Chapter - V

Activities of The National Service Scheme
CHAPTER-V

ACTIVITIES OF THE NSS

There are many activities and programmes undertaken by NSS units. Each NSS unit conducts at grassroot level various activities focussed at development of adopted villages / areas. These activities include, environment enrichment, AIDS awareness campaign, rural roads construction, literacy, development, blood donation, working help during natural calamities, health, hygiene and sanitation, family welfare, social service projects in hospitals, orphanages and destitute homes, campaign against social evils, promotion of national integration and social harmony. (A list of activities and programmes are given in Appendix VI) In this chapter we have taken only two activities of NSS, which are given below:

(a) AIDS Awareness

(b) Environmental Protection

(A) AIDS Awareness

Historical Facts About HIV & AIDS:

AIDS - Aquired Immune Deficiency Syndrome was first detected and identified in the year 1981 among the people living in U.S.A., migrated from South Africa. The route for transmission of this virus was possibly through sexual contact or transmission of contaminated blood and related product. As a result this disease was also observed
and diagnosed among infants. The disease was also found to be present among human foetus transmitted through mothers. In 1982 enough cases came to be known to establish that a new disease had taken birth- AIDS.

"A real life detective story in the Great Britain has shown that (HIV) and (AIDS) have been with us for some time. In 1959 a sailor who was wasting away appeared at a clinic in Manchester. He did not respond to treatment and died. The reason of his death was not confirmed. Some tissue samples of the man were preserved. When the symptoms of AIDS came to be recognised and when new analytical tools became available it was established that the preserved samples contained HIV. Consequently 35 years after the sailor died we know without doubt that HIV and AIDS have been with us since the late 1950s."¹

The discovery of "AIDS" virus was claimed by "Dr. Robert Gallo of the National Cancer Institute of the United States, who named it HTL VIII"² and by "Dr. Luc Montagnier of the Pasteur Institute, Paris, France, who named it LAV, With two claimants of its discovery a bitter dispute ensued not about the virus per se but about, who would hold the rights for the patent for the blood test. Though Gallo and Montagnier settled the dispute on side the court of law, but it is now accepted that Dr. Montagnier discovered the AIDS in 1983, which is presently known as HIV."³

Out of all the myths associated with HIV and AIDS, its origin provokes the most fantastic theories. Among the colourful speculations
HIV came from outer space through a meteorite. The theory is rejected on the ground that HIV is a very unstable virus and is easily destroyed by soap and water. So, it would never have withstood the high temperatures and a piggyback ride through the universe. "A more likely explanation is that HIV has been present for centuries in monkeys and apes and recently crossed over to man, probably in Africa. It seems possible that the virus underwent a subtle genetic change making humans who hunted monkeys, vulnerable to infection." With migration from rural areas to cities and with the rapid expansion of surface and air transport, HIV spread quickly to different parts of the world.

What is AIDS and HIV?

AIDS is an acronym that stands for Acquired Immune Deficiency Syndrome. It is not a single disease by itself but a combinations of infections. When the AIDS virus or HIV (Human Immuno Deficiency Virus), enters the human body, it begins to attack the body's natural defence system (the immune system). The immune system produces specific antibodies in our body, which fights and defeats the specific invading infections like Cold, Influenza, Malaria, etc. When the AIDS virus enters the body, the immune system again produces suitable anti-bodies to fight it. The AIDS virus is extremely difficult to detect but the antibodies which the human body produces to fight the AIDS virus can be detected. When a person is found to contain these anti-bodies he or she is called HIV positive. It simply means that since AIDS anti-bodies are present in a person; it follows that the AIDS virus is also present against which the anti-bodies are fighting. This is
stage I of AIDS. At this stage, even though a person may look and feel completely healthy, he or she can still infect other people.

Over time the AIDS virus defeats the anti-bodies and eventually destroys the human immune system. This time period between being HIV positive and having AIDS differ in people. "It may take anytime from five years to 10 years to be an HIV positive person and develop AIDS." Once the human immune system is destroyed, the body falls prey to any infection - from "Diarrhoea to Pneumonia to Cancer." Eventually, any one of these diseases proves fatal for the person. So strictly speaking, a person does not die from AIDS, but from one of the deadly infections which assail the person with AIDS.

How AIDS is Transmitted?:

There is no one who is safe from AIDS. It can happen to anybody and there is no cure for it yet. However, till a cure is discovered there is only one way to save ourselves from AIDS, through awareness and prevention of AIDS.

The AIDS virus is very fragile and needs specific environs to grow. It survives and flourishes only inside the human body. There is actually only one way that the AIDS virus gets transmitted from one persons to another. The infection gets transmitted through the exchange of body fluids.

There are three ways through which the body fluids can be exchanged.
1 - By Unprotected Sex:

Sex without a condom with an infected person is a high risk activity. Exchange of semen and vaginal fluids, or exchange of blood or semen during oral or anal sex through small sores and cuts in the mouth or the rectum can also transmit AIDS infection.

2 - By Contaminated Blood / Blood Products:

A person may be inadvertently given a transfusion of HIV infected blood or blood products. So make sure that every bit of blood that is used has been screened for AIDS virus and is declared HIV negative.

3 - By Sharing Infected Needles and Syringes:

Very often, syringes and needles used on one person are used on another person without proper sterilisation. If the user is infected with HIV, then minute bits of blood containing, the virus can be transmitted to the next user. So either sterilize the syringe with bleach solution or boil it for more than 20 minutes in water. The best thing is to use only disposable syringes and needles.

There is yet another way in which AIDS virus can be transmitted: Through "an infected mother to her unborn child or through breast feeding."

And How It Doesn't?:

AIDS virus can only be transmitted through an exchange of body fluids with an infected person. "Body fluids like semen, vaginal
secretions, blood, sweat, breast milk, saliva and tears have been found to contain the HIV. However, "saliva, sweat, breast milk, and tears contain only negligible concentrations of HIV and are therefore not dangerous. The greatest amount of infections occur through exchange of semen, vaginal secretions and blood."

**HIV can't be transmitted by the following:**

1. Kissing (HIV in saliva is negligible).
2. Hugging and Touching.
4. From a Toilet Seat.
5. Sharing Clothes.
7. Through a Mosquito Bite. (HIV cannot survive outside the human body).
8. Sharing Food or Water.
9. Water of a Swimming Pool etc.

**Are HIV and AIDS the Same?**

HIV virus identified in the early 80's attacks the White Blood Cells (WBC), the "soldiers" which protect the body against diseases, and slowly kill them so that the body loses its power to fight against diseases. This process usually takes years from the time of HIV
infection. Since HIV enters into the white blood cells and hides inside them, it is difficult to destroy it without destroying the white blood cells.

AIDS is not a single disease. It is a medical diagnosis for a combination of symptoms due to different diseases which result from the breakdown of the immune system. The time of infection to the stage of full blown AIDS takes several years.

1- Average time for adults 8 years, and

2- Average time for children 2 years."^{10}

Therefore, one must remember that HIV is a virus while AIDS is a syndrome which describes a combination of diseases.

All people carrying HIV do not have AIDS. They can be healthy for several years. However, all people who have AIDS have HIV in their body. The only sure way of identifying AIDS is by testing the blood for the presence of HIV.

However, chances are that most of the people infected with HIV will go on to develop AIDS eventually. The period from the time of infection to developing AIDS may vary in different people. It is not necessary that every time one comes in contact with the virus one will be infected. There is always a chance to get infected which depends on the amount of virus one is exposed to and the route of exposure.

After initial infection a person may experience flu-like symptoms for a brief period. It is difficult to say with any certainty, that these
symptoms are HIV related. Because they are the same as those for ordinary flu. So avoid panic. "AIDS is characterized by certain opportunistic infections." such as Tuberculosis, Pneumonia, Cancer of blood vessels, herpes zoster and they attack when the immune system has broken down."  

**Signs of Aids:**

The signs of AIDS can be simply put into two categories:

1 - **Major Signs:**

(i) Weight loss greater than 10% of body weight.

(ii) Fever for longer than one month.

(iii) Chronic diarrhoea for longer than one month.

(iv) Persistent severe fatigue.

2 - **Minor Signs:**

(i) Persistent cough for longer than one month.

(ii) General itchy skin (dermatitis)

(iii) Recurrent herpes zoster (shingles).

(iv) Fungus infection in throat & mouth.

(v) Chronic herpes simplex infection.

(vi) Swelling of lymph glands (general lympho adenopathy).

**Protection From HIV:**

The surest way to prevent HIV transmission is to give up sex altogether, often called celibacy or abstinence. Apart from the biological need to procreate, sex bonds couples together, is pleasurable and a
major source of enjoyment and comfort. In poorer countries, sex is one of the few sources of pleasure for impoverished couples.

The most realistic and best alternative is a life long, mutually faithful relationship between two uninfected partners. This is called monogamy, a word with old fashioned connotations and an 'uncool' image. But monogamy need not be uncool or boring. A warm, loving and caring relationship between two people can bring both physical and spiritual fulfillment. And contrary to popular belief, sex between lifelong partners can be fun, varied and experimental because of the strong love and trust which blossoms in faithful relationships.

What Is Safer Sex? :

Safer sex is a mix of sexual expression and precautions which reduce exposure to HIV. They should be practised whenever the past sexual and / or drug use behaviour of either partner is unknown or if there has been a known risk of exposure to HIV. The major precaution which will definitely reduce risk of exposure to HIV, is correct condom use. For years condoms have been used successfully to reduce the chances of contracting sexually transmitted diseases.

Prevent HIV By Knowing More:

For HIV transmission to occur there has to be transfer of virus from the blood, semen or vaginal secretion of the infected person to the white blood cells of another person. HIV virus has been known to be very fragile which would not survive for long outside the body
fluids. "Keeping these in mind one must remember that HIV cannot be transmitted by the following:

(i) Shaking Hands

(ii) Embracing

(iii) Dry Kissing

(iv) Sharing Common Toilets.

(v) Using Public Telephones.

(vi) Eating from the Same Plates.

(vii) Using Public Swimming Pools.

(viii) Drinking from the Same Glass.

(ix) Coughing or Sneezing.

One cannot get HIV by any of these activities because there is no exchange of body fluids which can contain HIV virus. Also HIV virus is very fragile and cannot stay alive in the atmosphere. You cannot get HIV infections:

1- During massage, physical therapy, at hairdressers.

2- Piercing of ears, barber's razor etc., as long as the needles and blades are sterilized.

3. Caring for people with AIDS.

4. Scratching and bites by pets.

5. Mosquito or other insect bites."
How Is HIV Detected:

It is not possible to tell just by looking at a person whether he or she has HIV - infection, especially in the initial stages, that is the asymptomatic period. Even in the symptomatic period i.e. after various illnesses have begun to inflict a person, it is necessary to test the person's blood to confirm that the person is HIV positive.

Although, theoretically it is possible to detect the direct presence of HIV in the blood this is a difficult and laborious process. At present the presence of HIV is detected indirectly by measuring the "antibodies" produced by the body after HIV infection takes place.

The most commonly used test to detect antibodies is called "ELISA" test (Enzyme Linked Immune Sorbent Assay). If a person's blood shows HIV antibodies by this test the blood is subjected to another test called the "Western Blot" to confirm the result of "ELISA." It is necessary to confirm the results because some times ELISA may give a false result. Often "Western Blot" is not easily available, therefore it is suggested by NACO (National AIDS Control Organisation) that three different ELISA produced by three different companies be conducted to confirm the results.

The time the body takes (after HIV infection) to produce antibodies against HIV varies from one person to another. However, it is found that most people produce enough antibodies within three months of infection. This period is called the "window period" because of the uncertainty in detection of HIV during this time. Thus
if ELISA results show negative it is advisable to repeat the test after three months.

**Condom is the best Prevention:**

Condom is a cylindrical sheath made out of latex rubber which is open on one side. A condom when unrolled over an erect penis prevents the ejaculated sperms from entering the vagina, thereby preventing conception.

"Sheath, protective, prophylactics and french leather (FL) are synonyms for condoms." 16

**Why Are Condoms Used? :**

They are used for two reasons:

(i) As a family planing method to prevent unwanted pregnancies.

(ii) To prevent sexually transmitted diseases. Since the penis does not come in direct contact with the vagina, the risk of contacting STDs is substantially reduced.

**Women and AIDS:**

AIDS was first discovered among homosexual men in the United States. In the beginning it was considered to be a disease that affected only men. Now, in the 1990's it is becoming increasingly clear that AIDS is a disease which will have a major impact on women and children too.

In Africa, half of all HIV infections are among women and
children; infant mortality rates are increasing rapidly, due to the number of children born with AIDS. AIDS will single handedly wipe out all the advances made to date on maternal and child health, "and by the year 2000, W.H.O. estimates that there will be 10 million uninfected orphans whose parents have died of AIDS. India is following many of the patterns existing in Africa."^17

AIDS affects women not only as individuals, but also as health care providers, educators, wives, mothers and income providers. It is not only the infected women who are affected but also the women suffering from the economic and social consequence of the disease.

The following outlines the major issues related to women and AIDS.

**Risk for Women:**

(i) **Biologically More Vulnerable:**

Women are biologically at a greater risk than men. It now appears that male to female transmission is 2-4 times as efficient as female to male transmission, while, with other STDs male to female transmission is at least 15% more efficient than female to male transmission.

(ii) **STDs not Diagnosed or Treated:**

Many women suffer from asymptomatic STDs or have symptomatic STDs which are not diagnosed or treated. In addition women have a limited access to STDs treatment facilities and health care in general. Should a woman go to an STDs clinic, she is often
considered a sex worker.

(iii) Use of Non-Barrier Methods of Contraception:

Women use contraceptives without accurate knowledge of its relationship to HIV infection, use of IUDs or heavy use of viricide could put a woman at greater risk, while use of other contraceptives such as the pill, infectables and implants discourage the use of condoms.

(iv) Receiving Unnecessary Blood Transfusions:

Women often receive blood transfusions during a child birth due to the fact that most Indian women are anaemic.

(v) Traditional Practices:

Traditional practices such as female circumcision, tattooing, etc. could place women at risk.

Other Risks for Women:

Women are at risk for HIV infection and other STDs just like men if they have multiple partners, and inject drugs with infected syringes. But women are also at a risk of contracting the HIV infection from coercive sex, due to their economic status which force many women into selling sex for money. In addition, many women are at risk of HIV infection from their partners. "One estimate claims that, every day 1500 women become infected with HIV and their only risk behaviour is having sex with their husbands."18
Women's Ability to Protect Themselves - (Negative Factors)

In additions to being more vulnerable to the HIV infection, women have limited ability to protect themselves. Some factors which contribute to this reality are:

(1) Lack of economic alternatives.

(2) Lower literacy levels.

(3) Limited mobility.

(4) Limited access to information.

(5) Limited access to appropriate STDs clinics and other health services.

(6) Attitude towards sexuality - women are traditionally the passive, submissive partner in sexual relations. Women are not told the basic facts about sex. Very often a majority of women are subjected to sexual relation in order that they may conceive a male child. This enhances their chances of getting infected by the HIV virus.

(7) Psycho-social, cultural and legal barriers to women's decision making powers and independence - even if a woman knows about HIV and how to protect herself, it is not always possible for her to refrain from sex with her husband if she feels he is unfaithful or convince her husband to use a condom. Even in the most progressive western relationships, asking a husband to use a condom is a topic many women
hesitate to bring up. Should a woman has a STD, the psycho-social and cultural condemnation is so great, that visiting a reputed STD clinic is often ruled out in favour of self-medication.

All these issues are related to the status of women in society. The status women have in society, inhibits their ability to protect themselves against HIV infection. The AIDS epidemic will only exacerbate these problems as scarce resources are given away to medical treatment and a substantial slice of family income is expended on illness.

**Impact on Women:**

AIDS epidemic will not only have a physical impact on women, but also affect the many roles they play in society.

(i) **Caretakers:** Women have traditionally been the caretakers. As the epidemic takes its toll, this will increasingly take women away from duties as a parent, and a productive individual towards the community. The impact of this in term of agriculture, child health, and social structures will be enormous and is now being studied.

(ii) **Wives:** They will be affected in their role as wives when they are confirmed with transmission of HIV by their husbands.

(iii) **Mothers:** Physically and emotionally women want to bear children. If the woman "is HIV Positive and also pregnant,
she is in dilemma. 20-30% of all children born from an HIV positive mother will be "AIDS BABIES", the remaining 80% will become AIDS orphans as the mother eventually dies of AIDS." 19 

(iv) **Economic**: Women will be adversely affected as their scarce resources are spent in the treatment of a terminally ill family member.

(v) **Social**: The social impact in terms of discrimination will be severe. "Today in the developing world, including India and Thailand, commercial sex workers are being blamed for spreading the disease." Women who give birth to HIV Positive children are blamed. Women in many parts of the world are disowned by their families if they are HIV Positive and deprived of their rights. Discrimination against HIV Positive men also take place, but men have more legal accessibility in comparison to women. Women play an important role in development and carry many burdens. These burdens will be increased dramatically due to the epidemic and will adversely affect their role in the development effort.

**Psychological Problems Faced By People With HIV Infection**

The psychological problems faced by most people with HIV infection or disease revolve around uncertainty and adjustment.
With HIV infection, uncertainty emerges with regard to hopes and expectations about life in general, but it may focus on family and job also. An even more fundamental uncertainty may concern the quality and length of life, the effect of treatment, and the response of society. All these are relatively unpredictable in terms of their long term outcome. They need to be discussed openly and frankly, but care should always be taken to encourage hope and a positive outlook.

In response to uncertainty, the person with HIV infection must make a variety of adjustments. Even the apparent absence of a response may in itself, be an adjustment through denial (see below). People start to adjust to the news of their infection or disease from the time they are first told about it. Their day-to-day lives will reflect the tension between uncertainty and adjustment. It is this tension that causes other psycho-social problems to assume greater prominence and intensity as time passes.

**Fear:**

People with an HIV infection or disease have many fears. The fear of dying and particularly, of dying alone and in pain, is often very evident. Fear may be based on the experiences of loved ones, friends, or colleagues who have been ill with, or died of AIDS. It may also be due to not knowing enough about what is involved and how the problems can be handled. As with most psychological concerns, fear and the pressures such fear creates can often be managed by bringing them clearly and sensitively into the open. They should be discussed in
the context of managing the difficulties, along with the help of friends and family or with counsellor.

Loss:

People with HIV infection experience feelings of loss about their lives and ambitions, their physical attractiveness and potency, sexual relationship, status in the community, financial stability and independence. As the need for care increases, a sense of loss of privacy and control over life is also experienced. Perhaps the most common loss that is felt is the loss of confidence. "Confidence can be undermined by many aspects of life with HIV, including fear for the future, anxiety about coping abilities of loved ones and care-givers, by the negative and / or stigmatizing actions of others." For many people, recognition of HIV infection will be the first occasion that forces them to acknowledge their own mortality and physical vulnerability.

Grief:

People with HIV infection often have profound feelings of grief about the losses they have experienced or are anticipating. They may also suffer the grief that is projected on to them by close family members, lovers, spouses and friends. Often these same people are supporting and taking care of them on a day-to-day basis, and watching their health decline.
**Guilt:**

A diagnosis of HIV infection often provokes a feeling of guilt over the possibility of having infected others, or over the behaviour that may have resulted in the infection. There is also guilt about the sadness the illness will cause to the loved ones and family, especially children; previous events that may have caused pain or sadness to others and remained unresolved, will often be remembered at this time and may cause even greater feelings of guilt.

**Depression:**

Depression may arise for a number of reasons namely - the absence of a cure and the resulting feeling of powerlessness, the loss of personal control that may be associated with frequent medical examinations, and the knowledge that a virus has taken over one's body. Similarly, knowing others or about others who have died or are ill with HIV, and experiencing such things as the loss of potential for procreating and for long term planing may contribute to depression.

**Denial:**

Some people may respond to the news of their infection or disease by denying it. For some people, initial denial can be a constuctive way of handling the shock of diagnosis. However, if it persists, denial can become counter productive, since people may refuse to accept the social responsibilities that go with being HIV Positive.
Anxiety:

Anxiety can quickly become a fixture in the life of a person infected with HIV, "reflecting the chronic uncertainty associated with the infection. Many of the reasons for anxiety reflect the issues discussed above and concern the following.

(i) Prognosis in the short and long terms.

(ii) Risk of infection with other diseases.

(iii) Risk of infecting others with HIV.

(iv) Social, occupational, domestic and sexual hostility and rejection.

(v) Abandonment, isolation and physical pain.

(vi) Fear of dying in pain or without dignity.

(vii) Inability to alter circumstances and consequences of HIV infection.

(viii) Problem of ensuring the best possible health in the future.

(ix) Ability of loved ones and family to cope.

(x) Availability of appropriate medical treatment.

(xi) Loss of privacy and concern over confidentiality.

(xii) Future social and sexual unacceptability.

(xiii) Declining ability to function efficiently.

(xiv) Loss of physical and financial independence."
Anger:

Some people become outwardly angry because they feel they have been unlucky to have caught the infection. They often feel that they, or information about them, has been badly or insensitively managed. Anger can sometimes be directed inwardly in the form of self-blame for acquiring HIV, or in the form of self-destructive (suicidal) behaviour.

Suicidal Activity or Thinking:

People who are HIV-infected may have a tendency towards suicide. Suicide may be seen as a way of avoiding pain and discomfort or of lessening the shame and grief of loved ones. "Suicide may be active (i.e. deliberate self-injury resulting in death) or passive (i.e. concealing or disregarding the onset of a possibly fatal complication of HIV infection or disease."\[23\]

Self-Esteem:

Self-esteem is often threatened early in the process of living with HIV. Rejection by colleagues, acquaintances and loved ones can quickly lead to loss of confidence and social identity and thus to reduced feelings of self-worth. This can be compounded by the physical impact of HIV-related diseases that cause, for example, facial disfigurement, physical wasting, and loss of strength or bodily control.
Hypochondria And Obsessive Behaviour:

Preoccupation with health and even the smallest physical changes or sensations can result in hypochondria. This may be transient and limited to the time immediately after diagnosis, or it may persist in people who find difficulty in adjusting to the disease.

Spiritual Concerns:

Concerns about impending death, loneliness, and loss of control may give rise to an interest in spiritual matters and a search for religious support. "Expression of sin, guilt, forgiveness, reconciliation, and acceptance may appear in the context of religious and spiritual discussions."24

Many of these and other concerns will appear to become pronounced when a diagnosis of AIDS is made. The appearance of new infections, Cancers, and periods of severe fatigue, all have a significant emotional and psychological impact. The effect is likely to be even greater "if the person with AIDS has been rejected by family or friends and has withdrawn from normal social relationships."25

Social Problems:

Environmental and social pressures, such as loss of income, discrimination, social stigma (if the diagnosis becomes commonly known), relationship changes, and changing requirements for sexual expression, may contribute to post diagnosis psycho-social problems. The patient's perception of the level and adequacy of social support
is of vital concern and may become a source of pressure or frustration.

**Counselling for AIDS Patient:**

A diagnosis of HIV infection or AIDS, or a suspicion or recognition of the possibility of rejection, bring with it, profound emotional, social, behavioural, and medical consequences. The subsequent individual and social adjustments required often have implications for family life, sexual and social relations, work, education, spiritual needs, legal status, and civil rights. Adjustments to HIV infection involves constant stress management and adoption. It is a dynamic, evolutionary, and lifelong process that makes new and changing demands on the infected individuals, their families and the communities in which they live.

Most people are limited in what they can do, or feel they can do, and what changes they can make in their lives whether these limitations are real or imagined, they have to be taken into account and deal with, if behaviour modification is to be successful and sustained.

During the course of HIV infection, a broad range of physical needs and problems are likely to be experienced. These are not constant, but will progressively become more serious and difficult to handle. "The changing nature of these needs imposes a variety of psychological and emotional strains on infected individuals and those closest to them. These strains may make the infected person feel that he or she is losing identity, independence, privacy, and social status. They can also provoke guilt, anger, and fear of loneliness, and death. Dealing
with HIV infection also imposes direct and indirect financial burden, which can be particularly stressful if economic productivity is affected by illness. Much of the stress experienced by people infected with HIV may reflect underlying anxieties about economic independence and family obligations.

Counselling therefore has to take into account not only the client's immediate social and medical environment, but also his or her social relationships and attitudes and beliefs about HIV/AIDS. "Counselling has to provide education and information in a way that is relevant to the day-to-day life of the person concerned. It has to take into account of such things as the patient's sexual needs and history, occupation, education, aspirations and hopes, together with what it will take to inspire a new approach to safer sex and responsible social relationships."  

Counselling of the family of people with HIV infection and of their lovers, friends, employers, or colleagues, must provide up-to-date and technically correct information. It should take into account the life-style of the infected person and explore the opportunities for, and constraints on, changes in behaviour and constructive adoption to HIV infection.

If counselling is to be effective it must be seen by the client as acceptable. Acceptability will be improved if the counselling clearly takes into account the many social relationships, commitments and obligations that the individual has. Each of these relationships may be
a potentially motivating and supporting one.

In brief, counselling to people with HIV infection is important because:

(i) Infection with HIV is life long.

(ii) A person can avoid acquiring HIV infection or transmitting it to others by changing his/her behaviour.

(iii) Awareness of HIV infection can create enormous psychological pressures and anxieties that can delay constructive change or worsen illness, especially in view of the fear, misunderstanding, and discrimination provoked by the HIV epidemic.

Global Aids Scenario:

All over the world HIV/AIDS has been affecting the youth rapidly. As we are all aware, when a person is infected with Human Immune Deficiency Virus (HIV), the body's defence mechanism against disease is destroyed. Thus, an HIV infected person slowly loses his/her immunity against disease caused by various germs and slowly develops a syndrome or series of symptoms which is popularly known as AIDS. Its impact on the youth is very significant as they are the most productive segment of the population.

The HIV/AIDS consists of many separate epidemics and each epidemics has its own distinct origin depending variedly on the life style and social structure of a country. To be precise, it is the
unprotected sex in a society with multiple partners that helps the spread of this killer disease. Lately, it has also been recognised that the sharing of injection equipment and blood transmission are also the main supplementary causes of the disease.

"The extensive spread of HIV was reported between 1970 to 1980 all over the world primarily in homosexual or bisexual men and injectef drug users in certain urban areas. In the same manner it spread violently in the Caribbean Islands and East and Central Africa among men and women with multiple sex partners." The results of researches in medical science between 1980 and 1983 caused a alarm when it became clear that the virus had spread, largely unnoticed, throughout the world becoming more a global phenomenon. "By July 1992, accumulative global cases were reported to the W.H.O. in 168 countries, But it is estimated that the actual number may be closer to 1.7 million. Apart from this, it is also believed that nearly 1 million persons have nearly acquired the infection during the first six months of 1992. As on 1st November, 1992, a total of 1.250 cases of AIDS have been reported from South-East Asia (Pattern-3), 95% of these are from Thailand and India," As per the W.H.O. Report in the mid 1993, more than 14 million HIV infections are estimated to have occurred so far. Taking a view of South-South East Asia, it is now more than 1.5 million plus. W.H.O. estimated by mid 1994, more than 16 million adolescents and adults and one million children world wide would have been infected with the HIV since the start of the pandemic.
According to a United Nations report "over 3.1 million new HIV infections were reported world wide during 1996 which amounts to more than 8,500 cases every day - 7,500 adults and 1,000 children". The same study says, "AIDS associated deaths in 1996 numbered 1.5 million including 4,70000 women and 3,50,000 children below the age of five years." It says approximately 42 percent of the 1.8 million adults living with AIDS/HIV are women and the "Proportion is Growing", the study points out.

According to the same report, unprotected sexual intercourse accounts for 75 to 80 percent of adult infections, transfusion of contaminated blood, about three to five percent and sharing of HIV infected injection by drug user's accounts for 5 to 10 percent of infections.

The epidemic is spreading rapidly in many countries of the world and latest estimates show about 22.6 million people are suffering from AIDS and HIV, a United Nations Population Fund (UNFPA) study "the state of world population - 1997."

For the year 2000 A.D., the current WHO. projection is that there will be a cumulative total of 30 to 40 million HIV infections in men, women and children, of which more than 90% will be in developing countries.

The predominant symptoms of AIDS varies from place to place in the world. In the United States, pneumonia is the most widely known dominant symptom of AIDS, while in the African countries it is severe
diarrhoea leading to weight loss. But at present it seems that acute tuberculosis is the most common form of AIDS in Africa. In India, severe diarrhoea with no response to treatment along with acute tuberculosis have been reported in this regard.

HIV infection has a wide range of clinical picture and therefore it is better to probe into the full course of HIV infection rather than looking at typical symptoms of different regions.

"The new and revised Global AIDS strategy endorsed in 1992 by the World Health Assembly and by the Economic and Social Council of United Nations, process ways of meeting new challenges of for AIDS prevention, which include:

(i) Adequate and equitable provision of health care to the growing numbers of HIV-infected people falling ill,

(ii) Treatment for other sexually transmitted diseases, which increases people's biological vulnerability to HIV infections,

(iii) Reduction of women's social vulnerability to HIV infection by improving their health, education, legal status and economic prospects,

(iv) A more supportive socio-economic environment for AIDS prevention,

(v) Immediate planning in anticipation of the pandemic's socio-impact,

(vi) A greater focus on conveying effectively the compelling
The three main objectives of the global AIDS strategy remain:

1. To prevent HIV infections,
2. To reduce personal and social impact of HIV infection,
3. To mobilize and unify National and International efforts against HIV/AIDS.

**Aids Scenario in India:**

At present India's population is almost 9500 million and it is the second most populous country in the world. The land area of India is only 2.5% of the world, but 15% of the world's population lives here. Added to this the high density of population, India is afflicted with the problems of high rate of illiteracy, poverty and wide economic disparities. The western influence is sweeping across the country. The social order and values are fast changing. Therefore, the threats of AIDS assumes a great importance particularly when a large number of our people are young and vulnerable.

The first case of AIDS in India was recorded in May 1986. A 55 year old man was found to be full blown AIDS case who had probably contracted the disease through blood transfusion while undergoing a by-pass surgery in U.S.A. around the same time that year, 10 prostitutes in Madras were found positive for Human Immuno Deficiency Virus. When the first incidences of HIV/AIDS were reported in India, way
back in the mid eighties, the sheer panic with which people reacted was unexpected and unprecedented. Anyone with even the suspicion of HIV was either immediately isolated or more often, became a complete pariah, outcast by an ignorant population. The matter becomes clearer on reading the judgement made by the Bombay High Court in 1989, when it rejected petition by two mothers for the release of their HIV positive sons, detained in Goa under Public Health Law. The court noted, "..... isolation results in social ostracism and encroaches on the individual's liberty....... but isolation is necessary because of fear of AIDS amongst the public."34

It is hard to imagine the agony and the suffering of these scores of HIV Positive individuals and their families who were turned away by both the public authorities and the medical community. However, in all fairness, one is compelled to refrain from putting the blame on anyone - because this sort of panic reaction is only to be expected when misinformation and ignorance about a sensitive issue are rife.

Even though the initial reaction provided a severe setback to AIDS prevention and education, it did not do so for too long. In 1992, the government of India setup an apex body to monitor the HIV- AIDS scenario in India. This body is the National AIDS Control Organisation (NACO).

One of the first steps taken by National AIDS Control Organisation was to draw up a strategic plan which has the following components:
(i) Programme management.

(ii) Surveillance and research.

(iii) Information, Education, Communication & Social Mobilization for prevention of HIV transmission.

(iv) Sexually transmitted diseases control.

(v) Condom programming.

(vi) Blood safety."

The strategy is both correct and timely. But we have a long way to go yet. According to the reports provided by the government of India, New Delhi, the situation as on 31st October 1992, in India, was that of the 14,61,722 individuals screened, 10,362 were seropositive; a seropositive rate of 7.1/1000. Thus the HIV prevalence rate grew from 0.2% in 1986 to 0.7% in 1992. (For details please see Appendix - V, Table-3) According to NACO, as per available data, the cumulative total of HIV seropositive cases as of January 31st, 1995, 1728 and the seropositive rate is 7.07/1000. In May 1996 the NACO observed another nation wide survey in which the total number of full blown AIDS cases were 3551, and the total number of seropositive cases were 56,409 in the country. After one year, in June 1997, NACO observed another nationwide survey in which the total number of people screened were 3131470, and the total number of confirmed seropositive cases were 63206 and the total number of full blown AIDS cases in the country were 4725 and the seropositive rate was 20.62 per thousand.  

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(For details please see Appendix-V, Table-4). After four months on October 31st, the NACO had conducted another nation-wide survey. The number of cases found statewise are: ANDHRA 37, ASSAM 16, BIHAR 3, CHANDIGARH / PUNJAB 100, DELHI 125, DAMAN & DIU 01, GUJRAT 133, GOA 12, HARYANA 01, HIMACHAL RADESH 9, JAMMU & KASHMIR 2, KARNATAKA 117, KERALA 105, MANIPUR 286, MAHARASHTRA 2451, MADHYA PRADESH 134, MIZORAM 5, MEGHALAYA 8, NAGALAND 10, ORISSA 02, PONDICHERY 129, RAJASTHAN 54, SIKKIM 01, TAMILNADU 1092, WEST BENGAL 57, and in UTTAR PRADESH 112. (For details please see Appendix -V table-5)

In Uttar Pradesh the most AIDS affected district was found to be Aligarh, the total number of people screened in Aligarh till April 18, 1998 was 6080, and the total number of AIDS cases in Aligarh District was 31, while the total number of AIDS cases in Uttar Pradesh was 112. There has been a consistent increase in the prevalence of HIV infection in the country starting from 1985 to 1998. According to NACO, it is estimated that by the year 2000 A.D., about 5 million persons would have been infected in India and the number of AIDS cases would exceed one million.

According to NACO, in India, 75% of the reported patients acquired the infection through sex, 12% through blood transfusion and 9% by sharing unsterilized equipment while injecting drugs.
Role of National Service Scheme:

Realizing the gravity of HIV/AIDS situation in India, the National Service Scheme (NSS) Department of Youth Affairs & Sports, Ministry of Human Resource Development, took up an enormous task of creating/promoting HIV/AIDS awareness amongst Indian college-going youth, by launching a huge nation-wide scheme called "University Talk AIDS" (UTA). This scheme is an AIDS educational campaign involving the college/university teachers, NSS volunteers and students. It was launched in all parts of the country, both rural and urban. It consists of multimedia package to ensure effective information, education and communication to the rural youth regarding HIV/AIDS.

The first phase of UTA programme was undertaken by the NSS in 1991, covering student volunteers from 59 universities from all over the country, and four universities in Uttar Pradesh, namely Banaras Hindu University, Varanasi, Lucknow University Lucknow, Kanpur University, Kanpur, and D.E.I. Dayalbagh, Agra, involving students in developing educational materials and simultaneously raising their awareness on HIV/AIDS was the main objective of this phase. (For details please see Appendix -V). The second phase was taken up in November 1992 coinciding with the observation of world AIDS Day on 1st December 1992.

The UTA cell of the National Service Scheme (NSS) decided to observe the AIDS week every year all over the country, from Nov. 23 - Dec. 1 of 1992. The aim was to declare at least 200 colleges as
"AIDS AWARE" though this programme. Colleges were chosen from universities which participated in the UTA's first phase during 1991 and are located in cities and big towns. The emphasis was laid on involving the entire academic community in the exercise (For details please see Appendix -V-IIInd phase of UTA).

The third phase of UTA programme was undertaken in Sept. 1993 covering 22 universities and its affiliated colleges of Uttar Pradesh 350 programme officers and 3440 students were allocated for training on the AIDS education. Till date 208 programme officers and 278 peer educators were trained and 70,733 youth were made aware of HIV/AIDS. (For details please see Appendix -V-IIIrd phase of UTA)

Programme And Plan of Action:

In November 1992, the NSS Head Quarters in Delhi sent out a plan of action on AIDS aware college campaign to its regional centres which in turn was given to the colleges. This plan of action provided detailed instructions on what all can be done during the week preceding the world AIDS day. The suggested programme included 8 items, viz., questionnaire administration, AIDS games, (High risk/ low risk), condom demonstration & general awareness on AIDS, audience discussion, lecture demonstration voluntary blood donation, and participation in the rally. The questionair and games were provided while broad guidelines were suggested on how to conduct the other programmes. Basic information and facts about HIV and AIDS was also provided.
Objectives of UTA:

(1) To discover the extent of students knowledge about HIV/AIDS.

(2) To raise awareness of HIV/AIDS among student population in India.

(3) To develop a series of targeted messages for students.

(4) To sensitize and mobilize student youth to initiate peer group and community discussions and AIDS prevention.

For the above said problems regarding HIV/AIDS in U.P. we conducted a survey of four universities and of its affiliated college in UTTAR PRADESH.

Social Dimension of the Problem:

AIDS will result in death of men and women in the reproductive age, and the elderly will be left without support. Women and children will become doubly vulnerable as AIDS casualties and AIDS survivors. Dr. Subash Salunke, the bureaucrat coordinating AIDS control in Maharashtra, may be right in saying that this is a social problem, and it is not the state that can adopt safe-sex practices to bring down its incidence. But the government now has both the technology and the funds for attitudinal engineering, and it is its job to use them. The state must use the communication tool without worrying any further about the pseudo-morality that mired us in this mess in the first place. Women have been recognised as one of the major groups
requiring help.

The Break-up of 8,578 HIV Persons From Oct. 1986 to July 1992:

Table No.1

<table>
<thead>
<tr>
<th>Category</th>
<th>Male</th>
<th>Female</th>
<th>Total</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hetero Sexually</td>
<td>1494</td>
<td>2389</td>
<td>3883</td>
<td>45.30</td>
</tr>
<tr>
<td>Promiscuous</td>
<td>10</td>
<td>0</td>
<td>10</td>
<td>0.12</td>
</tr>
<tr>
<td>Homo Sexual</td>
<td>1597</td>
<td>61</td>
<td>1658</td>
<td>19.33</td>
</tr>
<tr>
<td>Blood Donors</td>
<td>28</td>
<td>05</td>
<td>33</td>
<td>0.38</td>
</tr>
<tr>
<td>Patient on Dialysis</td>
<td>0</td>
<td>36</td>
<td>36</td>
<td>0.42</td>
</tr>
<tr>
<td>Antenatal Mothers</td>
<td>132</td>
<td>38</td>
<td>170</td>
<td>1.98</td>
</tr>
<tr>
<td>Recipients of Blood / Blood products</td>
<td>33</td>
<td>44</td>
<td>77</td>
<td>0.90</td>
</tr>
<tr>
<td>Relatives of HIV Patients</td>
<td>248</td>
<td>68</td>
<td>316</td>
<td>3.68</td>
</tr>
<tr>
<td>Suspected ARC / AIDS Cases</td>
<td>1994</td>
<td>53</td>
<td>1547</td>
<td>18.03</td>
</tr>
<tr>
<td>Others</td>
<td>661</td>
<td>185</td>
<td>846</td>
<td>9.86</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>5697</td>
<td>2879</td>
<td>8576</td>
<td>100.00</td>
</tr>
</tbody>
</table>


Another trend which AIDS has shown in recent years is a greater incidence among poorest people. A high correlation has been found between the number of cases of AIDS and the percentage of the population whose basic needs are not met.
The vulnerability of young adults both, men and women, towards HIV/AIDS plus the prolonged period of time between infection and appearance (Asymptomatism), and the psychological and biological effects of discovering that one is infected causes a drop in productivity and interrupts the functioning of social system. This includes:

1- Deterioration of family living standards.
2- Worsening of the available health and social services.
3- Change in demographic composition.
4- Predominance of old people and children due to drop in number of young adults.
5- Greater probability for the wives of HIV/AIDS patients to be HIV prone.
6- Increase in the number of young widows.
7- Increase in the number of orphans.
8- Increase in the number of divorce cases.
9- Psychological strain on the family members of asymptomatic persons due to social pressures.
10- Breaking of family towards unknown destinations.
11- Tension among the family members of the medical personnel working with asymptomatic persons.
12- Asymptomatic persons, starts considering every individual of society as his enemy.
Marriage and other social rituals become taboo for families having HIV/AIDS patients.\textsuperscript{52}

AIDS raises the question of power on both at personal level as well as at family level. This is because it exposes not only some of the best known inequalities but also the most neglected, like the differences in power between sexes. The social conflicts taking place show that balanced macro economic variables are not sufficient to measure in improving the quality of life of human groups. Social crises will destabilize these macro economic indications. Just as the "Free Market" cannot regulate social areas like health on its own, the "New International order" should take poverty into account as the main source of disorder in the world" \textsuperscript{53} as J.K. Galbraith rightly points out.

Sociologically, in the field of health, it will be necessary to review present system of service delivery that often puts satisfaction of certain special interests before the common goal and waste resources on unnecessary services out of ignorance, idleness or habit. Thus, with respect to AIDS, education and information will have to be given importance, then only we can save the whole system from collapsing. These are the principal preventive measures not obligatory to mass detection. To achieve this, we must promote greater participation by all social sectors, and especially allowing sectors until now excluded from decision making such as women and children to be effectively included.
The Statement Problem:

AIDS pandemic caught the world in its most complacent decade when all seemed well on the surface, and progressive improvement in health and prosperity was inevitable and achievable if not by 2000 A.D., at least few decade later. With startling suddenness the HIV pandemic ripped the surface veneer exposing the ugly realities, shortcomings, weaknesses and prejudices not only in the health system but in the entire social structure. The initial reaction was predictably panic, passionate protests and aggressive postures on depression and desperation. Problems in screening and identifying seropositive individuals, difficulties in persuading high risk groups to change their life style, absence of specific therapy and high cost of therapeutic measures to prolong survival are some of the difficult issues that confront the health planners and policy makers. Therefore, the HIV infection has uncovered several flaws in the existing social, economic and health care systems.

These components seek to identify and formulate strategies for raising awareness among general public about HIV and AIDS so as to inculcate positive values, attitudes and behaviour for self-protection from the disease. A comprehensive information, education and communication strategy must seek to garner and fully utilize the communication skills available within and outside the government, and mobilize allies in the effort at every level to work for preventing the spread of AIDS on a participatory basis.
The main socially conditioned reason in India of AIDS explosion are large populations, poverty, ignorance about disease, thriving sex industries, extensive intravenous drug abuse, increasing mass migration of labour and rapid growth of business travel and tourism. Sadly, owing to a fearful and misinformed public, AIDS victims are those suspected of harbouring the HIV infections suffer severe social ostracism. Discrimination is bound to impair public health efforts to cope with the AIDS epidemic and check the spread of virus because the infected individual will be reluctant to reveal his/her identity before undergoing testing and treatment. Till today, wrong notions prevail among the masses that AIDS is a disease which only occurs to a person who is morally weak and does perform all sort of bad practices, socially defined as taboo. No one cares for the innocent people who develop this disease by accident or due to quacks who are the only available source of treatment for 70 percent of Indians in rural India. No effective measures have been taken till today to check these sources, and apart from this, the deadly aspect in the attitude of the society towards the asymptomatic. Even the smallest unit of the society (family) finds it a tough going. The asymptomatic becomes the direct target of society which is unbearable in nature. This is the primary cause why patients as well as their family members try to hide this disease to the best of their ability.

Therefore, to accomplish the aforesaid task, a comprehensive empirical research was required with the following elements: to asses the existing knowledge about AIDS among college going students,
their attitudes towards HIV^+ / AIDS patient and, lastly, they can be better educated about this problem because they constitute a high risk group.

**Methodology:**

Research methodology describes the procedures for conducting research. This promotes objectivity, establishes the truth and also gives the study wide acceptability.

1- **Research Design:**

Research design is a plan of action, the plan of collection and analysis of data in an economic efficient and relevant manner. The present study is based on the "descriptive research design" in which "ex-post facto" approach has been followed at the planning stage. Further, the scheme of presentation of the study was developed and given a definite scope in the form of "importance of study". The very first step in the formulation of the outline, the problem was made concrete and explicit. It is very significant to delimit the problem precisely and systematically within the purview of the aspects to be studied. It is due to the fact that each topic has a number of aspects and all the aspects cannot be studied by a researcher at the same time.

2- **Universe:**

The universe of the study is four universities, viz, KANPUR University, Lucknow University, Banaras Hindu University, and Aligarh Muslim University. The samples are drawn from the aforesaid
universities from graduate and post graduate level students.

3- Questionnaire:

Questionnaire was used as a tool for data collection. An evaluation questionnaire containing 20 questions was administered to students to assess their sexual behaviour and their basic knowledge and attitudes regarding HIV/AIDS and their opinions about the persons having HIV/AIDS.

In the present study, no data is available on the proportion of male and female respondents, the proportion of urban and rural students, the educational/economic status of their parents; and other such socio-economic factors which have a bearing on their general behaviour in the context of HIV/AIDS threat in the country.

Sample survey method was to be adopted; selecting samples from each and every institution/college to have a total coverage. Apart from this, the questionnaire can give more perfect knowledge than an interview schedule because Indian students are generally reluctant to talk and answer openly the questions regarding AIDS, sex and sexuality which were asked to them.

4- Use of Secondary Data:

In addition to this, secondary data was also obtained from official records and documents from different sources which has a bearing on the problem in question.
5- Method of Analysis and Interpretation:

After the data has been collected, full attention was paid to its analysis and interpretation, a process consisting of a number of a closely related operations. The purpose of analysis was to summarize the completed observations, in such a manner that they yield answers to the research questions. The purpose of interpretation was to search for the broader meanings of these answers by linking them to other available knowledge. Both these purposes of course, governed the entire research process. The steps which have been undertaken in order to fulfill these objectives are:

(a) The influence of anticipated analysis and interpretation on previous steps.

(b) The establishment of categories.

(c) Coding: The categorization of data.

(d) Tabulation.

(e) Inferring casual relations.

Inspite of all these exercises, many vital issues are left untouched. The reason behind this was lack of questions in questionnaire about socio-economic background of the respondents which could have become variables for analysis. Knowledge of respondents sex too was not known. All that was known is that they were all degree and post graduate students, from various colleges and universities, study in so and so medium of instruction, were exposed to AIDS education programme for the first time, their previous
knowledge about AIDS was almost nil, and that the lectures were delivered mostly in English and the questionnaire was also in English. Based upon this, there were not many variables to analyse the data.

**Interpretation and Analysis of Data:**

All the respondents were given a questionnaire of 20 related questions on AIDS. The objective was to make an assessment of the respondent's factual information and attitudes about AIDS. Thus, in this chapter the presentation of the data drawn from the questionnaire has been shown with its relevance to the present study. The details are given below:
Question-1: "A person can get infected with the AIDS virus and still not show signs of the disease."

Table No.2: Percentage of responses to question No.1.

| Yes   | 73.9 | 84.9 | 88.9 | 88.8 |
| No    | 16.3 | 10.3 | 7.5  | 9.3  |
| Don't know | 8.7 | 4.1  | 3.3  | 0.8  |
| No Response | 1.1 | 0.7  | 0.3  | 0.8  |

Table 2 and Figure-1 shows that a good majority (74 % and above) of the respondents know the fact that a person can get infected with HIV virus and yet not show the symptoms of AIDS. However, it is important to note that there are a good number of students who are not aware of the above said fact, the figure being very significant (16.3 %). In the case of Lucknow university, it may be mentioned that the phrase "AIDS VIRUS" in the question may be replaced with "HIV". The question may be restructured as "A person can get infected with HIV and not show the symptoms of AIDS."
One can get infected with HIV and does not show any symptoms of AIDS
Question-2: "A person can get AIDS virus by sharing needles or syringes with some one who has this virus."

Table No.3: Percentage of responses to question No.2.

<table>
<thead>
<tr>
<th></th>
<th>Lucknow</th>
<th>Kanpur</th>
<th>B.H.U.</th>
<th>A.M.U.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>90.3</td>
<td>90.5</td>
<td>90.3</td>
<td>48.6</td>
</tr>
<tr>
<td>No</td>
<td>8.3</td>
<td>6.5</td>
<td>5.0</td>
<td>50.6</td>
</tr>
<tr>
<td>Don't know</td>
<td>1.1</td>
<td>2.3</td>
<td>1.5</td>
<td>0.5</td>
</tr>
<tr>
<td>No Response</td>
<td>0.2</td>
<td>0.6</td>
<td>0.2</td>
<td>0.3</td>
</tr>
<tr>
<td></td>
<td>100.0</td>
<td>100.0</td>
<td>100.0</td>
<td>100.0</td>
</tr>
</tbody>
</table>

According to the results represented in Table-3 and Figure-2, over 90 % of the respondents of three universities know that a person can get infected with HIV by sharing needles or syringes with some one who has this virus. However, the results from Aligarh University were alarming as half of them did not know that HIV can spread through shared needles/syringes. Here is an indication for further educational intervention in this regard in Aligarh Muslim University Campus.

The statement of the question should have been as follows:

"A person can get HIV by sharing needles/syringes with a person already infected by the virus."
Figure No.-2

HIV infected is spread by sharing needles or syringe with an already infected person
Question-3: "A pregnant woman who is a carrier of AIDS virus can pass it on to her baby."

Table No.4 : Percentage of responses to question No.3.

<table>
<thead>
<tr>
<th></th>
<th>Lucknow</th>
<th>Kanpur</th>
<th>B.H.U.</th>
<th>A.M.U.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>96.9</td>
<td>94.3</td>
<td>93.4</td>
<td>96.5</td>
</tr>
<tr>
<td>No</td>
<td>2.7</td>
<td>4.2</td>
<td>4.9</td>
<td>3.1</td>
</tr>
<tr>
<td>Don't know</td>
<td>0.4</td>
<td>1.1</td>
<td>1.6</td>
<td>0.2</td>
</tr>
<tr>
<td>No Response</td>
<td>0.0</td>
<td>0.4</td>
<td>0.1</td>
<td>0.3</td>
</tr>
<tr>
<td></td>
<td>100.0</td>
<td>100.0</td>
<td>100.0</td>
<td>100.0</td>
</tr>
</tbody>
</table>

The response given by the students from all the four universities regarding question No.3, as represented in Table-4 and Figure-3 shows that a very high proportion of them (93.4 %) to 96.9 %) are aware of the fact that an HIV infected pregnant woman can pass it on to her baby.
Figure No.-3

An infected pregnant women can pass HIV to her baby
Question-4: "AIDS can be cured if detected early."

Table No.5: Percentage of responses to question No.4.

<table>
<thead>
<tr>
<th></th>
<th>Lucknow</th>
<th>Kanpur</th>
<th>B.H.U.</th>
<th>A.M.U.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>23.0</td>
<td>12.8</td>
<td>20.7</td>
<td>5.2</td>
</tr>
<tr>
<td>No</td>
<td>67.9</td>
<td>78.0</td>
<td>74.2</td>
<td>9.4</td>
</tr>
<tr>
<td>Don't know</td>
<td>8.3</td>
<td>8.3</td>
<td>5.0</td>
<td>2.8</td>
</tr>
<tr>
<td>No Response</td>
<td>0.8</td>
<td>0.9</td>
<td>0.1</td>
<td>0.6</td>
</tr>
<tr>
<td>Total</td>
<td>100.0</td>
<td>100.0</td>
<td>100.0</td>
<td>100.0</td>
</tr>
</tbody>
</table>

According to the results shown in Table-5 and Figure-4, most of them know that AIDS can not be cured even if detected early, but a good number of the students from Lucknow, Kanpur and B.H.U. (23.0 %, 12.8 % and 20.7 % respectively) still believed that AIDS can be cured if detected early. Even the proportion of respondents who gave the response "do not know" was significant (8.3 %, 8.3 % and 5.0 % respectively). Therefore, there is a need for further intervention in this regard.
AIDS can be cured if detected early
Question-5: "A person can get AIDS virus by wearing clothes used by some one who has this virus."

Table No.6: Percentage of responses to question No.5.

<table>
<thead>
<tr>
<th></th>
<th>Lucknow</th>
<th>Kanpur</th>
<th>B.H.U.</th>
<th>A.M.U.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>5.5</td>
<td>7.9</td>
<td>5.9</td>
<td>3.4</td>
</tr>
<tr>
<td>No</td>
<td>92.4</td>
<td>90.0</td>
<td>90.9</td>
<td>95.3</td>
</tr>
<tr>
<td>Don't know</td>
<td>2.0</td>
<td>1.7</td>
<td>3.1</td>
<td>1.2</td>
</tr>
<tr>
<td>No Response</td>
<td>0.1</td>
<td>0.5</td>
<td>0.1</td>
<td>0.2</td>
</tr>
<tr>
<td></td>
<td>100.0</td>
<td>100.0</td>
<td>100.0</td>
<td>100.0</td>
</tr>
</tbody>
</table>

More than 90.0 % of the respondents from all the four universities did not believe that person can get the HIV by wearing clothes used by someone who has this virus. The highest figure in this regard, 95.3 %, was recorded in Aligarh Muslim University.
HIV infection is spread by wearing clothes used by an infected person
Question-6: "When a person has AIDS, his or her body cannot defend itself from certain diseases."

Table No.7: Percentage of responses to question No.6.

<table>
<thead>
<tr>
<th></th>
<th>Lucknow</th>
<th>Kanpur</th>
<th>B.H.U.</th>
<th>A.M.U.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>64.8</td>
<td>72.4</td>
<td>51.8</td>
<td>72.2</td>
</tr>
<tr>
<td>No</td>
<td>18.2</td>
<td>15.0</td>
<td>38.4</td>
<td>25.5</td>
</tr>
<tr>
<td>Don't know</td>
<td>16.0</td>
<td>11.8</td>
<td>9.3</td>
<td>2.1</td>
</tr>
<tr>
<td>No Response</td>
<td>1.0</td>
<td>0.9</td>
<td>0.5</td>
<td>0.2</td>
</tr>
<tr>
<td></td>
<td>100.0</td>
<td>100.0</td>
<td>100.0</td>
<td>100.0</td>
</tr>
</tbody>
</table>

The results expressed in Table-7 and Figure-6 shows that a significant proportion of students from all the universities, particularly B.H.U. where almost half of them, and Aligarh Muslim University where more than one fourth, are not aware that when a person has AIDS, his or her body can not defend itself from certain diseases.

This is another important area where further educational intervention is required.
The body of a person having AIDS cannot defend itself from certain diseases.
Question-7: "A person can get AIDS virus by being bitten by a mosquito which has already fed on a person with this virus."

Table No.8: Percentage of responses to question No.7.

<table>
<thead>
<tr>
<th></th>
<th>Lucknow</th>
<th>Kanpur</th>
<th>B.H.U.</th>
<th>A.M.U.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>18.2</td>
<td>15.4</td>
<td>16.5</td>
<td>17.9</td>
</tr>
<tr>
<td>No</td>
<td>71.4</td>
<td>75.8</td>
<td>76.5</td>
<td>78.9</td>
</tr>
<tr>
<td>Don't know</td>
<td>9.6</td>
<td>8.0</td>
<td>6.8</td>
<td>3.2</td>
</tr>
<tr>
<td>No Response</td>
<td>0.9</td>
<td>0.8</td>
<td>0.3</td>
<td>0.0</td>
</tr>
<tr>
<td></td>
<td>100.0</td>
<td>100.0</td>
<td>100.0</td>
<td>100.0</td>
</tr>
</tbody>
</table>

The study showed through Table-8 and Figure-7 that although about three fourth of the respondents know that HIV infection is not spread by mosquito bites, here is an indication for further intervention.
AIDS is spread through mosquito bite

Figure No.-7
Question-8: "One can tell if the person has AIDS virus by the way he or she looks."

Table No.9: Percentage of responses to question No.8.

<table>
<thead>
<tr>
<th></th>
<th>Lucknow</th>
<th>Kanpur</th>
<th>B.H.U.</th>
<th>A.M.U.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>7.7</td>
<td>4.6</td>
<td>5.2</td>
<td>3.8</td>
</tr>
<tr>
<td>No</td>
<td>84.3</td>
<td>88.9</td>
<td>89.4</td>
<td>93.0</td>
</tr>
<tr>
<td>Don't know</td>
<td>7.2</td>
<td>6.9</td>
<td>5.0</td>
<td>2.8</td>
</tr>
<tr>
<td>No Response</td>
<td>0.7</td>
<td>0.5</td>
<td>0.3</td>
<td>0.5</td>
</tr>
</tbody>
</table>

The results regarding question no.8 Table-9 and Figure-8 reveal that a very high proportion of the respondents (from 84.3 % to 93.0 %) from all the four universities did not believe that one can tell if a person has AIDS by the way he/she looks. The phrase "AIDS virus" in the question may be replaced with "HIV" to make it more appropriate.
One can tell if the person has AIDS by the one looks
**Question-9:** "Use of condom when having sex can prevent infection by AIDS."

**Table No.10: Percentage of responses to question No.9.**

<table>
<thead>
<tr>
<th></th>
<th>Lucknow</th>
<th>Kanpur</th>
<th>B.H.U.</th>
<th>A.M.U.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>83.8</td>
<td>90.3</td>
<td>85.3</td>
<td>79.5</td>
</tr>
<tr>
<td>No</td>
<td>7.4</td>
<td>4.4</td>
<td>5.6</td>
<td>16.1</td>
</tr>
<tr>
<td>Don't know</td>
<td>8.2</td>
<td>4.4</td>
<td>8.8</td>
<td>4.4</td>
</tr>
<tr>
<td>No Response</td>
<td>0.6</td>
<td>0.9</td>
<td>0.4</td>
<td>0.0</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>100.0</td>
<td>100.0</td>
<td>100.0</td>
<td>100.0</td>
</tr>
</tbody>
</table>

The proportion of respondents who knew that the use of condom during sexual intercourse can prevent HIV infection, ranged from 79.5 % in Aligarh Muslim University to 90.3 % in Kanpur University. Thus, a good majority of them knew one of the preventive methods of HIV infection. However, a further intervention for students of Aligarh University may be considered. The more appropriate statement of the question would be: "use of condom during sexual intercourse can prevent HIV infection."
Figure No.-9

Use of condom during sex can prevent HIV infection
Question-10: "Having sex with many partners increase a person's risk of getting infected with AIDS virus."

Table No.11: Percentage of responses to question No.10.

<table>
<thead>
<tr>
<th></th>
<th>Lucknow</th>
<th>Kanpur</th>
<th>B.H.U.</th>
<th>A.M.U.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>92.9</td>
<td>92.9</td>
<td>93.2</td>
<td>96.8</td>
</tr>
<tr>
<td>No</td>
<td>3.8</td>
<td>4.0</td>
<td>3.8</td>
<td>2.8</td>
</tr>
<tr>
<td>Don't know</td>
<td>2.8</td>
<td>2.2</td>
<td>2.6</td>
<td>0.3</td>
</tr>
<tr>
<td>No Response</td>
<td>0.5</td>
<td>0.9</td>
<td>0.4</td>
<td>0.3</td>
</tr>
<tr>
<td></td>
<td>100.0</td>
<td>100.0</td>
<td>100.0</td>
<td>100.0</td>
</tr>
</tbody>
</table>

Table-11 and Figure-10 shows that an extremely high proportion of the respondents, about 93.0 % in three universities and about 97.0 % in the other, were aware that a person's risk of getting infected with HIV increases due to having multiple sex partners. However, when the results of question no.9 and 10 are compared, it appears that some students, particularly from Aligarh University did not seem to understand the relation between use of condom to prevent HIV infection and increased risk of HIV infection due to multiple sex partners.
Figure No.-10

Having multiple sex partners increases the risk of getting HIV infection
Question-11: "I worry about getting AIDS".

Table No.12: Percentage of responses to question No.11.

<table>
<thead>
<tr>
<th></th>
<th>Lucknow</th>
<th>Kanpur</th>
<th>B.H.U.</th>
<th>A.M.U.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>36.7</td>
<td>28.3</td>
<td>26.7</td>
<td>72.2</td>
</tr>
<tr>
<td>No</td>
<td>55.6</td>
<td>64.9</td>
<td>63.1</td>
<td>16.4</td>
</tr>
<tr>
<td>Don't know</td>
<td>7.0</td>
<td>6.0</td>
<td>9.7</td>
<td>10.7</td>
</tr>
<tr>
<td>No Response</td>
<td>0.7</td>
<td>0.9</td>
<td>9.7</td>
<td>0.8</td>
</tr>
</tbody>
</table>

|              | 100.0   | 100.0  | 100.0  | 100.0  |

It is interesting to note that more than half of the respondents, except in Aligarh Muslim University, admitted that they did not worry about getting AIDS. It is also interesting to note that over 72.0 % respondents in Aligarh Muslim University agreed that they were worried about getting AIDS. The statement of the question is vague and ambiguous; and therefore the results expressed in Table-12 do not lead to an appropriate conclusion about the attitude of respondents in this regard.
Figure No.-11

Worry about getting AIDS
Question-12: "I know how to protect myself against AIDS."

Table No.13: Percentage of responses to question No.12.

<table>
<thead>
<tr>
<th></th>
<th>Lucknow</th>
<th>Kanpur</th>
<th>B.H.U.</th>
<th>A.M.U.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>90.4</td>
<td>90.0</td>
<td>85.0</td>
<td>96.3</td>
</tr>
<tr>
<td>No</td>
<td>5.7</td>
<td>5.2</td>
<td>8.8</td>
<td>2.1</td>
</tr>
<tr>
<td>Don't know</td>
<td>3.6</td>
<td>4.2</td>
<td>5.6</td>
<td>1.5</td>
</tr>
<tr>
<td>No Response</td>
<td>0.3</td>
<td>0.6</td>
<td>0.6</td>
<td>0.1</td>
</tr>
<tr>
<td></td>
<td>100.0</td>
<td>100.0</td>
<td>100.0</td>
<td>100.0</td>
</tr>
</tbody>
</table>

The statement of question no.12 is also vague. As per the results shown in Table-13 and Figure-12, 85.0 % of the students in B.H.U. Varansi and more than 90.0 % in other universities knew as to how to protect themselves against AIDS.
Know the protection against AIDS
Question-13: "I know what AIDS stands for."

Table No.14: Percentage of responses to question No.20.

<table>
<thead>
<tr>
<th></th>
<th>Lucknow</th>
<th>Kanpur</th>
<th>B.H.U.</th>
<th>A.M.U.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>83.5</td>
<td>56.1</td>
<td>60.4</td>
<td>87.5</td>
</tr>
<tr>
<td>No</td>
<td>12.1</td>
<td>38.6</td>
<td>35.8</td>
<td>11.6</td>
</tr>
<tr>
<td>Don't know</td>
<td>3.7</td>
<td>4.2</td>
<td>3.1</td>
<td>0.6</td>
</tr>
<tr>
<td>No Response</td>
<td>0.7</td>
<td>1.0</td>
<td>0.7</td>
<td>0.3</td>
</tr>
</tbody>
</table>

Table-14 indicates that most of the students felt sorry for persons who have AIDS, the highest number of them being in Aligarh Muslim University (87.5%) it is important to note that only 56.1% of the students of Kanpur University had sympathy for persons having AIDS. Moreover, even the number of students who had no sympathy or had no clear opinion was also significant in view of AIDS education. A further intervention in this regard is required, particularly in Kanpur University.
Figure No.-13

I feel sorry for people having AIDS
Question-14: "I would rather take the risk of getting AIDS than miss the chance of having sex with an attractive girl / boy."

Table No.15: Percentage of responses to question No.15.

<table>
<thead>
<tr>
<th></th>
<th>Lucknow</th>
<th>Kanpur</th>
<th>B.H.U.</th>
<th>A.M.U.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>8.0</td>
<td>6.8</td>
<td>19.8</td>
<td>6.6</td>
</tr>
<tr>
<td>No</td>
<td>78.8</td>
<td>83.0</td>
<td>74.3</td>
<td>85.9</td>
</tr>
<tr>
<td>Don't know</td>
<td>12.0</td>
<td>8.9</td>
<td>5.1</td>
<td>6.9</td>
</tr>
<tr>
<td>No Response</td>
<td>1.2</td>
<td>1.2</td>
<td>0.8</td>
<td>0.6</td>
</tr>
<tr>
<td></td>
<td>100.0</td>
<td>100.0</td>
<td>100.0</td>
<td>100.0</td>
</tr>
</tbody>
</table>

Table-15 and Figure-14 indicate that majority of respondents agreed that it is not worth having sex with an attractive person if there is a risk of getting AIDS. It is important to note that about one fifth of respondents in B.H.U. and ranging from 6.6 % to 8.0 % in other universities agreed to take the risk of getting AIDS in lieu of having sex with an attractive person. There were even a good number of students, particularly in the case of Lucknow University (12.0 %), who gave the response "Do not Know", thereby indicating their chances of vulnerability.
Figure No.-14

Willing to take the risk of getting AIDS for having sex with an attractive person
Question-15: "Most of my friends have had sexual intercourse."

Table No.16: Percentage of responses to question No.16.

<table>
<thead>
<tr>
<th></th>
<th>Lucknow</th>
<th>Kanpur</th>
<th>B.H.U.</th>
<th>A.M.U.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>4.0</td>
<td>6.8</td>
<td>11.0</td>
<td>3.4</td>
</tr>
<tr>
<td>No</td>
<td>64.7</td>
<td>67.5</td>
<td>52.6</td>
<td>70.9</td>
</tr>
<tr>
<td>Don't know</td>
<td>30.3</td>
<td>24.7</td>
<td>36.0</td>
<td>25.1</td>
</tr>
<tr>
<td>No Response</td>
<td>1.0</td>
<td>1.0</td>
<td>0.4</td>
<td>0.6</td>
</tr>
<tr>
<td></td>
<td>100.0</td>
<td>100.0</td>
<td>100.0</td>
<td>100.0</td>
</tr>
</tbody>
</table>

Table -16 and Figure-15 shows that there is some sexual activity among our college students. However, the statement of question is very vague and the results obtained (as shown in Table-16 and Figure16) can not be valid. More than half of the respondents (70.9% in case of A.M.U. said that most of their friends had no sexual experience, while about one-third of them said "Do not know". It is a well known fact that in our culture many unmarried/single persons are secretive about their sexual affairs/intercourse and there it is doubtful whether one is really aware of his/her friends sexual matters. A better information regarding the degree of premarital sex in the campus can be ascertained only through personal interviews by designing very specific and unambiguous questions.
Figure No.-15

Most of the friends have had sexual intercourse
Question-16: "My parents would be upset if they found out that I am having sex with some one.

Table No.17: Percentage of responses to question No.17.

<table>
<thead>
<tr>
<th></th>
<th>Lucknow</th>
<th>Kanpur</th>
<th>B.H.U.</th>
<th>A.M.U.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>84.5</td>
<td>56.7</td>
<td>72.8</td>
<td>74.8</td>
</tr>
<tr>
<td>No</td>
<td>7.7</td>
<td>32.0</td>
<td>18.9</td>
<td>6.6</td>
</tr>
<tr>
<td>Don't know</td>
<td>6.9</td>
<td>10.5</td>
<td>7.7</td>
<td>17.6</td>
</tr>
<tr>
<td>No Response</td>
<td>0.9</td>
<td>0.8</td>
<td>0.6</td>
<td>1.0</td>
</tr>
<tr>
<td></td>
<td>100.0</td>
<td>100.0</td>
<td>100.0</td>
<td>100.0</td>
</tr>
</tbody>
</table>

Table-17 and Figure-16 indicate the opinion of respondents regarding their parents feelings/attitudes about pre-marital sexual relations of their children. Most of the students believe that parents would be upset about their pre-marital sex and such a belief among students is more prevalent in Lucknow University (84.5 %) than in other universities, probably due to the fact that the respondents were all women. It is important to note that in Kanpur and B.H.U. a significant proportion of them (32.0 % and 18.9 % respectively) believe that their parents would not be upset about their having sex with some one. The results also show that there are a good number of students who are not clear about their parents' attitude in this regard particularly in Aligarh Muslim University (176 %).
Parents would be upset if they found out about the pre-marital sex of their children.
Table No.18 : Percentage of responses to question No.18.

<table>
<thead>
<tr>
<th></th>
<th>Lucknow</th>
<th>Kanpur</th>
<th>B.H.U.</th>
<th>A.M.U.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>9.1</td>
<td>9.8</td>
<td>8.7</td>
<td>4.0</td>
</tr>
<tr>
<td>No</td>
<td>84.8</td>
<td>80.4</td>
<td>83.7</td>
<td>92.0</td>
</tr>
<tr>
<td>Don't know</td>
<td>5.6</td>
<td>8.7</td>
<td>7.0</td>
<td>3.5</td>
</tr>
<tr>
<td>No Response</td>
<td>0.5</td>
<td>1.1</td>
<td>0.6</td>
<td>0.5</td>
</tr>
</tbody>
</table>

This question is aimed at knowing the attitude of students regarding pre-marital sexual activity of girls. The result as shown in Table-18 and Figure-17 indicate that a vast majority of them believe that it is not alright for girls to have before marriage which is consistent with the general Indian culture. But the number of students who gave other kinds of responses is also significant in view of AIDS education. While about 9.0 % (except in Aligarh Muslim University) of them are in favour of pre-marital sex of girls, almost the same proportion are not clear about it. These results of question No.17 and show in view of our Indian cultural background, that there is a trend of changing values regarding sex.
Figure No.-17

Pre-marital sex for girls is alright
Question-18: "I would be friendly with some one who has AIDS."

Table No.19: Percentage of responses to question No.19.

<table>
<thead>
<tr>
<th></th>
<th>Lucknow</th>
<th>Kanpur</th>
<th>B.H.U.</th>
<th>A.M.U.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>71.3</td>
<td>75.6</td>
<td>78.2</td>
<td>84.6</td>
</tr>
<tr>
<td>No</td>
<td>18.5</td>
<td>15.3</td>
<td>17.0</td>
<td>12.2</td>
</tr>
<tr>
<td>Don't know</td>
<td>9.7</td>
<td>8.1</td>
<td>4.0</td>
<td>3.0</td>
</tr>
<tr>
<td>No Response</td>
<td>0.5</td>
<td>1.0</td>
<td>0.8</td>
<td>0.2</td>
</tr>
</tbody>
</table>

Table-19 and Figure-18 indicate that most of the students (highest percentage, 84.6 % being in Aligarh Muslim University) were willing to be friendly with some one having AIDS. But in view of AIDS education, the number of respondents who were not clear about it and who were not willing to be friendly with persons having AIDS is significant. Therefore, a further intervention in this regard is important.
Figure No.-18

Willing to be friendly with some one having AIDS
Question-19: "Other students should be told if a student with AIDS virus is attending their school/college."

Table No.20: Percentage of responses to question No.19.

<table>
<thead>
<tr>
<th></th>
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<th>Kanpur</th>
<th>B.H.U.</th>
<th>A.M.U.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>56.0</td>
<td>52.3</td>
<td>57.5</td>
<td>85.9</td>
</tr>
<tr>
<td>No</td>
<td>32.9</td>
<td>33.2</td>
<td>36.3</td>
<td>12.1</td>
</tr>
<tr>
<td>Don't know</td>
<td>10.1</td>
<td>13.1</td>
<td>5.5</td>
<td>1.4</td>
</tr>
<tr>
<td>No Response</td>
<td>1.0</td>
<td>1.4</td>
<td>0.7</td>
<td>0.6</td>
</tr>
<tr>
<td></td>
<td>100.0</td>
<td>100.0</td>
<td>100.0</td>
<td>100.0</td>
</tr>
</tbody>
</table>

According to the result as expressed in Table-20 and Figure-19, a little more than half of the students, except in Aligarh Muslim University in which case 85.9% of them, believed that other students should be told if a student with HIV/AIDS is attending their school/college. About one-third of them (except in Aligarh Muslim University) were of the opposite opinion. There were a good number of them in Kanpur and Lucknow University (14.5% and 11.1% respectively) who had no clear opinion about it.
Figure No.-19

Others in schools/colleges should be informed if a student has AIDS
Question-20: "People entering the country should be tested for AIDS virus."

Table No.21: Percentage of responses to question No.20.

<table>
<thead>
<tr>
<th></th>
<th>Lucknow</th>
<th>Kanpur</th>
<th>B.H.U.</th>
<th>A.M.U.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>86.4</td>
<td>84.7</td>
<td>91.8</td>
<td>99.1</td>
</tr>
<tr>
<td>No</td>
<td>6.2</td>
<td>7.3</td>
<td>4.8</td>
<td>0.6</td>
</tr>
<tr>
<td>Don't know</td>
<td>6.7</td>
<td>6.8</td>
<td>2.8</td>
<td>0.3</td>
</tr>
<tr>
<td>No Response</td>
<td>0.7</td>
<td>1.2</td>
<td>0.6</td>
<td>0.0</td>
</tr>
<tr>
<td></td>
<td>100.0</td>
<td>100.0</td>
<td>100.0</td>
<td>100.0</td>
</tr>
</tbody>
</table>

Table-21 and Figure-20 show that a very high proportion (99.1 % in the case of Aligarh Muslim University) believe that people entering this country should be tested for HIV/AIDS. In this context, comparatively, students of Kanpur and Lucknow Universities were less apprehensive about the persons with HIV entering this country.
People entering the country should be screened for HIV presence
B- ENVIRONMENTAL PROTECTION

Environment is the sum total of all conditions and influences that affect the development and life of a human being and other organisms. It includes, air, water and land, and dynamically, the interrelationship which exists between these and human beings, other living creatures, plants, micro-organisms and property etc.

About two and a half million years back, man started using only a small portion of God gifted natural resources. With the increase in human population and their and advancement of technology and culture, he modified the natural system into an artificial and a highly-productive one to get more and more energy, nutrient sources etc. It resulted in the production of more bye products and wastes which naturally mixed up in the nature gradually. This enormous exploitation of natural resources and gigantic and unmanageable amount of bye-products and wastes have resulted nowdays in environmental crises which has endangered not only human existence but the earth's as well.

Today, we have an awareness as to how human beings influence the use or conservation of natural resources and how changes in ecological structures affected human beings. Humans need to learn to live within the constraints imposed by the physical environment and recognised the latter is both a provider of inputs and a sink for waste. As prevention is better than cure, we need immediate measures to readjust our eco-system before it becomes irreparable.

The natural environmental resources of air, water, soil, plant
and animal life constitute the natural capital on which human beings depend to satisfy their needs to achieve their aspirations for development. The wise management of these resources demands positive and realistic planning that balances human needs against the potential environment has for meeting them. That is the reason why decision-makers, scientists, social workers, NSS volunteers and even laymen are becoming increasingly conscious of a variety of issues like, global warming, ozone layer depletion, acid-rain, famines, droughts, floods, earthquakes, scarcity of fuel, fire wood and fodder, pollution of air and water, problems from hazardous chemicals and radiation, degradation of land, desertification, depletion of precious natural resources, extinction of wildlife, dangers to flora and fauna, life-style needing excessive and even wasteful consumption of materials on the one hand, and poverty, leading to unsustainable exploitation of nature's gifts, on the other hand all having a cumulative, disastrous and adverse effects on the human environment.

The environmental crisis has manifested itself in various forms. The main forms have been mentioned below:

**Pollution:**

Pollution refers to contamination of natural ingredients of environment.

**Air Pollution:**

Air is a mixture of various gases like N₂, O₂, CO₂, H₂, He, water vapours etc. which form an equilibrium. When this equilibrium of gases
is disturbed beyond the limits fixed by environment itself, air-pollution occurs. If the percentage of any gas increases or decreases to the extent that it can not be reverted to its definite ratio by virtue of natural balance, it disturbs the ratio of gases present in the air and consequent results are seen in the forms of acid-rain, green house effect (rise in temperature of earth resulting in climatic changes, rise in sea level, disturbed eco-system and diseases), increased respiratory problems and related lung & heart diseases, ozone-layer depletion, smoky fog and damage to plants, property etc. In India, the common sources of air-pollution are industrial, traffic (automobile) and domestic emissions including thermal power stations, fertiliser factories, textile mills and sugar factories etc.

**Water Pollution:**

Water pollution is defined as contamination of water and alteration of physical, chemical and biological properties of water, or contamination, by sewage or trade effluent or any other liquid, gaseous or solid substance, into water that is likely to create a nuisance by way of physical appearance, odour, taste or render such water harmful and injurious to public health, for the purpose of domestic, commercial, industrial, agricultural or other legitimate uses, or to health of animals or aquatic life.

**Water pollution is caused by :**

(i) Dumping of domestic wastes like sewage and industrial wastes into rivers, lakes or on open places;
(ii) Excessive use of fertilisers and pesticides in agricultural practices;

(iii) The gaseous effluents changed into acids on coming in contact with humid atmosphere and acid-rains;

(iv) Bathing of human beings and animals, cleaning of utensils and throwing of half burnt or unburnt corpses into lakes, rivers and ponds.\(^{58}\)

Water pollution results in many water-borne diseases, which include malaria, filariasis, cholera, typhoid, conjunctivities, amoebiasis, diarrhoea, jaundice, dysentery, intestinal worms and parasites which may cause polio, dental fluorescentes, stomach diseases, skin-infections, lung diseases, pain in joints, bow legs (deformity in legs) to name a few; and killing of plants and animals inside and outside the water. In Uttar Pradesh, there is now a wealth of documented evidence from all over the state of the adverse effects of water pollution. Almost all rivers including Ganga, Yamuna, Gomti and lakes and ponds are heavily polluted. In some areas, even the ground water had been found to have pollutants mixed in it.\(^{59}\) The state of affairs needs immediate attention at local, regional and national levels.

**Land Pollution & Desertification:**

Increased use of chemical fertilisers, flood watering, pesticides, insecticides, herbicides and excessive use of soils (multiple-cropping) have changed the soil ecology and have degraded it so much that it has lost its basic elements which maintain soil fertility and natural soil
This phenomenon is known as soil pollution. The results of soil pollution are seen in serious deficiency of elements like calcium, magnesium, sulphur, iron, copper, zinc, boron, molybdenum, manganese nitrogen, potassium and phosphorus in the soil, destruction of some useful plants and organisms which provide humus to the soil and are essential in the cycling of nutrients, health crisis in human beings as a result of contaminated food grains, vegetables and fruits; and making the soil alkaline etc. According to estimates made by the Ministry of Agriculture in March, 1980, as much as 175 million hectares, out of the country's total land area of 304 million hectares, was found affected by environmental problems. This number has increased since then and today the situation is more gloomy.

Desertification is a man-made phenomenon caused by over-cultivation, over-grazing, deforestation, ill-planned irrigation projects and air, water and soil pollution. Desertification is destructive to ecosystem, results in reduced fertile land for cultivation culminating in food-shortages and various climatic changes. Carpenter (1982) has defined desertification, "as a process which reduces the productivity of land and increases social distress. It also includes problems of deforestation, aridity and semiaridity, range land management, waterlogging and salinity and degradation of soil due to erosion, chemical action and the possible factors."  

Noise Pollution:

The effect of noise on human beings and other organisms depends upon its intensity, frequency and duration. Today, noise can
be expressed in units called decibels (dB). 85 decibels is considered as the tolerance limit of noise.\textsuperscript{63} When noise level crosses this limit, noise pollution takes place. Noise pollution is caused by heavy traffic, blaring music over loud-speakers, jet-planes and industries. It causes threat to our physiological well being, in terms of deafness, hearing impairment and other diseases and mental well-being. It proves fatal to certain organisms-animals & plants.\textsuperscript{64}

**Deforestation & Loss of Bio-Diversity:**

The phenomenon of deforestation may be explained in terms of loss of forests, i.e., loss of plant growth which may be due to a number of causes which bring about an imbalance in the ecosystem as a whole. Globally, forests are vanishing at a rate of some 17 million hectares per year and in India, remote sensing data and free satellite images reveal that the country is losing on an average 1.30 to 1.5 million hectares of forests per year.\textsuperscript{65} It is a well-known fact that forests from the primary nutritional base of a country and that they are global genetic store-houses and controllers of the hydrological cycle. They check the climatic deterioration as well. Deforestation globally symbolizes the situation of over-exploitation of natural resources. Unfortunately, the old Thai saying - "Experience is a comb which nature gives to man after he is bald" holds true in this case of earth fast becoming bald (devoid of forests).\textsuperscript{66}

The causes of deforestation include cutting of trees to obtain timber, fuelwood, fodder and grazing, extraction of resin, construction
of roads and human settlements, snowfall and avalanches, acquiring land for cultivation, fire to provide raw materials for industries and climatic changes due to pollution etc. The effects of deforestation may be observed as loss of bio-diversity, adverse effects on natural phenomena like rainfall, atmospheric quality, floods, land slides, earthquakes and other natural disasters, soil-erosion, desertification and scarcity of timber, fuel wood, fodder, forest products like resin, various foods, drugs, oils, waxes, fibre and raw materials for industries. Another effect of deforestation can be seen in loss of Tribesmen and their culture globally.67

The loss of bio-diversity has resulted in extinction of many plant and animal species all over the world. The Botanical Survey of India (1980) and the Zoological Survey of India (1981) estimated 45000 plant species and 75000 animal species have been identified and recognised in our country, out of which 79 species of mammals, 44 of birds, 15 of reptiles, 3 of amphibians and nearly 1500 plant species were found to be on the verge of extinction.68

**Garbage & Associated Waste Management Problems:**

Garbage is made of wastes created by human population, science & technology and industry. There are mainly three types of wastes - solid, liquid, and nuclear wastes. Bulky solid wastes like plastics, polythenes, rubber and metals are causing a threat for earth to be come a garbage store. Solid wastes can be further classified into two categories of bioderadable and non-degradable wastes which are
causing a serious threat. The main methods followed for disposal of solid garbage are burying (landfil), burning and recycling. The only cost-effective environment friendly method is recycling. However, wastes from hospitals, etc. due to their specific nature, require special methods of treatment. Dissolved pesticides, fertilizers, treated or untreated sewage, heavy metals, non-degrading chemicals, detergents, DDT & CD-NI batteries are major liquid wastes which create difficult problems. Effluents from aquaculture; like prawn farming, are also polluting land and water. Nuclear wastes and radiations are caused by nuclear industry and these produce highly toxic, long lasting pollutants which create problems of health for generations and make soil unutilisable by contaminating it with radioactive products. Accidental release of radioactive gases and liquids is a major threat to the health of humans and other species. In order to maintain stable economic growth in future and to ensure human health and existence, it is necessary to use our resources carefully and to evolve technologies for recycling, or managing otherwise, the waste and residues.

**Energy Crisis:**

Natural resources of energy are sun, water, fuelwood, coal, gases and petroleum. The unplanned and overexploitation of these resources has created a global energy crisis. The scarcity of fuelwood, coal, petroleum and gases, at their present rate of exploitation, is going to result in total elimination of these things in near future. Very high consumption of energy due to industrial requirements, transportation,
agriculture, household requirements and in enhanced use of science and technology has led to this phenomenon of energy crisis. Although, India's per capita consumption of commercial energy is only one-eighth of the global average, the indiscriminate and unplanned use of energy sources has led to an energy crisis, specially in rural areas. The seventh and consequent five-year plans have emphasised the development and accelerated utilization of New and Renewable Sources of Energy (NRSE) to protect the environment from adverse impacts of utilising energy resources in an injudicious manner. In several NRSE fields, such as biogas, improved 'chullahs' and solar energy, India at present is leading in such technological development and application. The energy requirements in India is heavily dependent on the traditional fuels among which the firewood is the most important one followed by agriculture waste and animal dungs, rural firewood is an important strategy for several years to come as part of our national energy policy which also covers energy plantation, biogas, bioconservation of wastes, tapping of solar, wind, tidal and other non-conventional sources of energy so that pressure on conventional sources can be reduced.

**Causes of Environmental Crisis:**

Environmental crisis in India and abroad have specific reasons behind it.
Population Explosion:

The world population is growing by 92 million people annually and in India, every second, a number is added to the population. The major challenge to environmental crisis in India particularly in Uttar Pradesh is the rapid growth of population. By the census of 1991, the population of India was 850 million, and in Uttar Pradesh 350 million. It is constantly increasing and is estimated to be one billion by the turn of this century. The problem of population, having very personal nature, has long been a very emotional issue. However, there is a direct relationship between increase in population numbers and environmental impact. More people requiring more food, utilizing more land for cultivation, more housing, utilising more lands for buildings, more minerals, more water and more energy. The side effects include enhanced use of chemicals, chemicals fertilisers, insecticides, pesticides, deforestation, increased pollution and heavy load on transport etc. Thus, population growth is a major environmental problem though it is one of the several problems.

While number of people account for about 15 percent of the world population, we have only 2.4 percent of the land area available. Since there is an upper limit to the availability of land and most other resources, we need to know the carrying capacity of our country. The carrying capacity may by considered in conjunction with the availability of food, water, land, energy and the likes. The birth-rate must come down from 34 per 1000 to about 9 per thousand at par with death rate of 9 per thousand to stabilise our population.
Poverty:

The poor are the hardest hit by the loss of natural resources and pollution, least equipped to protect themselves and as they do not have a choice, they are also the people who cause most damage to the environment. However, it is inhuman to ask the poor to conserve and improve natural resources when they are struggling to keep their bodies and souls together. To them, what is at risk is not the quality of life but the life itself.76

Urbanisation & Industrialization:

Today, India has become the tenth largest industrial nation of the world. But, at the same time, it is one of the most polluted countries of the world as far as industrial pollution and hazardous wastes are concerned. The general indifference of industries, on aspects of environmental safety and protection, has led to the spread of avoidable air, water and soil pollution. The real problem faced by us is from the unregulated industrial development. Moreover, majority of industrial units are producing wastes in liquid, gaseous and solid forms, some of which are toxic and hazardous. The current methods of treatment and disposal of hazardous wastes need closer monitoring and follow up. Sometimes, industries leave these wastes simply untreated as well.

The process of industrialisation is usually preceded by the process of urbanisation. The report of the 'National Commission on Urbanisation' submitted in August, 1988, has estimated that by the turn of the century, the urban population will be about 340 million,
roughly a third of the total population of India. Buch (1982) has rightly warned that "the urban ecosystem is in crisis, which will increase in geometrical progression, as urbanisation accelerates and the availability of financial resources for urban development declines." The skewed urban development has deteriorated the environment visibly and considerably in both the urban and rural areas. In the rural areas, there was stagnation and it resulted in pronounced environmental debility. The urban areas suffer from their own plight: scattered settlements, lack of sanitation and water supply, over crowding, congestion and pollution.

The cities in Uttar Pradesh are facing environmental problems like lack of sanitation, chronic shortage of services, polluted air and water, lack of open space and recreational areas, traffic congestion etc. Moreover, the domestic and industrial waste disposal in the urban areas is very dangerous. Most of the cities are lacking sewer systems. The congestion and deteriorating air-quality in the urban areas is a result of the increase in population, in its manufacturing activities and in its automobiles. Noise levels in cities are extremely high due to loud-speakers, hawking, manufacturing activities and manifold increase in the automobiles.

The need of time is, a well-controlled and well-managed process of urbanisation in order to curb rural-urban migration and other related problems.
Illiteracy & Ignorance:

Mass illiteracy and ignorance is yet another cause of environmental degradation not only in our country but globally. The level of environmental literacy is very low and there is gross undervaluation of the economic, aesthetic, meta-physical and ecological aspects of biological diversity, carrying capacity of the nature and industrialisation.

Inequality:

The chasm of inequality is a major cause of environmental deterioration in the entire world. The inequality in income and wealth between rich and poor is gradually becoming more sharpened. The inequitous growth has promoted over consumption at the top and has worsened starvation at the bottom. People at either end of the income spectrum are more likely, than those in the middle, to damage the ecological health of the planet. It is believed that the need of the poor and the greed of the rich are primarily responsible for environmental crisis.79

Transport:

The environmental impact of transportation systems extends well beyond populated areas, affecting many ecosystems and significantly influencing the use of natural resources. These are major consumers of oil and contribute heavily to air-pollution and to acid-precipitation and green house effect.
Noise pollution is also caused by increased load on transportation and this has also resulted in disastrous calamities.

**Vehicular Pollution:**

It is the primary cause of air pollution in the urban areas (60%) followed by industries (20-30%) and fossil fuel.

**Table No.-22**

**Vehicular population in major metropolitan cities in India.**

<table>
<thead>
<tr>
<th>Types of Vehicles</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>2/3 wheelers</td>
<td>69</td>
</tr>
<tr>
<td>car, jeep, taxis</td>
<td>14</td>
</tr>
<tr>
<td>bus, trucks</td>
<td>8</td>
</tr>
<tr>
<td>others</td>
<td>9</td>
</tr>
</tbody>
</table>

(Source: The Sunday Times of India, New Delhi-1997)

About one-fifth of vehicular population in India is concentrated in the major metropolitan cities. Among them, Delhi is the most polluted city in India and Kanpur tops in Uttar Pradesh. About 2,000 metric tonnes of pollutants are emitted in the atmosphere by vehicles every day.

The principal pollutants emitted by vehicles are carbon monoxide (CO), lead (Pb), sulphur dioxide (SO₂), hydrocarbons (HC), oxides of nitrogen (NO), and suspended particulate matter (SPM). State Pollution Control Board (SPCB) in Lucknow indicates that vehicular activities contribute about 70% of the total quantity of emissions, while its impact
in the region is about 98% of the total impact.\textsuperscript{82}

**Ambient air quality standards in India**

**Table No.-23**

<table>
<thead>
<tr>
<th>Categories</th>
<th>SPM</th>
<th>$\text{SO}_2$ (ug/M$^3$)</th>
<th>NO</th>
</tr>
</thead>
<tbody>
<tr>
<td>Industrial region.</td>
<td>500</td>
<td>120</td>
<td>120</td>
</tr>
<tr>
<td>Residential &amp; Rural areas.</td>
<td>200</td>
<td>80</td>
<td>80</td>
</tr>
<tr>
<td>Sensitive areas like, Hillstations, National parks, sanctuaries etc.</td>
<td>100</td>
<td>30</td>
<td>30</td>
</tr>
</tbody>
</table>

(Source: The Hindustan Times, New Delhi, 1998)

An annual average level of total suspended particulates (TSP) is five times higher than the standard set by the WHO in case of Delhi, Calcutta, Kanpur.\textsuperscript{83}

**Impact on Human Beings:**

Various pollutants have their negative effects on human beings either directly or indirectly, as listed below:

**Table No.-24**

<table>
<thead>
<tr>
<th>Pollution</th>
<th>Source</th>
<th>Effects</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sulpherdioxide</td>
<td>Power Houses &amp; Petroleum Industries</td>
<td>Suffocation, irritation of throat and eyes, respiratory diseases.</td>
</tr>
<tr>
<td>Nitrogen Dioxide</td>
<td>Automobiles</td>
<td>Irritation, Bronchitis, Oedema of lungs.</td>
</tr>
<tr>
<td>Hydrogen Fluorides</td>
<td>Fertilizers &amp; Chemical Industries</td>
<td>Irritation, diseases of bone, mottling of teeth, respiratory</td>
</tr>
<tr>
<td>Carcinogenic Hydrocarbons &amp; Automobiles</td>
<td>Chemical Industries &amp; Automobiles</td>
<td>Power Stations</td>
</tr>
<tr>
<td>----------------------------------------</td>
<td>----------------------------------</td>
<td>----------------</td>
</tr>
<tr>
<td>Dust Mines, Quarries, Ceramic Factories &amp; Power Stations</td>
<td>Noise(65 decibels)</td>
<td>Automobiles, Factories, Loudspeakers etc.</td>
</tr>
<tr>
<td>Noise(65 decibels)</td>
<td>Water biological oxygen demand (BOD 3 mg/l)</td>
<td>Paper, Sugar, Textile &amp; Sugar Mills, distilleries</td>
</tr>
<tr>
<td>Cancer</td>
<td>Respiratory diseases like silicosis, asbestosis, etc.</td>
<td>Insomnia, cardiac diseases, nervous disorders etc.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Respiration, gastro intestinal disorders, throat infections, tuberculosis, etc.</td>
</tr>
</tbody>
</table>


**Trees:**

Trees are woody plants, perennial in growth habit with a spreading crown. They are grown for their economic importance or aesthetic value or both. They are grown for various purposes like specimen trees, shady trees, avenue or roadside screening, fragrant flowers and for checking air pollution.

**Trees Tolerant to Pollutants:**

**Sulphur Dioxide:**

- Albizia lebbeck
- Ailanthus excelsa
Alstonia scholaris
Azadirachta Indica
Ficus relegiosa
Lagestroemia flosreginae
Mimusops elangi
Polyarthia longifolia
Teminalia arjuna
Acer platanoides
Quercus palusters
Q. Rubra

Ozone:
Acer platanoides
A. negunda
Quercus rubra

Oxides of Nitrogen:
Fagus orientalis
Quercus robur
Robinia pseudocacicia
Sambucusnigra
Ulnus sp.

Peroxy Acetyl Nitrate:
Acer Platanoides
A. negunda
Quercus palustris
Q. Rubra

Lead:

Cassia siamea
Zizyphus mauritiana

Hydrogen Fluorides:

Ailanthus excelsa
Juniperus sp.

Dust Pollution:

Alstonia macrophylla
Cassia siamea
Dalbergia sisboo
Ficus benghaensis
F. infectoria
Mangifera indica
Peltophorum ferrugineum
Polyathia longifolia
Shorea robusta
Suzygium cumini
tectona grandis
alnus viridis
Picea sp.
Braya purpurascens
Salix planifolia

Noise Pollution:

Alstonia scholaris
Azadirachta indica
Butea monosperma
Erythrina variegata
Grevillea robusta
Pterospermum acerifolium
Tamarindus indica
Terminalia arjuna
Acer negunda
Alnus indica
Betula pendula
Cornus alba
Juniperus chinensis
Popular ferolinesis
Syringa vulgaris
Viburnum lantana

Significance of Forests, Tree Plantation in Ecosystem:

The forest is a biological unit having a vast social organisation of living communities at work. This special organisation includes not only trees but also many other living organisms from the plant world. viz. shrubs, herbs, mosses, lichens, algae, fungi, bacteria and animal
organisms including the mineral complex on which they thrive. Thus a forest ecosystem is a complex entity made up of different biological units that have come into being as a result of the combined action, reaction and co-action of a variety of organisms with complex factors of the habitat that themselves change, both in space and time. The flora and fauna of the forest are interdependent on each other. How do the birds destroy the harmful pests? China, learnt this lesson after widespread loss of harvest due to the pests, which multiplied after the elimination of birds by the state in an attempt to save the crops. Famous bird watcher, Salim Ali proved that an owl kills at least three rats in a night and a pair of mice creates a family of 700 in a year. Five rodents eat one person's food. This is just an example of interdependence in nature.

India is extremely rich in its ecology which is varied with genetically diverse forest resources and is one of the world's top twelve nations having mega diversity in terms of biological resources. The plant wealth found in India's forests are made up of 45000 species of trees, shrubs, herbs and climbers which account for about 12 percent of the global plant wealth. The flowering plants alone number 21000 species and almost a third of these are endemic located mainly in 26 endemic centres of India. India's forest are the home to over 75,000 species of animals of which about 372 are mammals, 2,000 birds, 1,693 fishes and as many as 60,000 insect species.

Tree plantations are renewable resources and they contribute substantially to the social and economic development of the country.
They have a major role to play in enhancing the quality of our environment. The history of tree plantations is linked with the history of civilization. The 4000 year old Agnipurana mentions that a man should protect trees to ensure material prosperity and religious merit.  

25000 years ago, Gautam Buddha preached that a man must plant trees every five years. The great epics, Ramayana and Mahabharata, give attractive description of forests, like Danda Karanya, Mandavana and Khandavan. The supreme god Indus Valley was supposed to live under Pipal (FICUS) trees. Pipal and Babul plants are believed by Hindu's to have descended on earth from heaven. The people in ancient times lived in harmony with their ecosystems which was formed by forests. They did not cut the trees recklessly and the forests produced more than enough for everybody. The finest indication of forestry administration is found in 300 BC during Chandra Gupta Maurya's reign, when a superintendent of forests was appointed to protect forests and wild life. Nand Rishi the saint of Charar-e-Shareef preached that there would be enough food only when there were forests. From top of the hill, he could see the fertile valley down below and realise that the miracle was due to fertile soil produced by the hill forests. Similarly Jomboji, the founder of the Vaishnoi Sect in the desert of Rajasthan, was preached that to survive in the desert, green trees should not be felled and no animals and birds be killed. The Vaishnoies have kept alive this tradition of saving the Khejadi (Accacia) trees even at the cost of their lives. NSS too recognises that forests are mothers of the rivers and factories of soil manufacture.
For the British, Indian forests were an inexhaustible source of durable and ornamental timber and other forests along the coast of Malabar were over exploited to meet the requirements of the British Navy. The Sandalwood trees of South India were exploited for the european markets. The two world wars were also the periods of great devastation of Indian forests. Forests were cut recklessly to meet the increased demand. As a result, rich productive forests vanished, causing an irreparable damage to the ecosystem and to the Indian people, specially the tribals. Unfortunately, the forest destruction did not stop even after the British left. It is estimated that India is losing about 1.5 million hectares of forests annually.\(^3\)

Forests have a significant role not only in ensuring the environmental stability but also acheiving economical benefits. Forest is not just a group of trees, but is an ecosystem in itself. comprising of all the living and non-living components.\(^4\) The main living components of a terrestrial ecosystem are plants dominated by trees, forming the consumer element and decomposers of the micro organisms. Soil, water, air and sunshine form the non-living components of a forest/terrestrial ecosystem. These components interact with each other and evolve the ecological energy cycle which consists of two other cyclic processes, namely water cycle and matter (organic and inorganic) cycle. These processes maintain the dynamic equilibrium between the living components and non-living components within an ecosystem. Any imbalance or deviation in this process will lead to a total collapse of the ecosystem. Droughts and floods are the two most
important consequences of the imbalance in forest ecosystem caused by the indiscriminate felling of trees. The forest ecosystem fulfils extremely important protective, regulatory and productive functions both for the well-being and development of society.

The importance of tree plantation in the ecosystem can never be over emphasized. Tree plantations have numerous roles to play both natural and man made. Natural functions involve protective and regulative services, while man imposed functions relate to production and socio ecological services. Plants are valuable for us in many ways, besides protecting and improving the environment in which we live, they control runoff, check floods and soil erosion, improve soil fertility and help in reducing temperature and pollution. Thus they work as environmental conditioners.95

According to the Times of India which estimated the real value of a 50 tonne medium sized tree, by adding the prices of all items of its produce & social benefits, rendered during the 50 years of its life time, economic benefits of around Rs. 15,70,000/- is generated to the community in the form of generation of (i) oxygen valued at Rs. 2.5 lac, (ii) controlling of soil erosion and improving soil fertility by Rs. 2.5 lac, (iii) recycling of wastes to the tune of Rs. 3 lac, (iv) controlling of air pollution valued at Rs. 5 lac and other secondary benefits to the tune of Rs. 3.5 lac. Thus, one can visualise how much economic benefits trickle down silently to the community through a single tree over its life span of 50 years.96
Rapid destruction of forests results in natural calamities, soil erosion and also contributes to the greenhouse effect. Plantations cannot be the substitute for the natural forests (as forests are ecosystems in themselves), but it can reduce the pressure on natural forests for timber, fuel, fodder and other forest products. Therefore, opting for plantation will be beneficial to the mankind as well as to environment in the long run. Despite global awareness, tropical forests are being felled at the rate of 72 acre a minute, and half of the world's five billion acres of tropical forests are threatened by agriculture and poor farmers in the developing world alone. Some 350 million people in the tropical countries live in forests and depend upon them in one way or another for subsistence. During the process, farmers slash and burn patches of forests to grow crops and once the soil gets depleted of nutrients then the poor farmers move on to clear another patch. This wanton destruction of forests is seriously affecting the environment and is straining the biosphere.97

India has a land area of 38.50 million hectares under good forest cover which works out at 19/46 percent against a target of 33 percent for the plains and 66 percent for the hilly regions.98 Although located in the tropics, the productivity of Indian forests is amongst the lowest in the world. At the present level of consumption of forest resources, the country needs a minimum 0.47 hectares of forest land for every individual against the actual availability of 0.09 hectare.99 Forests in most of the states in India are qualitatively and quantitatively very poor. In Uttar Pradesh the total land area of the state 294411 square
km. in which only 17.41% area are covered with forest.\textsuperscript{100} The foremost reason is the drastic growth in population. Comparing India's per capita forest land of only 0.09 hectare, Canada has per capita forest land of 12.4 hectares and 6.8 hectares for Australia.\textsuperscript{101} The Human demands on forests are complex and diverse. They are related not only to matter and energy but also to space and diversity on the basis of available data, India needs to have 101.33 million hectares (33.33 percent of reported area) under forests whereas it has only about 67 million hectares at present leaving a deficit of 34.33 million hectares. The deficiency can be made upto 83.75 percent by afforestating the land under miscellaneous tree crops and grows, the rest can be covered by afforestation of 5.56 million hectares of barren land from the available 20 million hectares of barren and uncultivated land in the country.\textsuperscript{102} The solution to problems of Indian forests are a lot more complicated than simply passing new laws or restricting logging companies, or eco-labelling or any other panaceas that are often on after. Forest science needs to make a conceptual shift if it is to contribute its full potential to today's needs. It was poorly linked in the past to research on social, economic and biological issues relating to forests. This must change if we are to achieve a holistic understanding of the role of forests in society. NSS has to create consciousness for aorestation among the community. "For environment enrichment and conservation National Service Scheme has to adopt a theme under special camping programme "youth for better environment", under which:

(i) Plantation of trees, their preservation and up keep (each NSS
unit will plant at least 2,000 saplings);

(ii) Creation of tree consciousness among the community;

(iii) Constructions of roads, village streets, drains, etc., so as to keep environment clean;

(iv) Cleaning of village ponds and wells;

(v) Environmental sanitation and disposal of garbage-composts

(vi) Prevention of soil erosion, and work for soil conservation;

(vii) Preservation and up keep of monuments and creating consciousness about the preservation of cultural heritage in the community.\textsuperscript{103}

\textbf{Planting:}

\textbf{For Dust Pollution:}

It is found that 8 m wide greenbelts between roads and buildings can reduce the dust fall by 2-3 times. Conifers can reduce the dust fall upto 42% in temperate urban areas.\textsuperscript{104}

\textbf{For Noise Pollution:}

Different Patterns of planting are adopted according to the speed of the vehicles. Greenbelts of (small & large) 18 to 30 m width, 15 to 27m from traffic lanes with central rows of atleast 13.5m tall are necessary for high speed vehicles, while for moderate speed vehicles, greenbelts (small & large) of 6 to 15m width within the edge of belts from 6 to 15 m from the centre of the nearest traffic lane. Shrubs of
1.8 to 4 m high should be planted next to traffic lane followed by backup rows of trees 4.5 to 9 m tall.¹⁰⁵

While landscaping a city/town/industrial area, trees must be taken into consideration as a pollution sink, besides their bioaesthetical values.

"Annual need of oxygen for one person' is met by 150 sq. mt. of leaf surface i.e., 30-40 sq. mt. of greeneries."³³ Now, there is a need to mass level tree plantation for the development of greenbelts in and around polluted sites with suitable species to check the pollution effectively.
Footnotes


2. Ibid - P. 108.


13. Ibid - P. 81, 82..


18. Ibid - P.16.


22. Ibid - P.181.


24. Ibid - P.104.


27. Ibid - P.12.

29. AIDS cases in Asia on the rise: UN report, The Sunday Times of India, New Delhi, 22nd June, 1997, P. 5.

30. Ibid - P.5.


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