Chapter I

Introduction
CHAPTER I

INTRODUCTION

Acquired Immune Deficiency Syndrome (AIDS) is a matter of high concern to India which stands affected since two decades with a higher rate of incidence. World-wide, about 36.2 million people are now HIV positive, and of those a majority of them live in developing countries. Activists in industrialized countries have succeeded in raising the profile of the epidemic when it was first recognized, but this has not been so in the developing world where most people with HIV live. It is only now, two decades after the virus first began to spread that the repercussions of AIDS are becoming visible. HIV/AIDS is not an exclusive medical problem. It has been recognized as a developmental issue because it affects all sections of society with implications that reach far beyond the health sector into the economy, politics, culture, society and religion.

Nations of the world have been draining a lot of money on the eradication of AIDS, thereby causing bad health to their economy. India figuring among the developing nations is no exception to this. The expenditure in India on the various awareness programmes and AIDS related medical research has been big. Research in a specific subject field results in literature output which is latent with a number of bibliometric indicators.

Bibliometrics is a branch of Library and Information Science. Bibliometric analysis counts up on bibliographic information on literature
output. The periodical article is one of the attributes to research and development in various disciplines. Without any exemption the information scene in every discipline has been suffering from a major barrier known as "information explosion", which is taken to be a synonym to knowledge explosion.

1.1 Knowledge Explosion

The development of new knowledge has in the last few decades far outstripped the rate of development than all of the preceding centuries. This trend is marked by the term 'Knowledge Explosion' otherwise known as 'Information Explosion'. This has its impact on the information storage and retrieval system in the process of scientific communication. The situation is immeasurably complicated by the fact that the book is no longer the primary medium of scientific communication. The conventional form of document has been gradually replaced mostly by scientific journals.

1.2 The Scientific Journal

In the beginning was the word, says the Bible. The printed word is the basic unit for Education and communication. The conventional Book is an evidence of human cultural history of social knowledge. The printed word and paper have been associated with human history for a longer period than any other concept. The development of printing technology could reduce the time-lag between writing and publishing only to some extent and an alternative to the book was felt as a must by the scientific
community. Necessity is the mother of invention' is an old adage. An appropriate solution was found and that was the Journal.

The scientific journal made its maiden appearance during the early 17th century in Great Britain and France simultaneously. The dawn of the modern journal started with publishing of the 'Philosophical Transactions of the Royal Society, London' and 'Journal de Scavans' from France contemporarily during the year 1605. Since then periodicals multiplied in quantum of publications with research articles as their fundamental unit of information.

The refereeing procedure and bibliography of citations appended to each research article at its end have come to stand as the in-built mechanism as well as quality measuring technique of research output. It took centuries for concretising an idea that the scientific output can be analysed for meaningful results. Feedback from the concerned scientific community to any research output provided an evaluative process leading to the establishment of truths in every field. Library and Information Scientists came to the scene studying the quantum and quality of literature output based on the bibliographic apparatus. Establishment of standards for the compilation of a bibliography paved the way. Each component field included in a record of the compiled bibliography when counted and analysed provided fruitful inferences.

It was Bradford who shaped the analytical study into a subject though a few precursors had done some work including the famous Science Historian J.D.Bernal. There had been continuous analysis of the
contributions of scientific literature output and their use in the regeneration process. Milestones had been created by Bradford, Zipf and Lotka and Bibliometrics originated.

According to S.R. Ranganathan, literary warrant is one of the main attributes for the birth of a new discipline. Unaware of this fact, they were working towards the formation of a new branch in library and information science called Bibliometrics.

Bibliometrics covered under the umbrella region library and information science, is one of the component fields of study forming part of the agglomeration 'Social Sciences'. When compared to various other disciplines, Library and Information Science is one which has been christened and baptized as a subject of study in recent decades though it has got a history of its own equal to that of the Human cultural history.

1.3 Literary Warrant and Disciplines

Communication is culture. Library is one of the forms of mass media communication and as such is considered to be a vital component of culture. Library and information science is one of the very few subjects such as Education, Philosophy, Epistemology and Cybernetics that deals with the universe of knowledge as the core subject of study. It is acclaimed to be a science of sciences. Today, literature output involved in the communication of science has been at wuthering heights.

"The sum total of information in a field of study is known as its literature." The literature in every branch of science is growing rapidly and
now accounts for several millions publications in each field. Proliferation of literature from each and every country, in every subject and in various languages leading to problems of information organisation and retrieval is marked by the term 'information explosion' posing challenges to the measures of bibliographic control. The situation is reflected in the enormity of surrogates covered in the published secondary sources such as abstracts, indexes and reviews in various subjects and those secondary sources include various kinds of bibliographies.

1.4 Scope of the Subject

The Human Immune Deficiency Virus (HIV) which causes AIDS has brought about a global epidemic far more extensive than what was predicted a few decades ago. UNAIDS and World Health Organisation (WHO) estimated that the number of people living with HIV or AIDS at the end of the year 2000 stands at 36.1 million. This is more than 50 per cent higher than what WHO Global Programme on AIDS projected in 1991 on the basis of the data then available.

Table 1. Number of People Living with HIV

<table>
<thead>
<tr>
<th>SL.No</th>
<th>Category</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Women</td>
<td>16.4 Million</td>
</tr>
<tr>
<td>2.</td>
<td>Men</td>
<td>18.4 Million</td>
</tr>
<tr>
<td>3.</td>
<td>Children &lt; 15 years</td>
<td>1.4 Million</td>
</tr>
<tr>
<td>4.</td>
<td>Total</td>
<td>36.2 million</td>
</tr>
</tbody>
</table>

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The challenges thrown up by HIV vary enormously from place to place, depending on how far and fast the virus is spreading and on whether those infected have started to fall ill or die in large numbers:

In all parts of the world except sub-Saharan Africa, there are more men infected with HIV and dying of AIDS than women. Male behaviour often influenced by harmful cultural beliefs about masculinity – makes them the prime casualties of the epidemic.

Altogether, an estimated 2.5 million men aged 15 became infected during 2000, bringing the number of adult males living with HIV or AIDS at the year-end to 18.0 million. Male behaviour also contributes to HIV infections in women, who often have less power to determine where, when and how sex may take place. Men make a difference - the theme of the year 2000 'World AIDS Campaign"- acknowledged these factors and recognized men's enormous potential to make a difference when it comes to curbing HIV (transmission, caring for infected family members and looking after orphans and other survivors of the epidemic. During the year 2000, more new HIV infections have been registered in the Russian Federation than in all previous years of the epidemic combined. Taking into account the continuing expansion of the epidemic in Ukraine as well, a conservative estimate puts the number of adults (adults, as defined here, are those between 15 and 49 years old) and children living with HIV or AIDS in Eastern Europe and Central Asia at 7,00,000 by the end of 2000, compared with 4,20,000 just a year ago. Unsafe drug injecting practice has been still the main driving factor.
For the first time, there are signs that HIV incidence - the annual number of new infections - may have stabilized in sub-Saharan Africa. New infections in 2000 totalled an estimated 3.8 million, as opposed to a total of 4.0 million in 1999. However, if HIV infections start to explode in countries that have had relatively low rates up to now, such as Nigeria, it is anticipated that regional incidence could start rising again.

Africa's slight fall in new infections is probably a result of two factors. On the one hand, the epidemic in many countries has gone on for so long that it has already affected many people in the sexually active population, leaving a smaller pool of people still above to acquire the infection. At the same time, successful prevention programmes in a handful of African countries, notably Uganda, have reduced national infection rates and contributed to the regional downturn.

Even as they face a daunting prevention challenge, African countries are buckling under the impact of large-scale disease and death. In South Africa, the epidemic is projected to reduce the economic growth rate by 0.3 - 0.4 per cent annually, resulting by the year 2010 in a Gross Domestic Product (GDP) 17 per cent lower than it would have been without AIDS and wiping US$ 22 billion off the country's economy. Even in diamond-rich Botswana, the country with the highest per capita GDP in Africa, in the next 10 years AIDS will slice 20 per cent off the government budget, erode development gains, and bring about 13 per cent reduction in the income of poorest households.
Scaling up the response to Africa epidemic is imperative and affordable. Setting ambitious but achievable targets for coverage, countries would need at least US$ 1.5 billion a year for prevention measures to reduce the HIV risk to their population, including infants, young people, workers, and recipients of blood transfusions. For people with HIV and their families, the bill for palliative care for pain and discomfort, the treatment and prevention of opportunistic infections, and care for orphans would come to at least US$ 1.5 billion annually. Adding anti-retroviral therapy would cost several billion dollars more a year.

1.4.1 HIV & AIDS Around the World

The overwhelming majority of people with HIV, some 95 per cent of the global total live in the developing world. The proportion is set to grow even further as infection rates continue to rise in countries where poverty, poor health care systems and limited resources for prevention and care fuel the spread of the virus.
Table 2. AIDS: Adult Prevalence Rate in the Developing World 2001

<table>
<thead>
<tr>
<th>Serial No</th>
<th>Region</th>
<th>Adult Prevalence Rate (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Sub-Saharan Africa</td>
<td>8.8%</td>
</tr>
<tr>
<td>2</td>
<td>North Africa &amp; Middle East</td>
<td>0.2%</td>
</tr>
<tr>
<td>3</td>
<td>South &amp; South East Asia</td>
<td>0.56%</td>
</tr>
<tr>
<td>4</td>
<td>East Asia &amp; Pacific</td>
<td>0.07%</td>
</tr>
<tr>
<td>5</td>
<td>Latin America</td>
<td>0.5%</td>
</tr>
<tr>
<td>6</td>
<td>Caribbean</td>
<td>2.3%</td>
</tr>
<tr>
<td>7</td>
<td>East Europe &amp; Central Asia</td>
<td>0.35%</td>
</tr>
<tr>
<td>8</td>
<td>Western Europe</td>
<td>0.24%</td>
</tr>
<tr>
<td>9</td>
<td>North America</td>
<td>0.6%</td>
</tr>
<tr>
<td>10</td>
<td>Australia &amp; New Zealand</td>
<td>0.13%</td>
</tr>
</tbody>
</table>

1.4.1.1 Sub-Saharan Africa

In Africa, south of the Sahara desert, an estimated 3.8 million adults and children became infected with HIV during the year 2000. This brought up the total number of people who were living with HIV/AIDS in the region to 25.3 by the end of the year. The number of people who became infected during the year was slightly less than the 1999 total of 4.0 million. However the decreasing trend in infections will not continue if countries such as Nigeria begin experiencing a rapid expansion.

For the moment, overall HIV prevalence, the regional total of people living with HIV or AIDS continues to rise because there are still more newly
infected individuals joining it every year than there are people leaving it through death. However, as people infected years ago succumb to HIV related illnesses (average survival in absence of anti retroviral therapy is estimated at around 8-10 years), mortality from AIDS is increasing.

AIDS deaths 2000 totalled 2.4 million, as compared with 2.2 in 1999. In the coming years, unless there is far broader access to life prolonging therapy, and providing that new infections do not start rising again, the number of surviving HIV positive Africans can be expected to stabilize and finally shrink, as AIDS increasingly claims the lives of those infected long time ago.

It is estimated that between 12 and 13 African women are currently infected for every 10 African men. There are number of reasons why female prevalence is higher than male in this region, including the greater efficiency of male -to female HIV transmission through sex and the younger age at initial infection for women.

1.4.1.2 North Africa and the Middle East

Few new country estimates of HIV infection were produced for this region between 1994 and 1999. Recent evidence, however, suggests that new few infections are on the rise. With an estimated 80,000 new infections in the region during 2000 the number of adults and children living with HIV/AIDS had reached 400,000 by the end of the year 2000.
Table 3. AIDS Prevalence - North Africa and Middle East

<table>
<thead>
<tr>
<th>SI.No</th>
<th>Region</th>
<th>Epidemic Started</th>
<th>People living with HIV/AIDS</th>
<th>People newly infected with HIV 2000</th>
<th>% of HIV - positive adults who are women</th>
<th>Main modes of transmission(#) for adults living with HIV/AIDS</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>North Africa &amp; the Middle East</td>
<td>Late 80's</td>
<td>400,000</td>
<td>80,000</td>
<td>40%</td>
<td>IOU. Hetero</td>
</tr>
</tbody>
</table>
1.4.1.3 Latin America and the Caribbean

In Latin America an estimated 150,000 and children became infected during 2000. By the end of the year some 1.4 million adults and children in the region were estimated to be living with HIV or AIDS, as compared with 1.3 million at the end of 1999.

In places where HIV is transmitted through sex between men and women, a far larger population is immediately at risk. This is the transmission pattern in the Caribbean, where HIV rates are the highest in the world outside Africa.
Table 4. AIDS Prevalence - Latin America and the Caribbean

<table>
<thead>
<tr>
<th>SI.No</th>
<th>Region</th>
<th>Epidemic Started</th>
<th>People living with HIV/AIDS</th>
<th>People newly infected with HIV 2000</th>
<th>% of HIV - positive adults who are women</th>
<th>Main modes of transmission (#) for adults living with HIV/AIDS</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Latin America</td>
<td>Late '70's early '80's</td>
<td>1.4 Million</td>
<td>150,000</td>
<td>25%</td>
<td>MSM, IOU, Hetero</td>
</tr>
<tr>
<td>2</td>
<td>Caribbean</td>
<td>Late '70's Early '80's</td>
<td>390,000</td>
<td>60,000</td>
<td>35%</td>
<td>Hetero, MSM</td>
</tr>
</tbody>
</table>
1.4.1.4 Eastern Europe and Central Asia

The estimated number of adults and children living with HIV or AIDS in Eastern Europe and the countries of the former Soviet Union was at 420,000 at the end of 1999. Just one year later, a conservative estimate puts the figure at 700,000. Most of the quarter million adults who became infected in 2000 were men, the majority of them injecting drug users. During the year new epidemics in drug injectors emerged in Uzbekistan and in Estonia, a country which reported far more HIV cases in 2000 than in any previous year.
Table 5. AIDS in Eastern Europe and Central Asia: A General Look

<table>
<thead>
<tr>
<th>SI. No</th>
<th>Region</th>
<th>Epidemic Started</th>
<th>People living with HIV/AIDS</th>
<th>People newly infected with HIV 2000</th>
<th>% of HIV - positive adults who are women</th>
<th>Main modes of transmission (for adults living with HIV/AIDS)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Eastern Europe and Central Asia</td>
<td>Early 90's</td>
<td>700,000</td>
<td>250,000</td>
<td>25%</td>
<td>IOU</td>
</tr>
</tbody>
</table>
HIV shows no sign curbing its exponential growth in the Russian Federation. Judging from the number of cases reported during the first nine months of the year, registered new infections during the year 2000 may well reach 50,000. This is a far more than the total of 29,000 infections registered in the country between 1987 and 1999. However, even this massive rise understates the real growth in the epidemic: by Russian estimates, the national registration system captures just a fraction of the infections. Unsafe drug-injecting practices are still major spur to HIV transmission in this huge nation.

1.4.1.5 High Income Countries

During the year 2000, about 30,000 adults and children were estimated to have acquired HIV in Western Europe and 45,000 in North America. Overall HIV prevalence has risen slightly in both regions, mainly because antiretroviral therapy is keeping HIV positive people alive longer.
<table>
<thead>
<tr>
<th>S.No</th>
<th>Region</th>
<th>Epidemic Started</th>
<th>People living with HIV/AIDS</th>
<th>People newly infected with HIV 2000</th>
<th>% of HIV - positive adults who are women</th>
<th>Main modes of transmission (#) for adults living with HIV/AIDS</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Western Europe</td>
<td>Late '70's early 80's</td>
<td>540,000</td>
<td>30,000</td>
<td>25%</td>
<td>MSM, IOU</td>
</tr>
<tr>
<td>2</td>
<td>North America</td>
<td>Late '70's early 80's</td>
<td>920,000</td>
<td>45,000</td>
<td>20%</td>
<td>MSM, IOU, Hetero</td>
</tr>
<tr>
<td>3</td>
<td>Australia &amp; New Zealand</td>
<td>Late '70's early 80's</td>
<td>15,000</td>
<td>500</td>
<td>10%</td>
<td>MSM</td>
</tr>
</tbody>
</table>
1.4.1.6 Asia

An estimated 7,00,000 adults, 4,50,000 of them men, have become infected in South and South-East Asia in the course of the year 2000. These estimates are in line with known risk behaviour in this region. Here men not only from the majority of injecting drug users but help drive the earliest wave of sexual HIV transmission, much of it through commercial sex and some through sex between men. Overall, at the end of 2000, the region is estimated to have 5.8 million adults and children living with HIV or AIDS.

Bangladesh has taken the impressive step of monitoring HIV and behavioural risk at a very early stage of its epidemic. Following a first round of surveillance two years ago, HIV and syphilis testing and behavioural surveys were conducted in a second round between August 1999 and May 2000. The work was carried out in collaboration with NGO and governmental partners, including clinics for sex workers, needle exchange programmes and drug detoxification centres. The studies turned up evidence of a range of risk factors, including unsafe drug injecting practices and inadequate condom use, but extremely low rates of HIV infection so far.

The region of East Asia and Pacific is still keeping HIV at bay in most of its huge population. Some 130000 adults and children became infected in the course of the year. This brings the number of people living with HIV or AIDS at end 2000 to 640000, representing just 0.07 per cent
of the region adult population, as compared with the prevalence rate of 0.56 per cent in South and South-East Asia.

However, the epidemic in East Asia has ample room for growth. The sex trade and the use of illicit drugs and extensive, 'and so are migration and mobility within and across borders. With a hundred million people or more on the move, China in particular is experiencing population movement that dwarfs any other in recorded history. In addition, having practically eradicated sexually transmitted infections by the 1960s, China is now seeing a steep rise in these rates which could translate into higher HIV spread down the road.

With the Asian epidemic simmering at low levels, there continues to be a risk of complacency about the danger of HIV. A major challenge will be to maintain high rates of condom use in places where these have already been achieved. High levels of condom use not only protect the individuals immediately involved but avert what could become a long chain of transmission. If condom use declines, countries like Thailand could again see an upsurge in HIV infections.

1.4.1.7 Indian Scene
1.4.1.7.1 The History of AIDS and HIV Prevention in India

When the first case of HIV was discovered in Chennai in 1986, the Indian Government responded to the HIV epidemic immediately. Recognising the seriousness of the situation, the Government constituted a high powered committee under the Ministry of Health and Welfare.
Subsequently, a National AIDS Control Programme was launched in 1987. The program activities covered surveillance, screening blood and blood products and health education.

In 1990, HIV levels were high amongst high-risk groups such as sex workers and STD attendants in Maharashtra and injecting drug users in Manipur; infection rates reached over 5 per cent. This period saw the beginning of a largely research-based national programme. Surveillance activities were launched in 55 cities in three states. The programme activities were left to the states and did not have strong central guidance. The National AIDS Control Organization (NACO) was established in 1992. NACO carries out India's National AIDS Programme, which includes the formulation of policy, prevention and control programmes. The same year that NACO was established, the Government launched a Five –Year Strategic Plan for HIV/AIDS prevention under the National AIDS Control Project. The Project established the administrative and technical basis for programme management and also set up State AIDS bodies in 25 states and 7 union territories. The Project was able to make a number of important improvements in HIV prevention such as improving blood safety. To strengthen surveillance the Government established 140 centres and 180 sentinel sites across the country, to monitor HIV trends and the geographical spread of HIV among the general population at-risk groups.

"When surveillance systems in the Indian state of Tamil Nadu, home to some 60 million people, showed that HIV infection rates among
pregnant women were rising, tripling to 1.25 per cent between 1995 and 1997, the State Government acted decisively. It set up an AIDS society, which worked closely with non-governmental organizations (NGOs) and other partners to develop an active AIDS prevention campaign. This included hiring a leading international advertising agency to promote condom use for risky sex in a humorous way, without offending the many people who do not engage in risky behaviour. The campaign also attacked the ignorance and stigma associated with HIV infection, encouraging compassion for those affected. The bold safe-sex campaign was a hit with its target market of young sexually active men. Regular behaviour surveillance shows that the number of visits to sex workers and sex with other irregular partners has fallen, and condom use during risky sexual encounters has risen dramatically.²

1.4.1.7.2 National AIDS Control Programme

National AIDS Control Organisation, India (NACO)

HIV Sentinel Surveillance Round: 2000 has been established as the best system to monitor trends of HIV infection in specific high risk groups as well as low risk groups, it was decided to adopt Sentinel surveillance methodology.

Few selected sentinel sites representing the various groups of population would be screened for HIV prevalence and its trends are monitored over a period of time. Accordingly the Sentinel surveillance for HIV infection was taken up in 55 sentinel sites in 1994, which was

²UNAIDS; India: HIV and AIDS-related Discrimination, Stigmatization and Denial, 2001
expanded, to 180 Sentinel Sites in 1998 in various parts of the country. The population groups and sites are chosen based on information of risk behaviour of various risk groups for HIV infection.

The high-risk groups of population include patients attending STD clinics and intravenous drug users while low risk of population includes mothers attending antenatal clinics. The rationale of choosing Sentinel sites in these clinics, is that the samples from people with risk behaviour of multi-partner sex and IVDUs attending these clinic based settings will be collected on regular intervals. The whole procedure is "Unlinked Anonymous".

Every year from August to October, a round of survey is conducted in the designated sites. During year 2000, the survey was conducted in 232 sites with inclusion of 57 new sites and deletion of 5 sites from the existing list. These sites include 109 sites in STD clinics, 110 sites in Antenatal clinics, 11 sites among IDUs and 2 sites for MSM. The data thus collected, was analysed by National Institute of Health for Women (NIHFW) to assess trends of HIV prevalence rates among identified risk groups over the years. 45 districts mostly in high prevalent States have shown high prevalence of HIV among STD & ANC during this round. A statement indicating State-wise locations of districts with high HIV prevalence is enclosed.

Based on Sentinel surveillance data, the HIV prevalence in adult population can be broadly classified into three groups of States/UTs in the country.
Group I includes States like Maharashtra, Tamil Nadu, Karnataka, Andhra Pradesh, Manipur and Nagaland where the HIV infection has crossed 1 per cent or more in antenatal women.

Group II includes States like Gujarat, Goa and Pondicherry where HIV infection has crossed 5 per cent or more among high risk groups but the infection is below 1 per cent in antenatal women.

Group III includes remaining States where the HIV infection in any of the high risk groups is still less than 5 per cent and is less than 1 per cent among antenatal women.

If one looks at the Sentinel surveillance data from antenatal clinics in 7 metro cities in the country, HIV infection has crossed 2 per cent in Mumbai, it is more than 1 per cent in Hyderabad, Bangalore, Chennai and is below per cent in Calcutta, Ahmedabad and Delhi. This data clearly supports the evidence that HIV infection is percolating from various high risk groups to low risk groups population.

**Estimation of HIV Infection among Adult Population: 2000**

In the Indian context, it is difficult to estimate the exact prevalence of HIV because of the varied cultural characteristics, traditions and values with special reference to sex related risk behaviours. The western African model of making estimates cannot be easily applied to the Indian scenario. However, it is possible to have rough estimates with range, that may be used for planning of AIDS Prevention and Control Programme. These

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3 World Bank Reports; 2001 India HIV/AIDS Update and India's National Aids Control Program, September 1999.
estimates can also be useful for mapping of specific vulnerable groups and areas to plan targeted interventions in major urban and other areas in the States. To estimate the total burden of HIV infections in the country, some efforts had been made in the past by WHO/UNAIDS by using the data generated by NACO and other publications from various Research Institutes in India.

Although the HIV sentinel surveillance data has been primarily used for monitoring the trends i.e. to assess how rapidly HIV infection increases or decreases over time in different groups and areas, it can also provide an estimate of the total burden of HIV infection in the country.

The Sentinel surveillance programme was expanded in 1998, to cover 180 sentinel sites in the country. During year 2000, 57 additional sites were established and this round was conducted in 232 sites. The data thus generated had certain strengths like consistency, availability of data from rural sentinel sites and representativeness from various risk groups. This has provided an opportunity to work out the total burden of HIV infection in the country.

The concept of using HIV sentinel data to estimate the burden of HIV infection was brought out in the WHO document "HIV/AIDS/STD Surveillance Data Management and Use" of August 1996. The document suggests that surveys of Sentinel population is often the most popular method of estimating the burden of HIV infection. A reliable estimate can be made by using data from zero prevalence studies of different sub populations at different levels of risk and the HIV prevalence level is
applied to the population which the study group represents. For example, in epidemics where heterosexual transmission is predominant, the HIV prevalence rate in antenatal women is applied to sexually active population (15 - 49 years). For estimating HIV prevalence among various risk groups, an estimation of the size of these groups is necessary. The caution here is that risk groups should not overlap.

As the extent of reliability of HIV estimate will depend upon the accuracy of the estimation of size of risk group population, careful assumptions are required in respect of various parameters like urban rural mix, male female ratio, STD prevalence in urban and rural areas etc. Various assumptions were evolved after intensive interaction with noted epidemiologists and Bio-statisticians in the country through a process of consultation. The following assumptions on different parameters for estimation of the size of the risk group populations have been recommended.

1. The 1991 census figures and the projected figures for 2000, the basis for State specific assumptions for:
   (a) Mid-year population (in the age group of 15-49 years)
   (b) Urban population and rural population
   (c) Male-Female ratio
2. STD prevalence rates in both urban and rural populations as follows:

(a) STD prevalence in urban areas will be 10 per cent in high prevalent States, 7 per cent in medium prevalent States and 5 per cent in low prevalent States. It will be the same for both males and females.

(b) 5 per cent prevalence in rural populations in all States/UTs, for both males and females.

3. For the purpose of HIV estimation in high-risk population, urban rural differential will be 3:1 in all the States. Similarly, for HIV prevalence in low risk population, the urban-rural differential will be 8:1 in all the States.

4. As there are more infected males than females, the following ratio would be applied.

In high prevalent States, for every infected female there are 1.2 males, in moderate prevalent States, for every infected female there are 2 males and in low prevalence States, for every infected female there will be 3 males.

Similarly, for every male STD patient from highly prevalent States, it is assumed that there would be 0.83 females, for moderate prevalent States, there will be 0.5 females and for low prevalent States, there would be 0.33 female patients.
5. In respect of the HIV prevalence rates:

(a) The median value of HIV prevalence from State specific and group specific Sentinel data has been applied.

(b) For States where the HIV prevalence rate has been reported as "0", the following assumptions are made. 1- If data were available from previous round where the prevalence is more than 0, the rate from the previous round ill be adopted.

(c) If the previous round data also shows ° prevalence the arithmetic mean of the low prevalent States will be applicable in place of "0" value.

6. For estimation of HIV infection among IVDUs, the HIV prevalence rate will be applied to the estimated size of IVDUs population in the State.

7. The States will be categorised as high, moderate or low, based on following definition:

High prevalent States where HIV prevalence in antenatal women is 1 per cent or more. Moderate prevalent States States where the HIV prevalence in antenatal women is less than 1 per cent and prevalence in STD and other high risk groups is 5 per cent or more.

1.4.1.7.3 Low Prevalent States

States where the HIV prevalence in antenatal women is less than 1 per cent and HIV prevalence among STD and other high-risk groupis
less than 5 per cent. The justification for urban-rural and male-female gradient is as follows:

1. It is assumed that HIV spreads from urban to rural area and this differential is maintained even at very high level of HIV prevalence.

2. It is assumed that higher percentage of males have risk behavior as compared to females in India. In the beginning of the epidemic, males outnumber females and ratio gets closer to 1 with the progression of the epidemic in general population. In all the South-Asian countries, males outnumber females and in a high prevalence country like Thailand and Combodia, this ratio is between 1.6 : 23. It is also assumed that the infection shifts from high-risk population to general population over a period of time. Therefore, all the States go through a stage of low and then concentrated and finally generalised epidemic in the absence of effective interventions.

Based on these assumptions a worksheet was developed to estimate the number of HIV infection in adult population in the country. This data was examined by small working group of Epidemiologists and Bio-statisticians at NIHFW. Finally, the data was presented to "Task Force on Surveillance" for discussion and finalization of output.

Using these assumptions and consistence methodology, estimates of HIV infections have been worked out during 1998, 1999 and 2000. A range of 20 per cent is applied to the point estimate, to provide higher and lower values on this estimate. Keeping in view, the fat that all risk
groups are not adequately represented, age groups excluding 15-49 years are not included and AIDS cases are not included in this exercise, Upper side of the range has been taken as working estimate for the country, as per details given below:

1998 - 3.50 million
1999 - 3.70 million
2000 - 3.86 million

"End - 2000 global estimates revealed that in 2000, children and adults living with HIV/AIDS were 36.2 million. New HIV infections in 2000 were 5.3 million, death due to HIV/AIDS were 3.0 million and cumulative number of death due to HIV/AIDS was 21.8 million."\(^4\)

**1.4.1.7.4 The Future**

For India to respond effectively to infection trends and limit the costly social and economic impact of HIV and AIDS, its efforts need to be accelerated, intensified and expanded while the country remains at a low prevalence of HIV and there is still time to slow the spread of the epidemic. With HIV prevalence doubling everyone to two years in certain groups, there is still a narrow window of opportunity over the next few years in which to prevent the HIV epidemic from becoming generalised and much harder to control.

India's socio-economic status, traditional social ills, cultural myths on sex and sexuality and a huge population of marginalized people make

it extremely vulnerable to the HIV/AIDS epidemic. In fact, the epidemic has become the most serious public health problem faced by the country since Independence.

The Indian Government and individual State Governments have launched prevention programmes to reduce high-risk sex and, there is evidence that in some states these programmes are resulting in safer behaviour. There are some success stories for effective prevention and control of HIV infection. An intervention programme among commercial sex workers in Sonagachi, Calcutta has been able to increase condom use from zero per cent in 1992 to more than 70 per cent in 1992-1994 and sustained this at over 70 per cent until 1998. If current prevention efforts can be scaled up and sustained, India may be able to bring down the rates of HIV infection in particularly exposed groups and avert a widespread heterosexual epidemic.

1.5 Organization of the Thesis

Chapter I provides an introduction to the subject of study and describes the scope of the disease AIDS, the literature output of which forms the database for the investigation.

Chapter II gives the general features of Bibliometrics, its principles and laws and includes a survey of literature relevant to this study relating to both Bibliometrics and Acquired Immune Deficiency Syndrome.
Chapter III deals with the methodology of the study including the research design, the statistical tools and techniques adopted for the analysis and inferences.

Chapter IV presents the analysis and interpretation of the data collected supplemented by graph.

Chapter V presents the major findings of and conclusion to the study.