

## **Lecture 17. Woman and child welfare, HIV/AIDS and Role of information technology on environment and human health.**

Women are part and parcel of environment. Women have direct relationship with their immediate environment. Regularly they collect water, fuel wood, foods like nuts, fruits, leaves, roots etc. So women have closer vicinity with the flora and fauna of that region by living with them. Women as a social category, perform multiple role. Certain roles have been recognized universally. The physical differentiation between men and women necessitates certain social arrangements for procreation and rearing of children. Man created practices and customs which tied woman to motherhood in a familial social responsibility. A set of norms were created to curb her freedom, creative potential and suppress her in society.

Women experienced depending syndrome particularly dependency on father during childhood, dependency on the husband in adulthood and dependency on the son in old age. This made her position subordinate to man and easy exploitation women bear and rear children but no proper care for her role of motherhood. Neglect of mother and motherhood lead to maternity deaths, in human custom of female in infanticide etc. Because of poor stimulation of living and economic backwardness, women suffer from nutritional deficiency, during pregnancy and lactation. So it is necessary that there women should be educated to bring them out and should be provided with proper training to create suitable awareness and insight into the new demands in the physical and social environment.

### **Woman welfare and development**

Even through, the first five “ Five year plans” were focusing on women’s welfare, only from the sixth ‘Five year plan’ (1980-1985) onwards, women were recognized as separate target group involving developmental planning activities. The 1991 census revealed that women constitute 48.1 percent of the country’s population. Hence it is understood that for the development of the nation backwardness of women has to be taken care.

### **Women rights and privileges**

The constitution of India not only guarantees equality for women, but also empowers state to adopt measures of positive discrimination in favours of women in order to overcome their disadvantages in socio economic, educational and political fields. There are many articles in the constitution specifically encourages the development of woman in the society.

- **Article 14** - States that equal rights and opportunities for men and women in the political, economic and social spheres.
- **Article 15** - Prohibits discrimination against any citizen on the grounds of religion, caste and sex.
- **Article 15(3)** - Makes a special provision enabling the state to make positive discrimination in favour of women.
- **Article 15(A) (e)** - Condemn the practices derogatory to the dignity of women.
- **Article 16** - Provides for equal opportunities in matter of public appointments.

- **Article 39(a)** - States that state shall direct its policy towards securing all citizens, men and women equally the right to means of livelihood.
- **Article 39(c)** - Confirms that equal pay for equal work.
- **Article 42** - Directs the state to provide the citizens the just and human conditions at work and maternity relief.

### **Policies concerning women's development**

Various policies advocating women's welfare and development have been evolved by the government. Some of them are given below.

- a) The national plan of action for women (NPA) 1976.
- b) The national perspective plan for women (NPP) 1988-2000.
- c) Sharam shakti 1988.
- d) The national nutritional policy (NNP) 1993.
- e) The national plan and action for the girl child (NPA) 1991-2000.
- f) National commission for women's act (new) 1990.

### **Child welfare and development**

The future of a nation depends on the way in which the children are growing nutritionally, educationally and socially. Many children suffer from malnutrition and die for want of immunization. The national policy for children was formulation in the year 1974.

- Children are " a supremely important asset" of the nation.
- It is duty of the state " to provide adequate services to the children both before and after birth and through the period of growth".

Provision of early childhood services especially to the weaker and more vulnerable section of the community could help , prevent or minimize infant mortality, morbidity, malnutrition and stagnation in schools.

India has the world's largest integrated child development services (ICDS) program started in the year 1975, which involves supplementary nutrition, immunization, health care, growth monitoring, pre-school education and health and education. ICDS provides health checkup service like antenatal care for pregnant women, post-natal care for nursing mothers and healthcare for children less than 6 years of age. Children less than 6 years in the village are periodically examined, weighed, immunized at prescribed times and treated for ailments. Provision for nutrition and health education has been made for women 40-45 years of age with priority given to pregnant and lactation mothers. ICDS provide the facilities like

- Foundation for personality.
- Reduction of deprivation.
- Effective Co ordination for policy implementation.
- Maternity and motherhood care through education and health care.

According to the Indian constitution that free and compulsory education for all children would be provided until they complete the age of fourteen years. There has been special emphasis in monitoring the drop outs in primary education.

#### **National policy for children**

The children population of India is nearly 300 million and the majority of the children live under socially and economically under privileged conditions that can lead to deterioration of the child's physical and mental development. The national policy for children (NPC) 1974 was founded on the conviction that child development programmes can ensure equality of opportunity to the poor children.

#### **Various organizations towards child welfare**

##### **i) UN conventions on rights of child or international law**

It formulated a set of international standard and measures to promote and protect the well being of children in our society.

#### **Rights of the child**

The international law defines right of the child to survival, participation, development and protection.

- a) **The right to survival:** It emphasis on good standards of living, good nutrition and health.
  - b) **The right to participation:** It means freedom of thought and appropriate information to child.
  - c) **The right to development:** It ensures access to education, child hood care and support, social security and recreation.
  - d) **The right to protection:** It means freedom from exploitation in human treatment and neglect.
- ii) **World summit on child:** It had focused agenda for the well being of the children targeted to be achieved in the beginning of the new millennium.
- iii) **Ministry of Human Resource Development (MHRD):** It concentrates on child's health, education, nutrition, clean and safe drinking water, sanitation and environment.

### **17.3. Acquired Immune Deficiency Syndrome (AIDS)**

AIDS is caused by virus called HIV (Human Immune deficiency Virus). HIV breaks down the body's immune system leaving the patient to a number of life threatening infections. The AIDs patient will be getting different kinds of severe infections including cancer, neurological disorders, skin diseases finally leading to death. As HIV infected person receives a diagnosis of AIDS after developing one of the AIDS indicator illnesses. A positive HIV test result does not mean that a person has AIDS. A diagnosis of AIDS is made by a physician using certain clinical criteria, AIDS illness indicator.

AIDS was discovered in 1983, though sufficient knowledge has been gained about the disease, yet a definite source of this virus could not be identified, but some of the sources are

1) Through African monkey

Most of the evidences have suggested that the AIDS has spread from Africa. It has been believed that the HIV has transferred to humans from African monkey or chimpanzees.

2) Through Vaccine programmes

- HIV has spread in Africa through HIV contaminated polio vaccine prepared from monkey's kidney
- It had spread through Hepatitis – B viral vaccine in Los Angels and New York.
- It had also spread through small pox vaccine programme of Africa

### **World Scenario**

HIV/AIDS is the fourth leading cause of death in the world. Globally the AIDS epidemic has crossed over 20 million deaths and orphaned more than 14 million children. Nearly 90 % of the people who are infected with AIDS live in developing countries. 13 % of world's population lives in Africa, almost all states of African countries were affected by HIV. About 3 million people so far died due to HIV/AIDS in 2003. AIDS is rapidly spreading in Eastern Europe and Asia. India ranks second in the world with 5.1 million HIV/AIDS affected people. The percentage is lower than Thailand, Myanmar and South Africa.

### **Scenario in India**

The largest numbers of infected cases have been found in Maharastra and TamilNadu, followed by Delhi, UP, Karnataka and Goa. In Tamil Nadu alone, till September 2008 a total of 24,667 cases of AIDS have been found out. The first HIV +ve case was identified in Chennai in 1986.

### **Mode of transmission of AIDS**

Some of the key factors responsible for the spread of the deadly disease AIDS are

- Prostitution
- Homosexual activity
- Use of contaminated syringe or needle in blood transfusion.
- Maternal-fetal transmission i.e. a mother infected with AIDS can give birth to baby with AIDS.
- Other factors such as saliva, breast milk etc are also the mediums of transmittance of this disease. These body fluids have been proven to spread HIV

Blood

Semen

Vaginal fluid

Breast milk

Other body fluids containing blood.

- These are additional body fluids that may transmit the virus that healthcare workers may come into contact with
  - Fluid surrounding the brain and spinal cord.
  - Fluid surrounding the bone joints.
  - Fluid surrounding an unborn baby.

## **HIV tests**

The most commonly used test is ELISA. Most of the hospitals are insisting of HIV test nowadays. If the sample shows positive results even after duplication, the results are confirmed using a second test called "Western blot". In addition the following other test also used nowadays.

- Radioimmunoprecipitation assay ( RIPA).
- Dot Blot Immunobinding Assay.
- Immunoflourescence assay.
- Nucleic acid testing.
- Polymerase Chain Reaction.

## **Functions of HIV in human body**

AIDS itself does not kill humans. The death occurs due to the attack by diseases because of the weakening of immune system, white blood cell (WBC) responsible in the formation of antibodies are called T-helper cells. T-helper cells are the key infection fighters in the immune system. The HIV enter into the human body and destroys the T-cells, as a result of which various types of infection disease occur. Even cancer can easily develop in the HIV infected persons.

## **Various stages of HIV infection**

The HIV infection stages can be divided into four stages clinically.

- 1) The first stage is the initial infection in the blood the destruction of T-4 cells or lymphocytes or white blood corpuscles.
- 2) The second stage is the symptomatic carrier stage.
- 3) The third stage is the AIDS Related complex (ARC).
- 4) The final stage is the fully infected AIDS patient receiving different kinds of infections.

## **Symptoms for HIV/AIDS**

### **Minor symptoms**

- Persistent cough for more than one month
- General skin disease
- Viral infection
- Fungus infection in mouth and throat
- Frequent fever, head ache, fatigue

### **Major symptoms**

- fever for more than one month
- diarrhea for more than one month
- cough and TB for more than 6 months
- fall of hair from the head

- 10% of body weight get reduced within a short period

### **Screening test**

The antibodies to HIV virus can be easily detected through blood tests. Hence the presence of HIV antibodies in the blood sample can confirm the HIV infection of HIV positive. One of the HIV test “ELISA, western blot “ is a highly reliable test for HIV. HIV can be isolated from cultured lymphocytes, but it is an expensive and time consuming test.

### **Control of AIDS**

#### **1) Safe sexual activity and sex**

Since AIDS is a sexually transmitted disease due to mainly prostitution and homosexual activity. Proper moral education as well as sex education using good condoms etc., should be given to the illiterate as well as the public at large.

#### **2) AIDS education and educating the AIDS patients**

The Public should be educated regarding the severity of the disease. For AIDS there is no vaccine or no remedial medicines have been so far successfully discovered. The AIDS patients have to undergo a gradual deterioration process to death. Since the HIV affects the immune system by destroying the lymphocytes (White Blood Corpuscles) count, the AIDS patient is highly vulnerable to any kind of infection from cough, cold etc., to cancer, typhoid etc, and cannot be treated through any kind of antibiotics or any other kind of drugs due to his shattered immunity system. Finally the AIDS patient will become a prey to any one of the severe kind of infections.

The public should also be educated to treat AIDS patients with sympathy and concern. Since AIDS patients with sympathy and contact, people should be educated not to isolate them. Clinical and social workers should be specially trained for the welfare activities of AIDS patients. In the high school level itself, proper education regarding the prevention of AIDS and the clinical and social aspects of AIDS should be taught in the class rooms.

#### **3) Educating illiterates as well as the educated public about AIDS prevention measures using different medias**

Various Medias such as radio, television, wall posters, pamphlets, booklets, etc should be efficiently made use for educating the public to be cautions about AIDS. The public should be educated regarding the various ways of transmission of the disease.

### **Role of Information Technology In Environment and Human Health**

Today is an information age and tremendous flow of information is emerging in all fields throughout the world. Information in this competitive era is more precious than life and without information one cannot live at all. India is endowed with rich natural resources while facing the problems of poverty, illiteracy, population growth , environmental degradation etc. It is creating new possibilities to tackle these problems.

Information technology has tremendous potential in the field of environmental education and health as in any other field like business, economics, politics, or culture. Development of internet facilities, World Wide Web, geological information system (GLS) and information through satellites, has generated a wealth of up-to-date information on various aspects of environment and health. A number of software have been developed for environment and health studies which are user friendly and can help an early learner in knowing and understanding the subject. Nowadays the volume of data being generated from the environment is increasing manifold. The whole process of data collection, storage, processing and retrieved has become an easy task due to computerization. Lot of time saved and reduces his work through automation of many tasks.

### **Applications of IT in global environment**

One of the important fields of IT for environmental studies is Geometrics. Geometrics is a science and technology for collecting, analyzing, interpreting, distributing and using geographic information. Geometrics involves the following,

- Surveying and mapping
- Remote sensing
- Geographic information system(GIS)
- Global positioning system(GPS)

One of the important applications of IT in the study of global environment is the satellite remote sensing technology. Satellite remote sensing technology helps in the evolution of its data and interpretations offer potentially valuable information for assisting human dimensions of global environmental changes are grouped into five major categories,

1. Fossil fuel consumption
2. Biomass consumption
3. Land use change
4. Agricultural activities
5. Halocarbon production and release.

These five categories of interactions has created concern about the possible effects on the global physical , chemical and biological systems. The extra ordinary large scale in land use is frequently accompanied by changes in land cover i.e. forest and vegetation that can cause ecological imbalance.

Satellite remote sensing technologies that provide satellite image data intervals which can be interpreted to study the land surfaces at repetitive intervals allow mapping and monitoring of changes is land cover of various types, amount, arrangement and the rate of change.

Satellite image products can assist the planning and co-ordination of global change research and the implementation of methodologies that contribute to a global understanding of human dimension activities which relates with the impacts of human activity in land use and land cover.

The remote sensing technology using satellite also play a major role in the environmental studies of water bodies such as lakes, rivers, estuaries, etc. as well as ocean and coastal areas. The major techniques for deriving information from satellite images are

- Image interpretation
- Digital image classification
- Data transformation
- Change detection

#### **Remote satellite sensors**

- US land state Multispectral scanner(MSS)
- French SPOT
- Indian Remote Sensing Satellite
- The Environment Information System - The ENVIS was started by MOEF in 1982 as a decentralized information network for collection, storage, retrieval and dissemination environmental information. ENVIS network presently consist of 25 subject oriented centres known as ENVIS centres.

#### **Role of information technology in human health**

Information technology plays a key role in human health. It has changed the human life style completely. Many health organizations are turning to package solution of IT to streamlining service oriented work in an effective manner.

The health service technology mainly involves three systems. They are

- Finance and accounting
- Pathology
- Patient administration-clinical systems

#### **Application of IT in heal services**

- With the help of IT packages, the data regarding birth and death rates, immunization and sanitation programme are maintained more accurately.
- It helps the doctor to monitor the health of the people effectively- tools like CT scans ,ultrasound Sonography uses IT for diagnosis
- The information regarding the outbreak of epidemic diseases can be conveyed easily.
- On-line-help of expert doctors can be consulted to provide better treatment and services to the patient-through Video conferencing
- With central control system the hospital can run effectively- Most of the ICUs are now using computers to monitor the progress and condition of the patient undergoing treatments.
- Drugs and its replacement can be administered effectively.



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1.	From the ----- Five year plan onwards women were recognized for developmental planning activities. <b>(sixth 'Five year plan' (1980-1985))</b>
2.	Article ----- in the constitution states equal rights and opportunities for men and women in the political, economic and social spheres. <b>(Article 14)</b>
3.	Article ----- in the constitution provides equal opportunities in matter of public appointments. <b>(Article 16)</b>
4.	Article ----- in the constitution confirms equal pay for equal work for women <b>(Article 39(c))</b>
5.	----- program involves supplementary nutrition, immunization , health care, growth monitoring, pre-school education and health and education <b>(Integrated Child Development Services (ICDS))</b>
6.	HIV has spread in Africa through ----- prepared from monkey's kidney and also spread through small pox vaccine programme of Africa <b>(HIV contaminated polio vaccine )</b>
7.	HIV has spread through ----- in Los Angels and New York. <b>(Hepatitis – B viral vaccine)</b>
8.	Global environmental changes like Fossil fuel consumption and Biomass consumption can be evaluated through ----- <b>(Information technology)</b>
9.	The RST using satellite play a major role in the environmental studies of water bodies using -- -----, ----- and ----- Remote satellite sensors. <b>(US land state Multispectral scanner(MSS) , French SPOT , Indian Remote Sensing Satellite ).</b>
10.	Most commonly used test for HIV is --- and --- <b>(ELISA and western blot).</b>