

# ROLE OF ECOLOGY AND EDUCATION IN DEVELOPMENT OF HEALTH CARE PROGRAMS

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**Abstract -** Enormous ecological diversity prevails in India and other countries of Asia. Health care programs need to be developed in a manner which comprise of diagnostics, symptoms, therapies against pathogenic microbes (viruses and bacteria) and parasites. A study of vectors for these has to be in place. Each region of India differs in its geography, ecosystem(s) and biodiversity. There is thus, a need to catalogue region-wise information. Health issues not only concern pathogens but also quality of air, water and food. Numerous renal, muscular, skeletal, respiratory, immunological, endocrine and fertility disorders occur due to pollutants that become an integral constituent of air, water and food. A nexus between ecology and educational processes is needed to sensitize right from rural to urban, Metro populations in India and other countries. Degradation of biomes is having an adverse effect on health of all sections of the society. This effects performance, output and other endeavor of humans in all sectors. Domestic animals are likewise detrimentally affected by poor quality of feed, water, air, therapeutic treatment. These in turn cause numerous health problems. Health care programs need to have inputs from ecology and from biomedical and other natural sciences. There can not be a single approach to address the extremely complex issues of health, hygiene and sanitation. Regional policies have to be developed. Education of these at school, college and university level is needed as a state policy. Synergy between educationists, ecologists and others is needed as this is a multidisciplinary issue. A module of this will be presented relating to state of Rajasthan to highlight the process of preparing such regional vision document for health care.

**KEY WORDS:** Ecology, Education, Health Problems and Health Care, Hygiene and Sanitation

## I. INTRODUCTION

India is a part of South – Asia and is the headquarter or H.Q. of WHO regional office [SEARO]. It is also the regional H.Q. of FAO and UNESCO. Matters of environmental (including climatic) changes, pathologies, agriculture and education (science and technology) are within the domain of these organization. Ecological and Educational Paradigms in India as in other SEARO countries are extremely diverse, complex and defy arrival at any generalization. Health Care issues relate to changing population dynamics, endemics and epidemics of microbial, parasitic diseases. These are further augmented by threats of physical, chemical, biological pollution of reverie and marine ecosystems[1]. Numerous pollutants have been catalogued, defined, characterized for their genotoxicity. Cytotoxicity and as causes of diverse neurological, muscular, skeletal, cardio-vascular, hormonal and fertility disorders. Arrival of viruses and their mutants have added to the worries of health care professionals and systems that are targeted to take care of issues. Food Chains and Food Webs have been derailed or have been pushed to dangerous state of collapse and extinction[2]. Indian Rivers, Tributaries, Lakes, Ponds and Anicuts are severely polluted. Encroachment, Unabated Illegal Construction, Industrial Effluents, Domestic Wastes and Extremely flexible ways of handling matters of Health, Hygiene and Sanitation have added to this[3]. Population pressures and the need to find Space, Food, Quality Water, Energy, and Transport are increasing. Destruction of Forests, Wildlife has changed the landscape, scenario of many regions of India. Ecorehabilitation work is still in a stage of sensitization, discussion and debate. No tangible vision document has been prepared nor did any serious effort made to workout a time bind focused plan of action. There are

Economic, Social, Scientific and even Emotional Issues that overwhelm healthcare strategies and action. Systems need Basic Change, Multidisciplinary Synergy, Monitoring and Mentoring.

## II. THE PURPOSE OF THIS PRESENTATION IS TO PRESENT

(a) Holistic View of how soil water and air systems need to be the prime issue for sustainable development that can take care of various health issues across the country. What field work is necessary? Which Diagnostic laboratory set up is required?

(b) How to involve all sections of the society on Ecology, Education Intended with resolving health care issues?

(c) Specific examples where work has been done or is in process on serious health care issues. What new problems have cropped up?

A Comprehensive Appraisal of the current literature and its analyses which is largely India-centric forms the pivot of methodology[4]. These observations are narrated as follows Ecology – Education – Encompassing Biomedical Sciences and Diagnostic Biochemistry form the main concepts and examples:

**I:** Microbial Diseases – (a) Viral; (b) Bacterial – Water-Borne, Air-Borne and Soil-Borne.

**II:** Protozoan Diseases.

**III:** Parasitic Diseases.

**IV:** Diagnostics.

Many Diseases such as Malaria, Dengue (*Vector – Mosquito*) have been controlled and so has filariasis in most developing countries (African Continent exception). This has been due to sensitization and because of eradication of mosquitoes and their larval forms by chemical and biological methods. Similarly,

Polio-Virus has been handled. Attempts are also made for the Control of HIV forms of Viruses and ones that cause STD – *Sexually Transmitted Diseases*. Diagnosis is of paramount importance. Health Card for everyone is one solution period immune-surveys; blood testing is being taken up.

Ecological Disturbances are also due to Climatic Change, Deforestation, CO2 Emissions, Air Pollution and Quantitative Changes in water bodies and soil health[5]. This has affected both Flora and Fauna. Large numbers of species are vulnerable, facing extinction or have become extinct.

Synergy between Ecological Studies, Technologies and Dissemination of information via educational processes is urgently needed. Microbial Technologies are used in treatment of pollutant; Bio- and Nano – Technologies have been provided avenues for mass production of indigenous and genetically engineered fauna and flora[6]. There is now need to put all the information together to develop protocols for action.

### III. RECOMMENDATIONS

The enormous and complex problems of environment and decreasing biodiversity across the length and breadth of India has become a matter of great concern in order to find ways and means eco-rehabilitation and restructuring of food chains/food webs in various ecosystems, the use of technology has become important as indicated above. Cells and tissue cultures clonal production, genetic engineering and the use of microbes needs to be extensively used for this purpose. Its important to say that India is now a verge of entering a phase of skilled youth who can bring about such changes. This training has to become a part of syllabus in engineering colleges, research institutes along with the universities, colligate systems. These are also areas of new initiative to setup program of entrepreneurship for instance – clonal production of plants based soil. Health card reforest the denuded areas. Similarly mass production of rabbits, deers, chinkaras, goats and other herbivores can sustain and help in growth of predator populations of big carnivores like panther, tigers etc. Similarly protocols can be established for the healthcare programs, diagnostic tests for such seasonal diseases as malaria, dengue, gastro-intestinal disorders should

become the part of the training through kit method, so that this will help in treatment of diseases in time and control the epidemics[7],[8].

Study groups in even at the Panchayat level and perhaps as a part of NAREGA level should be setup to give sustainable training to endogenous people for fish and prawn farms, apiary, sericulture, poultry, and goat production.

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