\frac{P_1}{P}} \right) 100\text{-}100, \text{ where}$$

IRG = Index of Relative Growth, y_1 = SDP of State, y = Summation of all States in the study, P_1 = Population of State and P = Population of all States in study. The formula gives deviation from 100, where contribution to NDP and population are considered to be in balance. The study concludes that only one-third of the 15 States under the study contribute more to NDP than to population. These states which are identified as the positive States, are (i) Punjab, (ii) Haryana, (iii) Maharashtra, (iv) Gujarat and (v) West Bengal. The contribution of all these States has been more to NDP than population in all the 3 years under consideration, over a span of three decades. All the other States except Karnataka and Rajasthan were considered negative States as their contribution to NDP

was less than their contribution to population. Karnataka became a positive State in both 1971 and 1981, however Rajasthan which became a positive State in 1971 went back to being a negative State in 1981. The study noted that there was a considerable and continuous deterioration in the Status of States like Bihar, Madhya Pradesh and Uttar Pradesh.

Some studies have tried to establish disparities among the States / Regions in India by comparing the share of sectoral income to the NSDP of the respective regions. **Reddy (1995)** attempts to identify the backward States / Regions in India on the basis of the share of sectoral income to NSDP with the aim of enabling removal of regional unbalances. The study relies on NSDP data published by the Centre for Monitoring Indian Economy (CMIE) Reports for the 15 States under consideration over two time periods, that is 1981 (during the 5th five year Plan) and 1989 (during the 6th five year plan). The study examines the ratio of share of sectoral income in the NSDP of the respective States. The study arrives at the disconcerting finding that the Tertiary Sector Share in NSDP, which is expected to be greater in developed States was only so in two States, that is, Haryana and Maharashtra. While it is a well known fact that the share of the Primary Sector (or more so, the non-tertiary sector) in NSDP is greater in the less developed States, the Study found that in 12 of the 15 States under study, this was so, and therefore 75 percent of the States were identified as 'backward'. The study points out that as share of sectoral contribution to NSDP may not be estimated accurately in developing countries (due to lack of exhaustive and authentic data because of the presence of a large unorganised sector) this method, which is suitable to identify 'backwardness' in the

developed countries of the world, may not be able to give reliable results in developing countries, which is why the study has suggested that the total rank score method is more suitable for identification of 'backwardness' in developing nations.

Accordingly, **Gupta** et. al. **(2000)** have attempted an analytical description of the manner in which Indian States have behaved in comparison with one another over the period 1960-61 to 1995-96 and to offer an explanation for the observed discrepancies or the absence of them, in terms of inter-sectoral comparisons. The study also aims to provide guidance to policy makers. Relying on secondary data pertaining to NSDP per capita and percentage growth rates therein, and on the shares of the respective sectors in NSDP, the study uses a rank correlation matrix, arithmetic averages, standard deviations, coefficient of variations, arithmetic means, medians and geometric means, the linear regression of growth rates and multi-annual and binary versions of Index of Rank Concordance to show that the rank structure among States has been almost the same. In fact, the correlation between States was close to unity for any pair of years. The intersectoral findings are quite revealing, in that the structural parameters show convergence over all States, that is, the share of manufacturing sector has remained the same or has marginally increased for all States, similarly, the share of the primary sector has fallen in all States and in all States, the Tertiary Sector has overtaken the primary sector. Be this as it may be, the undeniable fact is that States have diverged, or have gone apart, with considerable disparities creeping in within them while comparing SDPs of the respective States. The study therefore suggests addressing the issue of reducing the disparities in the SDPs by facilitating development of infrastructure, conducive investment conditions and

development of human resources in the States that are lagging behind and the study also suggests the need to frame suitable policies on the basis of the findings for each State.

Yet another comprehensive attempt to make out disparities among States in India by reviewing information on several aspects of living of the Indian Population based on data collected by the NSSO and supplemented by the results of the Population Census, the Sample Registration System and the two round of the National Family Health Survey (NFHS) and observing whether there was any discernible shift in the Lorenz Curve over the NSS Rounds was made by **Bhattacharya (2000)**. The study relies on secondary data from round 4 to round 55 of NSSO as well as all the other sources mentioned above, pertaining to Household income, average per capita consumption expenditure, literacy, education, mortality rates (child and infant) maternity and child health, nutritional health of children, housing conditions, primary source of energy, household durables and slum population and uses the Lorenz Curve / ratios technique to make out if there are any changes in inequalities. In a somewhat exceptional finding, the study reports a marginal fall in Lorenz ratios from 0.33 to 0.34 in the 50's and from 0.28 to 0.30 in the 60s and thereafter, which in turn implied that the share of the bottom 50% of population in per capita expenditure had actually risen (marginally, no doubt) from 27 per cent to 30%. The study, however does emphatically conclude that inspite of such observations, India has definitely fallen way behind many Asian neighbours thereby reiterating regional disparities in development.

A highly significant study after the period of structural re-adjustments recommended by the World Bank and IMF was undertaken by **Dholakia (1994)** in which an attempt was made to identify the regions which triggered the over all growth rate in the Indian Economy over the period 1960-61 and 1989-90. The study was interested in determining whether acceleration in the Indian Growth Rate is on account of the economically better of States or the economically backward (poorer) States. The study also aimed at determining whether the phenomenon of acceleration is confined only to a small geographical region or covers a large region and whether growth is concentrated in specific parts of the country only or whether it is geographically widespread. The study relies on secondary data obtained from the various volumes of the CSO publication on the estimates of State Domestic Product (SDP). The study across twenty states pertains to the period 1960-61 to 1989-90 (Time-series) with 1980-81 prices as constant. The study relies on trend rates of growth and possible shifts in total SDP and the total product of the Primary, Secondary and Tertiary sector and uses the kinked trend line with the regression equation $L_n Yt = a + bt + C (t - t_l^*) D + u_l$ where : $L_n Yt$ represents the natural logarithm of income in the year t, t* is the chosen year of shift in the trend, D is the dummy variable, which takes value 1 for years after t* and zero otherwise u_l is the error term a, b and c are the coefficients to be estimated. The study also applies the switching regression technique after correcting for the first order auto correlation through the Cochrane-orcutt iterative method. It was observed that a sharp increase in the long term growth rate of the Indian economy was achieved in 1981-82 itself, but this was restricted to only 6-8 states. Notably, these States were spread in all the 5 zones of the country, therefore no regional concentration was evident, on the contrary, there was a dispersal of high growth States all

over the country. Yet another finding that is worthy of consideration is that the high growth States emerged from among the economically poorer States, for example, Maharashtra, Gujarat and Uttar Pradesh turned into high growth States in the 3 years from 1972-73 to 1974-75 and it was these States that triggered the acceleration of growth in the rest of the Indian economy, contrary to the expectation that it would be the economically better-off States which would do so. Another important observation of the study was that, the Growth Strategy in each of the States was completely different from the other suggesting that there can not be a common prescription for growth. Each State would have to devise its own blue print for growth based on region specific strengths and weaknesses.

The interest in whether regional disparities conform to the predictions of the neo-classical growth theory (Sen, 1970) that inter-state differences in income levels tend to reduce as they approach the steady state equilibrium, continued among researchers particularly in the context of liberalisation. **Rao** et. al **(1999)** attempted to examine the trends in inter-state inequalities in levels of income since 1960s in view of the above. The study examines secondary data pertaining to per capita State Domestic Product compiled by Statistical Bureaus of each of the States. In their study covering 14 major States over the years 1965-1995 they rely on per capita SDP for the entire country and in the three sectors, the per capita Government expenditure, the per capita assistance by All India Financial Institutions, the SBI long term lending rate and the average interest rates on States' borrowings and by using Standard deviation of the logarithm of per capita incomes and regression equalities on convergence they arrive at the conclusion that the

pattern of economic growth in India since the mid 60s does not conform to the predictions of the neo-classical growth theory. The study finds that (i) incomes across-states have shown divergence, (ii) inter-state disparities have been accentuated and that (iii) inequalities have been much sharper after the initial years of liberalisation. The study analyses, in depth, the cause for the above findings as being the fact that States with high initial levels of incomes grew faster than those with lower incomes, because they were the ones that could generate higher investments leading to growth as private investment was a major determinant of economic growth. Public investment was also critical, because it was through this public expenditure that social and economic infrastructure could be developed, which in turn would attract further private investment and therefore result in the affluence of the region. The study also identified States with higher literacy rates (representative of human capital) as being the more progressive ones. The study has sounded a word of caution that unless significant affirmative measures are taken to correct imbalances in the spread of infrastructure through regional and inter-governmental transfers, divergence across States would continue to widen, with serious economic and political ramifications.

The neo-classical theory prompts another study by **Marjit and Mitra (1996)** who present a summary and critique of the "convergence hypothesis" (that inter-state differences will tend to reduce as they approach the 'steady state' equilibrium) in endogenous growth theory. The study relies on secondary data on SDP published by the CSO and the CMIE manual. The study which covers all States in India for the period 1961-62 to 1989-90 onwards takes into consideration the per capita Net State Domestic Product converted in

terms of 1970-71 general price level and uses logarithms of per capita Net State Domestic Product and average SDP for each State and standard deviation techniques to show that there is no evidence that Indian States have been converging (bridging the gap) in terms of the per capita Net State Domestic Product (PCNSDP). The study shows that in fact the strong States are growing stronger and causing inter-state divergence to widen. While it may be true that poorer States are also growing, they are doing so at a much slower rate than the richer ones and so even if it is taken for granted (as the neo-classical growth theory suggests) that each State is proceeding to its own "Steady State", yet there does not seem to be any possibility of convergence, as each State's 'steady state' itself seems to be vastly different from that of the other.

While all the above studies have accepted for the purpose of convenience, the political divisions of a State as a region to study disparities within them, **Pradhan** et. al. **(2000)** aim to establish pertinent issues with regard to Rural-Urban disparities in India by determining (i) whether there is any disparity in income and consumption levels between rural and urban areas? and if there is, then the extent of such disparities (ii) the basic source of income and the distribution of income (iii) whether inequalities in income distribution have decreased in rural and urban India (iv) the magnitude of poverty by across occupational groups and whether it is increasing or decreasing (v) the pattern of consumption expenditure and (vi) the social indicators of poor compared to non-poor. The study is different also in that it makes use of primary household data [collected as part of project : Micro Impact of Macro and Adjustment Policies (MIMAP)]. The study is inter-sectoral (rural vs. urban) for the year 1994-95 (compared with data for 1975-76)

using a three-stage (district, village, household) stratified design for a sample of 5000 houses (3, 364 rural and 1,492 urban). The study relies on (i) percentage distribution of households and their share in income by (a) income groups, (b) by occupation groups (c) monthly per capita income groups, (ii) per capita annual expenditure by items of expenditure (iii) per capita consumption expenditures and (iv) social sector indicators such as literacy health, access to basic amenities and access to potable water, and uses a structured close-ended questionnaire for income expenditure survey, the Gini coefficient of inequality, the Gini coefficient of equality in income among the poor and the FGT index of poverty (which was developed by Foster, Greer and Thorbecke, 1984) written as

: $1\lambda = 1/_N\Sigma^n{}_1 = 1$

$[(y^* - y_1)/y^*]^2,\ y_1 < y^*, 2 \geq 0$

it is similar to Sen's index, as it considers incidence, intensity and inequality dimensions of poverty. The study emphasised on the basis of its findings that inter-sectoral (rural vs. urban) inequalities exist. The households in both these sectors can be categorized into 'above poverty line' (APL) households and 'below poverty line' (BPL) households. The study found that social indicators (of health, literacy, immunisation, enrolment, and dropouts) were extremely low in the BPL households of both sectors. The study also concluded that the all India distribution of income inequalities have marginally increased with urban households having at least 2 times the incomes of rural households. Amongst the rural households, it was the agricultural wage earning households that had the least share of income. The study pointed out that although the inequalities in per capita consumption expenditure are less than in per capita income distribution, yet the pattern of consumption varied widely between the rural and urban households. Of the 325 million

people who lived below the poverty line, (national estimate of 36.4%) 39:4 % (higher) were in the rural areas and 28.4% (lower) were in the urban areas. The study highlighted the fact the 80% of India's poor are to be found in the rural areas, out of which 52% belong to the class of agricultural wage earners. An optimistic conclusion of the study however was that there were positive returns to the educational levels of the heads of households.

Before the picture begins to appear too dismal, **Singh** et. al. **(2003)** suggest that the concern that regional inequalities in India have increased after economic reforms, may not be as bad as suggested by State Domestic Product (SDP) data. The study attempts to show that conclusions of findings are sensitive to what measures of attainment are used. The study proves this by showing that Human Development Index (HDIS) do not show the same increase of regional inequalities as SDP data. The study relies on SDP and consumption measure data from the publication of the Planning Commission (2002) and the National Human Development Report, 2001 (NHDR). The study takes into consideration 14 States for the years 1965-1999. Using Gini coefficients and quintile distribution of income shares, the study finds that this set of data does not indicate any prominent increase in regional inequalities after 1991 (i.e. liberalisation). The study does admit that at Sub-State level greater disparities do appear to be emerging, the reasons for that are put down to differences in governance, geographical and social mobility of labour and not so much due to central transfer of resources. The study emphasises that government policy has a vital role to play in providing infrastructure to backward States so that they can attract investment. It is suggested that Central assistance can be increased

to upgrade infrastructure. The study emphasis that India's record with respect to inequality in the post reform period is not bad. The potential problems of growing regional disparities, are more a matter of judicious management of inequalities than a matter of alarm needing any backpedaling.

One such study which did not look at SDPs of the States, but rather at the development index to statistically evaluate the socio-economic development of the four eastern States, namely Assam, Bihar, Orissa and West Bengal and identify where a given State stands in relation to the others in the region was conducted by **Rai and Sarup (1995)**. The study aims at constructing a composite index of development for each State, based on a large number of socio-economic indicators of development. The study further aims to evaluate and examine economic development of each State in relation to the annual plan outlays and to suggest strategies to effect improvement in the level of socio-economic development of the region. The comparative study of the four States for 1988-89 uses the total rank score method and standard deviation from best value to assess the 41 socio-economic indicators taken to develop a composite index of development, which is constructed by standardising variables in respect of different indicators as $(z)_{ij}$, if C, be

pattern of development for i^{th} State, then value of Ci is obtained as :

$$Ci = \sqrt{\frac{K(Zij - Zoj)2}{\Sigma}}$$

$$j=1$$

were K = number of indicators, the composite index of Development is then obtained by : Dj = Ci /C where:C is the mean of Ci plus two times the standard deviation of Ci. The value of the composite index of development is non-negative, between 0 and 1. Value closer to 0 indicates higher level of development and value closer to 1 indicates lower level of development. The study ranked the four states as follows: West Bengal (1), Assam (2), Bihar (3) and Orissa (4). The study finds that West Bengal ranks better than others over all and in agriculture and industrial sectors. The study observes a positive correlation in development of the agricultural and industrial sector. The study finds greater poverty in rural population than urban, in all the four states, however, Bihar and Orissa were worse off than the other two States in the study. It is suggested that allocation of resources in these States be need-based. The study also emphasises the need to increase formal and non-formal education. An important suggestion made by the study was to introduce special programmes to enhance technology in agriculture to improve productivity.

Carrying on the trend of examining inequalities across-States in India by taking into consideration other than SDP indicators, an important study was conducted by **Murthi,** et. al.**(1997)**. The study aims to examine inter-regional and inter-temporal variations in the demographic outcomes in India and to study the determinants of such outcomes and establish relevant relationships based on cross-sectional analysis of district level data on child mortality rate, the total fertility rate and the relative survival chances of male and female children (to estimate the gender bias). The study relies on district–level data published from the census of India 1981. This inter-state study covering a sample of 296

districts from 14 of the 15 most populous States for which detailed data is available (Assam is excluded for lack of relevant data), makes use of Mean, Standard Deviation and regression equations to study the demographic indicators pertinent to mortality, fertility and gender bias. The Study found that districts with higher female literacy had a (statistically significant) –ve impact on child mortality. Such districts also had lesser extent of female disadvantage or gender bias. Similarly, districts with a higher female labour force participation had reduced extent of gender bias in child survival. Urbanisation also showed up a negative and statistically significant effect on child mortality. An interesting finding of the study is that in districts with a higher proportion of scheduled tribes in the population there was a reduced extent of anti-female bias in child survival. The districts in the southern region exhibited considerably lower levels of child mortality. Another crucial finding was with regard to female literacy and female labour force participation having a positive and statistically significant effect on the fertility rate. The study, therefore, concluded that womens' agency and economic empowerment plays a significant role in reducing mortality, fertility and gender, inequality and thus promotes improved human development.

Dutta et. al. **(1997)** describe the development experience of India during the 1980s and 1990s from the perspective of human development. They explore the implications of the human development experience in India for its development policy. They also aim to examine whether the Indian experience highlights the need to radically restructure development policies because of likely conflicts between the various ends. The study relies on secondary data from the Sample Registration System (SRS) supervised by the

Registrar General of India, School enrolment data published by the Ministry of Human Resource Development, Government of India and State Gross Domestic Product data published by Central Statistical Organisation to study 17 states in Time Series from 1970 to 1990, by dividing the period into 4 sub-periods. The study examines per capita incomes, health and education indicators by calculating the country's extent of deprivation for the 3 indicators and by defining the overall index of development for the country and using them to construct the HDI with the help of Regression analysis. The study found that achievement levels in health and education have increased significantly since 1970. Among the 17 states, the study found Kerela occupying a predominant position in achievement of health and education even though it is poorest in terms of incomes. The study also found Kerela doing well in terms of change, especially in health. A matter of concern highlighted by the study is that the relative position of the various states indicates almost a stagnant pattern of human development at inter-state level. The study also found that the correlation between per capita incomes and achievements in health and education is low. The time series regression analysis also indicates that expenditure in the health and education sectors is an important determinant of levels achievement in these sectors. The study underlines the need for reorientation of development policies in India, where social sector spending is much lower as compared to many other countries at a similar stage of development. The study constructed a Human Development Index and ranked the States accordingly.

A major and comprehensive study conducted by **Kurian (2000)** arises out of the on-going debate of whether inequalities in development widened in the post-economic

reform period and the need to emphatically highlight emerging trends of divergence with respect to key socio-economic indicators of development. The study carries out a comparative analysis of emerging trends in 15 major States in respect of certain key parameters which have an intrinsic bearing on the social and economic development of the States. The study relies on secondary data gathered from the Census Hand Book 1991, the National Accounting Statistics published by CSO, the 9th Five Year Plan document (1997-2002), the Planning Commission Annual Report 1998-99, the Ministry of Information, Government of India, the Reserve Bank of India report on Currency and Finance 1997-98 Vol.1 to compare 15 States, 8 of which are, from what the study identifies as, the 'forward group' of States and 7 of which are, from what are identified as, the 'backward group' of States. The comparison is made in terms of percentages of Development indicators, social characteristics, NSDP per capita, the Development and non-development revenue expenditure of State Governments, Plan outlays, sectoral distributions, investment proposals, disbursal of financial assistance for investment, Bank branches, bank credit deposits and level of infrastructure. The study finds considerable disparities in socio-economic development across Indian States. The study observes that efforts through the planning process during the first three decades after independence have only partially succeeded in reducing regional disparities. The study finds that the accelerated economic growth since 1980s with increased participation by private sector appears to have aggravated regional disparities. Further, the study also emphasised that the ongoing economic reforms since 1991 with stabilisation and deregulation policies as thcir prime instruments have further aggravated inter-state disparities. The study concluded that there was a marked dichotomy between the two categories of States

identified by it, that is the 'forward' group and the 'backward' group. The States in the 'forward group' characteristically exhibit better demographic and social development, higher per capita incomes, more developed economies, lower levels of poverty, higher levels of revenue receipts and plan and non plan expenditure, higher per capita resources flows and private investment and significantly better infrastructural facilities, whereas the states in the 'backward' group exhibit a characteristic absence of all the above. The study therefore suggests that there is an urgent need for more investment in backward states. The study reiterates that the quality of governance in a state influences the speed of socio-economic progress. The study brings to the fore, a thus far, in admitted fact that the Private sector finds even political and bureaucratic corruption tolerable if the states are well governed. The study cautions that if the present trends continue inequalities are bound to accentuate further and therefore suggests that it in imperative to arrest the trends if not reverse them.

In a later study **Kurian (2002)** reiterates the "disturbing" trend of widening socio-economic disparities across the Indian States by relying this time on secondary data from the publication of the National Commission on population Government of India, taking into consideration the 15 States again, consisting of 8 'forward group' States and 7 'backward group' States, the study adopts a multi-level stratified random sampling technique to select 569 districts, 190 from the 'forward group' and 299 from the 'backward group' to compare the composite index of socio-demograhic trends and the quality of life indicators. The study once again concluded confirming a widening regional

dichotomy and an ever increasing gap between per capita incomes of the richer and the poorer states.

A study by **Bhattacharya and Sakthivel (2004)** probes whether regional disparity widened in the post-reform period by analysing growth rates of aggregate and sectoral domestic product of major States in the pre and post reform period. The study obtains secondary data from various issues of CSO for revised SDP series with 1993-94 base prices. The study pertains to 17 major states for two time periods i.e. 1980-90 (pre-reform) and 1990-2000 (post reform). The study compares aggregate growth rates, per capita SDP growth rates and sectoral shares composition and growth rates of SDP in terms of percentages and finds that the development process has been uneven across states. It was the advanced industrial States, which further developed in leaps and bounds in the post-reform period, while others remained behind. The study found that the regional disparities in growth rates became sharper in terms of per capita incomes. The study observes that the poorer States have not only performed poorly, but have also not been able to stem population growth which has further worsened the situation. The study concludes on the basis of its findings that in the post-reform period, it is the tertiary sector that has become the engine of growth rather than the industrial sector (as in the pre-reform period). The study suggests a need for pro-active public policy to stem the tide of widening disparities.

2.5 Inequalities in Economic Development Within States in India (Intra-State and Intra-District Studies)

From an Inter-State analysis of inequalities, the evidence of imbalances within the constituent regions and sub-regions (in the Indian context, within the States and Districts) necessitates a review of studies pertaining to regional disparities at the sub-state level.

Heston (1978) examines the generality of the "historical pattern" as stated by A.O. Hirshman that "polarisation effects initially dominate and are in turn, dominated by the "trickle-down" effect. The study relies on secondary data on district incomes computed by the NCAER. The study, which is intra-state in nature, studies 288 districts divided into 34 areas, roughly corresponding to Thorner's classification of India's agrarian regions. The study which takes into account area (in 000 sq. miles), population (in millions) and per capita incomes and uses regression equalities, correlation and coefficient of variation to show that regional imbalances arise more from inequalities in the types of industry rather than from variation between agriculture and industry, as industrialisation progresses. The study observes that when industrial variations are less, variations in regional inequalities are also less. The findings of the study also lead to the conclusion that the size of a region plays lesser role in regional imbalances than the homogeneity of the region. The more heterogeneous the region, the greater are the regional variations that are likely to occur. Sub-regional studies therefore can be reviewed on the basis of the observations made in the above study.

Siva Ram (2004) attempts to study the nature and extent of disparities among the various regions of Andhra Pradesh, on the basis of secondary data collected from the publication

of the census pool as well as from the annual surveys of industry. The study compares the percentages and ratios of the socio-economic and demographic indicators (used in the census study, 2001) for the time-period 2001. The study on the basis of its findings divides the State broadly into 3 regions (i) coastal Andhra (ii) Rayalseema and (iii) Telangana. It is found that coastal Andhra is rich compared to the other two regions both in the primary and secondary sectors. The study found that unemployment, being the acute problem in Telangana, caused wide disparities between this region and the others. The observation made in the earlier section that disparities, if uncontrolled could have serious social and political ramifications is found correct on the ground level in Telangana, with the demand for a separate state, to meet the aspirations of the people. The study therefore, emphasises the need for planners to adopt suitable policies to arrest the growing disparity levels in Andhra Pradesh.

Interestingly, innumerable studies are found on regional disparities in Bihar, a State which is infamous for leading the list of 'BIMARU' States, and one which has been ranked lowest in economic performance (in the recently published "State of States" survey). In a study which invites considerable interest in evaluating and explaining the reasons for the state of affairs in Bihar, **Sinha (1985)** attempts to study the regional imbalances in North Bihar with reference to the inter-district variation in the levels of development. The study relies on secondary data from state statistical surveys. The intra-state study, focusing on North Bihar, relies on data with regard to rural density, literacy, net area sown, area sown more than once, total working population, distribution of the working population, distribution of the working population, different industries and

sectors and levels of infrastructure and uses the index of inter-sub-regional variation, in relation to each indicator calculated by :

$$I = \frac{\sqrt{\frac{n(R_i - S)^2}{n}}}{S}$$

where I = Index of inter sub regional variation

Ri = Value of the indicator for the district

n = No. of districts in a sub-region

S = value of the indicator for the sub-region.

If value of index ranges below 0.1, variation is not so significant; If value of index is more than 0.1 disparities are significant. The higher the value of the index, the more pronounced is the imbalance.

The study ranks the districts of North Bihar on the basis of the above index into the better off districts which are : Begusarai (1), Katihar (2) Samastipur (3) Dharbangha (4) Saran (5) Muzaffarpur (6) Vaishali (7) Sitamarhi (8) and Siwan (9) (with North Bihar region as a whole ranking (10), the worse off districts are Gopalganj (16), East Champaran (15) Madhubani (14) Purnea (13) West Champaran (12) and Saharsa (11). The study classifies districts into 3 sub-regions on the basis of watersheds into (i) Bagmati (ii) Gandhak and (iii) Kosi. The study indicates that Bagmati and Kosi sub-regions indicate greater constraints in development. These sub-regions also exhibit greater poverty and exploitation. The study points out that the situation in Bihar gives rise to the need of specifically addressing development demands of these sub-regions to ensue a more balanced development.

Atmanand (1995) attempts to find out inter-district differences in levels of growth and development of Bihar on the basis of secondary data available in the district level data for key economic indicators prepared by CMIE, Bombay. The intra-state study uses district data for 3 areas (i) minerals (ii) agriculture and (iii) industry for the year 1982 and relies on the percentage levels of minerals deposits, agricultural productivity and industrial development. The study observes severe structural imbalances in Bihar arising out of unevenly distributed minerals and mining. The study found that only the south-western part of Chotanagpur area is richly endowed with mineral deposits. The study also finds that only 3 districts have higher agricultural production than the national average. The industrial sector also shows a significant district level imbalance, out of the 31 districts, the study finds 21 districts industrially backward. Once again, the study highlights the need for planning, which has to take place from below, in order to ensure more balanced regional development.

Prakasam (1995) studies regional balances in the demographic characteristics of Karnataka. The study groups the State's twenty districts into 4 regions, as classified by the National Sample Survey Organisation (NSSO), on the basis of agro-economic conditions, population density and cropping pattern. The intra-state study is based on secondary data prepared in the Census of India and concentrates on four time periods 1961, 1971, 1981 and 1991. Taking into consideration population growth rate, sex ratio, female literacy, total literacy and infant deaths and using percentages and tools of coefficient variation, the study finds that the coastal regions are more developed followed

by the eastern inland region, the least developed is the eastern hinterland of the State. Among the demographic indicators, the sex ratio shows the lowest variation across the regions, with the highest variation existing in the Infant Death rate. The need for reducing regional imbalance is recognised as essential for the socio-economic well-being of the State.

Poverty studies in Karnataka have also found vast regional variation across the State. **Rinku Murgal** et. al. **(2003)** have attempted to estimate poverty incidence at district level in Karnataka from pooled Central and State sample data and have examined regional variations in poverty across the States. The study relies on secondary data obtained from the NSSO (55^{th} round) and from the Central and State sample data, pooled to arrive at regional poverty estimates. This intra-state study for the year 1999-2000 examines monthly per capita expenditures (MPCE) by using Head Count Ratio (PO) i.e. proportion of people living below the official Government of India, urban and rural poverty lines, poverty Gap (PI) and the Lorenz Curve of MPCE. The study finds considerable heterogeneity in the extent and depth of poverty. Higher levels of poverty are found in the northern districts, particularly of Gulbarga and Belgaum divisions. These two regions also account for the highest concentration of poor (i.e. a staggering 60%). An analysis of the intra-division variation of poverty reveals strong intra-division variations, as well; for instance, the Kolar district in the Bangalore rural division is as poor as the northern districts of Karnataka.

A more intensive attempt to estimate the degree of inequalities of incomes and poverty in urban and rural areas of Karnataka was made by **Thimmaiah (1978).** The study estimates the degree of inequalities of incomes and poverty in urban and rural areas of 19 districts of Karnataka and also among the various religions and caste groups of the population of the State. The study is important in that it is based on primary data collected and published by Institute of Social and Economic Change (ISEC) Bangalore for a two stage stratified sample covering the 19 districts in Karnataka, identifying 31 urban units and 76 villages in all, from where 2946 households were selected as a sample using random numbers, for the year 1974-75. The study relies on data of per capita income and expenditure and makes use of the Lorenz Curve, Gini Coefficient and the coefficient of variation to analyse the results. The study found that the degree of inequality of income was very high in the urban areas. The degree of inequality of income was greater in the economically and socially backward classes. The study also found that the degree of inequality of income and incidence of absolute poverty were positively associated. The study also concluded that the socially backward classes exhibited high incidence of absolute poverty.

The State of Kerela is held up as a model of high levels of achievements as far as human development indicators are concerned. However, an in-depth analyses of development attained by Kerela reveals vast inequalities, regional and sectoral. **Luckose and Raju (1995)** attempt to reveal "the real picture" (Disaggregated) of the nature of development attained by the State of Kerela as a result of implementation of plan policies during the 16 year period, between 1970-71 and 1985-86. From secondary data published by the

Directorate of Economics and Statistics, Govt. of Kerela, (Trivandrum, Kerela) the study examines data relating to NSDP, contribution of various sectors, allocation of State Plan outlay and per capita income and uses percentages and coefficient of variation for its analyses. The study observes high levels of sectoral inequalities, on account of an increase in the share of the service sector, and a decrease in the share of the primary sector. The secondary or industry sector also showed evidence to decline or at best of remaining stagnant. In an alarming finding, the inter-district per capita variation is found to have widened, more than double (in 16 years) from 10.02% to 20.17%. The study concludes, therefore, that inspite of satisfactory overall achievements, intra-state or sub-region analysis shows a different picture, with prominence of inequalities, both sectoral and regional.

Another study for Kerela by **Suresh (1995)** attempts also to determine if there exist any disparities in the development of different regions in Kerela, and if disparities do exist, then the study aims to identify the reasons for the same. This intra-state study also relies on secondary data published by the Directorate of Economics and statistics, Govt. of Kerela, however, it focuses on the time period 1970-71 to 1986-87 and then subsequently carries out a comparative analyses for the 2 time periods 1970-80 and 1980-87. The study relies on SDP at current prices and 8 variables to compare development, which are (i) population (ii) cropped area, (iii) industrial enterprises, (iv) road length, (v) educational institutions, (vi) Medical institutions (vii) Financial institutions and (viii) credit disbursed. The study found that not only did regional disparities exist, but that they widened over the two time periods mainly on account of natural differences in factor

endowments and man made differences in infrastructural facilities. The study suggests reframing of development policies in such a way so as to minimise or eliminate the man made differences, in order to reduce regional disparities in development.

Man-made differences account for regional disparities in almost all the States. In Punjab, the Green Revolution was said to be an agricultural boon which not only changed the face of development in Punjab but also caused a 'U'-turn in the food grain position of the entire country. However, this man made revolution was not without its share of critics for having contributed to the regional disparities and income inequalities in Punjab. **Saini (1976)** studies the concentration of farm business incomes among sampled farms in Ferozepur district, Punjab. The study is based on primary data collected from a randomly selected sample of farms in Ferozepur district, Punjab. This intra-district (sub-region) study compares data of farm business incomes for two time periods 1955-57 (prior to the Green Revolution) and 1967-69 (post-Green Revolution) by using the percentage distribution of income among distinct size (decile) groups of farm households and the Lorenz Curve / ratios to show that the top 20 percent of farm households enjoyed 40 percent of the farm business incomes and bottom 40% of the farm households had only 20% of the farm business incomes. The study found that although there were inequalities in the distribution of farm incomes in both periods 1955-57 and 1967-69 yet the inequalities in the distribution increased in the period 1967-69 as compared to the earlier period of 1957-59. Therefore the study concluded that it was the Green Revolution that generated gross inequalities of income and created a concentration of farm business incomes.

Ibrahim and Hari Ku (1995) studied Mahe district / region (Pondicherry) and highlighted the development problems with reference to the rest of the constituent units (districts / regions) of Pondicherry. The study based on secondary data derived from the Census Reports of 1981 and the Annual Action Plan, Pondicherry (1989-90) for the time period 1971-1981, to show a decadel variation relies on development indicators of population density, regional sector-wise distribution of workers, agricultural development and industrial development and shows that Mahe is a distinctly underdeveloped district / region of Pondicherry as compared to the other three regions (i) Pondicherry (district), (ii) Karaikal and (iii) Yonam. The study requires that a major thrust in employment be given in Mahe to correct the regional disparities. The study suggests that in order to improve development, industries based on marine resources are to be encouraged.

With almost every study recommending the need for State policy to make necessary steps to correct regional unbalances, an interesting study is taken up by **Durai Raj and Bharathan (1995)** to highlight the existence of regional disparities in industrial activities (and thereby development) of Tamil Nadu and assess the impact of the States Industrial Policy on the reduction of regional unbalances. The study relies on secondary data from the Department of Statistics, Madras and studies 15 districts over a seven year period from 1978-79 to 1985-86. The study observes vital characteristics of the factory sector in terms of employees, production capital and total output and makes use of the Lorenz Curve and the Gini coefficient for measurement of existence of regional unbalances and the HH index i.e. the Hirschmann-Herfindahl index for measurement of the degree of regional concentration of industries. The HH index calculated for two periods indicates

whether regional disparities have reduced or not. The HH index = $P_i^2/100$, where Pi is the percentage share of a region in total industrial employment. The maximum value of the HH index is 100, when the entire manufacturing sector is in one region. The minimum value is 0 when there is equal distribution in all regions. Therefore, the value of index = $100/_N$ where 'N' is number of regions. The study reiterated existence of regional disparities of industrial development in Tamil Nadu. The study finds that over the 7 year period, after implementation of the State's Industrial Policy, the regional disparities of industrial development reduced only marginally from 12-09 to 11.23, as shown by the HH index. Therefore, the study concluded on the pessimistic note, that State policy has been able to do very little to correct regional imbalances.

An attempt to analyse the existing disparity in the level of economic activities in eastern and western Uttar Pradesh (U.P.) and to highlight some determinants of economic disparity in the two regions has been made by **Mistra and Bajpai (1995)**. Obtaining secondary data from various sources such as the Year books of statistical abstract, U.P., Economic Survey of U.P. the annual Survey of Industries of U.P. (1983-84) and the agricultural data of U.P. (1985-86) a study is made of the 5 regions of U.P. namely, Western, Eastern, Central, Bundelkhand and Hill regions. The study analyses growth indicators such as gross commodity product, food production and the value of industrial productivity by making use of the modified version of SOPHER'S index :

$D = \log (X_2/X_1) + \log (2-X_1) / (Q-X_2)$ where, $D = X_2/X_1$ and $Q = 200$ where X_1 and X_2 representing respective percentage values of the variable in region 1 (eastern) and region 2 (western), D shows value of Disparity index. State average is taken as 1, value of

various indices worked out for various regions, average of indices for economic and non-economic determinants are computed ;

Regression equation is formed as y = F (Xe), y = per capita industrial production, Xe = Indices for economic factors.

In linear form :

$Y = \alpha + B_1 Xe$.....1

where α is intercept and B_1 regression co-efficient, likewise :

Y = f(Xe, Xn), where Xn represents indices for non-economic factors.

In linear form :

$Y = \alpha + B_1 Xe + B_2 Xn$ 2

The study finds that more economic activities are undertaken in western U.P. than eastern U.P. The study observes noticeable disparity in industrial activities and negligible disparity in agricultural activities. It was found that the western U.P. region was more developed. The Disparity index is higher for industrial activity (0.6724) than for agricultural activities (0.1239). The low disparity in agricultural is found to be on account of crops under irrigation and the use of chemical fertilizers. It was also found that better physical infrastructural facilities such as surfaced roads, telephone connections, electricity and bank advances in western U.P. gave momentum to industrial development of this region. The study also drew an important conclusion that there is a significant role of non-economic factors in industrial development from the finding that the value of R^2 = 0.9165 without including non-economic factors and that the value of R^2 = 0.9463 after including non-economic factorisation. Therefore, a study taking into consideration only economic factors reveals higher disparities and with the inclusion of non-economic

factors, the levels of disparities are lowered. An interesting conclusion of the study is that labour militancy, low levels of literacy, egoism, the non-enterprising nature of the people and the high level of *'Chauraha'* politics in eastern U.P. are important determinants of low level of industrial development in eastern U.P.

The hill regions of U.P. have been a interesting case study for understanding (intra-state) regional disparities. **Nauriyal and Nautiyal** attempted to measure the extent of inequality in the distribution of income in the Pauri Garhwal region, one of the eight hill districts of U.P. The study is based on primary data, collected with the help of an Interview schedule. The intra-state, sub-region study covers 15 development blocks including 3237 villages ; the study selects, through a process of multi-stage stratified random sampling, 232 households in 15 villages and analyses the incomes of these households collected under the different heads of agricultural services, livestock, money orders, rentals from houses, forestry, poultry and from business and self-employment over the one year period 1990-1991. The study establishes income inequalities to be very high in rural hill regions. The study finds a number of socio-economic factors to be responsible for this, prominent among which are (i) income differentials within different occupations and same occupation (ii) migration of educated people from rural areas to urban areas (iii) significant age differences among heads of households (iv) Inequalities in family earnings and (v) differences in the levels of education.

While analysing sub-region inequalities, rather than restricting oneself to the political boundaries of a State in the Indian federal Structure, **Bhandare and Khare (2002)** go

beyond and delineate regions, extending beyond the political boundaries of 'States' to analyse how each region performs in terms of share of the overall economy. Towards this objective, the study relies on the secondary data available at the level of regions of NSSO (78 agro – economic regions) and compares 5 variables that is petrol sales, diesel sales, bank credit, bank deposits and cereal production by constructing an Economic Performance Index for the two time periods 1991-92 and 1998-99. The findings reveal a clear west-east divide, however there is no obvious north-south or coastal-inland divide that is evident from the study. What is important is that the study finds the urban areas acting as growth poles around which development takes place, and the areas which lag behind and the least developed are the agricultural areas. The performance of Punjab, Haryana and Kerela in this analyses, is much better than their performances in SDP analyses. The study finds that Karnataka, Kerela, Punjab and Haryana exhibit greater regional equalities whereas Andhra Pradesh, Madhya Pradesh and Maharashtra show evidence of greater regional disparities. The study also emphasises that there was no significant increase in inequality observed on account of economic reforms.

To conclude, a sub-region study is taken up, which is the only one *'taluka'* level study that the researcher came across in the review of intra-state studies on regional imbalances. The study holds particular significance to the researcher as the intended research for which literature is being presently reviewed is to be taken up at the *taluka* level. The study undertaken by **Rao (1984)** aims to identify backward *talukas,* both at sectoral and aggregate levels of development, in terms of various physical indicators of development, by combining them together, after assigning their proper weights, so as to

develop a composite measure of development. The study also aims to identify the typology of backwardness / development and to delineate homogeneous *talukas*. The study relied on secondary data collected by governmental and other agencies. The study covered 19 districts divided into 175 *talukas* between 1974-75 and 1979-80. The analysis however, is a static one, as time-series data is unavailable at *taluka* level and therefore does not enable analyses of changes over time. The study considers indicators of land utilisation pattern, cropping pattern and industrialisation pattern to construct a composite index of development on the basis of factor analyses. The findings of the study suggest that out of 175 *talukas*, 106 *talukas* are below average or backward. Alarmingly, only 15 *talukas* can be considered average and 54 *talukas* can be considered developed, out of which also only 21 can be considered as really developed. The overall development is found to be concentrated in and around a few metropolitan and urban *talukas* in Karnataka. The study establishes lop-sided development of the State while also establishing statistically significant disparities. The most developed *taluka*, Bangalore North had an index of 196.120 whereas the most backward, Jewergi had an index value of – 19.648. The study found that the intra-category disparities are also significant, for example, within the 54 developed *talukas*, the most developed, Bangalore North, with an index of 196.120 is way ahead of the 54th *taluka* in the category Madhugiri, whose index value is 1.029. It is interesting to note that the dispersion range of less developed *talukas* was not so great, with Anekal obtaining an index value of 1.435 and Jewergi obtaining a value of – 19.645. The study also finds that the sectoral development pattern exhibiting concentration of economic activities in the 54 developed *talukas*, which had better infrastructural facilities and therefore attracted entrepreneurial ability. The backward

talukas, mostly in Gulbarga and Raichur districts were found to be disadvantaged in terms of natural resources, topography and sectoral development. These backward areas were also the 'dry' regions of Karnataka facing famines and droughts. The study concludes by pointing out that the backward *talukas* form a homogeneous group requiring the special attention of the planners and policy makers.

2.6 Observations

The review of literature undertaken by the researcher enables her to make the following observations pertaining to regional imbalances of economic development :

2.6.1 Global Studies

Regional disparities increased the world over prominently after the industrial revolution. Initially however, most studies analysing regional inequalities focused on inequalities of incomes, both of households as well as of the economies. A possible explanation for this would be (i) the identification of economic growth with a rise in incomes and an understanding that a rise in income would automatically translate into economic development or (ii) another possible explanation of course, would have to do with the availability of data ; as NDP, SDP and per capita income data was easily available, most studies attempted to understand regional inequalities in terms of income inequalities.

Approximately 30 years after the II World War, inequalities amongst the developed nations began to be bridged, but inequalities between the developed and the developing

countries began to widen, and continue to do so, and so did the disparities within the developing countries, begin to diverge and drastically so.

The Kuznets 'U' hypothesis of the 1950s is observed to have been proven wrong by experiences around the world, and it has become more a Kuznets 'J' curve, where the share in incomes, of the bulk of the poor falls with initial growth, and then rather than rising with further development, remains at the same low level for a very long period of time, making the prospects of the poor of world quite dismal.

Globalisation and its implications may be widely responsible for the observed phenomena. In fact, free market economies appear to be the ones where the problem of disparities is the most severe.

Socialist countries exhibiting lower within-nation disparities of incomes seem to suggest that socialism makes for lesser inequalities. An effective antidote to regional disparities therefore appears to be the evolution of the mind sets of the people towards welfarism.

With the growing understanding of economic development in terms of human development there is a growing emphasis on the non-economic factors in identifying the causes of inequalities.

This new understanding views inequality as a very serious problem as it severely restricts access to wider 'choices' or 'freedoms' for the people.

2.6.2 Inter-State Studies

Inter-state studies have belied the neo-classical theory that growth in some areas would then percolate down to other areas resulting in a "trickle-down effect".

Study after study revealed that although some pockets of the country have developed, they have not resulted in development of the other areas within the country, because of which regional disparities are widening.

Initial studies have concentrated on assessing inequalities by considering only SDPs of States. However, knowing that high SDPs are not, an automatic guarantee of 'wider choices' for the people, so necessary for human development, inequality studies have been concentrating on comparing development indicators to assess disparities in development. Similarly, sectoral shares in SDP also have been ruled out as a reliable indicator of development.

The post-economic reforms era has seen a further widening of the disparities with the already 'strong' States becoming 'Stronger' and the 'poor' States worsening in their situations. Disparities are evident regionally as well, particularly across the rural / urban divide.

Alarmingly, there appears to be no evidence of convergence across States / regions however strong evidence seems to be emerging showing up increasing divergences.

There is a school of thought that is optimistic and holds that inequalities may not be as bad as SDP data suggest and that looking at HDI would not make disparities look so bad; be that as it may, there is no denying regional disparities.

These disparities therefore, need to be addressed otherwise drastic inequalities could lead to serious economic, social and even political ramifications. However, there can not be any common prescription for balanced growth for all States / regions which are lagging behind. Each State must have a development blue-print for itself.

There is need for a pro-active public policy to correct disparities through affirmative measures which would result in spreading infrastructure through effective regional policies which are formulated from bottom upward rather than imposed from above.

There is a very significant role earmarked for womens' agency and empowerment in enhancing development by reducing mortality, fertility and gender inequality.
Development policies need to be reoriented with greater emphasis on the social sector in order to address the problem of regional disparities.

2.6.3 Intra-State Studies

Sectoral and regional disparities are established. There exists widening inequalities in incomes and development indicators. Regional disparities are on account of natural differences in factor-endowments and man-made differences in infrastructure, both physical and social.

CHAPTER III

METHODOLOGY

CHAPTER III

METHODOLOGY

3.1 Nature of the Proposed Research

The proposed research is applied in nature in which the researcher shall be interested in establishing and studying the extent of regional imbalances in economic development of Goa. It shall also be the researcher's attempt to establish the historical, socio-economic and political causes for the regional disparities. At the end of the study, an attempt shall be made to evolve and recommend a development strategy to bridge the development gap in the identified regions.

This study is unique in that it is the only intra-state, sub-regional, micro-level (taluka-wise) study that is undertaken in Goa to study imbalances in economic development across regions (talukas). The only other such known sub-regional, intra-state study is the one undertaken by Rao (1984) for the state of Karnataka in "Regional Disparities and Development in India", however, her study is based on a comparative analysis of only land utilisation pattern, cropping pattern and industrialisation pattern pertaining to the years 1974-75 to 1979-80 and therefore, the present study is wider in scope and covers a longer period (1987-2006) enabling a more meaningful comparative analyses over time.

The broad aim of this study is to measure the regional (taluka-wise) inequalities in the economic development of Goa. The study starts with the hypothesis that there exists regional imbalances in the economic development of Goa and this imbalance exists

across agricultural sector, manufacturing sector and the service sector. The regional imbalance also exists in the various sub-sectors of the service sector.

3.2 Data and Variables

The study is based on the secondary data collected from the Directorate of Planning, Statistics and Evaluation, Government of Goa for the years 1987-2006 (20 years). The study takes into account the Agricultural Sector considering 15 parameters namely, total reporting area (Ha), net area sown (Ha), area sown more than once (Ha), gross cropped area (Ha), area under paddy (Ha), area under other cereals, millets/pulses & oil seeds (Ha), area under coconuts (Ha), area under arecanuts (Ha), area under cashewnuts (Ha), area under vegetables (Ha), area under garden crops (Ha) (a) average yield of rice per hectare (in kgs) i) kharif ii) rabi, and average yield of ragi per hectare (in kgs) kharif.

The Manufacturing Sector considers 8 parameters namely, number of factories registered under the Factories Act, 1948, number of Factories in operation registered under the Factories Act, 1948, estimated average number of daily workers employed in registered factories, number of small scale industries registered with the Industries Department, estimated average no. of daily workers employed in the small scale industries, number of large and medium scale industries, employment in large and medium scale industries and the number of sheds in industrial estates.

The Service Sector considers 4 sub-sectors of service activities namely, Education with 13 parameters that is literacy rate, number of schools, and number of students in primary,

middle, secondary and higher secondary level and colleges and university ; Public Health with 6 parameters that is, number of specialised and general hospitals, number of community primary health centres, number of beds in government hospitals, number of private hospitals, number of beds in private hospitals, number of dispensaries (r.m.d.), number of urban health centres, and number of sub-health centres; Banking with 5 parameters that is, number of scheduled commercial banking offices, number of cooperative banks, Deposits mobilized, credits advanced ; and Tourism with 3 parameters that is number of hotels and lodging houses and Number of domestic and foreign tourist arrivals. Thus, a total of 48 parameters are considered over the three sectors, for the 11 talukas over the 20 year period 1987 to 2006. In all, 10,560 observations are taken into consideration for the analyses. This analysis clearly indicates the regional (taluka-wise) inequalities in the development of each of the sectors and in the over all development of the State.

3.3 Index Number (Simple and Composite)

The study makes use of construction of the simple index for agriculture, manufacturing and each of the sub-sectors within the service sector. A combined index is then constructed for service sector by taking into consideration the sub-sector indices. Finally, a composite development index is constructed for the entire State by considering the sector-wise indices. The talukas are also then ranked according to the index values and categorised into high, medium and low development talukas.

Index number is one of the major statistical tools used. The study has used simple index and composite index to measure the differences in the growth pattern of agriculture, manufacturing and service sector activities, among 11 talukas. Each variable in each category (broad categories agriculture, industry and services and four sub-categories under services) is first converted into the index form by taking the average of that variable as the base across all talukas. Then each index value of the variables, in the index form, for a particular taluka, are combined to get the index for a particular category. For example, take the sub-category Education. The Number of Schools (NS) is a variable under the category education. This variable is nothing but the number of schools of each taluka. Therefore, this variable will have 11 observations. The number of schools in each taluka is converted into indices by taking average number of schools ($\Sigma NS/11$) as the base. These indices of each taluka will reflect the inequality among talukas, in relative terms, with respect to NS. Suppose there are 8 variables like NS in the category of education, then there will 8 such indices for each taluka. These 8 indices are combined to get one index value for each taluka for the category of education. Therefore, there will 11 such indices for 11 talukas in Goa. In the similar way, the indices for other categories of services are also prepared.

The Composite Indices are prepared by combining the indices of broad categories. There are two composite index numbers in this study. One, is the composite index of economic development of Goa, which is prepared by involving the index of agriculture, manufacturing and service sectors. The other composite index is the index for the service sector as there are 4 sub-categories in the service sector.

3.3.1 Categorisation of Talukas

The regions (*talukas*) are then ranked from 1 to 11 on the basis of the indices and categorised into low developed, medium and high developed regions (*talukas*) for agriculture, manufacturing and service sectors for each category of the service sector. The regions (*talukas*) are finally ranked and categorised on the basis of the Composite Development Index into high, medium and low development regions (*talukas*) to get an overall picture of economic development and the regional imbalances therein.

3.4 Spearman's Rank Correlation Coefficient

When the data is in the form of ranks or are otherwise on an ordinal scale, we have an alternative measure of association between two variables. Most frequently used non-parametric measure of correlation between two variables is the Spearman Rank Correlation Coefficient denoted by 'Rs'(Aczel and Sounderpandian, 2006).

To compute the Spearman Correlation Coefficient, we first rank all the observations of one variable within themselves from smallest to largest. Then we independently rank the values of the second variable from smallest to largest. Spearman's rank correlation coefficient is the usual correlation coefficient applied to the ranks.

The formula to compute the Spearman Correlation Coefficient is as follows.

$$Rs= 1-6\ \Sigma di^2/\ n(n^2-1)$$

Di, i=1,2,.....n are differences in the ranks of Xi and Yi, i.e, di= R(Xi)- R(Yi)

The Spearman Correlation Coefficient satisfies the usual requirements of correlation measures. It is equal to 1 when the variables X and Y are perfectly positively correlated. It is equal to -1, if it is perfectly negatively correlated. It is equal to zero when there is no relation between X and Y. Values between these extremes give a relative indication of the degree of association between X and Y.

3.5 Co-efficient of Variation

The study also uses the coefficient of variation as a measure of dispersion to signify the extent of inequality.

The coefficient of variation is a percentage expression of variance, which has the same features as that of standard deviation in its relative measure. This measure of dispersion is a pure number, expressed as a percentage and is used in this study to compare between spatial and temporal inequalities occurring across the 11 talukas over the 20 year period of study.

It is calculated with the use of the formula :

$$CV = \frac{\sigma}{\bar{x}} \times 100$$

where , CV = coefficient of variation

σ = standard deviation of index values

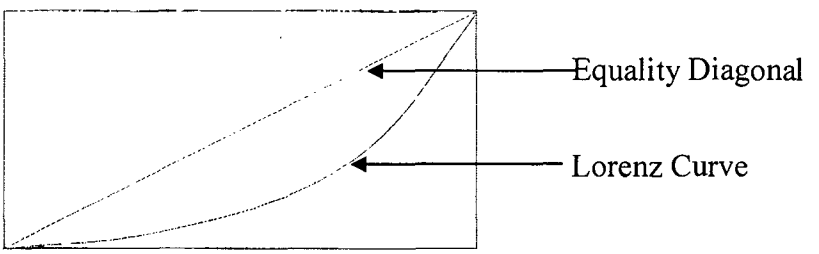
$\bar{x}$ = Average of index values

The coefficient of variation is then tabulated spatially and temporally for each category and observations are made regarding the extent of inequalities and the changes therein.

3.6 Gini Coefficient and Lorenz Curve

The Gini-Coefficient was developed by the Italian Statistician Corrado Gini (Gini, 1912) as a summary measure of income inequality in society. It is almost always associated with the plot of wealth concentration introduced by Max Lorenz (Lorenz, 1905). Since these measures were introduced they have being applied to topics other than Income and Wealth but mostly within Economics. (Li, Hongyi and others, 1998 ; Cowell, 1995, 2000; Jenkins, 1991 ; Sen, 1973).

The Gini-Coefficient is therefore based on the Lorenz Curve, a cumulative frequency curve that compares the distribution of a specific variable with the uniform distribution the represents equality (as shown in the figure)



This equality distribution is represented by a diagonal line and the greater the deviation of the Lorenz Curve from this line, the greater the inequality.

While considering the variables, the cumulative proportion of the population is generally shown on the X axis and the cumulative proportion of the variable on the Y axis. The greater the distance from the diagonal line, the greater the inequality. The curve can be below or above the diagonal depending on the variable used when the variable is beneficial to the population the curve is found below the diagonal line. In contrast, when the variable is prejudicial, it is found above the line.

The Gini-Coefficient is a Lorenz Curve consistent tool for evaluating and comparing relative inequality in the distribution of populations access to each of the variables where:

$$\text{Gini Coefficient} = \frac{\text{Area between Lorenz Curve and Diagonal}}{\text{Total area under the Diagonal.}}$$

Thus, the Gini-Coefficient ranges from 0 to 1. 0 representing perfect equality and 1, total inequality. (Stuart and Ord, 1994). The Gini Coefficient has also been used widely in inequality studies conducted by the World Bank for the World Development Report and the United Nations for the UN Human Development Report.

In recent years, the best data on the extent of income inequality, expressed in terms of Gini-ratios, on a per-person income basis covering 49 countries, are available in recent issues of World Development Report. Lowest Gini values of less than 0.3, are found in the regions of the former communist bloc and the Welfare States of Western Europe. Ginis of a little over 0.4 are found for U.S. and China. Latin America, as always exhibits

very high Ginis and Malaysia, the only east asian economy in the data set is found in the high Gini (0.45-0.5) category (World Development Indicators, 1999). Categorization made by the World Bank with regard to inequalities as reflected by Gini Coefficients, considers Gini values of 0 to 0.3 as insignificant levels of inequality, Gini values for 0.3 to 0.5 as of medium significance and Gini values above 0.5 upto 1 as highly significant. However, this categorization made by the World Bank is in context of the world economy and therefore, very severe. The same measure need not be very relevant in a regional context, that too for a small developed state like Goa. Thus, in the present study, we redefine the categorization as Gini values of 0 to 0.2 as indicating insignificant inequality, Gini values of 0.2 to 0.4 as indicating inequalities of medium significance and Gini values above 0.4 as being indicative of highly significant inequalities.

Extensive academic literature thus, establishes the Gini-Coefficient as the most commonly used Lorenz consistent inequality measure. There are different methods to calculate the Gini-coefficient, this study uses the formula as developed by M. Brown (Brown, 1994), who presented a Gini-Style Index, seemingly calculated from two variables instead of one. The formula is as shown below E may,

$$G = \left| 1 - \sum_{i-0}^{k-1} (Y_{i+1} + Y_i)(X_{i+1} - X_i) \right|$$

The taluka-wise secondary data collected for 48 parameters across the 3 sectors for the period 1987 (Statehood of Goa) to 2006 (20 years) enables this study to calculate the Gini-Coefficient spatially and temporally and the steps followed are as given below:

1. Sort the two variables under consideration by the population (Xi), from the lowest to the highest.
2. Obtain the cumulative percentage of Xi variable, label it as Cum X%
3. Obtain the cumulative percentage of Yi variable (income, number schools or any other variable) and label it as Cum Y%
4. Calculate the sum of Cum X% and Cum Y% (Cum X% + Cum Y%), and call it as A
5. Calculate A* Cum X% for each observation and obtain the sum of the same.
6. Subtract 1 from the value obtained in the step (4) and that represents the Gini Coefficient.
7. Calculate the cumulative proportion of each of the two variables.
8. Calculate the Gini-coefficient using the formula.

The Gini-coefficient derived for each parameter is then added and the average Gini is calculated for each category and tabulated spatially and temporally to assess what is happening in the particular sectors / sub-sectors over the 20 year period of study.

CHAPTER IV

IMBALANCES IN AGRICULTURAL SECTOR

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IMBALANCES IN AGRICULTURAL SECTOR

4.1 Introduction

Though Agriculture is one of the major economic activities of the rural population in Goa, only 16.6 per cent of them are engaged in agricultural activities, as compared to the 60 per cent at the time of Goa's Liberation and approximately 50 per cent at the time of Goa's Statehood in 1987.

Even in the 1960's, with about 60 per cent population engaged in agriculture, this sector contributed hardly 16 per cent of the State's income, dwindling to 15 per cent at the time of Statehood; the contribution of Agriculture to the GSDP has declined sharply thereafter, now standing at a mere 7 per cent, which is way below the national average of 30 per cent contribution of Agriculture to GDP.

4.2 Historical Background

The conditions prevailing in Goa under the Portuguese rule were not conducive to the development of agriculture as the colonial rulers were not concerned about this sector, though it was the source of livelihood to the majority of the local population.

The only two irrigation schemes undertaken by the government were the construction of the Khandepar canal in 1938 and that of the Paroda canal in 1950. Together these two schemes irrigated only about 550 ha. of land ; natural sources of water accounted for the irrigation of the balance area of land to make up a total of 6070 ha., which was less than 5 per cent of the net sown area of the State.

Recommendations made by the Agricultural mission of Portugal in 1955 resulted in some efforts to be taken to adopt new agricultural practices such as mechanized cultivation, use of organic fertilizers, use of pest control methods etc. At the same time, an embargo was imposed by the Government of India on Goa, which was expected to compel the rulers to develop the agricultural sector but that did not happen as no incentives were available ; moreover, the flourishing mining industry enabled Goa to earn foreign exchange which facilitated the import of food grains to supplement the local production, and thus, the State did not feel the compulsion to strengthen the agricultural sector, which continued to occupy secondary position.

4.3 Post-Liberation Development of Agriculture

After liberation from colonial rule, plans were drawn for the development of agriculture as was being carried out in the rest of the country. Goa had already missed the first two five-year plans, and thus was in a hurry to catch up with the rest of the country. The first major step towards this end was the passing of the Tenancy Act in 1964 with a 2-fold objective that is, (1) to conform to the goal of the socialistic pattern of society as adopted by the country, and (2) to induce the tenants to produce more by giving them a higher stake in their activities. Though the first objective may be said to have been achieved yet, it is a matter of concern that many of the beneficiaries of the Tenancy Act have not been cultivating their lands, due to the persistent and overriding desire for white-collar jobs which have driven them to the urban areas or even to foreign lands.

Thus for example, there was only a marginal increase in the area of land that was under the cultivation of paddy as a result of the promulgation of the Tenancy Act 1964, however, there was a more than proportionate increase in the yield of paddy, which was explained by the use of the high yielding variety of seeds and fertilizers which were already in use in the other parts of the country.

4.3.1 Post-Statehood Development of Agriculture

Two major irrigation projects namely, the Salaulim Dam which is expected to irrigate 14,500 ha. in South Goa and the Tillari Dam, which is expected to irrigate 16,978 ha. in North Goa along with medium irrigation projects such as the Anjunem Dam (irrigation capacity of 2100 ha. in Sattari taluka, North Goa) and minor irrigation projects of Amthane and Chapoli (to irrigate an area of 1000 ha.) have no doubt improved the growth of the agricultural sector, with a substantial increase in the yields of rice, cashew nuts, coconuts and vegetables.

While the total reporting area remains unchanged from 1987 to 2006 at 361,113 Ha., it is not surprising to note that there has been a fall in net area sown from 143,678 Ha. in 1987 to 136,781 Ha. in 2006, as agriculture is being considered an economically unviable proposition with high costs of inputs and labour resulting in low profit margins.

It is heartening to note that the area sown more than once has more than trebled during the period of study from 10,480 Ha. in 1987 to 33,546 Ha. in 2006, indicating an improvement in the irrigational facilities with the commissioning of the Salaulim Dam and the Tillari and Anjunem irrigation projects.

It is pertinent to note that during the period of study while there is a 20 per cent rise in the area under cultivation of paddy from 42,811 Ha. in 1987 to 52,177 Ha in 2006 the increase in average yield of rice per hectare has only marginally risen in both the kharif and rabi cultivation of the crop.

The sunshine areas of cultivation in the agriculture sector promise to be the cash crops (in particular, cashew cultivation) horticulture and floriculture, as these areas promise better returns, substantiated by the fact, that there has been a marked increase in the area under cultivation of both vegetable and garden crops from 1987 to 2006.

The potential for development of these areas in the agriculture sector is highlighted by the fact that Goa imports its requirements of vegetables, fruits and flowers from the neighboring States of Karnataka and Maharashtra.

The setting up of the Horticulture development Corporation by the Government of Goa is no doubt a right step in the direction of facilitating and increasing the cultivation of such crops.

4.4 Regional Imbalances in the Agricultural Sector: Major indicators

Although significant strides have been made by Goa in the improvement of the Agricultural Sector, yet, even in 2003-04, the contribution of Agriculture to the NSDP was not more than 15 per cent. Goa has however, been able to diversify its agricultural basket to include paddy, cashew, coconut, mango, arecanut, bananas,

pineapples and vegetables as the important food crops and sugarcane, rubber and oil palm as the chief commercial crops.

Relevant to this study is the fact that development in the agricultural sector varies on a regional (taluka) basis and this variation has changed over the period of study, that is, from 1987 to 2006.

4.4.1 Area Under Cultivation

Regional (taluka wise) inequalities can be observed in agriculture in Goa when we consider the basic parameter of area under cultivation. While comparing the taluka wise data for 1987, 1997 and 2006 in Tables 4.1, 4.2 and 4.3 respectively, it is seen that though the geographical area of Sanguem is the maximum, followed by Sattari, Canacona and Quepem, the Gross cropping area as a percentage of the total area was the highest in Salcete, Bicholim and Tiswadi in 1987, it was Bardez, Tiswadi and Pernem in 1997 and Bardez, Pernem and Salcete in 2006.

It is pertinent to note that Bardez which has the highest percentage of Net sown area has also the highest percentage of gross cropped area in all three years under consideration.

Vast differences can be observed in the net area sown as a percentage of the total geographical area. Sanguem has the least percentage of net area sown to the total area of the taluka right from 1987 to 2006, mainly because mining is the main activity in this taluka.

Table 4.1 Area under cultivation : Talukawise - 1987

Taluka	Total area (Ha)	Total reporting area (Ha)	Net area sown (Ha)	Area sown more than once (Ha)	Gross cropped area (Ha)
Tiswadi	19700	16611	13243	974	14217
		(84.3)*	**(67.2)**	**(4.9)**	**(72.2)**
Bardez	25500	26480	18607	634	19241
		(103.8)	**(73.0)**	**(2.5)**	**(75.5)**
Pernem	24100	24200	15044	703	15747
		(100.4)	**(62.4)**	**(2.9)**	**(65.3)**
Bicholim	23340	23633	15653	1539	17192
		(101.3)	**(67.1)**	**(6.6)**	**(73.7)**
Sattari	49900	51284	14343	616	14959
		(102.8)	**(28.7)**	**(1.2)**	**(30.0)**
Ponda	28760	25228	10970	1820	12790
		(87.7)	**(38.1)**	**(6.3)**	**(44.5)**
Sanguem	87940	88660	15259	1410	16669
		(100.8)	**(17.4)**	**(1.6)**	**(19.0)**
Canacona	35110	24736	10253	485	10738
		(70.5)	**(29.2)**	**(1.4)**	**(30.6)**
Quepem	31730	34731	8350	528	8878
		(109.5)	**(26.3)**	**(1.7)**	**(28.0)**
Salcete	29300	27719	19136	1552	20688
		(94.6)	**(65.3)**	**(5.3)**	**(70.6)**
Murmugao	10590	7831	2820	219	3039
		(73.9)	**(26.6)**	**(2.1)**	**(28.7)**

(* Percentage value of total area of taluka given in parenthesis)

In 1987, besides Sanguem, the other talukas where the percentage of net area sown to the total area is less than 30 per cent are Sattari, Canacona, Quepem and Murmugao, while the net area sown in Ponda is only marginally higher at 38 per cent of the total area. There are however, five talukas namely, Tiswadi, Bardez, Pernem, Bicholim and Salcete where the net area sown is above 60 per cent of total area. Of these talukas, it is in Bardez alone, that the net area sown is greater than 70 per cent of the total area.

It can be noted that in every taluka there has been a fall in the percentage of net area sown to total area in 1997 as compared to 1987, falling further in 2006, so much so, that only Bardez taluka has net area sown above 60 per cent of the total area.

Table 4.2 Area under cultivation : Talukawise – 1997

Taluka	Total area (Ha)	Total reporting area (Ha)	Net area sown (Ha)	Area sown more than once (Ha)	Gross cropped area (Ha)
Tiswadi	21360	16611	12787	3247	16034
		(77.8)*	(59.9)	(15.2)	(75.1)
Bardez	26400	26480	17233	6709	23942
		(100.3)	(65.3)	(25.4)	(90.7)
Pernem	25169	24200	15035	3480	18515
		(96.2)	(59.7)	(13.8)	(73.6)
Bicholim	23877	23633	13118	2877	15995
		(99.0)	54.9)	(12.0)	(67.0)
Sattari	49513	51284	14861	1860	16721
		(103.6)	30.0)	(3.8)	(33.8)
Ponda	29278	25228	11208	2482	13690
		(86.2)	38.3)	(8.5)	(46.8)
Sanguem	87375	88660	13871	1425	15296
		(101.5)	15.9)	(1.6)	(17.5)
Canacona	35202	34736	10338	637	10975
		(98.7)	29.4)	(1.8)	(31.2)
Quepem	31825	34731	10225	958	11183
		(109.1)	32.1)	(3.0)	(35.1)
Salcete	29294	27719	18129	2351	20480
		(94.6)	61.9)	(8.0)	(69.9)
Murmugao	10912	7831	2337	338	2675
		(71.8)	(21.4)	(3.1)	(24.5)

(* Percentage value of total area of taluka given in parenthesis)

Nevertheless, it is heartening to note that though net area sown has fallen successively from 1987 to 1997 to 2006, the gross cropped area in Bardez is as high as 90 per cent of the total area in 1997 and 96 per cent of total area in 2006, which is explained by the tremendous rise in net area sown more than once from 2.5 per cent in 1987 to 25.4 per cent in 1997 to 34.9 per cent in 2006; in contrast, there is still Sanguem where gross cropped area remains less than 20 per cent of total area right from 1987 to 2006.

Tables 4.1, 4.2 and 4.3 have given the nature of inequality exists among talukas with respect to total area, total reporting area, net sown area, area sown more than once and gross cropped area.

Table 4.3 Area under cultivation : Talukawise – 2006

Taluka	Total area (Ha)	Total reporting area (Ha)	Net area sown (Ha)	Area sown more than once (Ha)	Gross cropped area (Ha)
Tiswadi	21357	16611	12552	1014	13566
		(77.8)*	(58.8)	(4.7)	(63.5)
Bardez	26397	26480	16186	9220	25406
		(100.3)	(61.3)	(34.9)	(96.2)
Pernem	25169	24200	14864	4023	18887
		(96.2)	(59.1)	(16.0)	(75.0)
Bicholim	23880	23633	12526	3155	15681
		(99.0)	(52.5)	(13.2)	(65.7)
Sattari	49510	51284	15288	2497	17785
		(103.6)	(30.9)	(5.0)	(35.9)
Ponda	29270	25228	12349	2739	15088
		(86.2)	(42.2)	(9.4)	(51.5)
Sanguem	87352	88660	14370	3078	17448
		(101.5)	(16.5)	(3.5)	(20.0)
Canacona	35204	34736	9667	1363	11030
		(98.7)	(27.5)	(3.9)	(31.3)
Quepem	31825	34731	9314	2634	11948
		(109.1)	(29.3)	(8.3)	(37.5)
Salcete	29294	27719	17497	3189	20686
		(94.6)	(59.7)	(10.9)	(70.6)
Murmugao	10913	7831	2168	634	2802
		(71.8)	(19.9)	(5.8)	(25.7)

(* Percentage value of total area of taluka given in parenthesis)

4.4.2 Area Under Specific Crops

The area under various crops also reveals taluka wise imbalances in the prominence that the particular crop has in that taluka. The talukawise crop distribution for the years 1987, 1997 and 2006 can be seen in tables 4.4, 4.5 and 4.6 respectively.

The total area under cultivation of the various crops reveals that while Salcete, Bardez and Bicholim had the maximum area under cultivation of major crops in 1987, it was Bardez, Salcete and Pernem which occupied the first three positions in 1997 and 2006. The talukas with the lowest area under cultivation of crops in 1987 were Quepem, Canacona and Murmugao. There was no change in the status of these talukas in 1997. In 2006 however, Tiswadi joined Quepem, Canacona and Murmugao in being talukas with the least area under cultivation of these major crops.

Table 4.4 Area under specific crops : Talukawise – 1987

Talukas	Total area under crop cultivation (Ha)	Area under Paddy (Ha)	Area under Cereals, millet, pulses (Ha)	Area under Coconut (Ha)	Area under Cashewnut (Ha)	Area under other crops (Ha)
Tiswadi	13083	5512	1017	1428	3966	1160
		(42.13)*	**(7.77)**	**(10.91)**	**(30.31)**	**(8.87)**
Bardez	17855	5127	1635	2580	5835	2678
		(28.71)	**(9.16)**	**(14.45)**	**(32.68)**	**(15.00)**
Pernem	14946	3507	2930	1342	6552	615
		(23.46)	**(19.60)**	**(8.98)**	**(43.84)**	**(4.11)**
Bicholim	16574	3790	4221	1292	6744	527
		(22.87)	**(25.47)**	**(7.80)**	**(40.69)**	**(3.18)**
Sattari	15319	3355	2605	638	7934	787
		(21.90)	**(17.01)**	**(4.16)**	**(51.79)**	**(5.14)**
Ponda	12362	4355	2040	2137	2621	1209
		(35.23)	**(16.50)**	**(17.29)**	**(21.20)**	**(9.78)**
Sanguem	15843	2819	3676	2489	5263	1596
		(17.79)	**(23.20)**	**(15.71)**	**(33.22)**	**(10.07)**
Canacona	8075	2423	540	1498	2391	1223
		(30.01)	**(6.69)**	**(18.55)**	**(29.61)**	**(15.15)**
Quepem	9414	3169	2113	1811	1507	814
		(33.66)	**(22.45)**	**(19.24)**	**(16.01)**	**(8.65)**
Salcete	19012	8890	567	5760	1430	2365
		(46.76)	**(2.98)**	**(30.30)**	**(7.52)**	**(12.44)**
Murmugao	2772	864	319	1168	279	142
		(31.17)	**(11.51)**	**(42.14)**	**(10.06)**	**(5.12)**

(* Percentage value of total area under crop cultivation given in parenthesis)

Such low areas being covered by crop cultivation in these talukas can be explained by the fact that Quepem and Canacona are predominantly covered by forests, Murmugao is the port town, which has traditionally been an industrial and trade hub; It is the reduction of area in Tiswadi that points to the reduction in agricultural activity on account of (i) conversion of land for construction either for settlement or commercial purposes and (ii) because of change in preference of people with regard to occupation, peoples dislike for manual labour and preference for white collar jobs have resulted in agricultural lands being allowed to lie fallow as a result of which the area of land under cultivation of crops has reduced in 2006.

Table 4.5 Area under specific crops : Talukawise – 1997

Talukas	Total area under crop cultivation (Ha)	Area under Paddy (Ha)	Area under Cereals, millet, pulses (Ha)	Area under Coconut (Ha)	Area under Cashewnut (Ha)	Area under other crops (Ha)
Tiswadi	16034	7732	828	1695	4108	1671
		(48.22)*	(5.16)	(10.57)	(25.62)	(10.42)
Bardez	23942	7142	4099	2930	6238	3533
		(29.83)	(17.12)	(12.24)	(26.05)	(14.76)
Pernem	18515	4302	3373	1565	7961	1314
		(23.24)	(18.22)	(8.45)	(43.00)	(7.10)
Bicholim	15995	5160	765	1475	7356	1239
		(32.26)	(4.78)	(9.22)	(45.99)	(7.75)
Sattari	16721	3370	1761	850	9143	1597
		(20.15)	(10.53)	(5.08)	(54.68)	(9.55)
Ponda	13690	4906	483	2400	3184	2717
		(35.84)	(3.53)	(17.53)	(23.26)	(19.85)
Sanguem	15296	3070	535	2882	6385	2424
		(20.07)	(3.50)	(18.84)	(41.74)	(15.85)
Canacona	10975	3233	1097	1642	2885	2118
		(29.46)	(10.00)	(14.96)	(26.29)	(19.30)
Quepem	11183	5020	543	2070	2123	1427
		(44.89)	(4.86)	(18.51)	(18.98)	(12.76)
Salcete	20480	8838	573	6010	1655	3404
		(43.15)	(2.80)	(29.35)	(8.08)	(16.62)
Murmugao	2675	827	92	1216	322	218
		(30.92)	(3.44)	(45.46)	(12.04)	(8.15)

(* Percentage value of total area under crop cultivation given in parenthesis)

Paddy which is the major food crop in Goa is the crop for which maximum area of the total area under crop cultivation is utilised in 5 of the talukas in all the three years under consideration. In the remaining six talukas it is second only to cashewnut, except in Murmugao where it is second to coconut cultivation.

It is also observed that cashewnut cultivation occupies large portions of the total area under the cultivation of major crops. In all three years under consideration Sattari, Bicholim and Pernem have been the talukas where the highest percentage of total area under these crops has been under cashewnut cultivation. On the other hand, Quepem,

Murmugao and Salcete have consistently been the talukas with the least percentage of total area under cashew cultivation.

Table 4.6 Area under specific crops : Talukawise – 2006

Talukas	Total area under crop cultivation (Ha)	Area under Paddy (Ha)	Area under Cereals, millet, pulses (Ha)	Area under Coconut (Ha)	Area under Cashewnut (Ha)	Area under other crops (Ha)
Tiswadi	13558	5995	316	1707	4054	1486
		(44.22)*	**(2.33)**	**(12.59)**	**(29.90)**	**(10.96)**
Bardez	25374	6350	6015	2981	6428	3600
		(25.03)	**(23.71)**	**(11.75)**	**(25.33)**	**(14.19)**
Pernem	18861	3480	4257	1613	8264	1247
		(18.45)	**(22.57)**	**(8.55)**	**(43.82)**	**(6.61)**
Bicholim	15558	4005	1128	1496	7738	1191
		(25.74)	**(7.25)**	**(9.62)**	**(49.74)**	**(7.66)**
Sattari	17380	3910	577	897	10255	1741
		(22.50)	**(3.32)**	**(5.16)**	**(59.00)**	**(10.02)**
Ponda	14925	5865	391	2461	3370	2838
		(39.30)	**(2.62)**	**(16.49)**	**(22.58)**	**(19.02)**
Sanguem	16915	4245	379	3015	6955	2321
		(25.10)	**(2.24)**	**(17.82)**	**(41.12)**	**(13.72)**
Canacona	10985	3760	100	1704	3241	2180
		(34.23)	**(0.91)**	**(15.51)**	**(29.50)**	**(19.85)**
Quepem	11727	5538	255	2125	2448	1361
		(47.22)	**(2.17)**	**(18.12)**	**(20.87)**	**(11.61)**
Salcete	20680	8270	1168	6078	1915	3249
		(39.99)	**(5.65)**	**(29.39)**	**(9.26)**	**(15.71)**
Murmugao	2800	759	245	1235	353	208
		(27.11)	**(8.75)**	**(44.11)**	**(12.61)**	**(7.43)**

(* Percentage value of total area under crop cultivation given in parenthesis)

It is noteworthy that though coconut is almost a staple component of food in Goa, yet the percentage of land under the cultivation of this crop, of the total land under cultivation of major crops is relatively less in all three years in all the talukas except Salcete and Murmugao. These two talukas, in all the three years under consideration, have had the highest percentage of land among all talukas under the cultivation of coconut.

4.4.3 Rice Cultivation

Rice is cultivated as both a Kharif and Rabi crop in all the talukas of the State. The average yield of rice per hectare can be observed per hectare for each of the seasons can be observed in tables 4.7, 4.8 and 4.9 for the years 1987, 1997 and 2006 respectively. The tables also indicate the total area under paddy cultivation and the total average yield in each of the talukas in the respective years.

Table 4.7 Cultivation of Rice: Talukawise – 1987

Taluka	Total area under paddy cultivation (Ha)	Average yield of Rice/ Ha (kgs.)		Total Average Yield (in Tonnes)
		Kharif	Rabi	
Tiswadi	5512	2950	2377	29362.42
Bardez	5127	2580	2750	27326.91
Pernem	3507	2407	2638	17692.82
Bicholim	3790	1703	3063	18063.14
Sattari	3355	1585	2658	14235.27
Ponda	4355	1822	2866	20416.24
Sanguem	2819	1585	3364	13951.23
Canacona	2423	2828	2353	12553.56
Quepem	3169	2363	2906	16697.46
Salcete	8890	2205	2306	40102.79
Murmugao	864	2029	1797	3305.66

It is important to note that area under paddy cultivation in all talukas had increased significantly from 1987 to 1997. However, in 2006, a declining trend can be observed in the area under paddy cultivation which is explained by the increasing level of labour costs involved in paddy cultivation which renders the activity uneconomic, forcing many cultivators to give up the cultivation of paddy.

Table 4.8 Cultivation of Rice : Talukawise – 1997

Taluka	Total area under paddy cultivation (Ha)	Average yield of Rice/ Ha (kgs.)		Total Average Yield (in Tonnes)
		Kharif	Rabi	
Tiswadi	7732	2697	2832	42750.23
Bardez	7142	2596	2356	35367.18
Pernem	4302	2425	1841	18352.33
Bicholim	5160	2660	3378	31156.08
Sattari	3370	2263	3867	20658.10
Ponda	4906	2487	3596	29843.20
Sanguem	3070	2271	2892	15850.41
Canacona	3233	2563	2621	16759.87
Quepem	5020	2780	2986	28945.32
Salcete	8838	3107	2917	53240.11
Murmugao	827	2915	2706	4648.57

It is also observed that families whose traditional occupation was cultivation of paddy are opting for white collar jobs on account of better education or are moving out of their villages to seek better employment opportunities either in the urban areas or in foreign countries. Even Murmugao, which as it is, had the least area under cultivation of paddy to start of with, that is, 864 ha. in 1987, has shown progressive decline to 827 ha. in 1997 and further to 759 ha. in 2006.

The cultivation of paddy in the Kharif season depends on the south west monsoon which provides rainfall in the months of June to September. It is observed that in 1987 the average yield of rice per hectare was between 2000 and 2500 kgs / hectare in the five talukas of Bardez, Pernem, Quepem, Salcete and Murmugao, while four talukas Sanguem, Sattari, Bicholim and Ponda on an average yielded only 1500 to 2000 kgs / ha. Only two talukas Canacona and Tiswadi had an average yield of more than 2800 kg / ha. in the said year.

Table 4.9 Cultivation of Rice : Talukawise – 2006

Taluka	Total area under paddy cultivation (Ha)	Average yield of Rice/ Ha (kgs.)		Total Average Yield (in Tonnes)
		Kharif	Rabi	
Tiswadi	5995	2811	2378	31108.06
Bardez	6350	3002	2154	32740.60
Pernem	3480	3244	3731	24273.00
Bicholim	4005	2693	3209	23637.51
Sattari	3910	2587	2847	21246.94
Ponda	5865	2608	3138	33700.29
Sanguem	4245	2825	2689	23406.93
Canacona	3760	3265	2676	22338.16
Quepem	5538	2702	2397	28238.26
Salcete	8270	2873	2156	41589.83
Murmugao	759	2725	2155	3703.92

In 1997, it is observed that, by and large all talukas had improved their productivity of rice cultivation which ranged between 2263 kgs / ha (Sattari) to 3107 kgs/ha (Salcete). In 2006, the overall productivity went up further ranging between 2587 kgs. / ha in Sattari to 3265 kgs. / ha in Canacona.

The Rabi crop which is sown in the month of December depends on the availability of irrigational facilities such as bore wells, tanks or canals flowing from irrigational projects. It can be noted that the productivity of paddy cultivation was over all, higher in the Rabi crop in 1987 particularly in the few talukas of Bicholim, Sattari, Ponda adn Sanguem which had better irrigated lands. In 1997 also this trend can be observed. In 2006, it is observed that Pernem has also improved its productivity in the Rabi season, indicating improved irrigational facilities on account of availability of water from the Tillari Project.

On the whole it can be observed that though the area under paddy cultivation has been falling from 1987 to 2006 yet there has been a marked increase in the total average

yield, on the strength of better inputs of seeds and fertilizers and scientific methods of cultivation being employed by the farmers.

4.5 Regional Imbalances in the Agricultural Sector: Measurement of Inequality

The statistical tools that have been used to measure inequalities in the development of this sector are:

1. The Simple and Composite Development Index.
2. The Rank Correlation Coefficient
3. The Coefficient of Variation
4. The Gini-Coefficient

The findings of each measure are discussed in order to arrive at the relevant conclusions for this sector.

4.5.1 The simple and composite index

To study the development of Agriculture on a regional (*taluka*-wise) basis in Goa, a Simple and Composite Development Index for the various talukas is calculated. In the process of calculation, 15 parameters (see Annexure II) are considered and converted into a combined Agriculture Development Index (as given in the Methodology Chapter) for all eleven regions (*talukas*) in Goa. The indices for the years 1987, 1997 and 2006 are presented in Table 4.10. The table shows the Agriculture Development Index for all 11 *talukas* for the years 1987, 1997 and 2006 and the corresponding ranks for the respective years. Categorization of the ranks into low, medium and high

developed *talukas* is given in Table 4.11. Location of these *talukas* (with their names and ranks inset) is given in map 4.1 for the years 1987, 1997 and 2006.

Table 4.10 Inequality Index : Agriculture

TALUKA	1987		1997		2006	
NORTH GOA	**Index**	**Rank**	**Index**	**Rank**	**Index**	**Rank**
TISWADI	111	8	79	8	63	10
BARDEZ	136	6	**142**	**1**	153	3
PERNEM	99	10	102	6	119	4
BICHOLIM	126	7	86	7	86	7
SATTARI	155	3	114	4	114	5
PONDA	197	2	131	3	**183**	**1**
SOUTH GOA						
SANGUEM	**230**	**1**	140	2	179	2
CANACONA	100	9	72	9	83	8
QUEPEM	140	5	79	8	81	9
SALCETE	148	4	113	5	102	6
MURMUGAO	39	11	26	10	36	11

The indices show that Sanguem *taluka* in South Goa, is the highest ranked *taluka* in 1987, followed by Ponda and Sattari at rank No. 2 and 3 respectively. The lowest ranked is Murmugao with an index which is way below, at 39. The existence of inequality in the development of Agriculture in 1987 is evident from the fact that the difference between highest index value (230) and lowest (39) index value is very high.

In 1997, rank No. 1 is occupied by Bardez , mainly because of the reason that, the area more than once has increased substantially, resulting in a considerable rise in Gross cropped area as well, in this taluka, during the period 1987-1997. As a result, Sanguem taluka is ranked second, and Ponda is pushed down further to the third rank

in 1997. However, all the three talukas find themselves in the high development category of agriculture development.

In 2006, Ponda emerges as the most agriculturally developed taluka in Goa; this rise in ranking is attributed to the fact that Ponda retained its impressive performance in all the variables considered particularly net area sown, gross cropped area, and area under other crops. In fact, being a midland region, without the advantage of a shoreline, Ponda tried to get its share of the tourism basket by developing spice farms and nature retreats, which explain the rise in the three variables mentioned above. The popularity of these agricultural farms on the tourist itinerary made it even more attractive for agriculturalists to take up cultivation of spice farms, which is mainly responsible for the surging ahead of Ponda in agricultural development. Sanguem taluka retained its second ranking in 2006, mainly on account of increase in the area under Paddy cultivation and area under the cultivation of other crops, in this case predominantly sugarcane, made possible by the commissioning of the Salaulim irrigation project which serves this area with irrigational facilities throughout the year. Bardez remained in the high development category of Agriculture though it did slip to third rank.

A close look at the talukas featuring in the low developed category of agriculture reveals that in 1987, 1997 and 2006, Murmugao remains at the lowest position, which is not surprising at all, as apart from being a small taluka in terms of geographical area providing little scope for extension of agricultural activities, agriculture has never been a predominant activity in this taluka, as it is a port city where manufacturing and trade have always been the more important economic activities. It is pertinent to note

that in 2006, Tiswadi taluka became one of the least agriculturally developed talukas in Goa; this can be explained by the fact that there has been a progressive decline in the net area sown, area sown more than once and the gross cropped area. Nevertheless, it is interesting to note this development in the context of the fact that even in 2006, Tiswadi is the taluka which has the third highest area under paddy cultivation.

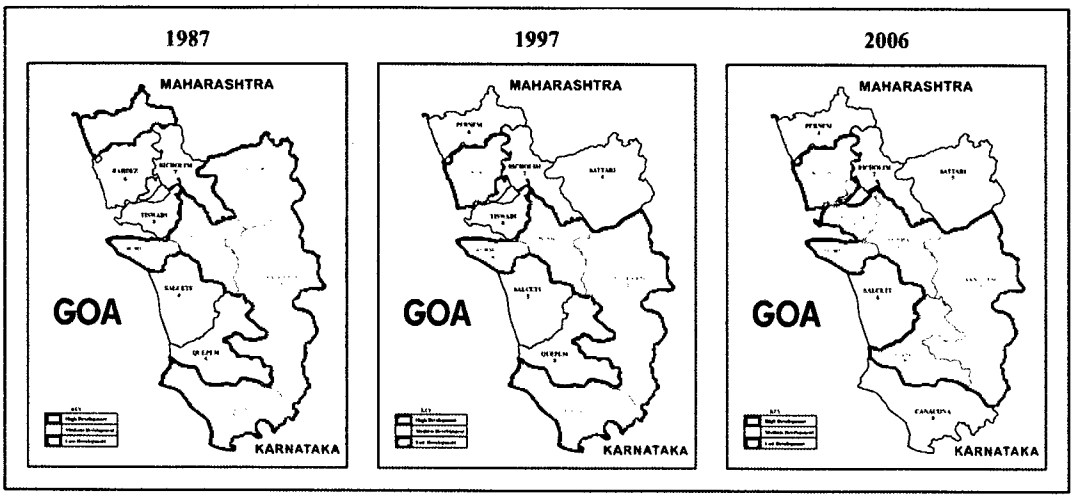
Table 4.11 Categorization of *Talukas* on basis of ranks

HIGH DEVELOPMENT			MEDIUM DEVELOPMENT			LOW DEVELOPMENT		
1987	1997	2006	1987	1997	2006	1987	1997	2006
SANGUEM	BARDEZ	PONDA	SALCETE	SATTARI	PERNEM	CANACONA	CANACONA	QUEPEM
PONDA	SANGUEM	SANGUEM	QUEPEM	SALCETE	SATTARI	PERNEM	MURMUGAO	TISWADI
SATTARI	PONDA	BARDEZ	BARDEZ	PERNEM	SALCETE	MURMUGAO		MURMUGAO
			BICHOLIM	BICHOLIM	BICHOLIM			
			TISWADI	TISWADI	CANACONA			
				QUEPEM				

Though Canacona taluka, remained in the low development category in both 1987 and 1997, it moved into the medium development category in 2006, more because of the reduction in the importance of agriculture in the other talukas rather than an improvement in the performance of Canacona taluka. Pernem which was also in the low development category moved into the medium development category in 1997 and retained its position there in 2006 also; the improvement in the development of agriculture in this taluka is attributed to the irrigational facilities provided under the Anjunem project. Another important finding is the movement of Quepem taluka from the medium development category in both 1987 and 1997 to the low development category in 2006, in spite of the area under paddy cultivation having gone up

consequent to the availability of water from the Salaulim irrigation project; the sudden spurt in industrial activities in this taluka could also explain this development.

Map 4.1 Inequality Index - Agriculture



The talukas that feature permanently in the medium development category through out the period of study are Salcete and Bicholim. Similarly, it is Murmugao taluka that features permanently in the low development category while, Sanguem, Bardez and Ponda have remained in the high development category through out the period of study, though the respective ranks of the talukas, in each of the years under consideration have changed. The position of all the other talukas have changed in during the period of study of the agricultural development of Goa.

4.5.2 The Rank Correlation Coefficient

The Rank Correlation Coefficient based on the ranks of the composite index of Agriculture for the years 1987, 1997 and 2006 is given in Table 4.12.

Table 4.12 Rank Correlation Coefficient – Agriculture

YEAR	1987	1997	2006
1987	1	.734	.65
1997		1	.90
2006			1

The Rank Correlation Coefficient for the years 1987 and 1997, that is, .734 reveals that there is positive Correlation between the ranks of various talukas. A very high Rank Correralation of .734 also reveals that the relative position of the talukas in the agricultural development has not changed much. However, if we compare the Rank Correlation Coefficient of ranks between 1997 and 2006, we find that it is only 0.65. Therefore, as compared to 1987-1997 period, during 1987-2006 period, the relative position of talukas, with respect to agricultural development, has changed. The Rank Correlation Coefficient between 1997 and 2006 is very high at 0.90, which means that the relative position of talukas in agricultural development has not changed much. The talukas have retained more or less the same ranks in 2006 as in 1997. It implies that 10 years of development programmes did not change the relative position of talukas with respect to agricultural development in Goa.

4.5.3 The Coefficient of Variation

This analysis provides a spatial and temporal insight into the inequalities in the development of the agriculture sector. It also provides the magnitude of inequality.

Spatial Analysis

The objective underlying the spatial analysis is to understand the inequality in the development of agriculture across all talukas at a given point of time, that is, 1987, 1997 and 2006.

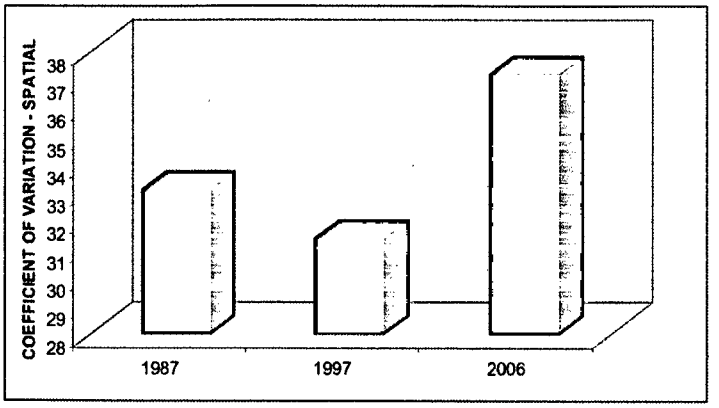
Inequalities in the agricultural sector in 1987, 1997 and 2006 are seen in table 4.13 and the graph 4.1.

Table 4.13 Agriculture: Coefficient of Variation - Spatial

Year	$\overline{X}$	σ	Coefficient of variation
1987	99.91	33.10	33.14
1997	99.27	31.18	31.41
2006	103.73	38.60	37.22

It can be seen from the table 4.13 that, the Coefficient of Variation is 33.14 per cent in 1987 and 31.41 per cent in 1997 and 37.22 per cent in 2006. The results show that the spatial variation at the three points of time is very high as it is more than 30 per cent. It is also interesting to note that, the inequality has reduced from 33.14 per cent in 1987 to 31.41 per cent in 1997. However, it has risen to 37.22 per cent in 2006.

Graph 4.1 Agriculture: Coefficient of Variation - Spatial



Therefore, the variation in agricultural development across the talukas, that is, the Spatial Variation is on an increase.

Temporal Analysis

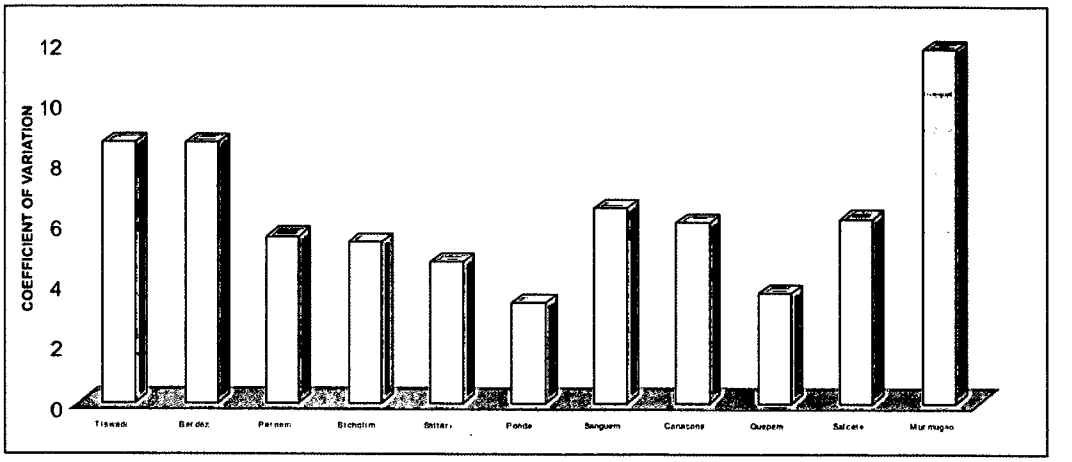
The objective underlying the temporal analysis is to understand whether the inequality in the development of agriculture of each taluka has increased or decreased over a period of time, that is, 1987 to 2006.

The temporal analysis is for the period under study, for each of the 11 regions (talukas) in the State, and is shown in Table 4.14 and graph 4.2. The results reveal that the coefficient of variation has been the lowest in Ponda (3.32%) taluka which is observed to be highly developed in agriculture. Quepem also showed very low level of variation (3.64%) and it is only marginally higher than the variation observed in Ponda, which is the lowest variation.. Sattari (4.69%), Bicholim (5.31%), Pernem (5.51%), Canacona (5.99%) have relatively higher variation corroborated by the fact that agriculture is being slowly replaced in these talukas with other occupations.

Table 4.14 Agriculture: Coefficient of Variation – Temporal

Taluka	$\bar{X}$	σ	Coefficient of variation (%)
Tiswadi	74.50	6.43	8.63
Bardez	136.55	11.4	8.63
Pernem	101.70	5.60	5.51
Bicholim	84.70	4.4	5.31
Sattari	111.70	5.2	4.69
Ponda	129.75	4.3	3.32
Sanguem	144.85	9.3	6.47
Canacona	78.15	4.6	5.99
Quepem	82.00	2.98	3.64
Salcete	117.75	7.19	6.11
Murmugao	30.85	3.60	11.70

Graph 4.2 Agriculture: Coefficient of Variation - Temporal



Salcete (6.11%), Sanguem (6.47%), Bardez (8.63%) and Tiswadi (8.63%) have exceptionally high variations, as compared to Ponda and Quepem, on account of the tremendous development of the manufacturing and service sectors within all these talukas with the exception of Sanguem, which exhibits high variation on account of extensive mining activity in this taluka. The variation is highest in Murmugao (11.70%) as this taluka is a grossly underdeveloped taluka with reference to agriculture on account of being a port town, with a concentration of manufacturing activities.

The higher degree of variation in the various talukas can be accounted for by the migration of locals to other more developed talukas for alternative means of employment and the discontinuation of cultivation of agricultural lands as the activity proves to be economically unviable.

Thus, in comparison to the spatial variation (around 30 to 35 per cent), the temporal variation is less (4 to 10 per cent) implying that variation among talukas is high as compared to variation within one taluka over the years

4.5.4 Gini Coefficient

Gini Coefficient is calculated with the intention of understanding the taluka wise inequality in agricultural development in the context of the population of that taluka. Here clearly, it tries to understand whether agricultural development is equally shared among all the people of the various talukas.

Spatial Analysis

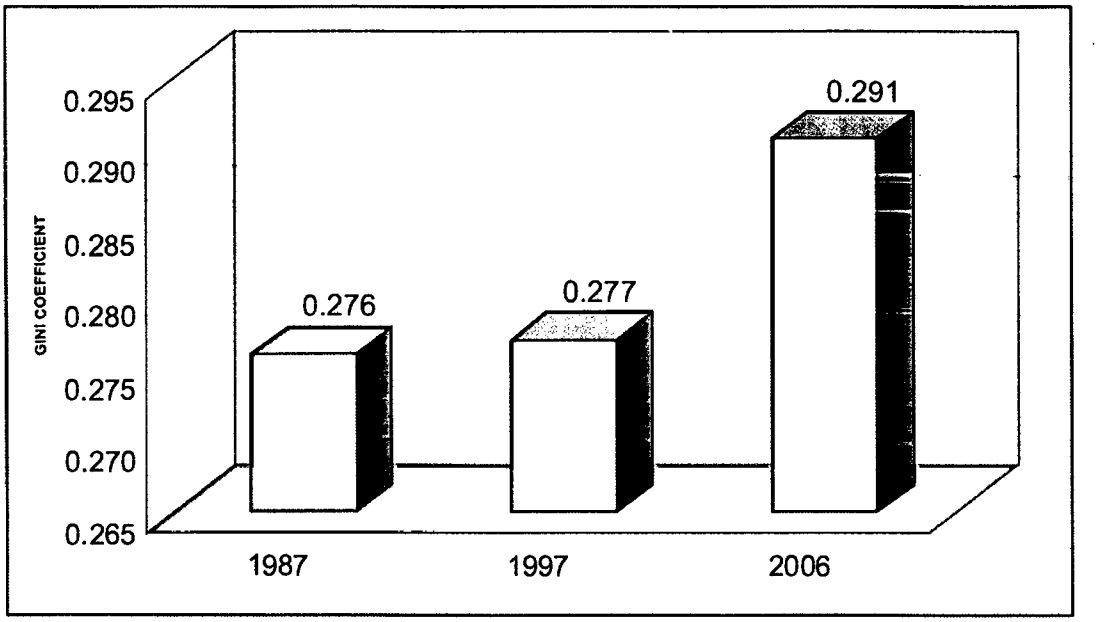
Over the years, the inequalities in Agriculture have been consistently low. The Gini coefficient is calculated for each of variable spatially. The values derived for the years 1987, 1997 and 2006 are given in table 4.15 and the graphical representation is seen in graph 4.3. As such, we can observe significant inequality in the total reporting area, which has risen from 1987 to1997 and further during the period 1997to 2006. This inequality can be explained by the fact that agriculture is becoming a less preferred activity with people opting for more economically viable occupations. Inequality in the net area sown however, is in the medium significance range, yet, it also increases from 1987 to 1997 and then further to 2006. It is pertinent to note that the inequalities in the area under cultivation of paddy are in the low significance range but, they have been increasing progressively from 1987 to 2006. Another interesting feature is inequalities in the area under cultivation of pulses have been in fact decreasing from high significance in 1987 to medium significance in 1997 and subsequently to low

Table 4.15 Agriculture: Gini Coefficient - Spatial

Variable	1987	1997	2006
Total reporting area (Ha)	0.419	0.454	0.460
Net area sown	0.208	0.231	0.253
Area sown more than once	0.181	0.076	0.162
Gross cropped area (Ha)	0.206	0.206	0.235
Area under paddy (Ha)	0.076	0.102	0.160
Area under other cereals millets / pulses	0.430	0.230	0.068
Area under Sugarcane(Ha)	0.691	0.776	0.783
Area under Coconuts (Ha)	0.036	0.063	0.079
Area under Arecanuts (Ha)	0.307	0.319	0.365
Area under Cashewnuts (Ha)	0.369	0.402	0.436
Area under vegetables (Ha)	0.201	0.178	0.120
Area under garden crops (Ha)	0.163	0.270	0.294
a) Average yield of rice per hectare (in kgs.)			
i) Kharif	0.263	0.262	0.311
ii) Rabi	0.314	0.390	0.359
b) Average yield of ragi per hectare (in kgs)			
i) Kharif	0.276	0.318	0.282
Average Gini	**0.276**	**0.277**	**0.291**

significance in 2006. Inequalities in the area under cultivation of sugarcane have been in the high significance range and have also been rising; this can be explained by the fact that sugarcane cultivation is carried out only in few talukas and even in these talukas there is a reduction in the area under sugarcane cultivation as the farmers face tremendous problems in marketing the sugarcane crop. As can be anticipated, inequalities in the area under the cultivation of coconuts are of very low significance, however, an increase in the inequalities is evident from 1987 to 1997 and then to 2006; again an explanation for this can be found in the shift of land use, migration of people from rural areas to urban areas, emigration to other countries and the growing cost of labour in the agricultural sector which is rendering cultivation economically unviable. Area under cultivation of Areca nuts and Cashew nuts is in the medium significance category of inequality and shows a trend of rising; even into the high significance range, in the case of cashewnut cultivation.

Graph 4.3 Agriculture: Gini Coefficient - Spatial



On the average however, inequalities have barely increased from 1987 (0.276) to 1997 (0.277); even in 2006, there is only a marginal increase in the Gini value to 0.291. There is, thus, a net increase in inequalities by 0.015 over the 20 year period, which is highly insignificant.

Temporal Analysis

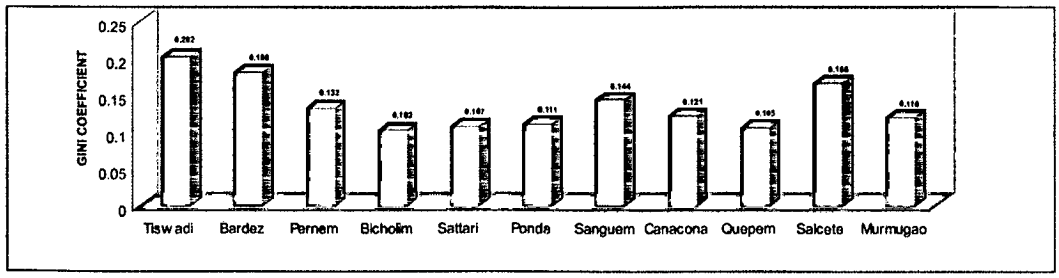
Inequalities in the agricultural sector between the talukas and within them, over the 20 year period, can be seen in table 4.16 and in the graph 4.4.

It can be observed that the least inequalities are evident in Bicholim, Quepem and Sattari. Maximum inequalities are observed in Tiswadi, Bardez and Salcete respectively, accounted for by the fact that the development of the other sectors in these talukas is much higher than that of Agriculture.

Table 4.16 Agriculture : Gini Coefficient - Temporal

	NORTH GOA						SOUTH GOA				
Variable / Taluka	**Ti**	**Ba**	**Pe**	**Bi**	**Sat**	**Po**	**San**	**Ca**	**Qu**	**Sal**	**Mur.**
Total reporting area (Ha)	0.037	0.075	0.037	0.038	0.043	0.048	0.076	0.080	0.054	0.052	0.040
Net area sown	0.066	0.015	0.054	0.063	0.069	0.075	0.094	0.073	0.063	0.034	0.013
Area sown more than once	0.096	0.310	0.284	0.210	0.232	0.115	0.281	0.222	0.217	0.209	0.094
Gross cropped area (Ha)	0.070	0.085	0.094	0.085	0.087	0.082	0.116	0.087	0.084	0.056	0.028
Area under paddy (Ha)	0.091	0.075	0.062	0.087	0.091	0.107	0.164	0.115	0.101	0.044	0.024
Area under other cereals millets / pulses	0.047	0.268	0.107	0.001	0.131	0.219	0.184	0.067	0.268	0.328	0.038
Area under Sugarcane(Ha)	1.000	1.000	0.136	0.141	0.061	0.312	0.001	0.033	0.003	0.184	1.000
Area under Coconuts (Ha)	0.091	0.058	0.090	0.083	0.080	0.065	0.104	0.082	0.075	0.060	0.049
Area under Arecanuts (Ha)	0.081	0.260	0.354	0.137	0.101	0.072	0.308	0.202	0.176	1.000	0.084
Area under Cashewnuts (Ha)	0.073	0.073	0.110	0.087	0.086	0.076	0.117	0.114	0.124	0.103	0.072
Area under vegetables (Ha)	0.085	0.061	0.142	0.108	0.127	0.158	0.224	0.142	0.055	0.087	0.048
Area under garden crops (Ha)	0.173	0.191	0.269	0.265	0.217	0.232	0.205	0.166	0.174	0.106	0.112
a) Average yield of rice per hectare (in kgs.)											
i) Kharif	0.033	0.062	0.018	0.040	0.054	0.062	0.135	0.071	0.002	0.099	0.073
ii) Rabi	0.084	0.013	0.069	0.053	0.073	0.035	0.038	0.101	0.022	0.045	0.084
b) Average yield of ragi per hectare (in kgs.)											
i) Kharif	1.000	0.158	0.160	0.132	0.148	0.001	0.109	0.256	0.159	0.089	0.030
Average Gini	**0.202**	**0.180**	**0.132**	**0.102**	**0.107**	**0.111**	**0.144**	**0.121**	**0.105**	**0.166**	**0.119**

Graph 4.4 Agriculture : Gini Coefficient - Temporal



Gini coefficient categorization as being used for the purpose of this study. It can be said that the Gini values which reflect the inequalities in the development of the particular variable in the taluka with respect to the population in the taluka indicate

that inequalities per capita, within the taluka, are far less then talukawise inequalities per se, without consideration of the population criterion.

4.6 Major Findings

The major problem being faced by the agriculture sector, in Goa, is the exodus of rural population to urban areas in search of employment in white collar jobs. While decadal censuses indicate continuous decline of work force in the agriculture sector, agriculture production in the State is showing an increasing trend, even as its contribution to GSDP has been sharply declining, standing presently at approximately 7 per cent.

The measurement of inequality in the agriculture sector with the help of an inequality index has revealed that it is the hinterland talukas that performed relatively better in the development of agriculture in 1987 but with the increase in irrigational facilities the coastal taluka of Bardez has, in 1997, been able to surge ahead into the high development category in this sector as well.

The Rank Correlation Coefficient shows that for the period of study under consideration, the change in the relative position of the talukas with respect to the development of agriculture is maximum between 1987 and 2006, the change between 1987 to 1997 was considerably less and the least change has taken place between 1997 and 2006.

The coefficient of variation has indicated that in the agricultural sector, the spatial variation, that is, the variation in the inequalities in the development of agriculture among talukas is much higher than the temporal variation, that is the variation in the development of agriculture within one taluka, over the years.

The Gini coefficient analysis of inequalities in the development of agriculture shows that spatially, inequalities among the talukas has been in the medium significance category, registering only a marginal increase at the three points of time under consideration, that is 1987, 1997 and 2006; temporally, inequality within each taluka, has been of low significance over the years.

No doubt the declining interest towards agriculture may be attributable to structural shifts in all economies, yet the challenge lies in developing a sustainable village economy through agricultural activities by encouraging the more commercially viable horticulture, floriculture and cash crop plantation. Allied agricultural activities can also serve to retain the work force in the rural areas. It is necessary for policy makers to focus on this as it is evidently easier to bridge the regional (talukawise) imbalances in the agriculture sector.

CHAPTER V

IMBALANCES IN THE MANUFACTURING SECTOR

CHAPTER V

IMBALANCES IN THE MANUFACTURING SECTOR

5.1 Historical Background

Goa under Portuguese colonial rule, was basically an import oriented economy, this resulted in a total absence of an industrial base at the time of liberation in 1961. No doubt, mining was the mainstay of the trading economy in Goa, yet, it could hardly be described as an industrial activity as it involved mere extraction of ore and transportation of the same to the respective destinations.

Other than mining, there were hardly 50 small scale units in Goa, notable among which were a couple of fruit and fish canning units, a carbon-dioxide plant, a Mangalore tiles factory, a match factory, a tyre retreading unit and a few laundry soap making units. Investment in these units, as well as their capacity to generate employment, was highly limited.

5.2 Industrial Development after Liberation

It was the sudden restrictions on the import of consumer items imposed by the Government of India, after liberation that forced prospective entrepreneurs in India to consider avenues in the industrial sector. Thus, began the process of transition from an import oriented economy to a production oriented one.

It was also in order to make up for the time gap between planned development in the rest of India (through the 5 year plans commenced in 1951) and post-liberation Goa (1961) that the Planning Board was set up by the Government of Goa, Daman and Diu, soon after liberation, with the stated objective of making the industrial sector the most predominant one (as the Planning Commission had done in 1956 for the rest of India) through which growth would be ensured.

Realising that providing the necessary infrastructure for industrial development would be the key factor in promoting industrial growth, the Government set up the Goa, Daman and Diu Industrial Development Corporation (GDDIDC) with the responsibility of providing the necessary physical infrastructure. The GDDIDC, relying on the experience of the other States in the Indian union of setting up of industrial estates which provided all the necessary elements of physical infrastructure in a particular geographical location which served as the nerve centres of economic development, embarked on promotion of establishment of industrial estates in the State, the first of which was set up in 1966, in Corlim, 12 Kms. from Panaji. The GDDIDC aimed to ultimately have one industrial estate in each of the 11 talukas in the State.

The Government of India, as part of the National Policy to correct regional imbalances, identified certain areas in the country as industrially backward areas based on certain criteria such as per capita consumption of electricity, number of industrial workers per lakh of population, contribution of the industrial sector to State income etc. By the adoption of this criteria, the entire territory of Goa, Daman and Diu, with the exclusion of

the area covered by the municipal limits of capital city of Panaji, was declared as an industrially backward area and consequently, industries set up in the territory became eligible to certain concessions, prominently capital subsidy and concessional rate of interest on term loans, which played a vital role in putting Goa on the industrial map of the country.

5.3 Industrial Development after Statehood

Development agencies such as the Goa Small Industries Development Corporation (GSIDC), the Goa Handicrafts and Rural Small Scale Industries Development Corporation (GHRSSIDC) and Banking and non-financial banking institutions such as the Economic Development Corporation, Goa (EDC) have played a vital role in ensuring the progress of the industrial sector.

In spite of the territory's limited market potential which has certainly acted as an impediment to a faster rate of industrial growth in the State, Goa has reason to be satisfied, to some extent, with the strides that have been made in the industrial sector.

The fact that very scant data is available for the manufacturing sector even in 1987, almost 25 years after liberation, shows that industry had not assumed the significance that it enjoys today, post privatisation, liberalisation and globalisation, with the introduction of the economic reforms in 1991.

The fact that Manufacturing has assumed considerable importance after statehood, can be gauged by the rise in the number of factories in operation from 240 in 1987 to 743 in 2006 and in the rise in the number of small scale industries from 3527 in 1987 to 7060 in 2006. Besides, 154 large and medium scale industries are in operation in the State. Together, they provide employment on a daily average to approximately 1,25,000 workers.

What is pertinent to note from the perspective of this study is that while only three talukas in North Goa, namely, Ponda and Bardez and to a lesser extent Tiswadi have a concentration of industries; in South Goa, it is only the talukas of Salcete and Murmugao in which the industries are concentrated in comparison. The other six talukas are grossly underdeveloped as far as industrial development is concerned, particularly Pernem in North Goa and Sanguem and Canacona in South Goa. As a result, these talukas are also bereft of any of the benefits of industrial development, primarily, employment.

5.4 Regional imbalances in development of Industries – Some Indicators

Inspite of the vigorous efforts of the Governments both at the centre and the State level, it has not been possible to achieve the objective of the dispersal of industries evenly across the length and breadth of the territory in order to ensure a more balanced regional and economic development. In Goa too, industries have displayed the tendency of being concentrated in the more industrialised and therefore, the more developed areas.

In terms of location, 90% of both the large and small scale industries in Goa are concentrated in the four coastal talukas of Tiswadi, Bardez, Salcete and Murmugao and the lone non-coastal taluka of Ponda. While the two coastal talukas of Pernem and Canacona (on the extreme North and South of the State) and the three hinterland talukas of Sattari, Quepem and Sanguem have remained highly backward, although together they account for more than 65% of the total area of the State. In fact, only 25% of Goa's continguous area accounts for 90% of the location of industries in the State.

5.4.1 Number of factories

While no data is available on the variables under consideration for 1987, the year of Statehood, tables 5.1, 5.2 and 5.3 clearly indicate the number of factories registered as against those in operation in each of talukas in the State for the years 1988, 1997 and 2006 respectively. The number of sheds in the industrial areas, in each of the talukas, for the years under consideration is also given. In 1988, the number of factories in operation were reasonably good in only five talukas in the State namely, Tiswadi (39), Bardez (45), Ponda (38), Salcete (39) and Murmugao (36), while of the other 6 talukas only 2, that is Bicholim (17) and Quepem (10) had doubled digit numbers, three other talukas, Sattari (5), Sanguem (2) and Pernem (1) had only five units or below and Canacona (0) had no factories in operation at all. It can be observed that talukas which provided facilities in terms of sheds in industrial areas had larger number of factories in operation except in Ponda, where the number of sheds available was fewer than the number of factories in operation.

Table 5.1 Number of Factories - 1988

Talukas	Number of factories registered	Number of factories in operation	Number of sheds in industrial area
Tiswadi	N. A.*	39	76
Bardez	N. A.	45	115
Pernem	N. A.	1	0
Bicholim	N. A.	17	49
Sattari	N. A.	5	9
Ponda	N. A.	38	23
Sanguem	N. A.	2	0
Canacona	N. A.	0	6
Quepem	N. A.	10	32
Salcete	N. A.	39	98
Murmugao	N. A.	36	88
Total		**232**	**496**

N.A.* = Not available; Source: "Goa at a Glance-1988"

In 1997, it is seen that every taluka has factories in operation, however, the distribution is grossly uneven. The talukas having the larger number of factories in operation remain the same as in 1988, with the maximum additions being made in Ponda (51), Salcete (29), Bicholim (12), Murmugao (11) and Bardez (9). The exceptionally high rise of factories in operation in Ponda can be attributed to the remarkable increase in the number of sheds provided in areas earmarked for industrial activity. Similarly, a rise in the number of sheds can also be observed in Pernem, Bicholim, Sattari and Canacona, though Sanguem, the taluka with the largest geographical area did not provide any such facilities.

It is pertinent to note that although a large number of factories are registered, the number of factories actually in operation are much lower, particularly in the five talukas where the number of factories are high, for example, in Tiswadi only 45.56 per cent of the registered factories are in operation, so also in Murmugao where only 58.75 % of the

factories are in operation. In Bardez and Salcete, the percentage is 61.36 per cent and 60.17 per cent respectively.

Table 5.2 Number of Factories - 1997

Talukas	Numberof factories registered	Number of factories in operation		Number of sheds in industrial area
Tiswadi	79	36	+3♦	77
		(45.56)*		
Bardez	88	54	+9	120
		(61.36)		
Pernem	4	3	+2	22
		(75)		
Bicholim	43	29	+12	72
		(67.44)		
Sattari	13	9	+4	27
		(69.23)		
Ponda	115	89	+51	111
		(77.39)		
Sanguem	4	4	+2	0
		(100)		
Canacona	4	3	+3	27
		(75)		
Quepem	25	15	+5	41
		(60)		
Salcete	113	68	+29	106
		(60.17)		
Murmugao	80	47	+11	109
		(58.75)		
Total	**568**	**357**	**+125**	**712**

* Percentage of Factories registered in 1997 in operation
♦ Addition to number of factories in operation in 1988

In Ponda, the percentage of the factories in operation to the number registered stand slightly higher at 77.39 per cent. On the whole, out of 568 factories registered during this period, only 357, that is 62.8 per cent were actually in operation in the State. This trend can be explained by the fact that very often factories are registered only to avail of certain

incentives made available by the Government to registered units. It is also quite true that a large number of the registered units shut down on account of turning 'sick' due to various reasons.

Overall, there was an addition of 125 operating factories over 1988, that is, a 53.8 per cent increase in the number. During the same period the increase in the number of sheds in the industrial areas registered a 43.54 per cent increase, with the actual number rising by 216 sheds, however, distributed unevenly over the eleven talukas.

In 2006, significant development can be observed in the number factories registered and in operation. The number of factories registered increased to 1160 from 568 in 1997, amounting to more than 104 per cent increase; of these however, only 743 that is, only 64 per cent were in operation. Nonetheless, what is significant is that the number of factories in operation has also increased by almost 108 per cent over 1997, from 357 to 743. If comparison is made over 1988 when only 282 units were in operation, there has been an addition of 511 units in the 20 year period, marking a 207 per cent, increase which is approximately 10.7 per cent growth annually.

Though the number of sheds in the industrial areas did not rise from 1997, yet the units in operation did and very prominently so, particularly in Salcete, where there was an addition of 138 units to bring the total number to 206 and in Ponda 86 new units brought the total number of units in operation to 175. In Bardez, 60 units were added in Bardez to

bring the total number upto 114. It is important to note that in every other taluka too, there have been additions to the number of factories in operation ranging from 3 to 24.

Table 5.3 Numbers of Factories – 2006

Talukas	Numberof factories registered	Number of factories in operation		Number of sheds in industrial area
Tiswadi	119	54	+18**	76
		(45.37)*		
Bardez	177	114	+60	119
		64.4		
Pernem	11	10	+7	22
		90.9		
Bicholim	65	45	+16	72
		69.23		
Sattari	35	29	+20	31
		82.85		
Ponda	251	175	+86	113
		69.72		
Sanguem	9	7	+3	0
		77.77		
Canacona	14	8	+5	27
		57.14		
Quepem	37	24	+9	41
		64.86		
Salcete	317	206	+138	110
		64.98		
Murmugao	125	71	+24	101
		56.8		
Total	**1160**	**743**	**+386**	**712**

* Percentage of Factories registered in 2006 in operation
** Addition to number of factories in operation in 1997

It is a matter of concern that there has been no attempt to increase the number of sheds and other facilities in areas earmarked for industries to be set up. Even in 2006, Sanguem taluka does not have a single area assigned as an industrial area, in spite of it being the

largest taluka in terms of area, this has however not prevented a total of 9 units being registered of which 7 factories are in operation. With particular reference to this study what is clearly evident though, is the very conspicuous imbalance in the number of manufacturing units operating in the 11 talukas in the State.

5.4.2 Small, Medium and Large Scale Industries.

Historically, Goa was a trading economy, rather than a manufacturing one. It was after liberation from colonial rule that manufacturing units began to be set up in Goa. By the year 1987, when Goa was declared the 25th State of the Indian Republic, manufacturing had become an important activity, with a number of small scale industries (SSI) and a few medium and large scale industries being located in the eleven talukas of the State.

Table 5.4, 5.5 and 5.6 show the distribution of these industries over the talukas and the rise in their numbers from 1988 to 1997 and 2006. In 1988, the number of small scale industries that were registered was 3900 in the entire state, however, 3 talukas had more than 600 SSI units registered, that is, Salcete (856), Bardez (778) and Tiswadi (678); thereafter, Ponda (492), Bicholim (293), Quepem (191) and Pernem (128) followed. As against this, Sattari (72), Canacona (71) and Sanguem (64) had the least number of registrations of small scale industries.

The number of medium and large scale industries in the entire state were as few as 37, with the largest number being in Ponda (11) and Bardez, Salcete and Murmugao having 5 each.

Table 5.4 Number of Industries – 1988

Talukas	Number of Small scale industries registered	Number of large & medium scale industries registered
Tiswadi	678	3
Bardez	778	5
Pernem	129	1
Bicholim	293	1
Sattari	72	2
Ponda	492	11
Sanguem	64	3
Canacona	71	0
Quepem	191	1
Salcete	856	5
Murmugao	276	5
Total	**3900**	**37**

In 1997, the number of small scale industries registered shot up to 5228, that is a 25 per cent rise over 1988, the largest number being in the same four talukas of Salcete (1180), Bardez (1021), Tiswadi (868) and Ponda (772). The largest percentage growth in SSI over 1988 however, took place in Sattari (61.11%) followed by Ponda (56.91%) and Salcete (56.15%).

The number of medium and large scale industries also rose by 54 industries to a total of 91, with the maximum number of industries being added to in Ponda taluka (+21) and in Salcete (+16). It is notable that 7 new medium and large scale industries were set up in Bicholim, which had only one such unit in 1988.

Table 5.5 Numbers of Industries – 1997

Talukas	Number of Small scale industries registered			Number of large & medium scale industries registered	
Tiswadi	868	190♦	(28)*	7	4♦♦
Bardez	1021	243	(31.23)	10	5
Pernem	130	1	(0.7}	1	0
Bicholim	328	35	(11.94)	8	7
Sattari	116	44	(61.11)	2	0
Ponda	772	280	(56.91)	32	21
Sanguem	88	24	(31.68)	2	-1
Canacona	105	34	(47.88)	0	0
Quepem	239	48	(25.13)	2	1
Salcete	1180	324	(37.85)	21	16
Murmugao	431	155	(56.15)	6	1
Total	**5228**	**1328**	**31.03**	**91**	**54**

♦Actual increase in number SSI over 1988 * Percentage rise in registration of SSI over 1988
♦♦ Actual increase in number of large &medium scale industries over 1988

In 2006, the number of small-scale industries increased to 7054 registering an actual increase of 1826 units and a 34.9% increase over 1997.

It is also worth noting that compared to 1988, the actual increase in SSI units registered is 3154 amounting to 80.8 per cent increase in the number during the 19 year period, which is approximately a 4.2 per cent growth rate / annum.

Table 5.6 Number of Industries - 2006

Talukas	Number of Small Scale Industries registered					Number of large & medium scale industries registered		
Tiswadi	1061	383†	(56.48)††	193†††	(28.46)††††	12	9*	5
Bardez	1309	531	(68.25)	288	28.2	14	9	4
Pernem	182	53	(41.08)	52	40	2	1	1
Bicholim	417	124	(42.32)	89	27.13	14	13	6
Sattari	167	95	(131.94)	51	43.96	4	2	2
Ponda	1165	673	(136.79)	393	50.9	39	28	7
Sanguem	126	62	96.87	38	43.18	4	1	2
Canacona	153	82	115.49	48	45.71	1	1	-1
Quepem	316	125	65.44	77	32.21	1	0	2
Salcete	1563	707	82.59	383	32.45	47•	42	26
Murmugao	595	568	115.57	164	38.05	16	11	10
Total	**7054**	**3154**	**80.87**	**1829**	**34.93**	**154**	**117**	**64**

† Actual increase in number of SSI over 1988
†† Percentage rise in registration of SSI over 1988
††† Actual increase in number of SSI over 1997n
*Actual increase in number of large & medium scale industries over 1988
**Actual increase in number of large & medium scale industries over 1997
†††† Percentage rise in registration of SSI over 1997

The highest number of small scale industries continue to be in the four talukas of Salcete (1568), Bardez (1309), Ponda (1165) and Tiswadi (1061). While Murmugao (595), Bicholim (417) and Quepem (316) follow in the number of SSI registrations yet, the inequality in comparison to the first four talukas is very significant, but this inequality becomes even more prominent in the case of the four talukas with the least number of SSI registrations, that is Pernem (182), Sattari (167), Canacona (153) and Sanguem (126). In the medium and large scale category of industries, there was an addition to the number by 63 units, bringing the total number to 154. The largest number of new units were set up in Salcete (+26) and Murmugao (+10) between 1997 and 2006. It can also be seen that

between 1988 and 2006, it was Salcete (42) and Ponda (28) where the maximum number of medium and large scale industries were set up.

With special reference to the focus of this study it can be observed that the regional (talukawise) imbalances in the growth of the manufacturing sector have persisted and become rather prominent during the period of the study. Little policy intervention, if any, is found in ensuring a more even distribution of manufacturing units, small, medium or large, across the regions (talukas) of the State.

5.4.3. Employment in the Manufacturing Sector

The manufacturing sector has emerged as an important provider of employment in the State. Tables 5.7, 5.8 and 5.9 reveal the extent and rise of employment in the sector over the 20 year period by considering the three years 1988, 1997 and 2006 respectively.

5.4.3.1 The estimated average number of daily workers employed in registered factories

The average number of daily workers employed in registered factories, as shown in table 5.7, were estimated to be approximately 15,735, with the maximum number being employed in Murmugao (4911) followed by Bardez (2437) and Tiswadi (2144). It can be seen that in 1988 itself there were wide disparities in the employment generated as the talukas employing the least number were Sanguem (387) and Pernem (75) and Canacona taluka in fact, did not have any employment in this category.

There was a 68.6 per cent increase in this category by 1997, when the total figure of daily workers employed was approximately 26,543. What is interesting is that Ponda which was only the fourth highest employer in 1988, emerged as the highest in 1997 by providing employment to 6076 workers, Murmugao (5874) followed, Salcete which ranked fifth in 1988 moved up to third position, providing employment to 3493 workers.

In fact, every taluka registers an increase in the number of workers employed, even Canacona registers a figure of 50 workers as against 0 in 1988, however, what is pertinent is that the gross inequalities between the talukas persist, indicating that no serious efforts have been made at correcting the situation of talukawise imbalances. 2006 registers a further 66.86 per cent rise in total figure of employment which rose to approximately 44,292 workers (a 181.48 per cent rise over 1988).

In this year, a further shift can be seen in the rankings of talukas on the basis of the number workers employed. Salcete (9817) becomes the taluka with the highest number of daily workers employed in registered factories.

Salcete also registers the highest rise in the number of workers employed over both 1997 (6394) and 1988 (8351). Ponda (9615) is pushed down to second place. Ponda also emerges as the taluka to register the second highest rise in number of workers employed on a daily basis over 1997 (2939) and 1988 (7746).

Table 5.7 Average number of daily workers employed in registered factories

Talukas	Estimated average number of daily workers employed in registered factories		
	1988	**1997**	**2006**
Tiswadi	2144	2850	3616
Bardez	2432	3212	6013
Pernem	75	210	340
Bicholim	841	2102	2592
Sattari	779	1446	2856
Ponda	1869	6676	9615
Sanguem	387	370	1080
Canacona	0	50	310
Quepem	631	860	957
Salcete	1466	3493	9817
Murmugao	4911	5874	7096
Total	**15735**	**26543**	**44292**

Once again the talukawise imbalances in this sector can be made out by the fact that Sanguem (1080) and Quepem (457) barely provide employment to 2000 workers between them and worse still Pernem (340) and Canacona (310) together do not have the facilities to employ even a 1000 workers between them. Thus, in the context of this study, there are gross and widening imbalances between the regions (talukas) in the State.

5.4.3.2. The average number of daily workers in small scale industries

While considering the average number of daily workers in small scale industries in the State, it can be seen in the table 5.8 that small scale industries provided sizeable employment in the manufacturing sector even in 1988. However, here too, as per the earlier observed trend, it is Salcete (5456) Tiswadi (4735), Bardez (4233) and Ponda

(2714) which provide employment to the highest number of daily workers in the small scale industries.

Table 5.8 Estimated average number of daily workers employed in small scale industries

Talukas	Estimated average number of daily workers employed in small scale industries		
	1988	**1997**	**2006**
Tiswadi	4735	5532	7341
Bardez	4233	5707	7467
Pernem	434	599	924
Bicholim	2636	2991	3570
Sattari	742	1053	1387
Ponda	2714	4942	8262
Sanguem	226	649	905
Canacona	270	566	941
Quepem	1374	1714	2232
Salcete	5456	7409	10413
Murmugao	2523	3310	5097
Total	**25343**	**34472**	**48539**

The talukawise imbalances in the presence of small scale industries and the employment they generate can be gauged when it is seen, that in contrast to the above figures Sattari (742), Pernem (434) and Canacona (270) Sanguem (226) between them did not provide employment in this sector to even 2000 workers.

In 1997, there was a 36.02 per cent rise in the total number of daily workers employed in SSI on an average in the State. Salcete (740) emerged again as the taluka providing the

highest employment in this sector, however 1953 more workers were employed over 1988. Bardez (5707) and Tiswadi (5532) shuffled the second and third positions between them and Ponda (4942) continued to retain its position at fourth place, with an addition of 2228 workers over 1988. The four lowest talukas in 1988, continued to remain so, eve in 1997, though with an addition to the number of workers, as seen in Sattari (1053), Sanguem (649), Pernem (599) and Canacona (566).

In 2006, a 40.8 per cent rise was registered in the total number of daily workers employed in SSI on average in the State with the actual number going unto 44,539 (a 91.5 per cent rise in the number (25,343) employed in this sector in 1988). Salcete (10,413) continued be the highest employer however, with an increase of approximately 3,000 workers over 1997. Ponda (8262) emerges as the second highest employer, with an actual rise in workers over 1997 and 1987 amounting to 3320 and 5548 respectively, and pushes Bardez (7467) and Tiswadi (7341) to third and fourth position respectively. Though there is a rise in the number of workers employed in the category in the talukas which are ranked at the bottom, that is, in Sattari (1387), Canacona (941), Pernem (920) and Sanguem (905), yet the difference between the employment provided to daily workers in small scale industries in the first four talukas is not only glaring but it has also been widening from 1988 to 2006, wherein the same four talukas have been consistently in the high employment providing category during the entire period and at the other end it is the same four talukas which have been consistently in the category providing low employment right from the beginning of the study to the end of it. It is quite evident that there is a clear lack of policy to bridge the talukawise imbalances in the promotion of

small scale industries, which could provide an effective labour-intensive answer to the regional imbalances in the manufacturing sector.

5.4.3.3 Employment in large and medium scale industries

Employment in large and medium scale industries was for obvious reasons much less than that provided by small scale industries, yet, even in this category it is quite apparent from table 5.9 that the inequalities between the talukas in 1988 was extremely wide, with Murmugao (3412) employing the highest number of workers at the one end followed by Ponda (2119) and Quepem (858) at third position as against Pernem (158) and Bicholim (98) at the other end, with Canacona providing 0 employment in this category at this point of time.

Within a span of 10 years, in 1997, there was considerable development of large and medium scale industries resulting in higher employment generation. With Murmugao (3733) still providing the highest employment but Ponda (3630) coming a very close second and Salcete (1937) Bardez (1337) and Bicholim (1237) featuring among the frontrunners. Sanguem (91) shows a fall in the number of workers employed from 214 in 1988, which is on account of the closure of one of the units as seen in table 5.15 providing employment earlier. Canacona is once again conspicuous on account of providing 0 employment as there does not seem to be any attempt made to attract investors to set up any medium or large scale unit in that taluka as no unit is indicated in this taluka in table 5.9.

Table 5.9 Estimated average number of daily workers employed in large & medium scale industries

Talukas	Estimated average number of daily workers employed in large & medium scale industries		
	1988	**1997**	**2006**
Tiswadi	580	766	992
Bardez	277	1337	1619
Pernem	158	158	388
Bicholim	98	1239	2533
Sattari	472	472	560
Ponda	2119	3630	5182
Sanguem	214	91	806
Canacona	0	0	47
Quepem	858	1008	858
Salcete	438	1937	4735
Murmugao	3412	3733	4780
Total	**8626**	**14371**	**22500**

Overall, however, the total employment in this category registered a 66.6 per cent rise from 1988 to 1997 with the number of workers employed rising from 8626 to 14,371.

In 2006, the total employed number in large and medium scale industries rose to 22,500 registering a 56.56 per cent increase over 1997 and a 160.8 per cent increase over 1988. Ponda (5182) emerged as the taluka providing the highest employment, with an increase of 1552 workers over 1997 and 3063 workers over 1988, on account of the 28 new industries which came up in this talukas between 1988 and 2006.

Salcete (4735) and Murmugao (4700) are a close second and third, though Salcete registered 2798 more workers as employed in 2006 over 1997 and 4297 more workers when compared to 1988, whereas Murmugao had only 967 more workers as compared to 1997 and only 1368 workers more than in 1988 which is to be expected as Salcete added 16 more large and medium scale industries in 1997 over 1988, and 26 more such units in 2006 over 1997, while the corresponding numbers were only 1 and 11 in Murmugao talukas.

Bicholim has also been a centre of growth with employment rising from 98 in 1988 to 1239 in 1997 and 2533 in 2006 as the number of units rose from 1 to 8 to 14 in the same years. Bardez also increased the volume of employment generated from 277 workers in 1988 in 5 units to 1337 workers in 10 units to 1619 workers in 14 units.

The talukas which remain areas of concern are Sattari (560), Pernem (388) and Canacona (47) as the employment generated in these talukas is way below that generated in the talukas ranking as the fourth highest providers of employment in large and medium scale industries.

5.5 Regional Imbalances in the Manufacturing Sector: Measurement of Inequality

The measures that have been used to measure inequalities in the development of the manufacturing sector are as follows :

1. The Simple and Composite Development Index
2. The Rank Correlation Coefficient

3. The Coefficient of Variation

4. The Gini-Coefficient

5.5.1 The Simple and Composite Index

In order to analyze the *taluka*-wise development of the manufacturing sector, for the purpose of this study, 8 parameters (see Annexure II) were used for the construction of the index of industrial development. The simple index for each of these 8 parameters has been prepared and then converted into a Combined Industrial Development Index for all the 11 regions (*talukas*) of Goa. The indices are presented in table 5.10. The table shows the Industrial Development Index for each of the 11 *talukas* for the years 1988, 1997 and 2006 and the corresponding ranks for the respective years. Categorisation of *talukas* on the basis of ranks into low, medium and high developed *talukas* is given in table 5.11 location of these *talukas* (with their names and ranks inset) is given in map 5.1 for the years 1988, 1997 and 2006.

Table 5.10 Industrial Development Index

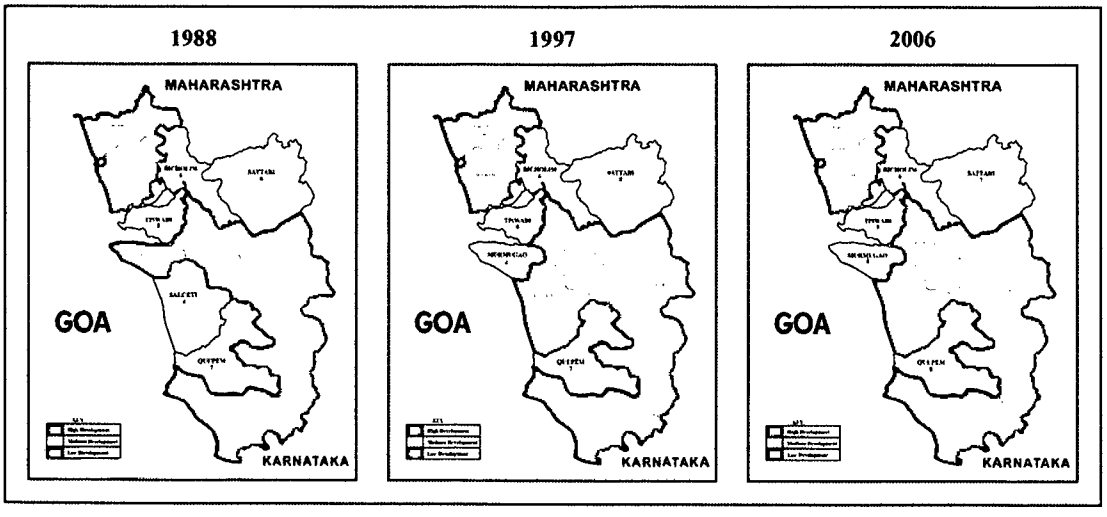
TALUKA	1988		1997		2006	
NORTH GOA	Index	Rank	Index	Rank	Index	Rank
TISWADI	152	5	125	5	108	5
BARDEZ	175	2	159	3	153	3
PERNEM	16	10	16	10	19	9
BICHOLIM	70	6	91	6	84	6
SATTARI	39	8	34	8	39	7
PONDA	174	3	**238**	**1**	226	2
SOUTH GOA						
SANGUEM	26	9	13	9	19	9
CANACONA	06	11	13	9	16	11
QUEPEM	59	7	50	7	38	8
SALCETE	170	4	203	2	**258**	**1**
MURMUGAO	**212**	**1**	158	4	139	4

Table 5.11 Categorization of Talukas on basis of ranks

HIGH			MEDIUM			LOW		
1988	1997	2006	1988	1997	2006	1988	1997	2006
MURMUGAO	PONDA	SALCETE	PONDA	MURMUGAO	MURMUGAO	SANGUEM	SANGUEM	PERNEM
BARDEZ	SALCETE	PONDA	SALCETE	TISWADI	TISWADI	PERNEM	CANACONA	SANGUEM
PONDA	BARDEZ	BARDEZ	BICHOLIM	BICHOLIM	BICHOLIM	CANCONA	PERNEM	CANACONA
			QUEPEM	QUEPEM	SATTARI			
			SATTARI	SATTARI	QUEPEM			

The indices show that in 1988, Murmugao occupies the highest rank with Bardez and Ponda following closely in 2nd and 3rd rank respectively. Along with the coastal *talukas* come of Murmugao (Port town) and Bardez, Ponda comes into prominence on account of areas reserved for development of industries. The lowest ranked *talukas* of Sanguem, Pernem and Canacona display indices which are extremely low in comparison to the talukas in the high development category. Sattari, Quepem and Bicholim though in the medium development category do not measure up to even 1/3rd the extent of the top ranked taluka.

Map 5.1 Categorization of Talukas on basis of ranks



1997 saw Ponda surge ahead to No. 1 rank with a marked increase in the number of factories in operation registered under the Factories Act and in the number of small scale industry registrations. Industrial estates in Bethoda, Kundai and Madkai contributed to this sudden spurt.

Tiswadi and Bardez experienced a decrease in the number of factories in operation registered under the Factories Act and in the registration of small scale industries, resulting in a fall in indices from 1987 to 1997. Murmugao, lost out its initial advantage of being a port town a numbe of ancillary units and was pushed down to 4th rank.
However, once again the position of the lowest five *talukas* is miserable highlighting the gross regional imbalances, inspite of claims of policy makers of industrial development policies aimed at a more balanced regional development.

In 2006, Salcete gains the No. 1 position (explained by the spurt in the number of units in the industrial estate at Verna). The indices for large and medium scale industries showed an 82 point rise matched by a 83 point rise in the parameter of employment in large and medium scale industries. Ponda is pushed down to the 2nd rank.

The fall in indices of Tiswadi, Bardez and Murmugao from 1997 to 2006, reflect the general slowing down across the parameters. The bottom five regions remain more or less in the same positions with Bicholim and Quepem becoming still worse.

The lack of attempts on the part of the policy makers to ensure more balanced regional industrial development is highlighted by the absence of even one industrial estate in the whole of Sanguem *taluka*, which is the largest *taluka* in Goa in terms of area. Canacona is common to the low development category in Agriculture and Industry in all the three years under consideration. Ponda is the only non-coastal taluka in the high category in both Industry and Agriculture. Sanguem which is high in Agriculture in all three years gets relegated to the low category in Industry, in all the three years under consideration.

5.5.2 The Rank Correlation Coefficient

The Rank Correlation Coefficient based on the ranks of composite index is given in the table 5.12. The Rank Correlation Coefficient for the years 1987 and 1997, that is, 0.90 reveals that there is positive correlation between the ranks of various talukas. An extremely high rank correlation of 0.90 also reveals that the relative position of the talukas in the industrial development has hardly changed.

Table 5.12 Rank Correlation - Manufacturing

YEARS	1988	1997	2006
1988	1	0.90	0.89
1997		1	0.97
2006			1

A comparison of the rank correlation coefficient of ranks between 1997 and 2006, shows a marginally higher positive correlation of 0.97. Therefore, as compared to 1987-1997 period, during 1987-2006 period, the relative position of talukas, with respect to industrial development, has not changed significantly, which is borne out by the finding that all the talukas in the high development category have remained the same from 1988 to 2006, except for the displacement of Murmugao and the inclusion of Salcete in 1997 itself.

5.5.3 The Coefficient of Variation

This analysis provides a spatial and temporal insight into the inequalities in the development of the manufacturing sector.

Spatial Analysis

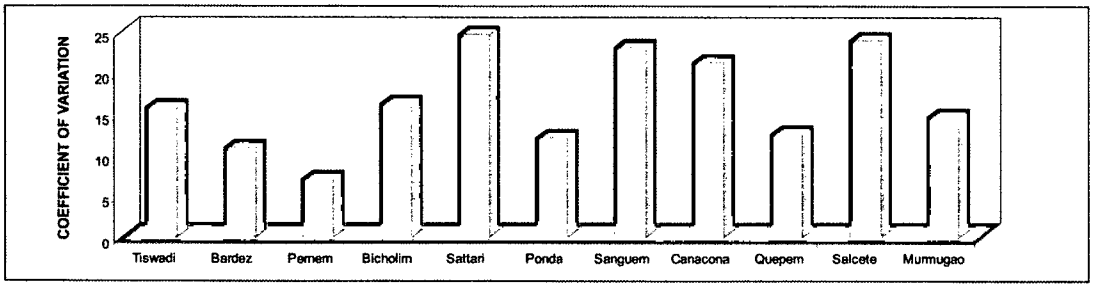
The extent of inequalities in the manufacturing sector, from 1988 to 2006, is seen in table 5.13 and graph 5.1. The coefficient of variation in the case of this sector is much higher than that found in the Agricultural sector. The variation is also found to have risen significantly on account of the surge in manufacturing activities in some talukas and due to the fact that the talukas which were lagging behind earlier continued to do so, making the difference between the these regions quite significant in the latter part of the study.

Table 5.13 Manufacturing : Coefficient of Variation – Spatial

Year	$\bar{X}$	σ	Coefficient of variation
1988	99.91	73.18	73.25
1997	100.00	77.60	77.61
2006	99.91	81.59	81.67

explained when we observe that Salcete emerged as a highly developed taluka only after 1997. The other talukas with high variation, Sattari (24.75%), Sanguem (23.15%) and Canacona (21.23%) are the less developed talukas exhibiting high levels of variation. Bardez (10.92%), Ponda (12.14%), Quepem (12.62%), Murmugao (14.66%), Tiswadi (15.83%) and Bicholim (16.24%) exhibit moderate variation over the period of time under consideration indicating the development was comparatively more even over the

Graph 5.2 Manufacturing : Coefficient of Variation - Temporal



period of study in these talukas. Pernem (7.19%) exhibits the least extent of variation during the period of study. It is established that Pernem is one of the least developed talukas in this sector, what can be construed from the low coefficient is that the variation in development of Manufacturing activity has been consistently low over the period of study as compared to the other talukas.

5.5.4 Gini Coefficient

This analysis provides a spatial and temporal insight into the extent of inequalities in the development of the Manufacturing sector in the respective talukas in relation to the population to be found in each of them in each of the years of the period of study.

Spatial Analysis

Over the years, the inequalities in the manufacturing sector have been extremely low.

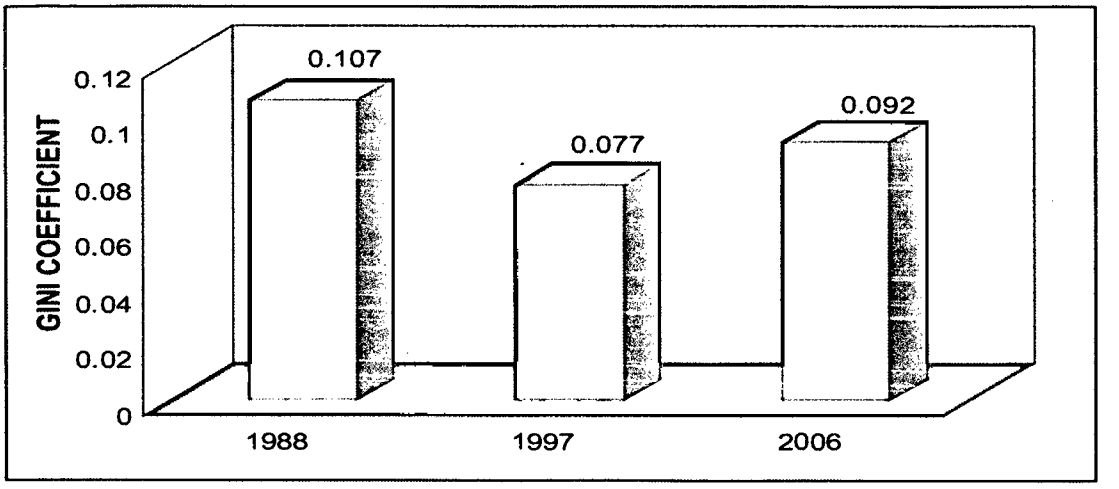
The Gini coefficient is calculated year wise for each of variables. The values derived for the years 1988, 1997 and 2006 are given in table 5.15 and graphical representation is seen in graph 5.3. The taluka wise inequalities in the manufacturing sector are rather insignificant as per the categorisation of the World Bank.

Table 5.15 Manufacturing : Gini Coefficient - Spatial

Variable	1988	1997	2006
Number of factories registered under Factories Act, 1948	0.000	0.106	0.159
No. of factories in operation registered under Factories Act, 1948	0.111	0.081	0.147
Estimated average number of daily workers employed	0.037	0.015	0.058
No. of small scale industries registered with industries	0.139	0.143	0.118
Estimated average number of daily workers employed	0.111	0.103	0.086
Number of large and medium scale industries	0.018	0.114	0.142
Employment in large and medium scale industries	0.210	0.051	0.011
No. of sheds in industrial estates (GDDIDC)	0.122	0.006	0.017
Average Gini	**0.107**	**0.077**	**0.092**

It is pertinent to note that the extent of inequality in the manufacturing sector is much lower than that of the Agriculture Sector. It is interesting to note that the already insignificant Gini (0.107) in 1988 fell further to 0.077 in 1997. However, it rose again, ever so slightly to 0.092 in 2006.

Graph 5.3 Manufacturing : Gini Coefficient - Spatial



Thus, wide inequalities which are evident while comparing the talukas without the reference of population seem to lose their significance when population is introduced as a variable. In relation to the population, development imbalances in the manufacturing sector in the respective talukas are rather insignificant as indicated by the analysis. One factor that could explain this phenomenon is that people migrate to the industrially developed talukas.

Temporal analysis

Inequalities in the manufacturing sector between the talukas and within them, with reference to the population of each taluka, as indicated by the Gini coefficient, over the 20 year period can be seen in table 5.16 and the graph 5.4. Maximum inequality, in the period of study, is found in Sanguem (0.331) and Canacona (0.331), followed by Salcete (0.240) and Pernem (0.223). The lowest inequality is observed in Murmugao (0.102) and Quepem (0.087).

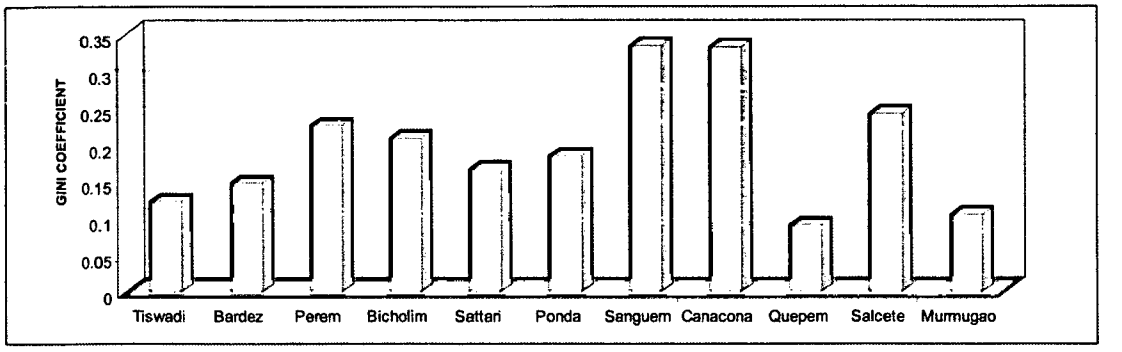
The results are explained by the fact that the taluka of Sanguem, being geographically the largest, does not have even a single industrial estate. Canacona and Pernem, located in the extreme North and South of Goa respectively, are poorly developed talukas and manufacturing activities are no exception.

It is possible to conclude here too that Gini values indicating the inequalities in relation to the population of the taluka reveal that taluka-wise inequalities during the period of study are rather insignificant.

Table 5.16 Manufacturing : Gini Coefficient - Temporal

	NORTH GOA						SOUTH GOA				
Variable / Taluka	**Ti**	**Ba**	**Pe**	**Bi**	**Sat**	**Po**	**San**	**Ca**	**Qu**	**Sal**	**Mur.**
No. of factories registered under Factories Act, 1948	0.267	0.261	0.404	0.295	0.372	0.307	0.373	0.417	0.266	0.370	0.238
No. of factories in operation registered under the Factories Act, 1948.	0.137	0.207	0.429	0.232	0.354	0.281	0.304	0.404	0.213	0.337	0.162
Estimated average number of daily workers employed	0.131	0.178	0.275	0.221	0.217	0.234	0.252	0.442	0.102	0.342	0.084
No. of small scale industries registered with industries	0.035	0.013	0.011	0.017	0.143	0.071	0.087	0.101	0.029	0.057	0.054
Estimated average number of daily workers employed	0.114	0.081	0.157	0.075	.075	0.153	0.203	0.230	0.075	0.119	0.050
Number of large and medium scale industries	0.228	0.174	0.173	0.363	0.125	0.164	0.129	0.515	0.011	0.353	0.210
Employment in large and medium scale industries	0.060	0.241	0.217	0.414	0.017	0.143	0.330	0.515	0.011	0.360	0.039
No. of sheds in industrial estates (GDDIDC)	0.011	0.025	0.152	0.053	0.038	0.123	1.000	0.046	0.019	0.009	0.004
Average Gini	**0.123**	**0.148**	**0.227**	**0.209**	**0.168**	**0.185**	**0.335**	**0.334**	**0.091**	**0.243**	**0.105**

Graph 5.4 Manufacturing : Gini Coefficient - Temporal



5.6 Major Findings

Despite several measures adopted by both, the government in the Centre and in the State, development of manufacturing activities flourished only in those talukas which were trade centres in the erstwhile colonial rule in Goa, with only the exception of Ponda, which is a midland taluka.

The coastal talukas of Murmugao, Tiswadi, Salcete and Bardez were the ones where notable development of manufacturing activities was evident for each of the variables considered, be it the number of factories registered and in operation, or the number of workers employed, it is these four talukas that emerged as the better developed, in the period of study. While it was Murmugao that dominated in the large scale industries, it was Tiswadi, Bardez and Salcete which performed better in the small and medium scale industries. Of the four talukas, the rise in manufacturing activities in Salcete was the most prominent.

Ponda taluka, unlike the above coastal talukas, displayed a meteoric rise in industrial activities after statehood, primarily on account of the setting up of three important industrial estates in the taluka at Kundaim, Bethora and Madkaim. This also attracted skilled and unskilled industrial workers to this taluka thus providing further impetus to the growth of manufacturing activities in Ponda.

The talukas which emerge as the least developed are the hinterland talukas of Sanguem and Quepem along with the coastal talukas in the extreme north and south of the state, namely, Canacona and Pernem. It is interesting to note that all these four talukas together do not provide industrial employment to even 2500 workers.

Therefore, what has to be conceded is that there have been no visible efforts to ensure the balanced development of this sector across the regions (talukas) of the State. There is clearly a lack of policy which could explore, unleash and channelise the energies of the private investors to create an environment in which industry both existing and new can be encouraged more evenly across the 11 talukas of the State.

The result of coefficient of variation has shown that, the spatial variation in manufacturing development is very high and has increased from 1987 to 2006. The temporal variation is the highest in Sattari and Salcete. The Gini values showed in general less inequality in the manufacturing development.

CHAPTER VI

IMBALANCES IN SERVICE SECTOR

CHAPTER VI

IMBALANCES IN SERVICE SECTOR

6.1 Introduction

The service sector in Goa follows very closely the role it plays in economic development around the world. While on the one hand it has emerged as a crucial force, contributing to economic development and change, it has also on the other hand, resulted in creating regional disparities.

Goa which is recognised as one of most developed states in India, is performing extremely well in the development of the service sector, with more than 50% of the GDP of the state coming from this sector alone, in which tourism related activities are predominant. Five service categories have been selected for the purpose of this study, namely education, health, banking, cooperative services and tourism and the indicators in each of these categories substantiate the claim that Goa is performing commendably in every one of them. To consider some of the important indicators* Goa ranks 2nd amongst 25 states and union territories in per capita expenditure on education (Rs. 1618) and health (Rs. 544) as against an all India average of Rs. 841 and Rs. 30 respectively.

Goa ranks 4th among 32 states and union territories in literacy rates of 82.01% in 2001 as against an all India average of 64.84%. Goa ranks 1st among 32 states and union territories with an infant mortality rate of 14/1000 in 2001 as against an all India average

* Source : Economic Survey 2005-2006, Govt. of Goa, Directorate of Planning, Statistics & Evaluation

of 71/1000 according to the 2001 census. Goa ranks 2nd amongst 16 states in life expectancy at birth (M 68, F 72) as against on all India average of male 60.7 years and female 61 years according to the 2001 census. The numbers of banking offices in Goa have increased by over 70% in the last two decades. As on 31.12.2005, there were 456 banking offices in Goa, of which 329 were commercial banks and 127 were co-operative banks. Goa exhibits an extremely high rate of savings, with the per capita bank deposits as high as Rs. 89,508/- (2004-05) though the per capita credit is considerably low at Rs. 25,954/- (2004-05). Tourism is the most prominent record setter. From an estimated 2 lakh tourist arrivals in 1978, the tourist traffic, both domestic and foreign at the time of Statehood in 1987 rose to approximately 7.5 lakhs and crossed 23 lakhs in the year 2006, which is almost 10 lakhs more than the local population of the state itself.

The detailed analysis of each of the 4 categories of services, viz, education, health, banking and tourism, is considered for this study is given below.

6.2 Education

6.2.1 Historical Background

Unlike the British who displayed a remarkably progressive approach in educating their subjects, in the rest of India which was colonised by them, the Portuguese, who had colonised Goa for about 450 years adopted extremely conservative colonial policies of alien rulers.

Education, the most powerful instrument of socio-economic change was used by the Portuguese colonial rulers as a means to alienate the local population from Indian traditions and create allegiance to the Portuguese nation. The teaching of Indian history and culture was banned and Portuguese language was made as the only and compulsory medium of education.

With the declaration of Portugal as a Republic in 1910, a policy of liberal education was adopted and this heralded a period of Renaissance. The Portuguese Government opened more primary schools with Marathi as the medium of instruction in addition to the primary schools with Portuguese as the medium of instruction in the different talukas; however, the Hindus depended largely on the self-supporting private schools managed by Hindu Societies such as Mushtifund, Saraswati Mandir, Dyanprasarak, Saraswat Vidyalaya and such others. Between 1910 and 1958, more than 300 private Marathi schools were started across the State of Goa.

Consequently, on the eve of Goa's Liberation the total student population in primary schools was approximately 59,607, with more than 65 per cent of the enrolment being in private institutions.

6.2.2 Education in Post-Liberation Period

Post-liberation, the democratic government of Goa realised the multidimensional potential of education as a powerful instrument of change. The vertical and horizontal development of education in Goa, after liberation, has been spectacular. Wide expansion

of primary, secondary and higher secondary education led to the founding of Goa Board August 15, 1975 and the growth of undergraduate institutions in arts, science and commerce and in professional courses such as Law, medicine, engineering, fine arts, pharmacy, dentistry, architecture etc. culminated in the establishment of the Goa University on June 30, 1985.

6.2.3 Post-Statehood Development in Education

Goa has performed extremely well on the education front, comparing more than favourably with the national indicators in this sphere. Goa is next only to Lakshadweep, Mizoram and Kerela with 82.01 per cent literacy rates.

The State Government has undertaken several progressive initiatives such as Infrastructure loans to educational institutions, school complex schemes, cyberage students schemes (for distribution of computers to students at a nominal cost) interest free loan scheme for finding higher education, Goa Schools Scheme for encouraging higher studies, both in India and abroad for academic scholars and several others. Goa has also launched the 'Sarva Shiksha Abhiyaan' from September 2005.

6.2.4 Regional Imbalances in the Development of Education

State Government itself admits that the focus of its efforts are now concentrated on educationally backward talukas i.e. Pernem, Bicholim, Sattari, Quepem, Sanguem and Canacona.

In order to study the regional imbalances in the development of Education in Goa, variables such as literacy rates, number of schools, and student enrolment at primary, middle, secondary and higher secondary school levels and at college level have been considered.

6.2.4.1 Literacy

Goa has one of the highest literacy rates amongst the States in India. According to the population census 2001, Goa records a literacy rate of 82.01 per cent, fourth highest in the country after Lakshadweep, Mizoram and Kerela.

However, there exists a gap of 13.0 percent in male and female literacy rates which can be traced down to the regional (talukawise) differences in literacy rates as seen in the table 6.1. In a talukawise comparison of total literacy between 1987, 1997 and 2006 shows 20-25 percent rise in total literacy from 1987 to 1997 to 2006.

Table 6.1 Literacy Percentage

	1987			1997			2006		
Taluka	**Total**	**Male**	**Female**	**Total**	**Male**	**Female**	**Total**	**Male**	**Female**
Tiswadi	64	72	56	80	87	73	85	91	79
Bardez	67	75	59	81	88	74	86	90	81
Pernem	55	68	44	76	87	64	81	89	72
Bicholim	57	68	45	77	87	66	84	92	76
Sattari	39	51	57	65	78	53	76	86	66
Ponda	58	69	46	76	86	66	83	90	75
Sanguem	45	55	34	65	75	55	76	85	66
Canacona	45	53	38	66	76	57	75	82	67
Quepem	46	54	37	66	75	57	75	82	68
Salcete	58	55	51	75	82	68	82	87	77
Murmugao	57	65	48	78	84	70	83	89	76

It can be seen that talukas which recorded high literacy rates in 1987 continued to be the same in 2006. While it is the hinterland talukas of Sanguem, Quepem, Sattari which recorded the least literacy rates in 1987 and so also in 2006, although at both periods of time, the literacy rates were much higher than the national average. Canacona, the coastal taluka to the extreme south of the State is an exception to the better performance of coastal talukas in this variable as well. It has recorded literacy rates close to the lowest in all three years under consideration though there has been a significant increase from 45% in 1987 to 66% in 1997 and 75% in 2006, which also though higher than the national average is the lowest amongst all the talukas in Goa.

The Male literacy in Goa has been consistently higher than the total literacy in all the three years under consideration. The taluka-wise imbalance however, is evident even in male literacy, where the talukas displaying the highest levels have been approximately 20-25 per cent higher than those of talukas recording low male literacy levels in 1987. In 1997, this gap was bridged to 10-13 per cent and further in 2006, the gap was reduced to approximately 8-10 per cent. Female literacy, on the other hand has been consistently lower than total literacy in the State, though the literacy rates have been higher than the average national female literacy rates in the particular years under consideration. Regional (talukawise) imbalances in female literacy rate have been more acute than total or male literacy rates. In 1987, the difference between the taluka recording the highest female literacy that is, Bardez (59%) and the taluka recording the lowest, that is, Sattari (27%) was as high as 32 per cent. Though the gap has been bridged in 1997 to 21 per cent and further in 2006 to 15 per cent, yet what is disturbing is that the talukas which were

lagging behind in 1987, namely Sanguem, Canacona and Sattari continue to be the ones to record the lowest rates in 2006 as well.

6.2.4.2 Educational Institutions

Thc education system in Goa is effectively streamlined in keeping with the National Policy on Education 1986, as modified in 1992. In keeping with the directive principles incorporated in the constitution, the State has worked towards the Universalisation of Elementary Education (UEE), which has been almost achieved all over the State. The demand for education at secondary level has also been met in the talukas to a very large extent. Education at higher secondary level has also percolated to every taluka, although talukawise imbalances in this level of education are more prominent.

A comparison of number of educational institutions at primary level, middle level, secondary and higher secondary level and at higher educational level is given in Table 6.2.

The number of primary schools were more or less evenly distributed in 1987 over all talukas except Murmagao(56). Ponda(169) and Salcete (169) were the talukas with maximum number of primary schools. I997 registered an increase in the number of primary schools in each of the talukas with as many as 16 primary schools being added in Sattari, 10 in Murmagao, over 1987. Salcete taluka registered a fall in the number of primary schools by 16. 2006 witnessed an overall falling trend in primary schools. Sattari (16), Bardez (9), Pernem (9) and cancona (8) and Salcete (6) had a fall in the number of schools in 2006.

Table 6.2

Number of Educational Institutions

TALUKAS	1987					1997					2006				
	PS*	MS	SS	HSS	C/U	PS	MS	SS	HSS	C/U	PS	MS	SS	HSS	C/U
Tiswadi	94	48	37	5	3	95	52	42	13	4	94	47	42	12	6
Bardez	139	66	52	2	2	147	64	54	11	3	138	63	55	11	5
Pernem	107	40	22	1	0	110	42	31	4	1	101	39	29	4	1
Bicholim	96	33	19	3	0	104	36	24	6	2	100	35	27	6	2
Sattari	104	26	12	1	0	120	34	24	2	0	105	31	22	3	0
Ponda	169	43	31	3	2	176	49	44	13	3	173	45	45	13	3
Sanguem	124	24	18	0	0	127	25	21	3	0	125	23	21	3	0
Canacona	83	20	12	1	0	87	22	15	3	1	79	23	17	3	1
Quepem	91	21	16	1	0	96	23	20	4	1	96	21	19	4	1
Salcete	169	67	60	4	3	153	70	62	16	5	147	71	60	16	5
Murmugao	56	32	24	2	1	66	41	34	6	1	61	39	36	6	1
TOTAL	**1232**	**420**	**303**	**23**	**11**	**1281**	**458**	**371**	**81**	**21**	**1219**	**437**	**373**	**81**	**25**

*PS:Primary Schools MS:Middle Schools SS:SecondarySchools HSS:Higher Secondary Schools C/U:Colleges/University

The number of middle level schools in 1987 were considerable less in number than the primary level schools. Salcete(67) and Bardez(66) had the maximum number of middle level schools followed by Tiswadi(48). Cancona (20) has the least number of middle level schools. In 1997, 38 more middle level schools were added to the total number in 1987, highest being in Murmagao (9) followed by Sattari. Bardez witnessed a fall in the number of middle level schools. Highest number of middle level schools have been found in Salcete (70) followed by Bardez (64). Cancona (22), Qupem (23) and Sanquem (25) had lowest number of schools in this category. In 2006, the total number of middle level school came down by 21 to 437 and this reduction was reflected in all talukas except Canacona and Salcete where infact one school was added to the existing number in each taluka

The Secondary level schools follow the same pattern as that of middle level schools, as seen in table 6.2, though their number is less than that of middle level schools.

In 1987, there were 303 secondary schools of which the maximum number were in Salcete (60) followed by Bardez (52) and Tiswadi (37). The least number of schools in this category were found in Sattari and Cancona. In 1997, there was a rise in the total number of schools to 37. The highest number of schools in this category continued to be in Salcete(62). Cancona remained at the lowest level followed by Quepem. In 2006, the total number of schools remained more or less the same, with the addition of just 2. Salcete and cancona continued to be having the highest and lowest number of secondary level schools respectively.

There were only 23 higher secondary(HS) schools in 1987. It is pertinent to note that every taluka has at least 1 school in this level except Sanguem which did not have a single school at HS level. In 1997, there was a sharp rise in the number of schools in this level with the total number rising to 81. Salcete recorded the highest number of schools (116) followed by Ponda (13) and Tiswadi (13). Least number of schools in this category were in Sattari(2) and Sanguem managed to have 3 schools during the period 1987-1997. In 2006, the total number of schools at this level remained the same as in 1997.

In the three years under consideration, it is possible to observe that talukawise inequalities in this aspect widened in 1997, with Salcete (16), Ponda (13), Tiswadi (13) and Bardez (11) surging far ahead of talukas such as Canacona (3), Sanguem (3) and Canacona (2).

There were only 11 institutions providing higher education in the general stream and they were situated in Tiswadi (3), Salcete (3), Bardez (2), Ponda (2) and Murmugao (1). The remaining six talukas did not have any institution of higher education. In 1997, there was a rise in the total number institutions at this level to 21, with at least one institution in every taluka except Sattari and Sanguem. In 2006, there was a further rise in the total number of institutions to 25 with Tiswadi (6), Bardez (5) and Salcete (5) having the maximum number of institutions at this level. Ponda (3) and Bicholim (2) were followed by Pernem, Canacona, Quepem and Murmugao, each having one institution providing higher education in the general stream. Even 20 years after Statehood, neither Sattari nor

Sanguem had any institution providing education at this level forcing students from these talukas to seek higher education opportunities elsewhere.

6.2.4.3 Number of students.

The number of students is a good indicator of how many are availing the educational services made available in the State. As in other indicators, here too, it is possible to observe wide taluka wise differences in the number of students availing of the educational facilities.

Number of students availing educational facilities at primary, middle, secondary, higher secondary and college level in 1987, 1997 and 2006 is given in Table 6.3.

At the primary level in 1987, the total number of students were approximately 1,18,828 with the maximum number in Salcete (22,425) followed by Bardez (16,460) Tiswadi. However, Canacona (4639) and Sattari (6246) reflected student strength approximately one-fifth of that of Salcete. The reasons for this were the lower levels of population as well as the inaccessibility of facilities in these talukas. In 1997, there is a significant fall in the total student numbers in this category to 99,049. The fall in total number of students is proportionately reflected in each of the talukas as well Salcete, Bardez, Murmugao and Tiswadi remained the talukas with maximum enrolment of students at

Table 6.3

Number Of Students Enrolled In Educational Institutions

TALUKAS	1987					1997					2006				
	PS*	MS	SS	HSS	C/U	PS	MS	SS	HSS	C/U	PS	MS	SS	HSS	C/U
Tiswadi	13974	10473	8082	2699	2215	11653	9497	8461	3419	2836	10173	8274	7916	3121	3512
Bardez	16507	13005	9446	2030	1634	14710	11902	10047	3946	2924	12997	10291	9777	4164	3881
Pernem	7587	5559	3453	152	0	4633	4006	3943	781	195	3171	3302	3126	667	247
Bicholim	9308	6013	3900	856	0	7138	5571	4591	1507	1056	5535	4512	3938	1602	1178
Sattari	6246	2900	1322	89	0	5767	3925	2806	574	0	3639	3491	3086	629	0
Ponda	13460	9145	7098	1396	459	10074	8536	7545	3384	2244	7825	7370	6963	3097	1796
Sanguem	6647	3896	2492	0	0	4135	3697	2814	377	0	3724	3175	2513	237	0
Canacona	4639	2786	1963	385	0	3512	2637	2125	641	232	2530	2147	2234	465	251
Quepem	7006	4554	3274	574	0	5965	4759	3848	1324	622	4853	4266	3764	1361	657
Salcete	22425	17001	12272	3372	2606	19588	16087	12880	5363	3286	19102	14324	13305	5319	3652
Murmugao	11029	7333	5040	1115	640	11874	8220	6371	2272	1018	8633	7385	6284	2571	1006
TOTAL	**118828**	**82665**	**58342**	**12668**	**7554**	**99049**	**78819**	**65431**	**23588**	**14413**	**82182**	**68537**	**62906**	**23233**	**16180**

*PS:Primary Schools(I-IV) MS:Middle Schools(V-VII) SS:SecondarySchools(*VIII-X*) HSS:Higher Secondary Schools(XI-XII) C/U:Colleges/University

this level, it was at the lower end that Canacona is joined by Sanguem and Pernem having only about one-fifth the number of students as compared to the Salcete. The falling numbers are attributed to the low birth rates in Goa. 2006 also displays the same falling trend in enrolments at this level bringing the total number of students down to 82,182. The number of students in each of the talukas also show a proportionate fall, with only Salcete (19,102) having a student strength above 15,000. Besides Salcete, only Bardez (12,997) and Tiswadi (10,173) showed numbers above 10,000 while all other talukas had numbers below 10,000. In fact, four talukas had enrolments even below 4,000, namely Canacona (2530), Pernem (3171), Sattari (3639) and Sanguem (3724). This trend in fall in number of students, mainly on account of the fall in birth rates can be observed at the middle school and secondary level also.

The number of students in middle school level in the years 1987, 1997 and 2006 can be seen in table 6.3. The trend observed in the primary level can be seen here as well. The total number of students have progressively declined by 82,665 in 1987 to 78,819 in 1997 and finally to 68,537 in 2006. The same three talukas Salcete, Bardez and Tiswadi registered the maximum number of students in all three years, however, the numbers progressively declined from 1987 to 2006.

The total number of students enrolled at the secondary level and the taluka-wise distribution can be seen in table 6.3, while the total number of students went up from 58,342 in 1987 to 65,431 in 1997. Consequently, the number of students in each of the talukas also reflected an increase, however, in 2006, the total number of students declined

to 62,906 with fall in students registered in each of the talukas except Salcete (13,305) where there was a rise in number of students registered by approximately 500.

The number of students registered at the HS level of education and the changes in their number over the period of study can be seen in table 6.3. In 1987, when only 23 institutions were offering education at this level in the entire state, the total number of student were only 12668 and their distribution over the eleven talukas was also rather uneven, with Sanguem showing 0 registrations as there was no institution in the entire taluka, in that year offering education at this level. Though Tiswadi had 5 institutions in 1987, the number of students registered was only 2699 as compared to Salcete which had only 4 institutions, but the number of students was higher at 3372. Of the four talukas which had one institution each offering education at this level, the least number of students were recorded in Sattari (89) followed by Pernem (152), Canacona (385) and Quepem (574).

Thus, talukawise disparities could be observed not only in the number of institutions, but also in the number of students even if the number of institutions were the same. In 1997, there was a tremendous rise in the number of institutions to 81, and as such there was also a sizeable increase in the number of students in each of the talukas, with the total number rising to 23,588. In 2006, the number of institutions remaining the same, there was a marginal decline in the number of students on the whole to 23,233. The talukawise inequalities in the number of students availing education at this level varying widely, the

top five talukas have a student strength between 2500 to 5500, whereas, the bottom four talukas have a student strength ranging between 200 to 680 only.

The number of students seeking higher education in the general stream in colleges and at university is given in table 6.3, for the years 1987, 1997 and 2006. In 1987, there were only 7554 students enrolled in institutions which were located in only five talukas of the State namely Salcete (2606), Tiswadi (2215), Bardez (1634), Murmugao (640) and Ponda (459). The other talukas did not have any institutions offering education at this level. In 1997, the situation changed and the increase in the number of institutions not only in the five talukas where there were other institutions in 1987, but also in talukas where there were none, namely, Pernem, Bicholim, Canacona and Quepem, resulted in a rise in the number of students to 14,413. Sattari and Sanguem still did not have any institutions offering education at this level. In 2006, there was a further rise in the number of students to 16,180 with four more institutions coming up in the State in Tiswadi and Bardez talukas, in which the number of students has risen notably, while in other talukas the rise in number of students has been nominal. Ponda taluka has recorded a fall in the number of students from 1997, presumably on account of the preference of students in this talukas having alternate opportunities in institutions offering professional education Sattari and Sanguem taluka do not provide any facilities for higher education even in 2006. Students from these talukas seeking higher education are compelled to avail of the facilities provided in other talukas. Thus, the number of students at the various levels of education does provide an insight into the development of educational facilities in the respective talukas.

6.2.5 Inequalities in Education

6.2.5.1 The Simple and Composite index

In order to analyze the *taluka*-wise development of education in the service sector, for the purpose of this study, 13 parameters (see Annexure-II) were used for the construction of the index of development of education. The simple index for each of these 13 parameters has been prepared and then converted into a Combined Inequality Index for Education for all the 11 regions (*talukas*) of Goa. The indices are presented in table 6.4. The table shows the Education Development Index for each of the 11 *talukas* for the years 1987, 1997 and 2006 and the corresponding ranks for the respective years. Categorisation of *talukas* on the basis of ranks into low, medium and high developed *talukas* is given in table 6.5. The location of these *talukas* (with their names and ranks inset) is given in map 6.6 for the years 1987, 1997 and 2006.

Table 6.4 Inequality Index: Education

TALUKA	1987		1997		2006	
NORTH GOA	Index	Rank	Index	Rank	Index	Rank
TISWADI	169	2	127	3	143	3
BARDEZ	158	3	140	2	161	2
PERNEM	65	7	59	7	67	7
BICHOLIM	77	6	75	6	85	6
SATTARI	45	11	47	9	57	8
PONDA	122	4	121	4	125	4
SOUTH GOA						
SANGUEM	49	9	43	10	54	9
CANACONA	47	10	43	10	53	10
QUEPEM	55	8	57	8	67	7
SALCETE	**205**	**1**	**175**	**1**	**188**	**1**
MURMUGAO	92	5	83	5	94	5

The indices of education development in the three years display a uniform trend in favour of the three coastal talukas of Salcete in South Goa and Tiswadi and Bardez in North Goa, as also of the hinterland taluka of Ponda.

These talukas consistently display high indices in all the three years under consideration. The rest of the talukas show only double digit indices, that too, way below the three digit indices displayed by the high development talukas.

Table 6.5 Categorization of Talukas on basis of ranks

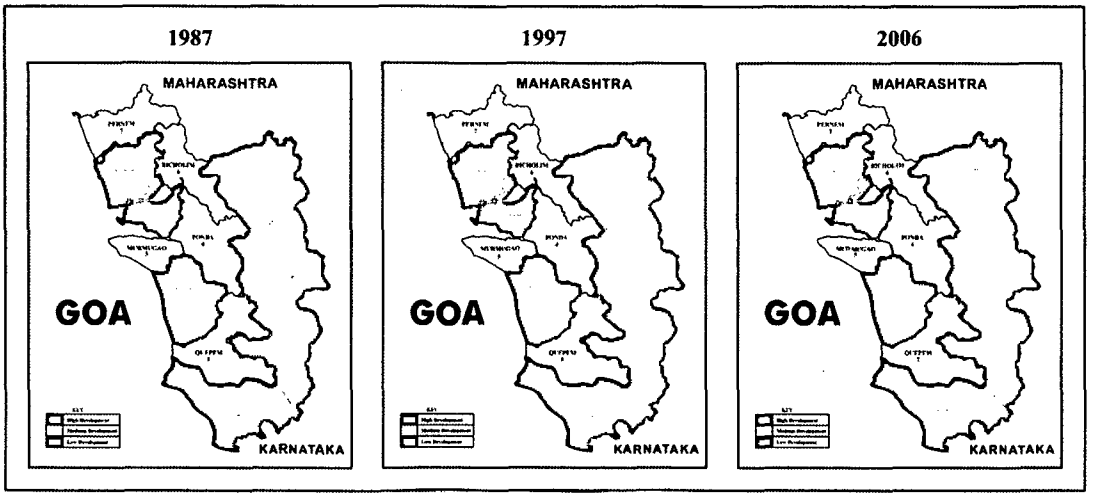
HIGH			MEDIUM			LOW		
1987	1997	2006	1987	1997	2006	1987	1997	2006
SALCETE	SALCETE	SALCETE	PONDA	PONDA	PONDA	SANGUEM	SATTARI	SATTARI
TISWADI	BARDEZ	BARDEZ	MURMUGAO	MURMUGAO	MURMUGAO	CANCONA	SANGUEM	SANGUEM
BARDEZ	TISWADI	TISWADI	BICHOLIM	BICHOLIM	BICHOLIM	SATTARI	CANCONA	CANCONA
			PERNEM	PERNEM	PERNEM			
			QUEPEM	QUEPEM	QUEPEM			

In 1987, Salcete (205) was ranked the highest in the development of education with Tiswadi (169), Bardez (158) and Ponda (122) following closely. The lowest ranked taluka, Sattari (45) displayed an index way below that of the highest ranked taluka, indicating the wide disparities that existed in the development of education between the talukas. It is pertinent to note that these inequalities appear to be a historical inheritance from the colonial rule in the State. The highly developed coastal talukas were the 'old conquests' of the Portuguese colonists which were their highly favoured regions, while Ponda though a 'new conquest', was considered the cultural capital of the local

predominantly Hindu population who were well read and who had the vision to spread learning among the people.

There is no major difference in the development of education in 1997 except for a minor shuffling of ranks within the categories into which the talukas have been classified as per their respective ranks.

Map 6.1 Inequality Index: Education



It is pertinent to note that there has been a fall in the indices of each taluka, across the categories, which can be accounted for primarily, by the fall in the number of student enrolments.

In 2006 as well, the same trend is observed. What does seem a matter of concern is that in spite of 20 years of planning and implementation of the various schemes, of both the Central and the State governments, for the permeation of education to every nook and corner of the State and for the enhancement of the quality of education, the position of

the respective talukas within themselves and in comparison with one another has remained unchanged.

6.3 Public Health

6.3.1 Historical Background

Public Health of any region is influenced by the ecological, social, economic and political situation of the region at that time. Goa, under the Portuguese rule, could boast to be the first to introduce a modern system of medicine, not only in India but in all of Asia, with the medical school of Goa being the oldest institution of modern medicine in the whole continent.

Although under the Portuguese regime, emphasis of public health was mainly on curative treatment, promulgation of a modern piece of health legislation during the decade of the 50's called the "Regulamento Geral de Sanidade Urbana e de Policia Sanirarea e Policia Mortuare a do Estado da India", popularly known as "Portaria 7012" and its effective implementation shifted the focus to promotive and preventive concepts in health care.

On the eve of liberation, Goa was divided into sixteen sanitary jurisdictions i.e. 13 health centres, 2 sub-centres and the Port Health area of Murmugao. The health centres were located at the taluka headquarters except two, which were located in Sanquelim and Collem, the former being the epicentre of the mining areas of North Goa and the latter being the epicentre of the mining areas and rail road traffic in South Goa.

Of the two sub-health centres, one was located at Reis Magos in North Goa, to cater mainly to the health needs of the inmates of the Reis Magos and Aguada Jails and the other at Cuncolim village in South Goa to look after the inmates of Cabo de Rama jail and migrant sailors of the nearby villages in South Goa.

The main functions of these Health Centres were to look after the sanitary aspects of the health problems and to undertake small pox and other vaccination programmes for the protection of the community from these diseases.

Over the years, Goa underwent a series of metamorphosis in the approach for the delivery of Health care services to the population of the State. From mainly curative approach during the sixteenth century, Goa gradually embarked on a promotive and preventive approach to health, keeping pace with the advances made in medical science and technology.

In spite of these provisions, the medical and health services, on the eve of liberation, were highly inadequate.

6.3.2 Public Health in Post-Liberation Goa

After liberation, health and family welfare activities were viewed as indispensable inputs for improving the quality of life in accordance with the national health policy. Promotive and preventive aspects of health care, which were hitherto neglected, were emphasised along with the curative aspects of health care services. The quality and quantity of these

services were improved to make them more responsive to the people's needs. Unprecedented stress was laid on the accessibility, availability and acceptability of the health care services by the people.

6.3.3 Post – Statehood Development in Public Health

The Government of Goa continued the focus on the provision of health care facilities to the citizens of the State, through a network of primary health centres at the village level, district health centres at the district level and State run hospitals in the major towns of Margao, Mapusa and Ponda besides the facilities available at the State run medical college. The State sponsored medical facilities were augmented to a very large extent by the health care facilities provided by the private medical practitioners and the private hospitals all over the State.

6.3.4 Regional Imbalances in the Development of Public Health Facilities

Goa has one of the most extensive health systems in India. The per capita expenditure on Health is Rs. 544, second only to Sikkim among States and Union Territories of India (Govt. of Goa, 2004).

At present (2005-06) there are 19 Primary Health Centres, (PHCs) 172 Sub-centres, 29 Rural medical dispensaries (RMDs) and 5 Cottage Health centres (CHCs). The two district hospitals and 3 specialised hospitals serve as referral hospitals. There are 18 dental clinics, 4 Homeopathic and 16 Ayurvedic dispensaries. In addition, there are 4

urban health centres at Panaji, Margao, Vasco and Mapusa and a clinic for STD at Baina, Vasco.

In addition to the above government facilities there are facilities provided by the private practitioners and the private sector. However, a closer study of the location and the development of the facilities reveals the regional (taluka-wise) imbalances is the same.

6.3.4.1 Public Health facilities in Goa

The variables considered to analyse the inequalities in the Public health facilities in Goa are the number of Government and Private hospitals and the beds available in them as also the primary, community and urban health centres. The distribution of these facilities over the respective talukas is shown in table 6.6

It can be seen that the number of government hospitals have remained unchanged from the year 1988 (the year from which information is available) to 2006 in all the talukas. While it is commendable that every taluka has a government hospital, the size of these facilities, which can be made out by the number of beds available in them is seen to vary immensely from one taluka to the other. Again, it is the more developed coastal talukas which provide more number of beds. It is seen that the number of beds in Tiswadi (where the Goa Medical College is situated) are almost double the number of beds in Salcete which ranks second. Bardez and Murmugao have less than one-fifth the number of beds in Tiswadi while Ponda accounts for less than 10 percent of the facilities available there. The other talukas having only a small fraction of the number of beds is Tiswadi, the

lowest being in the talukas of Canacona and Sattari. It is important to realise that the number of facilities in terms of infrastructure and the services of the medical and para-medical staff is directly proportionate to the number of beds in the government hospitals and as such, even the facilities in Bardez, Salcete and Murmugao leave much to be desired, not to mention the severe constraints in the other talukas.

In 1988, the taluka with the highest number of beds was Tiswadi (1017) followed by Salcete (592), Bardez (259) and Murmugao (149). The other hospitals in the remaining talukas had bed facility below 100, with the least number of beds being in Sattari (12). In 1997, the significant addition to the number of beds in government hospitals was in Tiswadi taluka, where 332 beds were added to the existing facilities and Murmugao taluka, where there was an addition of 104 beds. In 2006, the addition, (not more than 18 in any taluka) to the number of beds available in the government hospitals, was negligible. It is pertinent however, to note the fall in the number of beds available in government hospitals in Tiswadi taluka.

Primary and Urban health centers have played an important role in providing basic medical facilities all over the State, with at least one such centre in each of the taluka right from 1987. As seen in the table 6.6, a rise is noted in the number of such centres in 2006, except in Tiswadi taluka, which can be explained by the fact that the only medical college facility in the State is located in this taluka. The four major towns of Panaji, Mapusa, Margao and Vasco in the Tiswadi, Bardez, Salcete and Murmugao talukas

respectively are served by urban health centres right from 1987 which continued in 1997 and 2006.

Table 6.6 provides the data on the number of private hospitals and the beds available in private hospitals in Goa. While no authentic taluka-wise data is available for either the years 1987 or 1988, a comparison of these facilities with the government facilities is possible only in the years 1997 and 2006. It is also possible to estimate the growth in the availability of these facilities over the 10 year period. Private medical practice in Goa has always been sizeable, augmenting to a large measure the available government health facilities. With medical practitioners willing to undertake entrepreneurial ventures, the number of private hospitals in the State has been rising. In fact, medical tourism is being explored as the next sunshine area is order to boost revenues from the health sector.

In 1997, the private hospitals numbered 92 in the entire the State, distributed predominantly over the 3 coastal talukas of Salcete (23), Bardez (18), Tiswadi (16) and the hinterland taluka of Ponda (14). Murmugao with eight private hospitals leads the other talukas which have a lesser number, with Sanguem taluka alone not having even a single private hospital, though it is the largest taluka in terms of area and has a population of more than 60 thousand people.

In 2006, the number of private hospitals rose to 123, with 10 hospitals being added on in Salcete, 6 in Tiswadi, 5 in Bardez, 4 in Murmugao, 3 each in Ponda and Quepem and 1 each in Bicholim and Canacona.

Table 6.6

Public Health Facilities in Goa

TALUKAS	1987						1997						2006					
	GH*	BGH*	C/PHC	UHC	PH	BPH	GH	BGH	C/PHC	UHC	PH	BPH	GH	BGH	C/PHC	UHC	PH	BPH
Tiswadi	6	1017	1	2	NA**	NA	6	1349	0	2	16	363	6	1316	1	2	22	370
Bardez	5	259	2	1	NA	NA	5	228	3	1	18	420	5	228	4	1	23	511
Pernem	1	40	2	0	NA	NA	1	40	1	0	2	18	1	52	2	0	1	10
Bicholim	2	46	1	0	NA	NA	2	45	1	0	5	68	2	60	2	0	6	80
Sattari	1	12	1	0	NA	NA	1	12	1	0	1	7	1	30	1	0	1	3
Ponda	3	94	2	0	NA	NA	3	96	2	0	14	202	3	108	4	0	17	314
Sanguem	2	80	1	0	NA	NA	2	80	1	0	0	0	2	80	1	0	0	0
Canacona	1	20	1	0	NA	NA	1	30	1	0	1	20	1	30	1	0	2	47
Quepem	2	62	2	0	NA	NA	2	62	2	0	4	59	2	62	3	0	7	82
Salcete	4	592	2	1	NA	NA	4	622	1	1	23	424	4	622	3	1	33	657
Murmugao	4	149	1	1	NA	NA	4	253	1	1	8	225	4	253	2	1	11	286
TOTAL	**31**	**2371**	**16**	**5**	**NA**	**NA**	**31**	**2817**	**14**	**5**	**92**	**1806**	**31**	**2841**	**24**	**5**	**123**	**2360**

GH:Government Hospitals BGH: Beds in Government hospitals C/PHC: Community/Primary Health centres UHC:Urban Health Centre PH:Private Hospitals BPH:Beds in Private Hospitals

GH*:Data of 1988; BGH*:Data of 1988; NA**: Not Available

It is pertinent to note that while one hospital in Pernem closed down, Sanguem taluka continued to not have any private hospital facility.

As far as the beds in private hospital are concerned, no data is available for 1987 however, in 1997, the 1816 beds in private hospitals compare rather favourably with the number of beds in government hospitals, falling short by approximately only a 1000 beds. The predominance of talukas in this category follows almost the same pattern of government hospitals with the exception of Salcete (424) which provides the maximum number of beds followed by Bardez (420), Tiswadi (363), Murmugao (225) and Ponda (202). The facilities in the other 6 talukas are not significant except to note that Sanguem registered 0 as it did not have any private hospitals in this year.

In 2006, it is extremely pertinent to note that the total number of beds in private hospitals have gone up to 2360, resulting in the difference between beds in government and private hospitals being reduced to 500 as against 1000 in 1997. The rise in the number of beds was seen prominently in Salcete (+233), Ponda (+112), Bardez (+91) and Murmugao (+61). It is pertinent to note that in all the above talukas, with the exception of Tiswadi, the number of beds in private hospitals exceed those in government hospitals. Sanguem taluka however continues to be without any private hospitals and therefore without any beds in private hospitals either.

6.3.5 Measurement of inequality

6.3.5.1 The Simple and Composite Index.

In order to analyse the taluka-wise development of Public health in the service sector for the purpose of this study, 6 parameters are used for the construction of the index of development of Public health . The simple index for each of these 6 parameters has been prepared and then converted into a combined Public Health Development Index for all the 11 regions (talukas) of Goa. The indices are presented in table 6.7. The table shows the Public Health Development Index for each of the 11 talukas for the years 1987, 1997 and 2006 and the corresponding ranks for the respective years. Categorisation of ranks into low, medium and high developed talukas is given in table 6.8 and the location of these talukas (with their names and ranks inset) is given in map 6.2 for the years 1987, 1997 and 2006.

Right through the period of study, Tiswadi ranked highest as it displays the highest development index on account of the biggest government health facility being located within it. This is followed closely by Salcete, Bardez, Murmugao and Ponda, whose respective indices have increased from 1987 to 1997 to 2006, though the ranks and the category to which they belong has remained unchanged.

The distance between the indices of the talukas ranked one to five and the indices of the other six talukas is conspicuously large and highlights the inequality between them. The hinterland talukas of Sanguem, Quepem and Sattari are the ones that are found to be worst off in addition to the remote coastal taluka in the south of Goa, that is, Canacona.

Table 6.7 Inequality Index – Public Health

Taluka	1987		1997		2006	
	Rank	Index	Rank	Index	Rank	Index
Tiswadi	218	1	238	1	239	1
Bardez	153	2	167	3	157	3
Pernem	81	4	49	8	47	7
Bicholim	44	9	50	7	51	6
Sattari	55	7	38	10	33	9
Ponda	99	5	106	5	110	5
Sanguem	73	6	56	6	42	8
Canacona	55	7	37	11	32	10
Quepem	52	8	43	9	42	8
Salcete	153	2	199	2	219	2
Murmugao	117	3	119	4	129	4

In 1987, Public health facilities in Tiswadi (218) far outwieghed the other talukas with the next well developed talukas being only Bardez (153), and Salcete (153) followed by Murmugao (117).

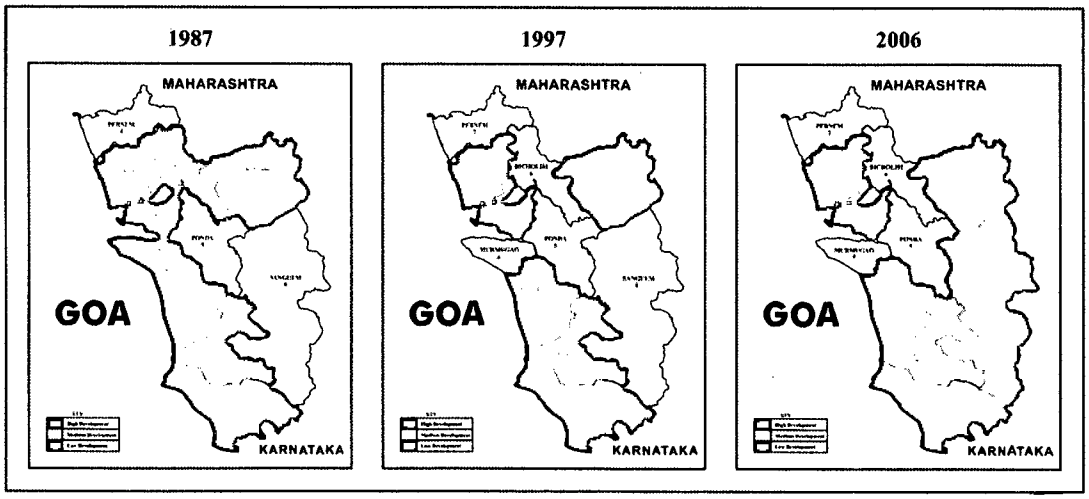
As already established, these were the coastal talukas, part of the old conquests of the Portuguese rulers, where the medical facilities were well developed even under colonial rule and built upon after liberation and subsequently after declaration of Goa as a state

Table 6.8 Categorisation of talukas on basis of ranks

HIGH DEVELOPMENT			MEDIUM DEVELOPMENT			LOW DEVELOPMENT		
1987	**1997**	**2006**	**1987**	**1997**	**2006**	**1987**	**1997**	**2006**
Tiswadi	Tiswadi	Tiswadi	Pernem	Murmugao	Murmugao	Sattari	Quepem	Quepem
Bardez	Salcete	Salcete	Ponda	Ponda	Ponda	Canacona	Sattari	Canacona
Salcete	Bardez	Bardez	Sanguem	Sanguem	Bicholim	Quepem	Canacona	Sattari
Murmugao				Bicholim	Pernem	Bicholim		Sanguem
				Pernem				

The indices in the other talukas are quite poor in comparison to the indices of these talukas. In 1997 and 2006 the development of facilities providing Public health improved further in the five talukas of Tiswadi, Salcete, Bardez, Murmugao and Ponda, serving to reduce the inequalities between these talukas, however, the other six talukas remained comparatively backward in the development of the facilities of Public health.

Map 6.2 Inequality Index : Public Health



It is seen from table 6.8 that the categorisation of talukas has not registered any major change in the respective categories with the exception of Murmugao having been pushed into the medium development category 1997 and Sanguem into the low development category in 2006, however, this was more on account of the improvement of the development of public health facilities in the five top ranked talukas, than deterioration of facilities in the talukas which were pushed down into the lower categories.

6.4 Banking

6.4.1 Historical Background

Two financial institutions that played a prominent role in providing banking services during the Portuguese rule were the 'Banco Nacional Utramarino (BNO) and the 'Caixa Economica de Goa' (CEG). The services of the BNU were restricted to its offices in the four towns Panaji, Mapusa, Margao and Vasco-da-Gama. The CEG on the other hand had its main office in Panaji, with the Government revenue offices in all talukas as its agents for savings / withdrawals facilities for the account holders.

The BNU catered mainly to the credit needs of exclusively the elite trading houses and mineral ore exporters. The BNU conducted its main business portfolio of foreign exchange on account of the import export business and as such was known for its "class banking" business, meant only for the affluent. The CEG, on the other hand, was exclusively, a public savings deposits Bank serving a mass based clientele, having mobilised large deposits by offering attractive rate of interest.

In keeping with the colonial interests, banking did not do anything to promote the socio-economic development of Goa by lending to either industry or to agriculture.

6.4.2 Post-Liberation Development in Banking

After the Liberation of Goa, State Bank of India took over the closed establishments of the BNU and the CEG as custodian of their assets and libailities and began banking operations in Goa by establishing its first branch on 2nd January 1962 and further spreading its branches in various locations of the territory. Many other Indian banks

followed in a massive expansion of banking network in Goa in the post liberation period. Although initially they followed conservative banking practices yet after Nationalisation of the 14 major banks in 1969, they were committed to the goals of social banking in addition to their commercial banking activities. Term lending institutions such as the Maharashtra State Financial Corporation (1964) The Economic Development Corporation (EDC) (1975) The National Bank for Agriculture and Rural Development (1983) and the Industrial Development Bank of India (1987) have played a significant role in promoting the socio-economic development of the region in this period.

6.4.3 Post - Statehood Profile of Banking

There were 297 banking offices in Goa on the eve of attaining Statehood since Statehood, the number of banking offices in Goa have increased by over 77 per cent. During, the period 1980-81 to 2004-05, deposits in banks have risen at an annual compound growth rate of 16.4 per cent.

6.4.4 Regional Imbalances in the Development of Banking

In spite of being a late entrant to the banking system, Goa has made tremendous progress in the spread of the banking network across the State. As on 2005, there are 456 banking offices in Goa, with the population covered per bank office working out to 3070, (far better than the national average of 16000). The banking offices in Goa have more than 3 million deposit accounts being next only to Delhi and Chandigarh. It is interesting to note that 77 per cent of the total deposits were term deposits (much higher than the national average of 61.9 per cent) while Saving bank deposits made up only 19 per cent of the

total deposits (lower than the national average of 26.1 per cent thereby highlighting the financial acumen of the people of Goa in their preference to invest in term deposits which yielded higher returns than saving deposits).

It is pertinent to note that an analysis of taluka-wise mobilisation of deposits reveals that three talukas, namely, Salcete, Tiswadi and Bardez accounted for more than three fourths of the total deposits. The sectoral credit profile of banks as on March 31, 2005 shows that 44.1 per cent of outstanding credit is to the manufacturing sector, thus contributing significantly to its development (a much higher extent than that of the national average of 38.1 per cent) Personal loans at 22.4 per cent of the total credit and professional loans at 9 per cent also are much higher than the national averages of 20.3 per cent and 5 per cent respectively. Loans for trade, transport operators and others account for 7.1 per cent, 2.3 per cent and 11.6 per cent respectively. What is pertinent to note is that loans availed for the purpose of agriculture was only 2.5 per cent, way below the national average of 10.9 per cent, mainly on account of the fact that the overall growth in the agriculture sector is exhibiting a decelerating trend with a shift in the popular interest in agriculture as a livelihood to other more economically viable and lucrative sectors.

It is importnat to examine the taluka-wise inequalities in the important parameters considered for the study of this sub-sector, namely, the number of banking offices, bank deposits, per capita deposits, bank credit and the per capita credit in each of the talukas as reflected in table 6.9.

6.4.4.1 Number of Banking Offices

Table 6.9 traces the growth in the number of banking offices in the State from declaration of Statehood in 1987 to 2005 (the last year for which taluka wise data is available for this sub-sector). In 1987, Bardez (66), Salcete (65) and Tiswadi (53) had the highest number of banking offices, indicating the commercial importance of the three coastal talukas. Murmugao (28) the port town had comparatively fewer banking offices, closely followed by Ponda (25) which was developing as an industrial hub. The mining talukas of Bicholim (17) and Sanguem (15) also had a significant number of banking offices, however, it was the two hinterland talukas of Sattari (7) and Quepem (7) and the remote coastal talukas of Pernem (9) in the extreme North and Canacona (9) in the extreme south which had the least number of banking offices reflecting the relative commercial insignificance of these talukas. A significant rise in the number of the banking offices could be observed in 1997. The maximum number of banking offices were added in Tiswadi (+30), followed by Salcete (+24) and Bardez (+23). This increase further consolidated the position of these talukas as the commercially most developed. 12 banking offices were added in Ponda (+12) taluka which was on account of the emerging importance of this taluka in all sectors of the state economy. The period between 1997 to 2005 did not see as much increase in the number of banking offices as the first decade of the study, nonetheless, it was Tiswadi (+8), Bardez (+10), Salcete (+8), Murmugao (+9) and Ponda (+6), the talukas ranked from one to five in the development of banking in Goa, in which more banking offices were added.

Table 6.9

Banking in Goa

TALUKAS	1987					1997					2005				
	NBO	BD	PCD	BC	PCC	NBO	BD	PCD	BC	PCC	NBO	BD	PCD	BC	PCC
Tiswadi	53	254	16327	104	6682	83	1485	90674	623	38031	91	3433	214441	1459	91136
Bardez	66	262	14438	43	2348	89	1233	58209	213	10046	98	2835	124509	412	18094
Pernem	9	7	1051	3	396	15	39	5282	15	1959	15	101	14028	24	3333
Bicholim	17	22	2535	12	1351	20	132	13990	62	6532	21	258	28435	94	10360
Sattari	7	4	884	3	676	10	23	4191	9	1656	11	67	11431	26	4436
Ponda	22	44	3467	20	1563	37	223	15546	99	6935	43	597	39949	228	15257
Sanguem	15	21	3709	9	1433	16	50	7484	32	4867	15	93	14513	50	7803
Canacona	9	11	3130	3	633	11	58	12792	11	2344	11	149	33866	23	5228
Quepem	9	16	2921	5	703	14	120	16691	37	5087	17	319	43088	85	11481
Salcete	65	292	10811	91	3981	89	1511	61472	318	12929	97	3635	138722	724	27630
Murmugao	28	124	12632	76	6513	37	573	42560	263	19497	46	1529	105485	550	37944
TOTAL	**300**	**1057**	**6537***	**369**	**2389****	**421**	**5447**	**29899***	**1682**	**9989****	**465**	**13016**	**69861***	**3675**	**21155**

NBO:Number of Banking Offices BD:Bank Deposits(Rs. In Crores) PCD:Per Capita Deposits BC:Bank Credit(Rs. In Crores) PCC:Per Capita Credit

*Average Per Capita Deposits; **Average Per Capita Credit

6.4.4.2 Bank Deposits and Credit

The taluka-wise inequalities which may not have been as evident from the number of banking offices are magnified in the taluka-wise break-up of bank deposits as seen in table 6.9.

In 1987, as is obvious Salcete, Bardez and Tiswadi were ranked the highest with more than 250 crores of deposits each. Murmugao accounted for 125 crores of the total deposits. All the other talukas were way behind, Ponda with 44 crores and the other talukas unable to cross even the 22 crore mark. In 1997, bank deposits multiplied by more than five times with Salcete, Tiswadi and Bardez leading the talukas with deposits of more than 1200 crore rupees each way ahead of Murmugao which accounted for deposits of only 573 crore rupees. The extent of inequalities can be estimated from the fact that Salcete which accounts for Rs. 1511 crores of deposits is more than 65 times higher than the deposits of Sattari which stand at a dismally low level of Rs. 23 crores.
In 2005, bank deposits increased by only two and a half to three times the level of deposits in 1997. In absolute terms however, while deposits crossed Rs. 3500 crores in Salcete and Tiswadi, in Sattari the volume of bank deposits could barely touch Rs. 67 crores, so also in Sanguem, the figure was only Rs. 93 crores.

It is interesting to note the level of per capita deposits and the extent of inequalities in the talukas. As seen in table 6.9, the per capita deposits in 1987 ranged between Rs. 16,327 in Tiswadi to Rs, 884 in Sattari. It is important to note that only four talukas namely,

Tiswadi, Bardez, Murmugao and Salcete had per capita deposits above Rs. 10,000 one of the other seven talukas could cross Rs. 4,000 in per capita deposits. In 1997, the level of per capita deposits rose by three to four times, however, the inequalities persisted and the rankings of talukas on the remained almost the same except for minor shuffling between them within the categories of high, medium or low development respectively. In 2005, per capita deposits rose further by two to three times the level in 1997, yet the taluka-wise imbalances persisted with hardly any change in the relative positions of the talukas.

The cautious borrowing tendency of the average person in Goa comes to the fore while examining the growth of bank credit in Goa from 1987 to 2005. Table 6.9 shows that the volume of credit taken in the respective talukas in 1987 was barely one sixth to half the volume of deposits generated in the respective talukas in the same year. Tiswadi leads the talukas in bank credit followed by Salcete, Murmugao and Bardez. The difference between the talukas is also vast, with the bottom three talukas accounting for merely Rs. 3 crores each as against the Rs. 104 crores of Tiswadi, the taluka with the highest volume of bank credit. In 1997, though we can observe a three to five times increase in bank credit availed by the respective talukas over 1987, yet as compared to the bank deposits generated in the respective talukas in the same year, bank credit does not amount to even one third the bank deposits. The relative position of the talukas remained unchanged. In 2005, bank credit in the respective talukas did rise by two to three times, however the relative positions of the talukas remained unchanged even when compared to the rankings of the talukas in 1987.

With total bank credit being much less than the total bank deposits the per capita credit is expectedly much lower than per capita deposits in the State. As seen in table 6.14, from 1987 to 1997 and further to 2005, there has been nearly a two to three times increase in the per capita credit however the relative position of the talukas remains the same as do the inequalities.

6.4.5 Measurement of inequalities in Banking

6.4.5.1 The Simple and Composite Index.

In order to analyse the taluka-wise development of Banking in the service sector for the purpose of this study, 5 parameters are used for the construction of the index of development of Public health. The simple index for each of these 5 parameters has been prepared and then converted into a combined Banking Development Index for all the 11 regions (talukas) of Goa. The indices are presented in table 6.10. The table shows the Banking Development Index for each of the 11 talukas for the years 1987, 1997 and 2005 (as taluka level for Banking is available only till 2005) and the corresponding ranks for the respective years. Categorisation of ranks into low, medium and high developed talukas is given in table 6.11 and the location of these talukas (with their names and ranks inset) is given in map 6.3 for the years under consideration. The index number analysis establishes the gross inequalities in the development of banking in the talukas in the entire period of study. In 1987, while Tiswadi (233), Salcete (203), Murmugao (178) and Bardez (167) lead the talukas with extremely high indices, the remaining seven talukas exhibit extremely low indices, with Quepem (34), Canacona (31) and Pernem (29) being the worst off. In 1997, the talukas in the high development category remained the same

however, Quepem moves into the middle development category while the hinterland taluka of Sattari (24) is pushed into the low development category.

Table 6.10 Inequality Index: Banking

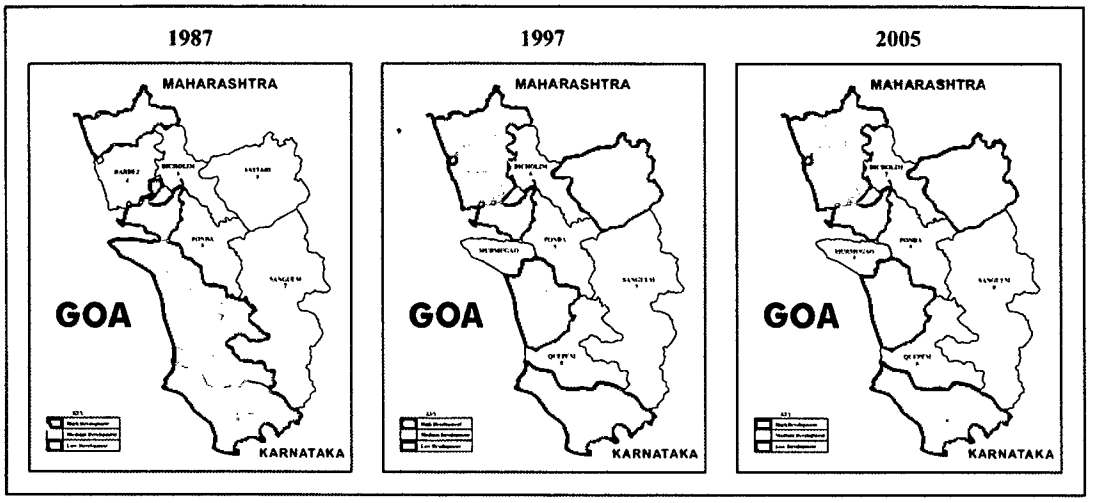
TALUKA	1987		1997		2005	
NORTH GOA	Index	Rank	Index	Rank	Index	Rank
TISWADI	**233**	**1**	**287**	**1**	**303**	**1**
BARDEZ	167	4	160	3	151	3
PERNEM	29	11	32	9	27	11
BICHOLIM	57	6	60	6	51	7
SATTARI	44	8	29	10	33	9
PONDA	69	5	75	5	67	6
SOUTH GOA						
SANGUEM	55	7	54	7	46	8
CANACONA	31	10	27	11	30	10
QUEPEM	34	9	45	8	61	5
SALCETE	203	2	190	2	191	2
MURMUGAO	178	3	141	4	141	4

The position of Pernem (32) and Canacona (27) remains unchanged. In 2005, the positions of the talukas remains unchanged, Tiswadi further consolidates its position on the top on account of it being the taluka where capital of the State is situated and where most banks have their head offices and the larger share of their operations.

Table 6.11 Categorization of Talukas on basis of ranks

HIGH			MEDIUM			LOW		
1987	1997	2006	1987	1997	2005	1987	1997	2005
TISWADI	TISWADI	TISWADI	BARDEZ	MURMUGAO	MURMUGAO	QUEPEM	PERNEM	SATTARI
SALCETE	SALCETE	SALCETE	PONDA	PONDA	PONDA	CANCONA	SATTARI	CANCONA
MURMUGAO	BARDEZ	BARDEZ	BICHOLIM	BICHOLIM	QUEPEM	PERNEM	CANCONA	PERNEM
			SANGUEM	SANGUEM	BICHOLIM			
			SATTARI	QUEPEM	SANGUEM			

Map 6.3 Inequality Index : Banking



6.5 Tourism

6.5.1 Historical Background

Goa, with its pristine beaches of clean silver sand bordered by coconut groves, vast verdant lands, an intricate network of rivers and canals, a salubrious climate, amenable people and a delectable cuisine continue to be the reasons that attract tourists today as much as they had caused the colonial rulers to make Goa their home for more than 450 years; their influence on the culture of Goa, giving it the unique blend of east and west has further enhanced the lure that this tiny State has for travellers.

6.5.2 Post-Liberation Development of Tourism

Goa started receiving tourists immediately after liberation in 1961, and although Goa became a late entrant into the planning process in India nonetheless, the small State took rapid strides in the development of tourism resulting in extra-ordinarily phenomenal growth of this sector.

6.5.3 Tourism in Post-Statehood Goa

After Statehood, the Government recognised the buoyancy in the growth pattern of tourism and began to create the necessary infrastructural facilities, particularly provision of accommodation to cater to all sections of tourists coming into the State. The Private sector also became a key player in the development of infrastructural and service facilities needed to boost tourism in the State as this appeared to be a lucrative source of employment.

With liberalisation, privatisation and globalisation, the growth of tourism received fresh impetus and the inflow of tourist, both domestic and foreign rose to unprecedented heights. Tourism became the mainstay of the economy. No doubt, Goa has relied on beach tourism as its predominant attraction, without exploring other avenues of tourist interest, yet there is no denying the fact the tourism is fueling the economy in Goa.

6.5.4. Regional Imbalances in the Development of Tourism

Tourism has witnessed steady growth ever since 1987, when the total number of tourists visiting Goa were approximately 8,61,448 of which 94,602 were foreign tourists while 7,66,846 in dramatic contrast are the tourist arrivals in 2006 when tourist arrivals were approximately 2316855 of which 3,42,075 were foreign tourists while the number of domestic arrivals were approximately 19,74,780.

It is worth nothing that in the 20 year period annual growth rate of tourism has been negative only in two years, that is in 1988 (-0.7) and in 1991 (-5.60). The most

impressive annual growth rates have been registered in 2002 (15.7%) 2003 (27.7%) and 2004 (20.1%).

These astronomical growth rates can be attributed to the high sell adopted by the government in the face of growing competition from other coastal holiday spots; besides, the natural beauty, still unspoilt, the moderate climate, the peace and harmony in the State and the absence of any terrorist disturbances (highly significant in recent times).

Overall increase in tourist arrivals (tourist population in any given year from 2002 has crossed the State population of approximately 14 lakhs) augurs well for the economy of the State, with the multiplier effect that every rupee spent by the tourist generates. Tourism has been gaining importance as the mainstay of the economy being the highest employment generator, both direct and indirect.

However, from the perspective of this study it is extremely pertinent to note that the tremendous growth in tourism and the resultant development has been concentrated only along the coastal talukas of Bardez, Tiswadi and Salcete. The coastal taluka of Mormugao, inspite of being a port town has not been able to benefit to that extent from the gains of Tourism. Even less impressive is the development in the coastal talukas, situated to the extreme north and south of Goa, namely, Pernem and Canacona respectively. These talukas, though blessed with ample natural beauty that is to be found in the other coastal talukas have paid the price for being too far from the airport, railway stations or bus junctions.

Difficulty in accessing these talukas has prevented them from developing on par with the more developed coastal talukas. It is only after 1997 that improvement in development of Tourism can be observed in these talukas.

Of the midland talukas Ponda benefits from temple tourism which attracts not only domestic tourists, but many foreign tourists as well. Eco-tourism has also taken root in Ponda taluka with a spurt in spice plantations which have proved to be quite an attraction amongst both domestic and foreign tourists. It is the hinterland talukas of Sattari, Sanguem alongwith other mid-land talukas such as Bicholim and Quepem which have performed dismally in tourism development. In fact the 'gap' in development indices of the three coastal talukas are extremely wide as compared to those in the hinterland.

The difference in tourism development is reflected in the levels of urbanisation, development of infrastructure and availability of services as well. Three parameters have been considered to assess the taluka wise inequalities in the development of tourism and that is, the number of hotels and lodgings in each of the talukas and the number of tourist arrivals into the taluka, both domestic and foreign, as shown in table 6.12.

6.5.4.1 Number of hotels and lodgings

The rise in the number of hotels and lodgings in Goa can be seen in the table 6.12. The data presented is a clear indicator of the staggering increase in the importance of Tourism in Goa. However it is equally clear to observe that the rise in this parameter on account of

a growth in tourism is restricted to the coastal talukas of Tiswadi and Bardez in North Goa and Salcete in South Goa. In 1987, the total number of hotels and lodgings were as few as 255 in the entire State, of which 211 were situated in the three coastal talukas of Tiswadi (99), Bardez (60) and Salcete (52). In comparison, while only Murmugao (26) and Ponda (12) had very few facilities Pernem and Quepem had only 2 each, Bicholim and Sanguem had 1 each and Sattari and Canacona had no facilities at all, this inspite of the fact that Canacona was a coastal taluka.

In 1997, the tremendous spurt in tourist flow to Goa can be gauged from the sharp rise in the number of hotels and lodgings to 1310, indicating a five fold increase in the available facilities in 1987. Yet again, of the 1310 establishments 1215 are situated in the three coastal talukas Tiswadi (300), Bardez (662) and Salcete (253). What is more interesting to note is the number by which the facilities in these talukas have risen. 201 hotels and lodgings were added to the existing 99 in Tiswadi, while 602 such facilities were added on to the existing 60 in Bardez and 201 establishments were added on to the existing 52 in Salcete. It is pertinent to note that the two coastal talukas, Pernem in the extreme north of Goa and Canacona in the extreme south began to register a rise in the number of facilities available, indicating a preference of the tourists to move away from the over-crowded and tourism saturated talukas of Tiswadi, Bardez and Salcete. The other talukas continue to display the extreme inequalities in the development of these facilities with Sattari in North Goa still showing up 0 facilities.

In 2006, the rise in the total number of hotels and lodgings in Goa to 2223 indicates a rise of 923 establishments of which 647 were added on to the existing facilities in Bardez taluka alone.

Pernem, the coastal taluka on the extreme north of Goa shows the second highest increase in facilities, with an addition of 162 establishments, further reflecting the preference of the tourists to move away from the overcrowded coastal talukas. In fact, it is this preference that can explain the fall in the number of hotels and lodgings in Tiswadi taluka from 300 in 1997 to 270 in 2007.

While Salcete taluka in South Goa registered an increase of 93 hotels and establishments, it is the increase in Canacona taluka by 31 establishments that reiterates the preference of tourists to move away from crowded destinations.

The other talukas remain unaffected by the growth in the tourism sector, in fact, in Quepem taluka, the two hotels and lodgings that were there in 1997, no longer exist, and Sattari taluka continues to register 0 establishments.

Table 6.12
Tourism in Goa

TALUKAS	1987				1997				2006			
	HL	DT	FT	TT	HL	DT	FT	TT	HL	DT	FT	TT
Tiswadi	99	273237	28925	302162	300	381478	31034	412512	270	555224	73046	628270
Bardez	60	119498	33146	152644	662	157388	71641	229029	1309	518999	121737	640736
Pernem	2	3925	339	4264	22	2133	340	2473	184	18539	5063	23602
Bicholim	1	2553	245	2798	2	5854	47	5901	10	15748	152	15900
Sattari	0	0	0	0	0	0	0	0	0	0	0	0
Ponda	12	29293	231	29524	17	36849	23	36872	20	99158	922	100080
Sanguem	1	3642	98	3740	1	5314	529	5843	1	9160	339	7892
Canacona	0	0	0	0	6	2410	402	2812	37	0	9160	24344
Quepem	2	3557	0	3557	2	0	0	0	0	113192	0	0
Salcete	52	142925	29994	172919	253	210234	137954	348188	346	524395	113192	637587
Murmugao	26	60169	8180	68349	45	127265	19703	146968	56	219980	18464	238444
TOTAL	**255**	**638799**	**101158**	**739959**	**1310**	**928925**	**261673**	**1190598**	**2233**	**2074395**	**342075**	**2316855**
						(45.41)*	**(158.7)***	**(60.90)***		**(112.6)****	**(30.7)****	**(94.5)****

HL:Hotels and Lodgings DT:Domestic Tourist Arrivals FT:Foreign Tourist Arrivals TT:Total Tourist Arrivals

* Percentage Increase over 1987; ** Percentage Increase over 1997

6.5.4.2 Tourist Arrivals in Goa

Goa, with its attractive seaside and gentle slopes of the Western ghats has provided a natural attraction for domestic tourists eversince liberation from colonial rulers enabled tourists to enter this territory. The domestic tourist arrival to the State of Goa can be seen in table 6.12.

In 1987, it is seen that the total number of domestic tourist arrivals were approximately 6.40 lakhs, which made up 86.32 per cent of the total tourists visiting the State. The distribution of domestic tourist arrivals can be seen to be highly unequal, with the largest number of tourists visiting the coastal talukas of Tiswadi, Salcete, Bardez and to a lesser extent Murmugao. The only interior taluka with significant number of domestic tourist arrivals is Ponda, which is known for attracting domestic tourists to the temples situated in it. In comparison, the four talukas of Pernem, Sanguem, Quepem and Bicholim do not have more than 4000 domestic tourists registered as visiting them and Sattari and Canacona show no domestic tourists at all. Sattari being an hinterland taluka, no efforts are evident to attract domestic tourists, Canacona inspite of being a coastal taluka is seen as not attracting domestic tourists because of difficulties of accessability and poor tourism infrastructure.

In 1997, the total number of domestic tourist arrivals increased by roughly 4 lakhs to approximately 9.30 lakhs. In percentage terms there was almost a 45.41 per cent increase in the number of domestic tourist arrivals over 1987. However, this increase was significantly evident in the coastal talukas of Tiswadi and Salcete, and to a lesser extent

in Bardez and Murmugao. There is a rise in the number of tourists to the temple taluka of Ponda as well. It is pertinent to note that Canacona, the coastal taluka at the extreme South of Goa shows 2410 tourist arrivals a against 0 in 1987, however, Quepem now shows 0 domestic arrivals as against 3,557 in 1987 along with Sattari which does not register any domestic tourist arrivals right from 1987. Another significant observation that can be made is that the total domestic tourist arrivals as a percentage of the total tourist arrivals to the State has fallen to 78.02 per cent (as against 86.32 per cent in 1987) even though there has been a rise in the number of domestic tourist arrivals.

In 2006, it is possible to observe a staggering rise in the number of domestic tourist arrivals with a 112.58 per cent increase over the arrivals in 1997 as the number is approximately 19.75 lakhs, (almost 10.5 lakhs more than in 1997). Again, this tremendous increase in the number of domestic tourists arriving in Goa is shared predominantly by Tiswadi, Salcete and Bardez. Bardez has picked up tremendously in attracting domestic tourists. Ponda has also approximately touched a lakhs of domestic tourists on account of pilgrimage opportunity that this taluka offers. It is also observed that Pernem and Canacona, the coastal towns on the extreme north and south of Goa are catching up with one another in attracting domestic tourists even though they are situated rather remotely and do not provide easy access to the tourists. It is also observed that the percentage share of the domestic tourist in the total number of tourists visiting Goa has risen from 78.2 per cent in 1997 to 85.23 per cent.

Goa is recognised the world over as a tourist paradise for the sun and sand that the pristine beaches of this small state provide. The fact that the more than 450 years of colonial rule by the Portuguese has given this state a characteristic western flavour holds an added attraction for the foreign tourists, so much so, the Goa is synonymous with India to the not so knowledgeable among the foreign tourists.

Though the proportion of the foreign tourists in the total tourist arrivals to the state has been rather small, yet it has contributed significantly to the growth of tourism as prominent category of the service sector in Goa. Table 6.12 also shows the rise in the number of foreign tourist arrivals from 1987 to 1997 to 2006.

In 1987, it can be seen that foreign tourists arrivals were approximately 1 lakh, with almost 92 thousand of them arriving only in the 3 coastal talukas of Bardez, Salcete and Tiswadi. While Murmugao registered roughly eight thousand foreign tourist arrivals, the four talukas of Pernem (339), Bicholim (245), Ponda (231) and Sanguem (98) registered only a thousand foreign tourist arrivals and the remaining three talukas of Sattari, Canacona and Quepem registered 0 foreign tourist arrivals. The distribution of the foreign tourist arrivals over the respective talukas displays a gross inequality. The distribution also indicates a preference for the coastal Bardez taluka amongst the foreign tourists as against the preference for the coastal taluka of Tiswadi amongs the domestic tourists. It is evident that it was the beaches alone and therefore the coastal talukas, which attracted the foreign tourists as Ponda the hinterland taluka, famous for its temples, which

did manage to attract almost 30 thousand domestic tourists in the same year, could only attract 231 (not even 1% of the domestic tourist arrivals) foreign tourist arrivals.

In 1997, the total number of foreign tourist arrivals went upto 2.61 lakhs registering a growth of 158.67% over 1987 again, the distribution of the foreign tourists were concentrated over only the 3 coastal talukas of Salcete, Bardez and Tiswadi. It is pertinent to note that Salcete taluka in South Goa attracted almost double the number of foreign tourists as Bardez taluka in North Goa, which was the preference in 1987. Tiswadi taluka could attract less than half the number of foreign tourists as did Bardez taluka.

Another pertinent development is the trickle of foreign tourist arrivals in the coastal talukas in the extreme north and south of the state, namely, Pernem and Canacona. Sattari and Quepem continue to register 0 foreign tourist arrivals. On the whole, the proportion of foreign tourist arrivals to the total number of tourist arrivals increased from 13.67 per cent in 1987 to 21.87 per cent in 1997 indicating a healthy increase in the foreign exchange earnings by the tourism sector. 2006 reflects an increase in the number of foreign tourist arrival, however, the increase is only 30.72 per cent over the number of arrivals in 1997.

The number of foreign tourist arrivals is yet again distributed mainly over the 3 coastal talukas of Bardez, Salcete and Tiswadi, however, in 2006, Bardez and Salcete have approximately equal number of tourist arrivals with only half that number in Tiswadi

taluka. Sattari and Quepem still do not register any foreign tourist arrivals, there is however a significant increase in the number of foreign tourist arrivals in the coastal talukas of Pernem and Canacona, revealing a trend among the tourists to move to less crowded coastal areas. It is pertinent to note that there is a marked decline in the proportion of foreign tourist arrivals to the total number of tourists to 14.76 per cent from 21.97 per cent in 1997, mainly on account of the rising cost of tourist facilities and services and greater competition from competing locales within the country, for example Kerela and outside, such as Sri Lanka, Thailand, Malaysia which in addition offer other attractions such as naturopathy, shopping festivals and adventure tourism.

Goa has been undoubtedly a favorite tourist destination with both domestic as well as foreign tourists and this is reflected in the phenomenal growth of total tourist arrivals in Goa as seen in table 6.12. However, it can also be seen that the concentration of these tourist arrivals is centered in the 3 coastal talukas of Tiswadi, Bardez and Salcete. The only other two talukas noticeably attracting tourist arrivals are the coastal taluka of Murmugao and the hinterland temple taluka of Ponda.

In 1987, approximately 7.40 lakhs tourists arrived in Goa. In 1997, a staggering 60.9 per cent increase in the total number of tourist arrivals took the figure upto approximately 11.9 lakhs which was infact, marginally higher than the total local population of the State which stood at about 11.69 Lakhs. Tiswadi, Salcete and Bardez continued to attract the maximum number of tourists, with Murmugao and Ponda talukas attracting a significant rise in the number of tourist arrivals registered in them. 2006 registered a phenomenal

increase in the total number of tourists to approximately 23.16 lakhs, amounting to a 94.59 per cent increase over 1997. It is pertinent to note that the tourist arrivals in the year far outnumber the local population which was approximately 14 lakhs people. The distribution of tourists arrivals is concentrated over the 3 coastal talukas of Bardez, Salcete and Tiswadi, however, it is significant to note that each of the three talukas are attracting more or less equal number of tourists.

The number of tourist arrivals registered in Murmugao and Ponda have also significantly increased, but what is very prominent to note is that the coastal talukas located in the extreme north and south of Goa namely Pernem and Canacona have also registered high number of tourist arrivals reflecting a growing preference amongst the tourists to move out to the less crowded beaches; nonetheless, it is the coastal talukas alone that are seen to attract tourists, as no other form of tourism other than beach tourism has been promoted in the State. It is significant to note that inspite of the tremendous growth in the number of tourist arrivals, the two hinterland talukas of Sattari and Quepem have failed to register any tourist arrivals.

6.5.5 Measurement of inequality

6.5.5.1 The Simple and Composite Index.

In order to analyse the taluka-wise development of Tourism in the service sector for the purpose of this study, 3 parameters are used for the construction of the index of development of Tourism. The simple index for each of these 3 parameters has been prepared and then converted into a combined Tourism Development Index for all the 11 regions (talukas) of Goa.

The indices are presented in table 6.13, which shows the Tourism Development Index for each of the 11 talukas for the years 1987, 1997 and 2006 and the corresponding ranks for the respective years. Categorisation of ranks into low, medium and high developed talukas is given in table 6.14 and the location of these talukas (with their names and ranks inset) is given in map 6.4 for the years 1987, 1997 and 2006

The inequality index for tourism is indeed an eye-opener with regard to the inequality in this sub-sector. Tourism driven service sector growth is disproportionately dependant on beach tourism as in indicated by the index number analyses. It is the coastal talukas of Tiswadi, Bardez and Salcete show extra-ordinary development over the entire period of study Murmugao, to a lesser extent does have development of tourist facilities but all the other talukas display shockingly low indices.

Table 6. 13 Inequality Index – Tourism

Taluka	1987		1997		2006	
	Index	Rank	Index	Rank	Index	Rank
Tiswadi	404	1	278	3	226	3
Bardez	275	2	348	1	442	1
Pernem	6	6	7	6	39	5
Bicholim	4	8	3	7	5	8
Sattari	0	9	0	9	0	10
Ponda	35	5	19	5	23	6
Sanguem	4	8	3	7	2	9
Canacona	0	9	3	7	19	7
Quepem	5	7	1	8	0	10
Salcete	266	3	347	2	276	2
Murmugao	102	4	90	4	70	4

Had Goa to be recognised as a tourist destination from the development of tourism facilities in the other seven talukas, it would certainly not enjoy the popularity that it does today. Some interesting insights can be gained from the index number analyses.

Table 6.14 Categorisation of talukas on basis of ranks

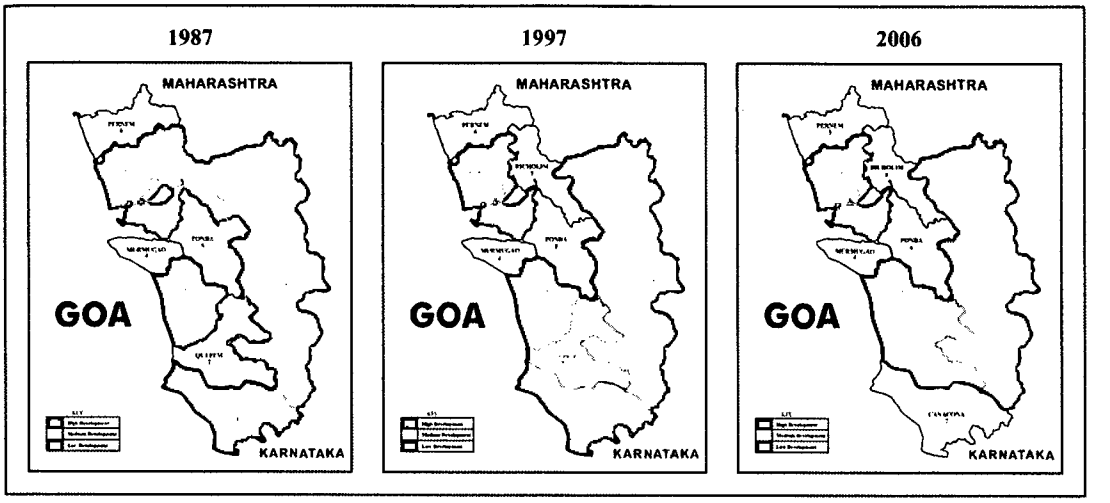
HIGH DEVELOPMENT			MEDIUM DEVELOPMENT			LOW DEVELOPMENT		
1987	**1997**	**2006**	**1987**	**1997**	**2006**	**1987**	**1997**	**2006**
Tiswadi	Bardez	Bardez	Murmugao	Murmugao	Murmugao	Bicholim	Canacona	Quepem
Bardez	Salcete	Salcete	Ponda	Ponda	Pernem	Sanguem	Quepem	Sattari
Salcete	Tiswadi	Tiswadi	Pernem	Pernem	Ponda	Sattari	Sattari	Sanguem
			Quepem	Bicholim	Canacona	Canacona	Sanguem	
				Sanguem	Bicholim			

In 1987, it is Tiswadi (404) that ranks highest among all the talukas closely followed by Bardez, Salcete and Murmugao. The other seven talukas do not have even double digit indices, in fact, Sattari and Canacona show up a 0 index.

In 1997, it is Bardez in North Goa and Salcete in South Goa that surge ahead of Tiswadi as a tourist destination. Murmugao is next, but nowhere close to the three coastal talukas. As in 1987, the other seven talukas are way below these talukas indicating extremely poor development of tourism.

In 2006, Bardez registers a stupendous rise in tourism development index. Salcete and Tiswadi follow, but not with as much development as seen in Bardez. It is pertinent to note that the coastal talukas in the extreme north and south of Goa, namely Pernem and

Map 6.4 Inequality Index – Tourism



Canacona begin to show a rise in indices, reflecting the increasing popularity of these talukas which were earlier neglected on account of being inaccessible and remote. In 2006, Canacona appeared in medium development category. For a tourist destination as popular as Goa, there are still two talukas out of the eleven, namely Sattari and Quepem, which have a zero index. The index number analysis establishes the beach-centric tourist development in Goa.

6.6 Inequalities in the composite development of the Service Sector

6.6.1 The simple and composite index.

A composite service development index is constructed for the four categories of the service activities in Goa taking into consideration 26 parameters for the years 1987, 1997 and 2005 (as taluka level data of banking is available only till 2005) to estimate the talukawise inequalities in the overall development of the service sector. The indices are presented in table 6.15. The table shows the Composite Service Sector Development Index for each of the 11 talukas for the years 1987, 1997 and 2005 and the corresponding

ranks for the respective years. Categorisation of ranks into low, medium and high developed talukas is given in table 6.16 and the location of these talukas (with their names and ranks inset) is given in map 6.5 for the years under consideration.

Table 6.15 Inequality Index – Composite Service Sector

Taluka	1987		1997		2005	
	Index	Rank	Index	Rank	Index	Rank
Tiswadi	**205**	**1**	**186**	**1**	**185**	**1**
Bardez	150	3	163	3	179	2
Pernem	36	6	30	8	35	7
Bicholim	36	6	37	6	38	6
Sattari	29	7	23	10	25	10
Ponda	65	5	64	5	63	5
Sanguem	36	6	31	7	31	8
Canacona	26	8	22	11	27	9
Quepem	29	7	29	9	38	6
Salcete	165	2	182	2	174	3
Murmugao	98	4	87	4	88	4

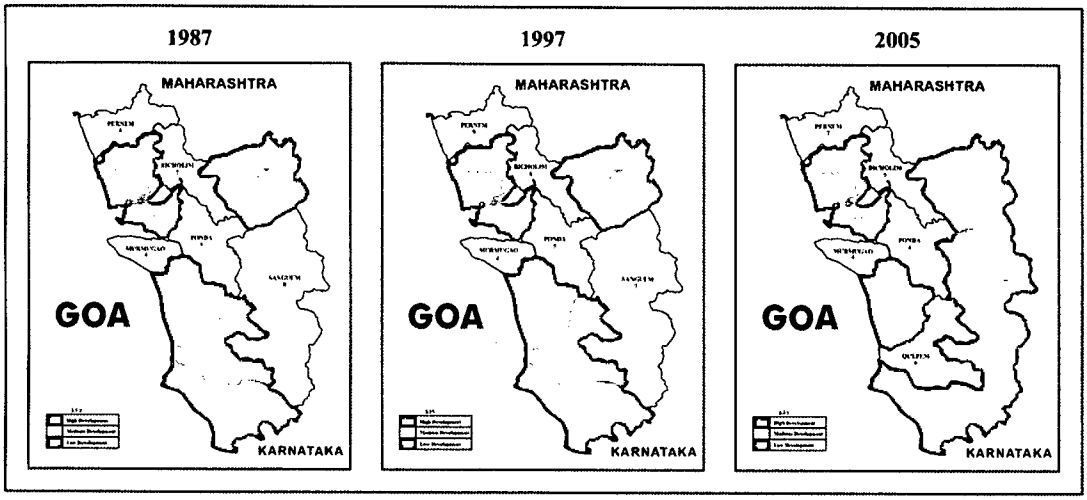
It is seen that it is Tiswadi, Bardez and Salcete which were in the high development category in 1987, closely followed by Murmugao and Ponda. However, the development of the service sector was extremely poor in the other six talukas, particularly, in Sattari and Canacona.

Table 6.16 Categorisation of talukas on basis of ranks

HIGH DEVELOPMENT			MEDIUM DEVELOPMENT			LOW DEVELOPMENT		
1987	**1997**	**2005**	**1987**	**1997**	**2005**	**1987**	**1997**	**2005**
Tiswadi	Tiswadi	Tiswadi	Murmugao	Murmugao	Murmugao	Quepem	Quepem	Sanguem
Salcete	Salcete	Bardez	Ponda	Ponda	Ponda	Sattari	Sattari	Canacona
Bardez	Bardez	Salcete	Pernem	Bicholim	Bicholim	Canacona	Canacona	Sattari
			Bicholim	Sanguem	Pernem			
			Sanguem	Pernem	Sanguem			

In 1997, Tiswadi, Salcete, and Bardez maintained their overwhelming supremacy in the development of this sector as a whole and the sub-sectors within it. The hinterland talukas in addition to the remote coastal talukas do not show any improvement as compared to the top three talukas.

Map 6.5 Inequality Index – Composite Service Sector



In 2005, Tiswadi maintains its no. 1 position amongst the talukas, although Bardez manages to surge ahead to second rank, displacing Salcete taluka. On the lower end of spectrum Sattari and Canacona, which fare very poorly in comparison to the top three talukas.

6.6.2 Rank Correlation Coefficient

The Rank Correlation Coefficient based on the ranks of composite service index is given in the table 6.17. The Rank Correlation Coefficient for the years 1987 and 1997, that is, 0.96 reveals that there is positive correlation between the ranks of various talukas. An extremely high rank correlation of 0.96 also reveals that the relative position of the

talukas in the composite service development has not changed. A comparison of the rank correlation coefficient of ranks between 1997 and 2005, shows a positive correlation of 1. Therefore, as compared to 1987-1997 period, during 1987-2006 period, the relative position of talukas, with respect to composite service sector development has not changed at all.

Table 6.17 Rank Correlation – Composite Service

YEARS	1987	1997	2005
1987	1	0.96	0.96
1997		1	1
2005			1

6.6.3 Coefficient of variation

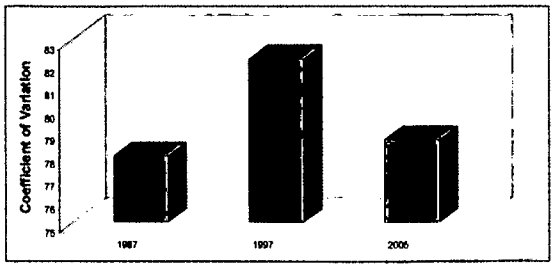
This analysis provides a spatial and temporal insight into the inequalities in the development of tourism in the service sector.

Spatial Analyses

The extent of inequalities in tourism from 1987 to 2006 is seen in the table 6.18 and Graph 6.1

Table 6.18 Coefficient of Variation – Spatial Graph 6.1

Year	$\bar{X}$	Sigma	Coeffcient of variation
1987	79.55	61.59	77.89
1997	77.64	63.77	82.14
2005	60.27	63.10	78.61



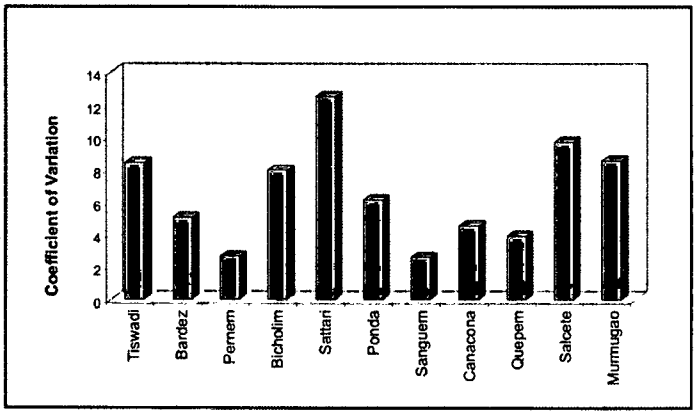
The analysis based on the coefficient of variation showed extremely high spatial variation over the period of study, which however did not adhere to any particular pattern.

Temporal Analysis

The temporal analysis of the period under study, for each of the 11 regions (talukas), in the State, is shown in table 6.19 and graph 6.2. The temporal analysis shows that the variation across the talukas has been extremely low with the exception of Sattari (12.52%) and Quepem (10.98 %).

Table 6.19 Coefficient of Variation – Temporal Graph 6.2

Taluka	$\bar{X}$	Sigma	Coefficient of variation
Tiswadi	133.11	125.57	8.42
Bardez	153.26	59.77	5.04
Pernem	50.95	1.84	2.66
Bicholim	66.89	28.30	7.95
Sattari	57.84	14.13	12.52
Ponda	137.63	71.39	6.14
Sanguem	64.21	2.80	2.60
Canacona	38.79	3.11	4.55
Quepem	53.58	4.35	3.89
Salcete	165.00	256.84	9.71
Murmugao	92.79	62.90	8.55



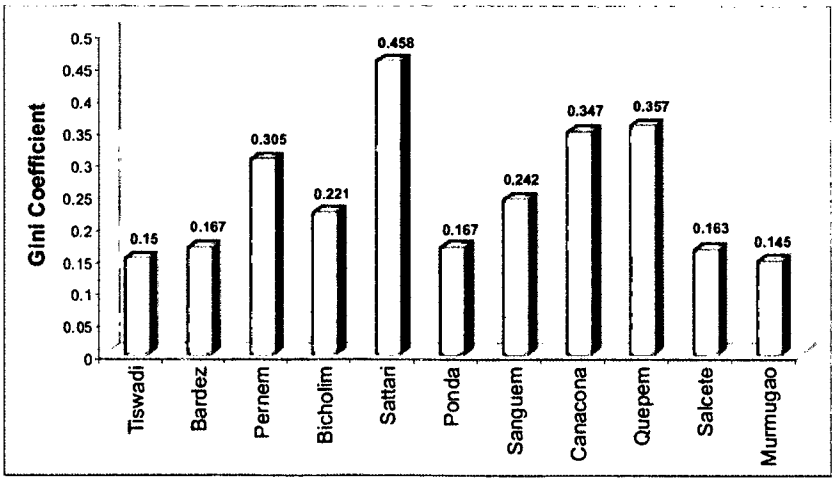
It is pertinent to note that talukas like Pernem (4.8 %) and Canacona (7.3 %) which have poorly developed service sub-sectors also display low variation, indicating that they are poorly developed, consistently, over the entire period of study.

Temporal analyses

Inequalities in the composite development of the service sector, between the talukas and within them, with reference to the population of each taluka, over the 20 year period can be seen in table 6.A2 (Annexure-I) and the graph 6.4.

The temporal Gini coefficient analyses of the service sector as a whole indicates comparatively higher inequalities in Sattari (0.458), Canacona (0.347), Quepem (0.357), and Pernem (0.305). Sanguem (0.242) and Bicholim (0.221) exhibit inequalities in the medium significance category, while the other six talukas recorded low significance Gini values, indicating lower inequalities, that is, Bardez (0.167), Tiswadi (0.150), Ponda (0.167), Salcete (0.163), and Murmugao (0.145).

Graph 6. 4 Gini Coefficient – Temporal



Thus, it is the highly 'tertiarized' coastal talukas that emerge as the most developed ones in the composite development of the service sector. It is the hinterland talukas that display an extremely low level of 'tertiarization' and therefore, development.

6.7 Inequalities in the Development of State of Goa

6.7.1 The Composite index.

A composite development index for Goa is constructed for the three sectors of Agriculture, Manufacturing and Services for the years 1987, 1997 and 2005 to estimate the talukawise inequalities in the overall development of the State. These indices are constructed giving due weights. The shares of primary, secondary and tertiary sector to State GDP have been taken as weights for the respective years. For the year 1987, 25 percent, 30 percent and 45 percent have been taken as the weights for the agriculture, manufacturing and service sectors respectively, and for the year 1997, it is 18 percent, 32 percent and 50 percent. In 2005, the weights given are 10 percent for agriculture, 35 percent for manufacturing and 55 percent for the service sector. The indices are presented in table 7.1 which shows the Composite Development Index for each of the 11 talukas for the years 1987, 1997 and 2005 and the corresponding ranks for the respective years. Categorisation of ranks into low, medium and high developed talukas is given in table 7.2 and the location of these talukas (with their names and ranks inset) is given in map 7.3 for the years under consideration

The development of Goa as a whole, considering the combined development in the Agriculture, Manufacturing and Service sectors, is analysed with the use of the index number.

In 1987, it is Salcete, Tiswadi and Bardez which lead the taluka rankings in the over all development of the State on the basis of the development of the Agriculture, Manufacturing and Service Sector in the State.

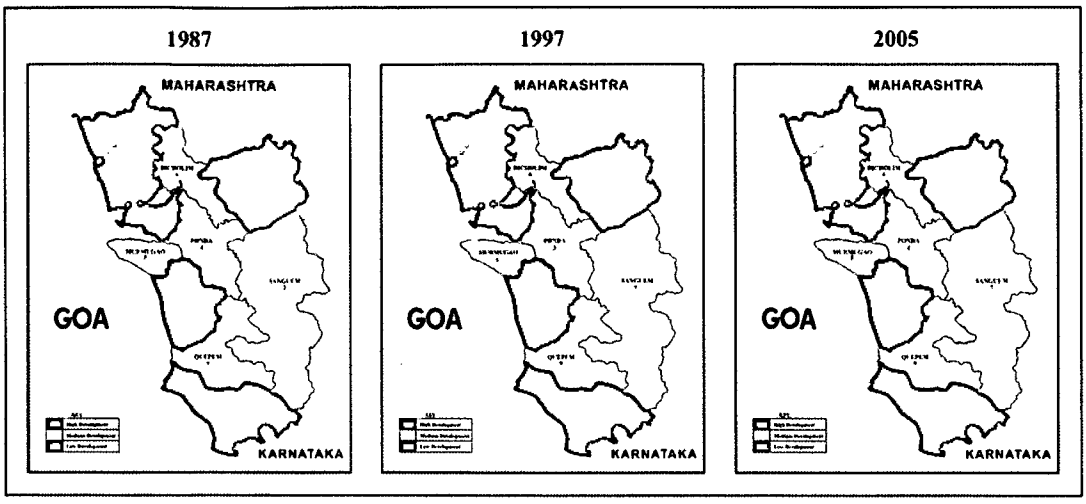
Table 6.20 Inequality Index - Composite Development for the State of Goa.

Taluka	1987		1997		2005	
	Index	Rank	Index	Rank	Index	Rank
Tiswadi	166	1	147	3	146	3
Bardez	154	3	158	2	167	2
Pernem	46	10	38	10	38	10
Bicholim	69	7	63	6	59	6
Sattari	64	9	43	9	39	9
Ponda	131	4	132	4	132	4
Sanguem	82	6	46	8	42	7
Canacona	39	11	28	11	29	11
Quepem	66	8	45	7	43	8
Salcete	**162**	**2**	**176**	**1**	**196**	**1**
Murmugao	117	5	99	5	101	5

Table 6.21 Categorisation of talukas on basis of ranks

HIGH DEVELOPMENT			MEDIUM DEVELOPMENT			LOW DEVELOPMENT		
1987	**1997**	**2005**	**1987**	**1997**	**2005**	**1987**	**1997**	**2005**
Tiswadi	Salcete	Salcete	Ponda	Ponda	Ponda	Sattari	Sattari	Sattari
Salcete	Bardez	Bardez	Murmugao	Murmugao	Murmugao	Pernem	Pernem	Pernem
Bardez	Tiswadi	Tiswadi	Sanguem	Bicholim	Bicholim	Canacona	Canacona	Canacona
			Bicholim	Quepem	Sanguem			
			Quepem	Sanguem	Quepem			

Map 6.6 Inequality Index – Composite Development



Over the 10 period, Tiswadi is pushed down to the third rank in the high development category and being replaced by Salcete on the strength of development in all the three sectors under consideration. The two remote coastal talukas of Pernem in North Goa and Canacona in South Goa feature prominently in the low development category in 1997.

It is interesting to note that Ponda, a midland taluka remained in the medium category though it has performed well with respect to the agriculture and manufacturing sectors mainly because of the fact that higher weights are assigned to the service sector in the computation of composite index. The categorization and ranks of talukas remains the same in 2005 except a small change in the positions of Sanguem and Quepem.

6.7.2 Rank Correlation Coefficient

The rank correlation coefficient given in table 6.22 reveals that the overall ranking of the talukas taking all sectors together has not changed much over the period of study. Between 1987 and 1997 there was only a marginal change in ranks as the coefficient was

rather high at 0.94. During the period 1997 to 2005, rankings remained almost the same as the rank correlation coefficient is as high as 0.99.

Table 6.22 The Rank Correlation Coefficient

Years	1987	1997	2005
1987	1	0.94	0.96
1997		1	0.99
2005			1

6.7.3 Coefficient of Variation

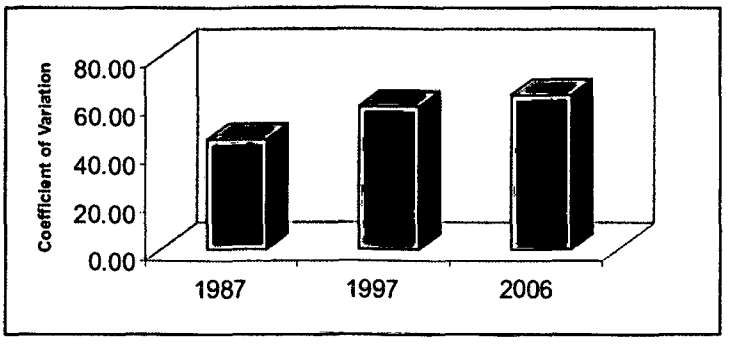
Spatial analysis

The spatial coefficient of variation is calculated at the three points of time in the period of study, that is, 1987, 1997 and 2005. The coefficient reveals a significant rise in inequalities in the composite development of the state.

Table 6.23 Composite Development: Coefficient of Variation - Spatial

Year	$\bar{X}$	σ	Coefficient of variation
1987	99.64	45.46	45.63
1997	88.64	52.69	59.45
2005	90.18	57.74	64.04

Graph 6.5 Composite Development: Coefficient of Variation - Spatial

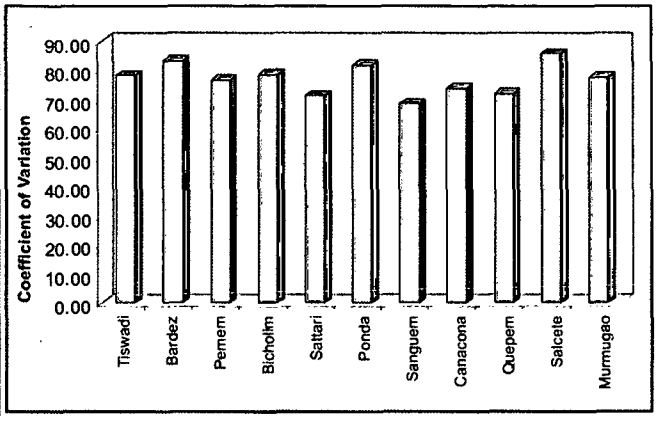


Temporal analysis

In the temporal analysis, the coefficient of variation, as indicated in table 6.24 and Graph 6.6 reveals a much higher degree of inequality in the composite development of the state as compared to any of the sectors taken on an individual basis.

Table 6.24 Coefficient of Variation – Temporal Graph 6.6

Taluka	$\bar{X}$	Sigma	Coefficient of variation
Tiswadi	153.00	119.85	78.34
Bardez	159.67	132.77	83.16
Pernem	40.67	31.18	76.67
Bicholim	63.67	49.93	78.42
Sattari	48.67	34.67	71.23
Ponda	131.67	107.78	81.86
Sanguem	56.67	38.82	68.51
Canacona	32.00	23.62	73.82
Quepem	51.33	36.92	71.92
Salcete	178.00	152.37	85.60
Murmugao	105.67	81.92	77.52

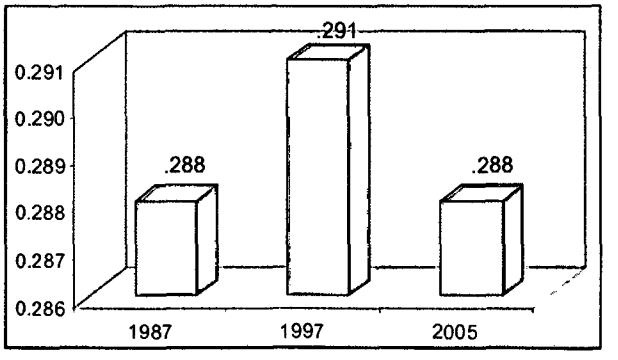


6.7.4 Gini Coefficient

Spatial analysis

The spatial Gini Coefficient analysis of the composite development of the state as seen in table 6.A3 (Annexure-I) and in the graph 6.7, reveals that the spatial inequalities at the three points of time that is 1987, 1997 and 2005 are within the medium range of significance. It is pertinent to note that over the years of the period of study, inequalities have remained more or less the same with only a marginal rise in 1997 which decreased in 2005.

Graph 6.7 Composite Development: Gini Coefficient - Spatial



6.8. Major findings.

Following are some of the major findings of the chapter.

Inequalities exist in all sub-sectors of the service sector namely, education, health, banking and tourism across the talukas, however, the inequality with respect to banking and tourism is more.

Composite service sector development index shows wide inequality between coastal talukas, namely, Bardez, Tiswadi, Salcete and the hinterland talukas. Coefficient of variation also reveals high extend of inequality among the talukas.

Weighted inequality index for the state of Goa shows more or less the same pattern followed by the service sector in general. It appears that tourism sector is a major factor causing inequalities among the talukas.

CHAPTER VII

MAJOR FINDINGS, CONCLUSIONS AND IMPLICATIONS

CHAPTER VII

MAJOR FINDINGS, CONCLUSIONS AND IMPLICATIONS

7.1 The Summary of Major Findings

This study of regional imbalances (taluka wise) in the sectoral development of Goa is an attempt to measure and analyse the extent of regional (taluka wise) inequalities in the development of the three sectors in the economy, namely, agriculture, manufacturing and the service sector, in Goa from 1987 (attainment of statehood) to 2006. The study takes into consideration important development indicators in each of the sectors under consideration to understand the source of inequalities and to examine the changes in the same spatially and temporally over the period of study. The study aims to verify the hypothesis that there are gross regional inequalities in the sectoral development of the State, while attempting to understand the reasons for the same. The study is conducted with the intention of making relevant recommendations to the government to overcome the problem of regional inequalities.

The basic research problem and the relevance of such a study are explained in the Chapter I along with the objectives, hypothesis, and scope of the study. The review of literature on regional imbalances across nations, within nations and within sub-regions (states)of a nation, with particular reference to India, is presented in Chapter II. The methodology adopted for the purpose of the study is explained in Chapter III.

Chapters IV and V analysed the inequalities in the Agriculture and Manufacturing sectors in Goa. The pertinent development indicators in each of the two sectors are examined and a development index is prepared to examine the extent of inequalities in each of the sectors across the regions (talukas) and within them, for the period 1987 to 2006. Simple statistical tools, such as the simple and composite index, the rank correlation coefficient, the coefficient of variation and the Gini coefficient are used for the measurement of these inequalities and to examine the changes in these imbalances, across the eleven talukas in the state.

Chapter VI examines the regional inequalities in the service sector by taking into consideration the four important service activities, that is, education, public health, banking and tourism and the imbalances in their development in each of the talukas. The regional inequalities in the overall development of the economy are then measured by combining the statistical findings for each of the sectors of agriculture, manufacturing and the service sector as a whole.

The analysis undertaken in Chapters IV, V and VI reveals several important aspects about the development of the three sectors, the imbalances in their development across the regions (talukas) of the state and the changes that have taken place in the development of these sectors in the talukas during the period of the study.

The major findings that result from the study are summarised as follows:

i. Inequality studies reveal that, regional disparities increased the world over prominently after the industrial revolution. Approximately 30 years after the II

World War, inequalities amongst the developed nations began to be bridged, but inequalities between the developed and the developing countries began to widen, and continue to do so; similarly, the disparities within the developing countries begin to diverge and drastically so. Globalisation and its implications could be widely responsible for the observed phenomena. In fact, free market economies appear to be the ones where the problem of disparities is the most severe. Socialist countries exhibiting lower within-nation disparities of incomes seem to suggest that socialism makes for lesser inequalities. An effective antidote to regional disparities therefore appears to be the evolution of the mind sets of the people towards welfarism.

ii. With the growing understanding of economic development in terms of human development there is a growing emphasis on the non-economic factors in identifying the causes of inequalities. This new understanding views inequality as a very serious problem as it severely restricts access to wider 'choices' or 'freedoms' for the people.

iii. Inter-state studies in India have belied the neo-classical theory that growth in some areas percolates down to other areas resulting in a "trickle-down effect" and have revealed that although some pockets of the country have developed, they have not resulted in development of the other areas within the country, because of which regional disparities are widening.

iv. The post-economic reforms era has seen a further widening of the disparities with the already 'strong' States becoming 'Stronger' and the 'poor' States worsening in their situations. Disparities are evident regionally as well, particularly across the rural / urban divide. Alarmingly, there appears to be no evidence of convergence across States / regions rather, strong evidence seems to be emerging showing up increasing divergences. Sectoral and regional disparities are established in intra-state inequalities. There exist widening inequalities in incomes and development indicators. Regional disparities are on account of natural differences in factor-endowments and man-made differences in infrastructure, both physical and social.

v. Regional (taluka level) inequalities in Goa can be attributed to historical causes. The colonial rule of the Portuguese and the policies followed by them resulted in the 'old conquests' (coinciding with the coastal talukas of Murmugao, Tiswadi, Bardez, and Salcete) of the colonial rulers gaining a headway in development of the regions (talukas), primarily as trade centres. The colonial rulers also contributed to the development of facilities of education, health and cultural activities in these regions. The hinterland regions which were situated in the extreme interior of the state, and were added to the Portuguese colony as 'new conquests' long after the 'old conquests', were late to enter into the development race; these regions were in fact, grossly neglected by the colonial rulers; as the people of these regions were predominantly Hindu and because they traditionally led revolts against the Portuguese invaders, the colonial rulers were not inclined to develop these regions.

vi. The agriculture sector, in Goa, is facing a serious problem of the exodus of rural population to urban areas in search of employment in white collar jobs. While the decadal censuses indicate continuous decline of work force in the agriculture sector, agriculture production in the State is showing an increasing trend, even as its contribution to GSDP has been sharply declining, standing presently at approximately 7 per cent.

vii. The measurement of inequality in the agriculture sector with the help of an inequality index has revealed that it is the hinterland talukas that performed relatively better in the development of agriculture in 1987 but with the increase in irrigational facilities, the coastal taluka of Bardez has been able to surge ahead into the high development category in this sector and the same trend continued in 2006.

viii. The rank correlation coefficient shows that for the period of study under consideration, the change in the relative position of the talukas with respect to the development of agriculture is more or less the same throughout the period. However, it has changed a bit between 1987 and 2006, and the change between 1987 to 1997 was considerably less and the least change has taken place between 1997 and 2006 as the rank correlation coefficient is very close to one.

ix. The analysis based on coefficient of variation has indicated that in the agricultural sector, the spatial variation, that is, the variation in the inequalities in the development of agriculture among talukas is much higher than the temporal variation, i.e, the variation in the development of agriculture within one taluka, over the years.

x. The Gini coefficient analysis of inequalities in the development of agriculture shows that spatially, inequalities among the talukas has been in the medium significance category, registering only a marginal increase at the three points of time under consideration, that is 1987, 1997 and 2006; temporally, inequality within each taluka over the entire period, has been of low significance.

xi. Despite several measures adopted by both, the government in the Centre and in the State, development of manufacturing activities flourished only in those talukas which were trade centres in the erstwhile colonial rule in Goa, with only the exception of Ponda, which is a midland taluka.

xii. For each of the variables considered, only four talukas emerged as the better developed, in the period of study. While it was Murmugao that dominated in the large scale industries, it was Tiswadi, Bardez and Salcete which performed better in the small and medium scale industries. Of the four talukas, the rise in manufacturing activities in Salcete was the most prominent.

xiii. The coastal talukas of Murmugao, Tiswadi, Salcete and Bardez were the ones where notable development of manufacturing activities was evident. It was the location advantage enjoyed by these talukas that resulted in the highest number of both, large and small scale industries being set up in these talukas. While Murmugao enjoyed the benefit of being a port town as well as having a railway junction, it was in Tiswadi, Bardez and Salcete that the Government set up industrial estates, which provided the basic infrastructural facilities, as an encouragement to entrepreneurs in addition to the various incentives offered by the central and state governments to promote industrialization and thereby development.

xiv. It is pertinent to note that though Murmugao was known for the large scale Industries set up there, this taluka was eased out of the high development category and pushed into the medium development category in 1997 and 2006. While Ponda taluka replaced Murmugao in the high developed category, Tiswadi, the taluka which is recognized as one of the prominently developed talukas was relegated to the fourth position. This minor shuffle in ranks is reflected in the rank correlation analysis which indicates negligible change in the relative position of the talukas.

xv. Ponda taluka, unlike the above coastal talukas, displayed a meteoric rise in industrial activities after statehood, primarily on account of the setting up of three

important industrial estates in the taluka at Kundaim, Bethora and Madkaim. This also attracted skilled and unskilled industrial workers to this taluka thus providing further impetus to the growth of manufacturing activities in Ponda. The talukas that emerged consistently as the least developed in manufacturing activities are the hinterland talukas of Sanguem and Quepem along with the coastal talukas in the extreme north and south of the state, namely, Canacona and Pernem.

xvi. The spatial coefficient of variation in the manufacturing sector reveals greater inequalities in this sector than in the agricultural sector. As between the three points of time under consideration, the variation has increased from 1987 to 1997 and further still in 2006 which can be explained by the increasing manufacturing activities in the state which are not evenly spread over the length and breadth of the state. In the temporal analysis, the high inequalities are quite evident. Pernem shows up as the taluka with the lowest inequalities, though the region is devoid of manufacturing activities worth the mention; the low variation can be explained by the fact that Pernem taluka is uniformly underdeveloped and therefore variation in inequality is not evident.

xvii. With the introduction of population of the respective talukas in the Gini analysis, spatially, there appears a reduction in inequality from 1987 to 1997, however with the extraordinary development of manufacturing activities in some of the talukas, inequalities appeared to have increased with Gini values rising ; however this Gini value is placed in the low significance range of inequalities and thus does not

appear to be a cause for concern. The reason for low Gini values appear to be the migration of people towards industrially developed areas.

xviii. Imbalances in the service sector are most evident in the tourism sector amongst the four sub-sectors considered for the purpose of this study. It may be the inequality in the tourism sector that is largely responsible for the wide taluka wise inequalities that are observed. Educational facilities and the access to education exhibit the lowest levels of taluka wise inequalities. Banking activities are also seen to be concentrated in the four coastal talukas of Tiswadi, Bardez, Salcete and Murmugao. These talukas are therefore, also the ones to develop commercially.

xix. In the index analysis of the inequalities in the service sector, it is amply evident that it is the three coastal talukas of Tiswadi, Bardez and Salcete which have emerged as the hubs for the service sector development, while Sanguem, Canacona and Sattari talukas lag way beyond. Except for Quepem moving into the medium development category and Sanguem taking its place the relative position of the talukas remains the same during the entire period of study, as is also indicated by the rank correlation coefficient.

xx. The spatial variation in the service sector is as high as that in the manufacturing sector, though in 2006 there was a slight decrease in the coefficient indicating a reduction in inequalities in the sector amongst various talukas. Temporally,

Quepem reflects the highest extent of variation in inequalities while Salcete reflects the lowest variation in the years under consideration.

xxi. The Gini coefficient analysis reveals the moderately high Gini values, as categorized for the purpose of this study. The temporal Gini coefficient analysis reveals that it is Sattari and Quepem which reflect rather high levels of inequality as do the talukas of Pernem and Canacona which are located to the extreme north and extreme south of the state.

xxii. In the ultimate analysis, while considering the overall development of the economy, across the three sectors, that is, Agriculture, Manufacturing and the service sectors, it can be observed that regional inequalities in Goa are mainly driven by the service sector and in particular by the tourism sub-sector.

xxiii. From the index analysis it is evident that certain talukas like Ponda though performed better in agriculture and manufacturing sector could not make it to the overall high development category. It is interesting to note that the relative position of the talukas in the development rankings, as revealed by the rank correlation coefficient, remained almost the same over the entire period of study.

xxiv. The absence of a deliberate policy, on part of the successive governments, soon after liberation as well as after statehood, to correct the imbalances in the development of each of the talukas has resulted in these inequalities persisting in

spite of more than forty five years of planning for the region. . It is also seen that the nature and the pattern of inequality has not changed over the years.

xxv. Inequality in the sectoral development within each of these regions is also evident. It is seen that inequalities vary widely among the agriculture, manufacturing and the service sectors in Goa. The extent of inequalities in the service sector is extremely high and service driven economic growth has emerged as a major cause for taluka wise inequalities.

7.2 Conclusions

In the light of above findings, the present study makes the following conclusions

i. The study, therefore, establishes firmly that regional disparity exists among the various talukas in Goa in all sectors of the economy. It is the two coastal talukas of Bardez in North Goa and Salcete in South Goa which are way ahead of the other talukas in the State in the development of all three sectors in the State. Tiswadi, the coastal taluka in North Goa is also in the high development category by virtue of being the hub of administrative and tourism activities. The remaining seven talukas are grossly underdeveloped in comparison to the three talukas mentioned above, except in the development of agriculture. The only hinterland taluka that may be able to come into the high development category in future is Ponda, which is strategically located in the centre of the State

ii. Inequality between the talukas is evident in the development of each of the three sectors within them. The extent of inequality among talukas differs widely in agriculture, manufacturing and service sector of Goa's economy. While the agricultural sector is more developed in the hinterland talukas, it is the manufacturing and service sectors which are more prominently developed in the coastal talukas of the state, with the exception of Pernem in the extreme north of the state and Canacona in the extreme south of the state. The extent of inequality in agricultural sector is relatively less.

iii. Inequality exists both spatially and temporarily. The spatial inequality is more severe as compared to temporal inequality. The spatial and temporal inequality also differs from sector to sector. Spatial inequality is more felt in the manufacturing and service sectors. Temporal inequality is fairly less in all sectors of the economy. The nature of temporal inequality varies from taluka to taluka for different sectors. Therefore, there is no clear pattern in the case of temporal inequality.

iv. It is pertinent to note that the extent of inequality in the service sector is high and that the tourism driven growth in the service sector is the major cause for inequality in this sector. It is established firmly from this study that it is beach tourism that is dominating the tourism sector and thus, it is the coastal regions, (with the exception of the coastal talukas of Pernem in the extreme north of the state and Canacona in the extreme south, which are less accessible) which

have surged ahead dramatically in the development of tourism related infrastructure and in the influx of both domestic as well as foreign tourists into the state.

v. The study examines the inequality in all sectors of the economy over the period of study and arrives at the conclusion that there is no denying the existence of gross inequalities in the taluka wise development of each of the sectors over the period of study, both spatially and temporally.

7.3 Implications of the Study

The study has far reaching implications in the context of ensuring a balanced regional development of the State as a whole. As regional imbalances are economically undesirable, the study provides an important insight into the extent of inequalities and the areas in which such inequalities exist.

The policy makers would be able to make use of the findings of this study to focus their attention on the measures that need to be taken in order to ensure a more balanced regional development of the sectors under consideration.

It is observed that the declining interest towards agriculture is mainly due to the structural shifts in all economies, yet the challenge lies in developing a sustainable village economy through agricultural activities by encouraging the more commercially viable horticulture, floriculture and cash crop plantation. Allied agricultural activities can also serve to retain

the work force in the rural areas. It is necessary for policy makers to focus on this as it is evidently easier to bridge the regional (taluka wise) imbalances in the agriculture sector. Thus, the focus would have to be on shifting from cultivation of conventional crops to the sunshine areas of the agriculture sector, such as horticulture, floriculture, dairy farming etc. so that agriculture becomes an attractive option for the unemployed in Goa.

The Manufacturing sector would have to be promoted in the relatively less developed talukas by providing the necessary infrastructural facilities, mainly industrial estates. It speaks volumes about the lack of a deliberate policy to ensure balanced development when the largest taluka (area-wise) in the State, Sanguem, does not have even a single industrial estate. Government should also try to bring in private investment in less developed talukas giving incentives to the industries.

The Service Sector in Goa is predominantly driven by tourism. The findings of this study clearly indicate the over emphasis on beach tourism which is slowly losing its attraction and is also facing stiff competition from other beach tourism destinations, not only in India, but from around the world. It is imperative therefore, for policy makers to look in the direction of diversification of tourist attractions. There appears to be good potential for eco-tourism, adventure-tourism, education-tourism and medical-tourism. It is imperative that a conscious effort be made to develop the service sector in the talukas in the low development category to ensure a more balanced development among the talukas. The IT sector presents itself as an environment friendly service activity which can be promoted to ensure sustainable growth led by the service sector.

However, development of each of these requires meticulous planning, provision of world-class infrastructure and most important a continuity and consistency in policies. The study therefore provides invaluable guidance to policy makers to ensure the sustainable growth and balanced development of the region as a whole.

What emerges as an undisputable fact is that regional disparities need to be addressed, failing which, gross inequalities could lead to serious economic, social and even political ramifications. It is important to remember that there can not be any common prescription for balanced growth for all the regions which are lagging behind. State must have a development blue-print for every region within itself.

There is need for a pro-active public policy to correct disparities through affirmative measures which would result in spreading infrastructure through effective regional policies which are formulated bottom upward rather than imposed from above.

Development policies in the state therefore, need to be reoriented with greater emphasis on the social sector in order to address the problem of regional disparities.

7.5 Limitations and Future Research

Since it is a state level study, it depended on the secondary data collected mainly from official sources. The findings of the study depend on the authenticity of data used. Secondly, the study gives only a broad view of the inequality existing in the various

sectors of the economy. The inequality that actually exists at the household level is not studied.

Study provides ample scope for future research. Taluka level inequality studies can be undertaken in other states of the country on similar lines. There is scope for further detailed sector, sub-sector specific research using primary data. Taluka level studies over a period of time can be undertaken using pooled time series and cross section taluka level data.

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Annexure - I

Composite Service Sector

Table 6.A1 Gini Coefficient – Spatial

Sub-Sector / Year	1987	1997	2005
Education	0.148	0.124	0.131
Public Health	0.191	0.216	0.209
Banking	0.174	0.181	0.169
Tourism	0.339	0.412	0.343
Average Gini	**0.210**	**0.230**	**0.210**

Table 6.A2 Gini Coefficient – Temporal

Taluka	TIS	BAR	PER	BIC	SAT	PON	SAN	CAN	QUE	SAL	MUR
Education	0.047	0.063	0.12	0.079	0.216	0.07	0.224	0.104	0.07	0.046	0.047
Public Health	0.201	0.173	0.4	0.352	0.411	0.192	0.446	0.436	0.416	0.196	0.197
Banking	0.252	0.199	0.223	0.2	0.205	0.233	0.198	0.235	0.243	0.229	0.209
Tourism	0.099	0.233	0.477	0.252	1	0.173	0.098	0.613	0.698	0.181	0.127
Average Composite Service Gini	**0.15**	**0.167**	**0.305**	**0.221**	**0.458**	**0.167**	**0.242**	**0.347**	**0.357**	**0.163**	**0.145**

Table 6.A3 Gini Coefficient – Spatial

Sector / Year	1987	1997	2005
Agriculture	0.276	0.277	0.29
Manufacturing	0.076	0.074	0.085
Service Sector	0.213	0.233	0.213
Average Gini	**0.188**	**0.195**	**0.196**

ANNEXURE II

List of Development Indicators for the Talukas of Goa.

Sl. No.	Category	No.	Development Indicators	Total No. of Indicators
1.	**Agriculture**			**13**
		1.	Total reporting area (Ha)	
		2.	Net area sown (Ha)	
		3.	Area sown more than once (Ha)	
		4.	Gross cropped area (Ha)	
		5.	Area under paddy (Ha)	
		6.	Area under other cereals millets/pulses & oil seeds (Ha)	
		7.	Area under sugarcane (Ha)	
		8.	Area under coconuts(Ha)	
		9.	Area under arecanuts(Ha)	
		10.	Area under cashewnuts(Ha)	
		11.	Area under vegetables(Ha)	
		12.	Area under garden crops (Ha)	
		13.	a)Average yield of rice per hectare(in kgs.) i)kharif ii)rabi b)Average yield of ragi per hectare(in kgs.) i)kharif	
2.	**Manufacturing Industry**			**8**
		1.	No. of factories registered under the Factories Act,1948	
		2.	No. of factories in operation registered under the Factories Act,1948	
		3.	Estimated average number of daily workers employed in registered factories	
		4.	No. of small scale industries registered with the industries department	
		5.	Estimated average number of daily workers employed in the small scale industries	
		6.	Number of large and medium scale industries	
		7.	Employment in large and medium scale industries	
		8.	Number of sheds in industrial estates (GDDIDC)	

3.	**Service Sector**			**27**
i.	Education			13
		1	Total literacy (per cent)	
		2	Male literacy(per cent)	
		3	Female literacy (per cent)	
		4	Number of primary level schools	
		5	Number of middle level schools	
		6	Number of secondary level schools	
		7	Number of higher secondary level schools	
		8	Number of colleges/university for general education (arts, science and commerce)	
		9	Number of students at primary stage (I to IV)	
		10	Number of students at middle stage (V to VII)	
		11	Number of students at secondary stage (VIII to X)	
		12	Number of students at higher secondary stage (XI & XII)	
		13	Number of students in colleges /university for general education	
ii.	Public Health			6
		1	Number of specialised and general hospitals	
		2	Number of community /primary health centres (including attached hospitals)	
		3	Number of beds in government hospitals	
		4	Number of private hospitals	
		5	Number of beds in private hospitals	
		6	Number of urban health centres (under DHS)	
iii.	Banking			5
		1	Number of Banking Offices	
		2	Bank Deposits (Rs. in Crores)	
		3	Per Capita Deposits (in Rs.)	
		4	Bank Credit (Rs. in Crores)	
		5	Per Capita Credit (in Rs.)	
iv.	Tourism			3
		1	Number of hotels and lodging houses including paying guest houses	
		2	Number of Domestic Tourist Arrival	
		3	Number of foreign Tourist Arrival.	
Total				**48**