

“ साक्षरता नै मानव बिकासको पूर्वाधार हो । ”

LITERACY WATCH BULLETIN

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Environment Education and Sustainable Development



Brick factories are sources of pollution in Kathmandu

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Environment has become every body's concern to day. Water, air, sound, land etc. which are the important components of environment, have been deteriorating very fast all over the world and in Nepal. There are many reasons for this situation. For example uncontrolled growth of the population, increasing use of harmful chemicals in industries, increasing use of chemical fertilizer, rapid increase of vehicles, deforestation etc are main causes of the deterioration of environment. Since environment is a cross cutting subject touching everyone's life, all the children, youth and adults of the country should be made environmentally literate both through formal and non formal ways.

Among the various reasons of pollution, deforestation is one of the main reason in Nepal. Most of the deforestation occurred in rural parts of the country. Major reason for the destruction of the forest is due to corruption among the powerful people in the decision-making positions. Another reason for destruction of forest has been due to ignorance of the people of the value of forest for their life. Since most of the Nepalese people are poor and illiterate, it has become difficult to make the people environmentally literate. Thus every year problems like floods, soil erosion, ecological imbalance etc are happening. To get the permanent solution of the environment problem, it is necessary to make children, youth and adults in the community aware of the importance of environment and role of trees to conserve environment. Recently, the government has introduced environment education in schools. But the teaching has been very bookish and theoretical. Introducing environmental education in the schools is not enough. Because the rural people who are mostly illiterate have to be reached. They could be provided appropriate environmental education to conserve forest only through literacy and non-formal education. The Ministry of Education can not conserve environments alone, all development agencies, local government bodies and civil society should work together to plan and implement awareness building program, information dissemination and non formal education program for the conservation of environment. This issue of the bulletin has attempted to draw attention of all concerned people and agencies about the environmentally problem in Nepal and it tried to suggest some effective steps toward it.

आजको विश्वमा वातावरण हरेक व्यक्तिको चासोको विषय हुन पुगेको छ। पानी, हावा, माटो आदि वातावरणका तत्वहरु दिनप्रतिदिन दुषित हुँदै गैरहेका छन्। अनियन्त्रित जनसंख्या वृद्धिदर, कार खानाहरुबाट जथाभावी फालिने रसायनिक पदार्थहरु, कीटनाशक रसायनिक पदार्थहरुको बढी प्रयोग, सवारी साधनको वृद्धि आदि कारणले हाम्रो देशको वातावरणमा तीब्र रुपले ह्रास आएको पाइन्छ। वातावरण भनेको हरेक व्यक्तिको जीवनसँग प्रत्यक्ष रुपमा गाँसिएको विषय भएको हुनाले देशका हरेक युवा, बालक एवं प्रौढहरुलाई वातावरण संरक्षण गर्न सक्षम बनाउने शिक्षा दिन जरुरी छ।

हाम्रो देशमा वनजंगलको फँडानी एक ठूलो समस्याको रुपमा र हिआएको छ। नेपालका धेरैजसो जनताहरु अभैसम्म पनि अशिक्षित हुनाले उनीहरुलाई वातावरण प्रति सचेत पार्न गाह्रो भइरहेको छ। धेरैजसो अशिक्षित जनताहरु ग्रामीण क्षेत्रमा बस्दछन् भने ग्रामीण क्षेत्रमै बढी वन फँडानी भैरहेको पाइन्छ। वनजंगल फँडानी हुनुको एउटा प्रमुख कारण माथिल्लो निकायका अधिकारी एवं निर्णयकर्ताहरु भ्रष्टाचार गर्न तल्लीन रहनु हो। त्यस्तै अर्को कारण भने जनताहरु वातावरणीय विनाशप्रति सचेत नहुनु हो। ग्रामीण समुदायका बहुसंख्यक जनताहरु अशिक्षित भएको हुनाले उनीहरुलाई वातावरणीय शिक्षा दिन पनि गाह्रो भैरहेको छ। वातावरणीय समस्याको दीर्घकालीन समाधानको लागि देशका जनता एवं समुदायलाई वातावरणीय शिक्षा र चेतना प्रदान गर्नुपर्दछ। हालसालै मात्र श्री ५ को सरकारले वातावरणीय शिक्षालाई प्राथमिक एवं माध्यमिक शिक्षाको पाठ्यक्रममा समावेश गरेको छ। तर विद्यालयबाट दिइने वातावरणीय शिक्षा बढी सैद्धान्तिक एवं किताबी ज्ञान दिने खालको भई व्यवहारिक नभएको पाइन्छ। देशको ठूलो जनसंख्या अशिक्षित रहेको हुनाले उनीहरुलाई साक्षरता एवं अनौपचारिक शिक्षाको माध्यमबाट वातावरणीय शिक्षा दिइनुपर्दछ। तर वातावरणीय शिक्षा, शिक्षा मन्त्रालयको मात्र जिम्मेवारी नभई यसको लागि सबै स्थानीय सरकार, विभिन्न सामाजिक संघ संस्थाहरु, गैर सरकारी संस्थाहरु, विकास संस्थाहरु सबै जिम्मेवार हुनु पर्दछ। उनीहरु सबै मिलेर चेतनाकरण वृद्धि, सूचना दिने तथा अनौपचारिक शिक्षाका कार्यक्रमहरु संचालन गर्नुपर्दछ। यस अंकको बुलेटिनले वातावरणीय सुधार एवं यसको दीर्घकालीन समाधानका लागि यस संग सम्बन्धित सबै क्षेत्र एवं व्यक्तिहरुको ध्यान आकर्षण गरी प्रभावकारी कदम चाल्न जोड दिएको छ।

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We are deteriorating our Environment

We are living in an age of technical progress that is advancing with the speed of lighting and the benefit of which are accompanied by some fearful effect on mankind as well as on the environment. Because of our carelessness, the water and land can be affected in a number of harmful ways. For example, fuel burning puts 4.5 billion tons of waste flow into the earth's atmosphere each year; more than 10 billion tons of waste flow into the world's oceans each year as silt, clay sewage, nutrient salts, poisonous chemicals, radio active substance and oil, and at least 150 thousand kilometers of rain forest are destroyed each year.

In the context of Nepal, deforestation, uncontrolled population growth, land erosion and landslides are some of the main causes of rapid environmental deterioration. According to the 1991 census, the population of Nepal has reached to 18,462,081 with an annual growth rate of 2.1%. By the year 2001 the estimated population would be about 23.4 millions.

The effect of such rapid growth of the population on the environment is obvious.

Forest is one of the most important natural resources of the country. It covers only about 38% percent of land area to day. The forest coverage has been reducing drastically due to rapid growth of population which has brought pressure for more arable land, firewood, fodder and farm implements. Before 1955, more than 50% of the land area of our country was covered with forest, but by 1964 it had decreased to 45% and it has decreased by 1978 to 38%.

Even during the fourteen months of the interim government (1989-91) after the establishment of democracy, deforestation took place at an alarming rate, and it still continuing unchecked. From February 1990 to May 1991 alone, the data published by the government showed that trees covering an area of 35,655 bighas were cut down (report, Ministry of Forest, HMG, 1990). According to government statistics 37.5% of



the land area is still covered with forest (Report, Ministry of Forest, HMG, 1990) but according to forest experts, in actuality, only 20% of Nepal is covered by forest. According to environment experts in order to maintain an ecological balance, at least 43% of land should be covered with forest.

The high pressure on agricultural land has led to considerable deforestation and use of fragile slopes. The annual rate of soil loss due to depletion of forest, overgrazing and use of marginal land for cultivation is estimated at 20-25 metric ton per hectare of land (Basnyat 1995). Floods and landslides present additional problems. Such eco systemic

processes, which contribute to poverty, have also led to high rates of distress migration of people from the mountains/hills to the terai, and from the rural to the urban locations.

Because of the deforestation, the country is facing many problems like floods, soil erosion, ecological imbalance etc. One of the reasons for destruction of forest as well as environment is due to the corruption of the authorities responsible for forest in the Ministry of Forest. They allowed to cut trees indiscriminately for their selfish interest. The local people of course cut trees to make a living. They did not care to plant new trees after cutting the trees, because they are not aware of the benefits of the trees due to illiteracy. Women are the primary users of forests and they are also primary conservationists. For example, it is women who are responsible for collecting firewood, fodder, and plants and roots for food and medicine. In Nepal, 78% of the firewood is collected by women and 6% by girls. Most of the girls and women are illiterate and they are not aware of the importance of environment preservation. The local people both men and

women should be made aware on the importance of environmental conservation individually and collectively. They should be empowered to protect forest from unscrupulous people. They should be made literate on the environment preservation. If this could be done most of the environment related problems could be solved. So, the country like ours should think of providing environmental conservation education to its people both by formal and non-formal education. Such education should focus on behavior modification of all concerned.

Since environment is a cross cutting subject touching everyone's life, environmental education should not be left to a single sector. Co-ordinated efforts by all will be required in related sectors such as population, health, forest, agriculture, industry, tourism, transportation and water resources.

Regarding the urban environment, unplanned urban settlements and industrial establishments, rapid increase of vehicles, inadequate anti-pollution laws (and laxity in enforcement), and receding forest cover have

together created problems of water, solid waste and air pollution. The over-concentration of economic opportunities in urban areas and of political and administrative power in urban area have further aggravated environmental pollution in urban locations. In the absence of strict anti-pollution law and industrial regulations, industrial wastes, hazardous matters and polluted water are not properly treated before disposal. Recently, a Ministry for Population and Environment has been created. A regulation for checking environmental pollution has been announced and awareness campaigns have been launched by various governmental and non-governmental organizations. These are positive initiatives, which need to be firmly monitored.

Kathmandu Valley is experiencing a strange meteorological process nowadays. The problem is known as temperature inversion, that is aggravating the air pollution problems of this Himalayan metropolis. What happens is that because cities and larger settlements radiate more heat, the air above them

tends to be warmer and less dense, creating winds called “country breeze” that blow from the surrounding area into the city centres. A natural process, inversion, takes place, especially in winter nights, when the dense cold mountain air sinks into the valley creating a stable layer of coldest air - instead of warmest - at the bottom. Back radiation of heat by the city structures pushes the base of the inversion upward, leaving a thin layer (commonly about 100 metres thick) of unstable warm air over the ground. Here fog, smoke, pollution etc. accumulates. Unable to rise past the stable cold air in the inversion mechanism, pollutants remain near and on the ground until the daytime sunlight warms the air enough to destroy the inversion. Because mountains surround Kathmandu valley, strong horizontal winds cannot carry pollutants out of the valley. Kathmandu gets pollutants from kerosene stoves and industries such as the dye, brick, cement and others, that burn a mixture of coal, rice husk, fuel wood, diesel, kerosene etc. Those pollutants tend to concentrate in the three towns of Kathmandu

valley. They are Patan, Kathmandu and Bhaktapur.

Air quality monitoring is not done here in an organized and scientific manner. There were 175 industries identified by the National Planning Commission in 1991 as polluting industries in the Kathmandu Valley. People are yet to be aware of the impacts of the problems linked to pollution and are not organized to resist the so-called “development” that is not in their long-term interest. Life in these towns is not by any means comfortable.

Except for a rivulet called Nakhu which flowing to Bhardeo and Lele villages in the south, no river flows into the valley. The drinking water system uses aquifers for most of the supply. The valley’s agriculture system uses large quantities of chemical fertilizers that end up in the rivers. The Bagmati river, carries only the rainwater, wastewater and sewerage effluents, with negative implications for the downstream settlements which use river-water for all purposes. Over the dry period, the difficulty in getting rid of the sewerage effluents and wastewater

aggravates the chronic sanitation problem. The valley’s settlements have attracted many small-scale industries, apart from a large number of people from outside. The population of the valley grew by 3-4% from 700,000 in 1981 to over a million in 1991 constituting almost five percent of the country’s population. The population of the city of Kathmandu tripled and that of Patan city doubled over the period between 1971 and 1991.

There is also the vehicular and air traffic. There was a four-fold increase in the number of engine driven vehicles plying the 1,000 km of roads between 1986 and 1996. In 1992 about 55,000 vehicles were registered in the valley. Four to five percent of all these vehicles were owned by diplomatic and aid missions. Mandatory emission control has been recently introduced, but no attempt has yet been made to take the most polluting vehicles such as the buses, trucks and certain types of three wheelers off the road, given the difficulty in replacing them by better vehicles.

Recently, the Environment Protection Act was enacted in

1997. Under the law the emission standards for vehicles were also fixed. Many of the buses and trucks are decades old and lack spare parts. Many of the cars and jeeps discarded in their country of origin were imported after being reconditioned into Nepal. It would need a heavy investment to bring them to tolerable standards of emission. Aggravating the condition of the vehicles, the fuel used in Nepal is of low octanic and high carbon residue and lead content. What is still lacking is a serious study and reliable information on the overall impact of pollution. No concerted, committed ef-

forts have been directed at addressing the valley's unique problem that has root in the nature's complexity and man's development interactions.

The problems related to pollution in the Kathmandu Valley can not be solved, unless an overall perspective of the valley's role and development activities is reconsidered. In looking for models of problem solving, Kathmandu Valley cannot be compared with any other valley in South Asia, because of its ambient climate, ancient history, rich culture and religious significance. The problems have to be



understood adequately first before arriving at any solution. Its proximity to the mighty Himalayas and to the rich Ganges plain makes it very attractive to visitors from all over the world. But such an attraction may prove fatal to Kathmandu Valley in the long run.

A glimpse at the environmental trends



- The protective ozone shield in heavily populated latitudes of the northern hemisphere is thinning twice as fast as scientists thought just a few years ago.
- A minimum of 140 plant and animal species are condemned to extinction each day.
- Atmospheric levels of heat trapping carbon dioxide are now 26 percent higher than the pre industrial concentration, and continue to climb.
- Forests are vanishing at a rate of some 17 million hectors per year, an area about half the size of Finland.
- World population is growing by 92 million people annually, roughly equal to adding another Mexico each year of this total 88 million are being added in the developing world.
- One in three children is malnourished
- Some 1.2 billion people lack water safe to drink
- Nearly 3 million children die annually from diseases that could be averted by immunizations.
- One million women die each year from preventable reproductive health problems.
- About 1 billion adults cannot read or write.
- More than 100 million children of primary school age are not in school.

** Courtesy from State of the World, 1992

Environmental Education in Formal Education System

Since, Nepal is a country of villages, it is necessary to pay special attention to the rural areas where problem like flood, land erosion, loss of forest cover etc are becoming serious. Likewise, it is equally necessary to pay attention to urban areas where problems like solid waste, air and water pollution are becoming acute. In view of those problems, it has become imperative to implement laws and regulations to ensure sound environment both in rural and urban areas. To conserve environments and to enforce laws, people's cooperation is necessary.

In the context of Nepal, sustainable resource management means ensuring sustainability of available resources by fulfilling the interest and need of the Nepalese people. Problems like land erosion, land slide, flood, destruction of forest exist in the village areas whereas smoke, dust, water pollution and lack of proper management of garbage are in urban areas. These have adverse effect in natural resources.

Nepal's environmental problems are associated with population growth and general poverty. However, there is still a need for the development of a conceptual framework to deal with the population-development-environmental inter-linkages.

The Government has introduced some environmental education at the primary, lower secondary and secondary school levels. The highlights of them are given below:

Environmental Education in School Curricula: some examples

A. Primary Level

Children in grade I-V at public schools learn about the environment primarily through the book "Mero Serophero" (my surroundings). This book presents a blend of social science, health education and environmental science. Children are made aware of their surroundings and the importance of nature and natural resources. They are also encouraged to take interest in the arts and culture and are made aware of everyday health issues.

The course environmental science and health education includes broad areas as given below.

1. Living and non-living things
2. Simple living things
3. Land, water and air
4. Energy
5. Inter-relation between living and nonliving thing
6. Changes in the environment
7. Environmental pollution
8. Natural Calamity

In grades 4-5, a course entitled "Mero Batabaran" (my environment) is offered. In these grades, children are given the opportunity to build on the knowledge of their previous grades and learn in greater detail about the natural world and various types of plants and animals. They are introduced to pollution, natural disasters, natural heritage and the importance of energy in our daily life. They learn about cleanliness and how to stay healthy.

The separate course on social studies in grades 4-5 provides further knowledge on social aspects of the environment.

B. Lower Secondary Level

Environmental Education in lower secondary includes following topics:

- Population education
- Situation of population in Nepal
- Population statistics
- Distribution and density of population
- Source of statistic of population.
- Element of determining the population changing
- Effect of population growth
- HIV Aids and other sex related diseases
- Family life education
- Duties of family and their roles
- Different preventive action to control the population
- Introduction, Importance and needs of environment
- Situation of natural resource and cultural conservation
 - Condition of natural resources and
 - Condition of cultural conservation
- Causes of environmental degradation
- Majors of environment protection and promotion.
- National & International agencies involving in population & environment.

C. Secondary Level

At the secondary level a separate compulsory subject on Health, Population and Environmental Education for secondary level (grades 9 & 10) has been introduced. The need of introducing Health, Population and Environmental Education in the curricula of secondary school has been raised mainly from the realization that an enlightened awareness about population, environmental issues and health problem will help in influencing the reproductive and other population as well as environment related behavior of the adolescents.

In addition, Environment Science has also been offered as an elective course for grades 9 and 10. As the entire course of 100 marks is devoted to environmental science, students have the opportunity to acquire extended knowledge and insights not offered by the compulsory course on health, population and environmental education. This course also provides a solid foundation for further education in environmental science. It is structured in such a way that students gain detailed knowledge of the physical, biological, chemical, natural, social, economic and health related aspects of the environment.

Problem Issues

Although the subject have been introduced, teaching of those subjects have been facing several problems such as

- (a) Lack of qualified and trained teachers.
- (b) Inadequate supply of teaching-learning materials.
- (c) Shortage of instructional materials.
- (d) Lack of advocacy programme for the popularization of Environment Education programs and activities.
- (e) Lack of expertise development.
- (f) Lack of monitoring, supervision and following-up.

Non Formal Education to Catch the Environmental Issues in Nepal

The government of Nepal would be wrong to think that just introducing environmental education in the formal schools will make people educated on environmental issues. Because the country has about half of its population as illiterates. They could not be reached through formal schools. Most of the illiterate peoples are living in the rural areas. Until and unless the rural people who are mostly illiterates could be provided environmental education, environmental problem of Nepal could not be solved. Some NGOs and INGOs are trying to provide basic education to these illiterates through Non Formal Education as a part of their non formal education. But the effort is not sufficient to solve the vast problem. The government of Nepal had already published National NFE curriculum. The National curriculum of non-formal education has included environmental concerns in all three levels of literacy program (Basic level I, Middle level II and Self learning level III). The environmental contents in the NFE curriculum are given below:



2. Civic awareness
3. Cultural heritage
4. Family life
5. Income generation and Agriculture
6. Health and nutrition
7. Environment and Sanitation

But the government has not implemented the curriculum properly. The government hasn't published primers and textbooks to implement the curriculum.

The evaluation study of the literacy program conducted by the Natural Resource Management Sector Assistance Program (NARMSAP) was carried out by the National Resource Center for Non Formal Education (NRC-NFE). The evaluation study showed that the literacy program has been very effective to impart the knowledge of community forest, importance of environment preservation and conservation. The study also revealed that the skill and attitude of environment and forest conservation of the learners were increased after joining the literacy classes. They were also found to be applying the knowledge and skills that they have learned in their day-to-day life.

वातावरणीय विनाश: आजको समस्या

हामी अहिले अत्याधुनिक प्रविधिहरूको विकासको युगमा बाँचिरहेका छौं, जसले व्यक्ति एवं समाजलाई विभिन्न किसिमका फाइदाहरू प्रदान गरिरहेका छन्। फाइदाका साथसाथै द्रुततर रूपमा भएका विकासले मानिस एवं वातावरणलाई विनाशकारी एवं डरलाग्दो प्रभाव पनि पारिरहेका छन्। हाम्रो हेलचेक्राईपूर्ण क्रियाकलापहरूद्वारा हामी आफैं विनाशतिर गइरहेका छौं। संसारमा विभिन्न किसिमबाट वर्षमा ४.५ विलियन टन फोहोर पदार्थ विश्वको आकाशमा फाल्ने गर्दछौं। प्रत्येक वर्ष माटो, फोहोर, विषालु रसायन तत्वको रूपमा १० विलियन टन फोहोर पदार्थ समुद्रमा मिसिन जान्छ। त्यस्तै प्रति वर्ष विश्वको १,५०,००० कि.मी. वन विनाश भैरहेको छ।

नेपालको सन्दर्भमा हेर्ने हो भने वातावरण दुषित बन्नुमा वन विनाश, तीब्र जनसंख्या वृद्धिदर, बाढी पहिरो आदि प्रमुख कारणहरू देखिन्छन्। सन् १९९१ को राष्ट्रिय जनगणना अनुसार नेपालको जनसंख्या १,८४,६२,०८१ थियो भने हाल अनुमानित २,३४,००,००० पुगेको छ। यस्तो तीब्र जनसंख्या वृद्धिको असर प्रत्यक्ष रूपमा वातावरणमा पर्न गइरहेको छ।

वन नेपालको एक प्रमुख प्राकृतिक स्रोत हो। यसले हाल देशको कुल भु-भागको ३८% भु-भाग ओगटेको छ। जनसंख्या वृद्धिदर तथा खेतीको उपयोगको लागि वन फँडानी भएबाट वनजंगलको क्षेत्रहरू धेरै नै कटानी भइरहेको छ। केही दशक अगाडिसम्म नेपालको लागि वन तथा यसका पैदावारहरू मुख्य आम्दानीका स्रोतको रूपमा रहेको थियो। सन् १९५५ भन्दा अगाडिसम्म वनजंगलले देशको ५०% भन्दा बढी भु-भाग ओगटेको थियो, तर सन् १९६४ मा आएर यो ४५% र सन् १९७८ मा आएर यो घटेर

३८%मा पुगेको थियो। प्रजातन्त्र पुनर्स्थापना पछिको अन्तरिम सरकारको १४ महिने कालमा (१९८९-९१) वन विनाशले तीब्र रूप लिएको पाइन्छ, जुन अध्यावधि जारी नै छ। श्री ५ को सरकार वन मन्त्रालयको १९९० को प्रतिवेदन अनुसार फेब्रुअरी १९९० देखि मे १९९१ सम्ममा मात्र ३५६५५ विगाहा वन विनाश भएको पुष्ट्याइएको छ। सरकारी तथ्यांक अनुसार हाल देशको कुल भु-भागको ३७.५% जमीन वन जंगलले ढाकेको बताइन्छ र गैर सरकारी विशेषज्ञहरूको अनुसार देशको २०% भूभाग मात्र हाल बनले ढाकेको छ र उनीहरूको अनुसार वातावरणलाई सन्तुलनमा राख्न कम्तिमा देशको ४३% भु-भाग वन जंगलले ढाकेको हुनुपर्दछ। यसरी वन विनाश बढेबाट देशमा विभिन्न समस्याहरू जस्तै: बाढी, पैरो, नदी कटान, पर्यावरणीय असन्तुलन आदि देखा परेका छन्। वन विनाश हुनुको एक प्रमुख कारण उच्च तहमा बस्ने मन्त्री, सचिव, निर्देशक तथा अन्य कर्मचारीहरू भ्रष्टाचारमा संलग्न हुनु हो। तिनीहरूले कमिशन तथा घूसको लोभले जथाभावी वन कटानी गर्न स्वीकृत गर्ने गरेको पाइन्छ। त्यस्तै जनताहरूमा व्याप्त रहेको अशिक्षाले गर्दा पनि वन जंगलको महत्त्वलाई नबुझी वनजंगलको विनाश हुने गरेको छ। नेपालको सन्दर्भमा महिलाहरूले नै प्रमुख वन संरक्षकको भूमिका गराउनुपर्दछ। नेपालमा ७८% दाउरा संकलन महिलाहरूले नै गर्दछन् भने यस कार्यमा ६% बालिकाहरूको संलग्नता भएको पाइन्छ। नेपालका ग्रामीण क्षेत्रका युवा, बालक तथा प्रौढहरू वातावरण ह्रास हुनुका कारण र यसको प्रभावबारे अनभिज्ञ छन्। यदि सही किसिमले सबैखाले जनतालाई वातावरणीय शिक्षा दिन सकेमा धेरै हदसम्म यो समस्याको समाधान गर्न सकिन्छ। यसको लागि देशका जनतालाई औपचारिक एवं अनौपचारिक शिक्षाको माध्यमद्वारा वातावरणीय शिक्षा दिनु पर्दछ

वातावरण प्रत्येक व्यक्तिको जनजीवनसंग प्रत्यक्ष रूपमा सरोकार राख्ने विषय भएकोले यसलाई कुनै एक निकायसंग मात्र सम्बन्धित गर्नु हुँदैन । यसको दीर्घकालीन रूपमा समाधानको लागि विभिन्न निकायहरु जस्तै: जनसंख्या, स्वास्थ्य, वन कृषि, उद्योग, यातायात, पर्यटन, जलस्रोत आदिसंग समन्वय गरी कार्यक्रमहरु संचालन गर्नुपर्दछ ।

शहरी वातावरणको कुरा गर्ने हो भने अव्यवस्थित बसोबास, घना जनसंख्या भएको ठाउँमा उद्योग धन्दाको संचालन, सवारी साधनमा बृद्धि, वनजंगल क्षेत्रको कमी तथा प्रदुषण विरुद्ध कार्यको लागि सुहाउँदा नीति तथा कानुनहरुको अभाव नै शहरी वातावरण दुषित पार्न जिम्मेवार देखिन्छ । कामको अभावमा शहरतिर बसाई सराई गर्ने प्रवृत्ति, प्रशासनिक तथा राजनैतिक शक्ति शहरतिर नै बढी केन्द्रित रहनुले गर्दा शहरी क्षेत्रमा जनसंख्याको चाप अत्यधिक मात्रामा बढ्न गई वातावरण भन् भन् दुषित हुन पुगेको छ । प्रदुषण सम्बन्धि कडा कानुन तथा नीतिहरुको कमीले गर्दा औद्योगिक फोहोरहरु, विषालु पदार्थ एवं दुषित पदार्थहरुको राम्ररी व्यवस्थापन गर्न सकिरहेको छैन । हालै मात्र श्री ५ को सरकारले जनसंख्या तथा वातावरण मन्त्रालय खडा गरी विभिन्न चेतनाकरण कार्यक्रम एवं वातावरण संरक्षणका कार्यक्रमहरु संचालन गर्न थालेका छन् ।

काठमाडौं उपत्यकाले अहिले आएर अत्यधिक उच्च जनसंख्याको चाप, प्रदुषण, सवारी साधनको बढी प्रयोग आदिले गर्दा ठूलो वातावरणीय समस्या भोग्नु परेको छ । उपत्यकाको भौगोलिक अवस्थाले गर्दा पनि यो समस्या भन् जटिल बन्न थालेको छ । बढ्दो जनसंख्याको चापले गर्दा उपत्यकाका शहर हरुबाट बढी मात्रामा विकिरण तथा ताप उत्पादन गर्ने गर्दछ । काठमाडौं उपत्यकाको चारैतिर पहाड भएको हुनाले यहाँ बहने हावाले उपत्यकाभित्रको विकिरण तथा प्रदुषणलाई उपत्यका बाहिर लग्न

सकदैन । साथै मट्टितेल तथा चिमनी भट्टा, सिमेन्ट कारखानाबाट निस्कने प्रदुषणयुक्त धुँवा पनि उपत्यका भित्रै केन्द्रित भइरहेको हुन्छ । उपत्यकाको हावाको गुणस्तर सम्बन्धि पनि त्यति राम्रो तथा वैज्ञानिक ढंगले अनुगमन गरिएको छैन । सन् १९९१ मा राष्ट्रिय योजना आयोगले उपत्यकाभित्र १७५ वटा प्रदुषणयुक्त कारखानाहरु भएको पुष्ट्याएको थियो । कथित विकासको नाममा उपत्यकाबासीहरु दिन प्रतिदिन वातावरणीय प्रदुषणको चपेटामा धस्सिदै गइरहेका छन् । शहरी वातावरणको प्रदुषणको एउटा प्रमुख कारण सवारी साधनको बृद्धि पनि हो । काठमाडौं उपत्यकामा मात्र सन् १९८६ र १९९६ को बीचमा चार दोब्बरले सवारी साधनहरु बृद्धि भएको देखिन्छ ।

सन् १९९७ मा वातावरण नियन्त्रण गर्नको लागि वातावरण संरक्षण नियम लागु गरिएको थियो । यस नियमलाई लागु गर्न सवारी साधनहरुको उचित मापदण्ड पनि तयार गरियो । तर यसलाई पनि कडाइका साथ लागु गरेको देखिँदैन । यहाँ चलने धेरैजसो सवारी साधनहरु दशौं वर्ष पुरानो रिकन्डिशन गरिएका पाइन्छन् भने प्रयोग गरिने इन्धन पनि कम गुणस्तरको देखिन्छ । उपत्यका भित्रको यस्तो समस्याको विस्तृत अध्ययन एवं स्थायी समाधानको लागि प्रयास हुनु आवश्यक देखिन्छ ।

उपत्यकाभित्रका विकास कार्यक्रमहरु तथा उपत्यकाबासीहरुको बिकास प्रतिको भूमिकाबारे जबसम्म आमूल परिवर्तन गरिँदैन, यहाँको वातावरणीय समस्या साँचो अर्थमा समाधान हुन सक्तैन । काठमाडौं उपत्यकाको वातावरणीय समस्या समाधान गर्ने सवालमा यो ऐतिहासिक शहरको इतिहास, संस्कृति, धार्मिक मान्यता, रौम्यता एवं सौन्दर्यतामा पनि ध्यानमा राख्नुपर्दछ । तर, क्रमैसंग हुँदै गएको वातावरणीय ह्रासका कारण उपत्यका प्रतिको अन्तर राष्ट्रिय आकर्षण सँधै कायम गरी राख्न गाह्रो हुने देखिन्छ ।

औपचारिक र अनौपचारिक शिक्षामा वातावरणीय शिक्षा

नेपाल गाउँ नै गाउँले भरिएको देश हो । त्यसैले यहाँ विकास एवं अन्य कार्यक्रमहरूको निर्माण गर्दा ग्रामीण जनताहरूको सीधै सरोकार हुने समस्याहरू जस्तै: बाढी, पहिरो, बन विनाश आदिसँग सम्बन्धित गरेर बनाउनु पर्दछ । त्यस्तै गरी शहरीकरणसँग सम्बन्धित समस्याहरू जस्तै फोहोरमैला, हावापानी दुषित हुनु आदिमा पनि ध्यान दिनुपर्दछ । यी सबै कुराहरूलाई ध्यानमा राखी वातावरण सम्बन्धि कार्यक्रमहरू र विभिन्न विकास सित सम्बन्धित कार्यक्रमहरू संचालन गर्न मद्दत हुने खालका नियम तथा कानूनहरू बनाउनु पर्दछ ।

नेपालको वातावरणीय समस्यालाई हेर्ने हो भने यो जनसंख्या बृद्धि र गरीबीसँग सम्बन्धित छ । यसको लागि जनसंख्या नियन्त्रण, विकास कार्य गर्न कस्तो सम्बन्ध हुनु पर्दछ बिचार गरि कार्यक्रम बनाउनु अति आवश्यक देखिन्छ । राष्ट्रको दीगो विकासमा शिक्षाको भूमिका पहिलो स्थानमा आउने हुनाले श्री ५ को सरकारले प्राथमिक, निम्न माध्यमिक र माध्यमिक तहमा वातावरण शिक्षा दिने उद्देश्यले केही विषयवस्तुहरू सामेल गरेका छन् ।

विद्यालय पाठ्यक्रममा वातावरण शिक्षा : केही उदाहरणहरू

(क) प्राथमिक तह:

कक्षा १ देखि ५ सम्मका विद्यार्थीहरूलाई साधारण वातावरण सम्बन्धि शिक्षा “मेरो सेरोफेरो” को माध्यमबाट दिइने गरिन्छ । यो पुस्तकबाट सामाजिक शिक्षा, स्वास्थ्य शिक्षा र वातावरण शिक्षा दिइने गरेको छ । यो तहमा विद्यार्थीहरूलाई आफ्नो वरिपरिको वातावरण, प्रकृति र प्राकृतिक स्रोतहरूसँग परिचित गराउन खोजिएको छ । यो तहमा वातावरण शिक्षा अन्तर्गत निम्न विषयवस्तुहरू समेटिएको छ।

जीव, जनावर र बोट बिरुवा

- १) सामान्य जीवहरू
- २) जमीन, पानी र हावा
- ३) शक्ति
- ४) वातावरणमा सजीव र निर्जीव बीचको अन्तरसम्बन्ध
- ५) वातावरणमा भइरहने परिवर्तन
- ६) वातावरण प्रदुषण
- ७) प्राकृतिक प्रकोप

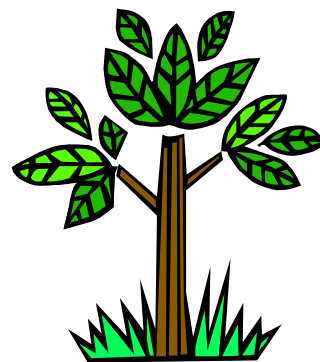
पछिल्ला कक्षाहरूमा पढेका कुराहरूलाई निरन्तरता दिन र अभि विस्तृत रूपमा प्राकृतिक स्रोत साधन र विभिन्न जीवजन्तु र रुखबिरुवा सम्बन्धि थप ज्ञान दिन कक्षा ४ र ५ मा मेरो वातावरण भन्ने विषय समावेश गरिएको छ ।

(ख) निम्न माध्यमिक तह

वातावरण शिक्षा अन्तर्गत निम्न माध्यमिक तहमा निम्न विषयवस्तुहरू समावेश गरिएका छन् :

- जनसंख्याशिक्षा
- नेपालको जनसंख्या स्थिति

- जनसांख्यिक तथ्यांक
- जनसंख्या बनौट, वितरण र जनघनत्व
- जनसंख्या तथ्यांकका स्रोतहरु
- जनसंख्या परिवर्तन निर्धारण गर्ने तत्वहरु
- जनसंख्या बृद्धिबाट हुने असरहरु
- एड्स र अन्य यौन प्रसारित रोगहरु
- पारिवारिक जीवन शिक्षा
- परिवारको काम कर्तव्य र भूमिका
- जनसंख्या नियन्त्रण गर्ने उपायहरु
- जनसंख्या र वातावरण शिक्षा सम्बन्धि पाठ्यक्रम
- जनसंख्या र वातावरण शिक्षा पाठ्यक्रम
- वातावरणको परिचय, महत्व र आवश्यकता
- प्राकृतिक स्रोत तथा सांस्कृतिक सम्पदाको स्थिति
 - प्राकृतिक स्रोतको स्थिति
 - सांस्कृतिक सम्पदाको स्थिति
- वातावरण ह्रासका कारक तत्वहरु
- वातावरण ह्रासका असरहरु
- वातावरण संरक्षण र सम्बर्द्धनका उपायहरु
- जनसंख्या तथा वातावरणसम्बन्धि संलग्न राष्ट्रिय तथा अन्तर्राष्ट्रिय निकायहरु
- निम्न माध्यमिकको लागि जनसंख्या शिक्षा, शिक्षक प्रशिक्षण कार्यक्रम



(ग) माध्यमिक तह

माध्यमिक तह (कक्षा ९ र १०) मा भने एउटा छुट्टै अनिवार्य स्वास्थ्य, जनसंख्या तथा वातावरण शिक्षा विषय समावेश गरिएको छ। यो तहमा यो विषय राख्नुको मुख्य कारण हो किशोर किशोरीहरुलाई उच्च स्तरको वातावरणीय, जनसांख्यिक तथा स्वास्थ्य सम्बन्धि ज्ञान तथा सीप प्रदान गरी विद्यार्थीहरुलाई जनसंख्या, वातावरण र प्रजनन सम्बन्धि विषयवस्तुसँग परिचित गराउनु हो।

यसै तहमा वातावरण विज्ञान भन्ने ऐच्छिक विषय पनि समावेश गरिएको छ। यो विषय सम्पूर्ण रूपमा वातावरणसँग केन्द्रित हुने हुनाले विद्यार्थीहरुले अनिवार्य विषयमा भन्दा यसबाट बढी वातावरण सम्बन्धि ज्ञान र सीप हासिल गर्न सक्तछन्। यसमा मुख्य रूपमा भौतिक, जीव, रासायनिक, प्राकृतिक, सामाजिक र स्वास्थ्य विज्ञान सम्बन्धि ज्ञान र सीपहरु समाविष्ट छन्।

समस्या तथा मुद्दाहरु

वातावरण शिक्षा औपचारिक शिक्षामा समावेश गरिएता पनि विभिन्न समस्याहरु र मुद्दाहरु पनि देखिएका छन्। जस्तै:

- १) तालिमप्राप्त र गुणस्तरीय शिक्षकहरुको अभाव
- २) शिक्षण तथा शैक्षिक सामग्रीहरुको अभाव
- ३) तालिम सामग्रीहरुको अभाव

- ४) वातावरण शिक्षा कार्यक्रम र क्रियाकलापको लागि पर्याप्त मात्रामा अधिवाचन कार्यक्रमको अभाव
- ५) विशेषज्ञहरूको अभाव
- ६) सही रेखदेख, निरीक्षण र अनुगमनको अभाव

वातावरणीय समस्या र अनौपचारिक शिक्षा

श्री ५ को सरकारले यदि औपचारिक शिक्षामा वातावरण विषय समावेश गर्दैमा वातावरणीय समस्या हल हुन्छ, भन्ने ठान्दछ, भने यो गलत हुनजान्छ। हाम्रो देशमा अझै पनि आधा भन्दा बढि जनसंख्या निरक्षर नै छन् र उनीहरू विद्यालय शिक्षाबाट दिइने वातावरण शिक्षाबाट बन्चित छन्। यी निरक्षरहरू धेरैजसो ग्रामीण क्षेत्रमा बसोबास गर्दछ, भने जबसम्म यिनीहरूलाई वातावरणीय चेतना र शिक्षा दिन सकिंदैन, दीर्घकालीन रूपमा यो समस्या समाधान गर्न सम्भव हुँदैन। अहिले धेरैजसो सरकारी एवं गैरसरकारी संघ संस्थाहरूले अनौपचारिक शिक्षाका कार्यक्रमहरू संचालन गरिरहेका छन्। यी संघ संस्थाहरूले साक्षरता कक्षाको माध्यमबाट वातावरण शिक्षा प्रदान गर्दै आइरहेका छन्। तर यस्ता कक्षाहरूमा दिइने वातावरण सम्बन्धि विषयवस्तु सीमित मात्रामा मात्र छन्। श्री ५ को सरकारले केही वर्ष अगाडि नै राष्ट्रिय अनौपचारिक शिक्षाको पाठ्यक्रम प्रकाशित गरेको छ। यो पाठ्यक्रमले साक्षरताका तीनै तहहरू प्राथमिक तह, मध्यम तह र स्वाध्यायन तहमा वातावरण सम्बन्धि विषयवस्तुहरू समावेश गरिएका छन्।

अनौपचारिक शिक्षाको राष्ट्रिय पाठ्यक्रममा समावेश गरिएका वातावरण सम्बन्धि विषयवस्तुहरू:

- १) महिला सशक्तिकरण
- २) नागरिक चेतना
- ३) सांस्कृतिक सम्पदा
- ४) पारिवारिक जीवन
- ५) आय आर्जन र कृषि
- ६) स्वास्थ्य र पोषण
- ७) वातावरण र खानेपानी

तर श्री ५ को सरकारले अझैसम्म पनि यो पाठ्यक्रमलाई राम्ररी लागु गर्न सकेको छैन। साथै श्री ५ को सरकारले पाठ्यक्रममा आधारित गरि पाठ्यपुस्तक एवं सहभागी पुस्तिकाहरू निर्माण गर्न सकेको छैन। अनौपचारिक शिक्षा राष्ट्रिय स्रोत केन्द्र, नेपालले NARMSAP ले संचालन गरेको साक्षरतालाई अनौपचारिक शिक्षाको मुल्यांकन गरेको छ। यस अध्ययनबाट के देखाएको छ भने सामुदायिक वन सम्बन्धि ज्ञान, वातावरण संरक्षण आदि सम्बन्धि ज्ञान र सीप प्रदान गर्न साक्षरता कार्यक्रम धेरै नै सफल छन्। साक्षरता कक्षामा सहभागी भैसकेपछि सहभागीहरूमा वातावरण संरक्षण तथा वन जोगाउने प्रवृत्ति एवं ज्ञान बृद्धि भई उनीहरूले त्यो ज्ञान तथा सीपलाई दैनिक रूपमा प्रयोग गर्दै आएको कुरा पनि उक्त अध्ययनले देखाएको छ।

यसरी अनौपचारिक शिक्षाको प्रभावकारिता एवं यसको क्षेत्रलाई दृष्टिगत गरी वातावरण संरक्षणका लागि अनौपचारिक शिक्षालाई प्रभावकारी ढंगले संचालन गर्नुपर्छ। यस्तो शिक्षामा विभिन्न विषयवस्तुहरू जस्तै स्वास्थ्य, जनसंख्या, वातावरण, पर्यावरण आदि समावेश हुनु नितान्त आवश्यक देखिन्छ।

Dissemination of National Version of PLANET

As mentioned above literacy programs are very much effective to impart the knowledge and skill on various aspects like environment, health, sanitation etc. to the learners and the community. NRC-NFE adapted learning material on environment printed by the Asia Pacific Cultural Center for UNESCO (ACCU) in 1997 called PLANET adapting it in the Nepalese context. The PLANET's main objective is to raise awareness that people are part of nature and to enable people take concrete actions to improve their environment while improving their reading and writing skills.

The materials were very useful for imparting knowledge and skill and to develop positive attitude towards the environment. The PLANET I "Water Pollution" consists of following materials:

- i) Poster "Think and Act for Our PLANET of Water"
- ii) Video "Mina's Village and the River"
- iii) Booklet "Our Water, Our Life"

Similarly, the PLANET II on Forest Conservation was recently adopted and distributed by Research Center for Innovation and Development (CERID) in Nepali language. PLANET II on Forest Conservation consists of following materials:

- i) Poster "Our Forest: Wonder of Living Creatures"
- ii) Video "Mina and Her Village"
- iii) Booklet "Our Forest, Our Life"

The target learners of the materials are i) neo literate of NFE classes ii) formal school student and out of school children (grade 4 to 8). The materials are very useful to promote discussion on the environment concerns in literacy classes.



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2	Ms. Indira Koirala	- Member Secretary	- IIDS
3	Mr. Bikash Ghimire	- Member	- NGO Forum
4	Mr. Chij Kumar Shrestha	- Member	- World Education
5	Dr. Suman K. Tuladhar	- Member	- CERID
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