SCHOOL HEALTH DILEMMA:
A PERSPECTIVE FROM PHYSICAL ENVIRONMENT

A THESIS

Submitted in Partial Fulfillment of the Requirement for the Degree of

DOCTOR OF PHILOSOPHY in EDUCATION

By

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It is certified that Thesis entitled School Health Dilemma: A Perspective From Physical Environment submitted by **Dilip Kumar Lal** is an original piece of research work carried out by the candidate under my supervision.

Literary presentation is satisfactory and the thesis is in a form suitable for publication. Work evinces the capacity of the candidate for critical examination and independent judgment.

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I hereby declare that this thesis has not been submitted for candidature for any other degree.

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ABSTRACT

The purpose of this study was to explore the knowledge, attitudes and practices on school health from the perspective of physical environment in order to promote safe school. A cross-sectional descriptive study was designed to assess the knowledge, attitude and existing practices on school health and nutrition of students and teachers. It was felt that the teachers have knowledge about physical environment and school health that is necessary to save children and teachers from the health problems. The problem statement of this study was devised as to identify the status, impacts, problems and corrective measures about the school health and nutrition. Global evidence and research findings have shown that all students are at risk, and vulnerable environment in school, physical facilities are difficult to deliver.

By reviewing different literatures, thesis, theories, national and international journals related to Physical Environment of School Health, the researcher made the study more substantive and authentic by incorporating relevant ideas that the researcher gathered through literature review. The researcher followed quantitative as well as qualitative research design with focus on its descriptive cross sectional and phenomenological premise which encompasses ontological, epistemological and methodological assumptions. The ontological framework for this study subscribes to the notion of multiple realities regarding the issue of school health and physical environment. The epistemological assumption dwelt on subjective discourse by research participants. Following the research question, the researcher carried out interview, focus group discussion and field observation with the research participants. By adopting stratified

random sampling technique, structured instruments were used to collect the data and analyzed by using descriptive as well as inferential statistical methods. Students were the main actors of this study. The knowledge, attitude and practices were assessed using semi-structured interview and qualitative data were obtained from focus group discussion.

The findings revealed that the knowledge varied according to ethnicity, age, and level of education. Students were found with little knowledge on school health and nutrition as compared to teachers in the sample schools. The diversity of ethnicity, level of education, occupation, and religion were found with different levels of knowledge, practice and attitude of the respondents. Most of the students were found with the knowledge about the school health, sanitation and hygiene. Lower is the age higher is the level of knowledge. Teachers with science and health subject teaching were found more knowledge about school health and sanitation. The findings were in line with the national and international trends. The attitude of students was found less positive towards the behavior of health in weak physical environment.

Even though existing strategies were promoting school health and nutrition including awareness raising and improving the availability of funds, transport and supply education and health kits, encouraging for institutional capacity building, in reality most of the physical environment were found poor, health facilities were not available in schools. As a result, the students have not been able to use physical facilities for safe schooling.

The study has been concluded by feeling the need of knowledge about school health and nutrition not only for teachers, but also students, head teachers and parents,

and also other categories of people. Children of today are the teachers of tomorrow. The health and environment education is extremely important to reduce the school health and environment hazards and meet the target of safe schooling and for school health development issues in Nepal.

The abstract of the thesis of Dilip Kumar Lal *for the Degree of Doctor of Philosophy in Education* was presented on June, 2014.

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Abstract Approved By

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Dilip Kumar Lal

ACRONYMS

ACHA	-American Child Health Association
Adm.	- Administrative/Administration
AIDS	- Acquired Immune Deficiency Syndrome
AMA	- American Medical Association
ANM	-Assistant Nurse Midwife
ARI	- Acute Respiratory Infection
ARNEC	-All Round National Education Committee
BCG	- Bacillus Calamite Gurine
B.Ed	- Bachelor in Education
BMI	-Body Mass Index
BPEP	- Basic and Primary Education Project.
CAR	-Central African Republic
CARE	- Co-operative American Relief Everywhere
CBO	-Community Based Organization
CDC	- Curriculum Development Centre
CERID	- Centre for Educational Research, Innovation and Development
CTEVT	-Council for Technical Education and Vocational Training
DDC	- District Development Committee
DEO	- District Education Office
DHEP	-District Health Education Programme
DPHO	-District Public Health Office
DPT	-Diptheria Pertusis Tetanus
ECA	- Extra-curricular Activities / Co-curricular Activities
FCHV	-Female Community Health Volunteer
FOE	- Faculty of Education
FINNIDA	- Finnish International Development Agency
GTZ	- German Technical Cooperation

H..Ed.	- Health Education
HET	- Health Education Teacher/ Health Teacher
HIMS	-Health Information Management System
HIV	- Human Immuno-deficiency virus
HMG	- His Majesty Government
HPE	- Health and Physical Education
HPS	- Health Promoting Schools
HSL	- Healthful School Living/ Environment
INGO	- International Non-Government Organization
I.Ed.	- Intermediate in Education
Inst	- Instruction
IOE	- Institute Of Education
JICA	- Japan International Co-operation Agency
JMA	- Japan Medical Association
KG	- Kindergarten
MCHW	-Maternal Child Health Worker
MHE	- Mentally/ Psychologically Healthful Environment
MHSL	- Mentally Healthful School Living
MOE	- Ministry of Education
MOEC	- Ministry of Education and Culture
NDHCS	-Nigeria Development Health Care Service
NEA	- National Education Association
NEC	- National Education Commission
NESP	- National Education System Plan
NGO	- Non-Government Organization
NNEPC	- Nepal National Education Plan Commission
NPC	-National Planning Commission
PEP	- Primary Education Project
PHE	- Physically Healthful Environment
PHSL	- Physically Healthful School Living
P.T.	- Physical Training

SAARC	-South Asian Association of Regional Cooperation
SCC	- School-Community Cooperation/Relationships
SDEP	-School Development Education Programme
SHE	- School Health Education
SHEP	- School Health Education Programme
SHI	- School Health Instruction
SHO	-School Health Organization
SHP	- School Health Programme
SHS	- School Health Service/services
SLC	- School Living Certificate
SMC	- School Management Committee
SPW	-Students Partnership Worldwide
UNDP	- United Nations Development Programme
UNESCO	- United Nations Education, Science and Culture Organization
UNICEF	- United Nations Children's Emergency Fund
VDC	- Village Development Committee
VHW	-Village Health Worker
VIP	-Ventilation Improved Pit
WHO	World Health Organization

TABLE OF CONTENT

CHAPTER I

INTRODUCTION

General Background

Nepal is a beautiful mountainous landlocked Himalayan nation of Asian continent which rich cultural heritage and has a number of geographical diversities. On its north side lies China and lies India on all the rest. It is situated between the longitude 80^0 04' to $88^0$12' east and latitude $26^0$22' to $30^0$27' north in a rectangular shape. It occupies an area of 147181 sq Km. Fifteen percent of its total land is covered by Himalayan region, followed by 68 percent hill and 17 percent Terai region which is a plain territory. The landscape of Nepal is slope from northern to southern side and the altitude of the land is diversified from less than 300 meters in Terai region to more than 8000 meters high in Himalayan region from the sea level. Administratively, it is divided into five development regions i.e. Eastern Development region, Central Development Region, Western Development Region, Mid-western Development Region and Far Western Development Region. There are seventy-five districts under these five development regions. Kathmandu is the capital of Nepal.

The total population of Nepal is about 26.49 million and the population growth rate is 1.35 percent according to census (CBS 2011/12). On an average, the population density is 181 per sq. km., in which Terai region is the densest are where the average

population density is about 390 per sq. km. According to Multi-Indicator Survey, (CBS 2011/12) 25.16 percent of the total population lies below the poverty line and 41% of children under five years of age are stunted, 11% are wasted and 29% are under weight according to Nepal Health and Demographic survey (CBS 2011/12). The major health problems of Nepal are rapid population growth, malnutrition, unsanitary environment, communicable diseases, high maternal and child death rate, lack of drinking water and drug abuse etc.

Education is the pillar of development. The social, cultural, economic and political aspect of nation can be flourished upon a sound education system only. Sound education also makes the wholesome development of an individual. An individual's wholesome development is his/her physical, social, mental moral and emotional development. All round development of a person is the main aim of providing sound health service to all people.

A School is a special agency which educates the children of community and prepares the manpower required for development of country. A School comprises teacher, students, curriculum and physical facilities etc. Especially School physical environment comprises various important aspects such location of School plant, School building, School sanitation, safety consideration and play ground. The availability and management of these aspects determines the quality of the ultimate performance of the students belonging to that School.

As for the educational status, the literacy rate of Nepal is 48 percent and the enrolment in primary schools is 69.4 percent of the total primary age children (6-10). The enrolment in lower secondary and secondary school was 50.3 and 34.7 percent,

respectively, of the total children of that age level at the end of the Eighth Plan, 1993-1997 (NPC 1992). The ratio of school enrolment for boys and girls was 58.5:41.5 on an average in 1998. On the basis of number of classes being run, there are altogether 23885 primary schools (grades 1-5), 6617 lower secondary schools (grades 6-8) and 3624 secondary schools (grades 9&10) in Nepal according to MOE (1998). Amongst them, 4556 primary schools, 3029 lower secondary schools and 2103 secondary schools are private. But the XI and XII grades are being run both at the higher secondary and at the intermediate level. In Kathmandu Valley, there are 1429 primary schools, 807 lower secondary schools and 557 secondary schools on the basis of classes being run including the private and the government schools (MOE, 1998). There are altogether 191 campuses under Tribhuvan University (T.U.) with about155, 000 students including both, the 61 constituent campuses and 130 affiliated campuses (MOE, 1996). About 98 percent of the total students in higher education are enrolled in T.U. and the remaining 2 percent in the Sanskrit University, Kathmandu University and Purbanchal University. The total number of 11460 technical students were enrolled in 141 technical schools under CTEVT in 1997/98 (MOE 1997) and 21048 students in higher secondary schools in Ninth Periodic Plan, 1997-2002. (NPC 1997)

School is an institution that brings all the children of a particular area in one common place. It is not possible for another organization to bring them under the proper care and guidance of four to six hours in a day. School is also a house where a number of children spend their lives during their age mental and physical growth. For a student's school is a part of his day to day living. An attractive sanitary building is not enough. The important thing is the interaction of the healthy environment and the students.

"Health is a basic human right and a worldwide social goal." (Park & Park, 2009). It is an integral part of every education system for achieving good health. A school can play a vital role to increase student's health status. A School is a complete social setting of various aspects and these aspects are to be directed and coordinated in to a productive healthful school environment.

Health education is a process of learning scientific knowledge about health attitudes, practices and habits by means of educational process. "The essential goal of health education is to influence health related behavior and conditions by stimulating student's interests in good health and by guiding their efforts to improve their own health and that of their family." (Tones, et al. 1997).

Healthy school environment is physical and aesthetic surroundings and the psychosocial climate and culture of school. Factors influencing the physical environment include the school building and the area surrounding it, any biological or chemical agents that ate determined to health and physical conditions such as temperature, noise and lighting. The psychological environment includes the physical, emotional and \social conditions that effect the well-being of students and staff (Http://www.nchealthyschools.org/components).

Healthful school environment focuses on physical environment of the school. The term healthful school environment was introduced in 1829 when William A Alcott was writing about school buildings development. In 1934 the word healthful school living or environment was used in the place of hygiene of the environment and school.

Different short term and long term health policies and plans have been carried out with the principal aim of upgrading the health standard of people through the Primary

Health Care Service for the attainment of the goal. “Health for All by 2000”. But till now it has not been able to meet the targeted point. In 1991, the government had targeted to decrease the infant mortality rate to 50 from 107 per thousand, the child mortality rate to 70 from 197 per thousand, the maternal mortality rate to 4 from 8 per thousand, the total fertility rate to 4 from 5.8 per female and the population growth rate to 2 from 2.1 percent by 2000. Similarly the life expectancy was targeted to increase up to 65 from 53 years within 2000. (MOE, 1996/97). But the infant mortality rate, child mortality rate, the maternal mortality rate, crude death rate and birth rate remained 74.7, 118, 4.75, 11.5 and 35.4 per thousand, respectively at the end of the NPC (1992-97). Similarly, the total fertility rate of 4.58 per female and life expectancy 56.1 years only were attained by the same time. About 41.4 percent families can now reach the nearest health service agencies after 30 minutes’ walk (NPC, 1997).

Focus of the Study

In 1998, the top ten outdoor patient diseases in Nepal were skin diseases (6.39%), diarrhea (3.3%), acute respiratory infections (ARI) (2.8%), worms (2.7%), pyrexia (1.9%), gastritis (1.8%), eat infection (1.4%), bronchitis (1.0%), abdominal pain ().9%) and anemia (0.9%) (in that order) (DHS 1998). The incidence of diarrhoea in fewer than five year children was 172 per thousand in the same year. Among the total new cases of diarrhoea, 48.2 percent had somewhat moderate and 7 percent severe dehydration. The incidence of Acute Respiratory Infection (ARI) was 144 per thousand in under-five year new visit children and the incidence of pneumonia was 64 per thousand in the same age group. Twenty-two point five percent children below 3 years were found malnourished (DHS 1998). Among the new-born children, 76.8 percent had normal weight (not less

than 2500 gms) and 53.2 percent children had expected weight and 51.6 percent children had normal height in accordance with age levels, respectively according to Nepal Family Health Survey. (CBS 2011/12). The immunization coverage of BCG, DPT-3 Polio-3, and measles vaccination were 100, 83, 83 and 89 percent, respectively in children in 1997/98. Vitamin 'A' distribution programme for less than five year children is extended to 59 districts (DHS 1998). Tuberculosis, malaria, encephalitis, Kala-azar, eye disease etc. are also prevalent in Nepal HIV/AIDS, drug abuse, cases of suicide, road traffic accidents and non-communicable diseases as heart disease, diabetes, cancer etc, are also increasing. Smoking and alcohol consumption are more prevalent. Drinking water facilities were available for 61 percent population and 13 percent population had got sanitation facilities at the end of the Eight Plan 1992-1997 (NPC 1992)as reported in the Ninth Plan, 1997-2002 (NPC 1997). The majority of health indicators, available health services and other health related facilities have the lowest rank among the SAARC countries (NPC 1997). General figures of health and educational status of people represents the position of the development of the country. The major indicators of national development are the improvement of health and educational status of the people. It means the development of health and education of the people is the base for national development. The health and educational development start from home and further improvement occurs in the school and within the community setting. The schools have an important role to play in providing educational opportunities as well as in improving health status of the school going children. Just as education is considered as the light and guidance of life, sound health is the sustainer of life.

There is no doubt about the value of health and health education during the school age period. This is a period of learning and development. Health and education are inseparable during these years since one cannot improve in the absence of the other. They are highly interrelated and they affect each other in their improvement. Without good health, proper education is difficult and without education, health or quality of life is very poor. Shattuck had written early in 1850 that every child should be taught early in life to preserve his own life and his own health and the lives and health of others. This is one of the most important and constantly abiding duties according to him (Bruess & Gay, 1978). According to the Director General of the SHO, Nakajima, "Education children at school on health should be given the highest priority, not for their per se, but also from the perspective of education, since if they are to learn they need to be in good health" (WHO, 1996).

The World Summit for Children, 1990 in their plan of Action stated that As Today's children are the citizens of tomorrow's world, their survival, protection and development is the prerequisite for future development of humanity. Empowerment of the younger generation with knowledge and resources to meet their basic human needs and to grow to their full potential should be a primary goal of national development. As their individual development and social contribution will shape the future of the worked, investment in child's health, nutrition and education is the foundation for national development. (WHO, 1996).

The above remarks show that school health and health education activities cannot be minimized in the school. The demands of school health activities are different according to time and situation in different countries and regions. In fact, it is not being

put in actual practice in most of the countries of the world, as it is high sounding. The value of School Health Education (SHE) is increasing day by day but there is no symmetry in its values and functions in different countries. The health needs and existing health problems may be distinct in various regions and countries, but the general point of view on school health and health of the school children need to be the same for all the nations, regions and districts in the world. The school health services, health instruction, hygiene and sanitation, school nutrition, special health programmes, co-curricular activities and school-community health activities are the prominent school health practices in many countries and states. School Health Programme (SHP). Comprehensive School Health Education, Integrated School Health Programme, Total School Health Programme, School Health Education Programme (SHEP). Health Promoting Schools (HPS), School Health Practice etc. are the well-known titles of health programmes in the schools. Whatever titled activities and programmes are organized for purposes of prevention of disease, protection and promotion of health, supporting in teaching-learning programme and improvement of the quality of life of the students and school personnel, their usefulness depends on their practice. But health education programme has been limited to classroom health instruction except some sporadic and voluntary facilities or activities in other components in Nepal. Even now there is no legal provision of SHP of SHEP except the provision of health instruction through school curriculum and some aspects of HSL. Some lags or shortcomings for protection, maintenance and promotion of students' health as well as their future life are still there.

Statement of the Problem

Physical environment of school has already formed a part of school health education program in school curriculum. In Nepalese school some physical facilities problems are arising widely, recently like School plant/building, Sanitation Facilities, furnitures, waste disposal and so on. The main statement of the problem devised is: To What Extent is the physical environment of school health is prevalent and working in practice?

Objectives of the Study

The major objective of the study is to assess the physical environment of the school health in relation to current policies and practices. The specific objectives of the study are:

1. To explore the existing situation of physical environment in school of Nepal.
2. To analyze the input of physical facilities in school of Nepal
3. To assess the problems and corrective measures to improve the healthy physical school environment.

Research Question

The researcher tried to assess the research activities through the following research questions.

1. What are the existing situations of physical environment in school of Nepal?
2. What physical facilities are being available in maintaining school health?
3. What are the problems and corrective measures about implementation of physical facilities related to school health in Nepal?

The Rationale of the study

A few studies have been made in this topic, especially on environment education of School, Health Education programme in School etc., since few year there are no research work has been conduct on the physical school environment in Nepalese context. So the present study has substantial importance for following sector.

1. This research provides the baseline information about physical environment of school among regional level of Nepal.
2. This research work may be helpful for educational planner, policymaker and school health specialist.
3. In the same ways GOs, NGOs and INGOs may have an input to plan and execute the program addressed to upliftment of school.
4. This research may be useful to researcher, university teacher and students.

Delimitation of the Study

There are certain limitations of research. There are 75 districts and 4715 community Schools in Nepal. During the course of regional researcher out of 75 districts and 4715 community Schools, among research out of 5 districts and 200 community Schools, the researcher collects the information only from 100 schools of each rural & urban area of a five district. The researcher includes only 600 informants of above schools MOE (2012).

The present study the data will be collected only secondary level school of Narayani Zone. This study used the primary source of data collect from Head master, Health teacher and school management committee members. The physical environment

and physical facilities of the school, is observed by the investigator himself. In this study school health education programs will be used synonymously.

Delimitation of the study was marked being concerned with time, financial resource and materials. To make the study more concentrated and reliable, the delimitation of study was benchmarked as

a. The study is conducted in a group of five districts from central development region of Nepal and covering two hill districts and three Terai districts.
b. The respondents are the group of students and teachers having different backgrounds and study delimited to their experience of life before and after the use of physical facilities.
c. The study excluded the other aspects of environment that are associated in teaching and learning.

Organization of the Thesis

The thesis has been organized in seven chapters. The first chapter begins with the introduction and includes focus of the study, research problem, objectives of the study, research questions, rationale, delimitations and operational definition of the key terms. Chapter II provides a comprehensive literature review. Chapter III discusses the nature of the research, research design, tools of data collection, data management, and research procedures in detail. Chapter IV provides general information of the physical environment of the schools and the main empirical findings are analyzed in this section. Chapter V deals with the maintenance of school health through facilities. Chapter VI contains the discussion of the themes immersed from the empirical study. Summary,

conclusion, and implications for further study have been included in chapter seven. The table 1.1 shows the details of the organization of the thesis.

Table 1.1

The Organization of the Thesis

Chapter	Organization of the Study
Chapter I	Introduction, research problem, purpose of the study, research question, rationale and chapter summary
Chapter II	Comprehensive literature review
Chapter III	Research Methodology
Chapter IV	Physical Environments of School
Chapter V	Management of School Health through Physical Facilities
Chapter VI	Discussions
Chapter VII	Summary, Conclusion and Implications

Operational Definition of the Key Terms

A number of key terms have been used specifically for the purpose of the study. Among them the operational definitions have been designed as

School Health Program (SHP): The School Health Program includes all the activities carried on in a School system about the health of students and personnel. It provides several of experience for improving health knowledge, attitude and practice related to health.

Healthful School Environment (HSE): The promotion, maintenance and utilization of safe and wholesome surroundings is organization of day by day experience and planned learning procedure to influence favorable emotional, physical and social health.

School Health Instruction (SHI): Health instruction is the planned and incidental imparting of formal and informal health knowledge. It may be a lecture, a class discussion, a laboratory situation, or individual tutoring. It carries the connotation of something from the outside directed to the child for his understanding.

School and community Co-operation (SCC): School is an important part of the community, which is responsible for the development of various aspects of the students, such as physical, intellectual, social emotional, moral and aesthetic. It also includes self reliance and good behaviors in them.

Waste Disposal: It refers to a method of collecting and removing of the all kind of worthless materials like dust, papers, bricks, stones and etc that effect on health of the school family.

School plant: It includes physical aspects like location, playground, classroom, furniture, ventilation, lighting and gardening.

Building: Classrooms, office rooms, locker room, dressing rooms, bath and gymnasiums are such structural units that can be used for the above mentioned purpose.

Ventilation: It can be defined as the atmospheric condition, which is comfortable and helpful to human body.

Nutritional Practices: In this study, it refers to the application of concepts (behavior) and principles on food processing with in school.

Sanitary facilities: It refers such facilities provided by school for their school family which may be helpful to their sound health to the control of schools environment like proper waste disposal, drainage and clear drinking water supply and toilet supply.

Gardening: It refers to appropriately located flowers, trees, bushes etc within the school complex.

Transom: It is small window, which is situated at the roof of room. It may be at the top of the general window and door.

Excreta: Excreta are defined as useless and harmful materials eliminated from the body.

Play ground: Play ground refuse to such area where physical activities can be conducted. Track and field Foot ball ground, Basket ball court and other playing fields come in this category.

Chapter Summary

In this chapter, I had mentioned about the situation of Nepal, Nepali school environment, its situation, education, culture, ethics, norms, values, and learning facilities of Nepali students. The situation of physical environment of school health and the reason of them have been overviewed. I also reviewed the inputs of school facilities related to school health, recent researches and rationale of this research study. For this chapter, I have listed about the researches about the physical environment of school health and their benefits to society and their research likings, loop hole of researches, the history of school health and their consequences. At the end of this chapter I placed the objectives and the logical research questions of my research.

My next chapter deals with the extensive literature review.

CHAPTER II

LITERATURE REVIEW

Review of the related literature is one of the essential preliminary forks. And this term refers to the study of meaning from the previously carried out research us, studies etc. In other words the study of other related topics that help the desired topic to be effective and more experimental is called literature review. This section includes the previously done research reports, objectives, methods and findings of those researches that can help the present researcher to develop new idea and identify the new aspect of the research problems.

The materials of reviewing literature are scarce in the context of Nepal relating to the healthful School living. Generally some studies have been related on this study. So, the study concerns specially on healthful school living in the school. Here, the researcher has tried to review some related literature as guidance to process the present variables systematically and scientifically.

Historical Overview

School Health and School Health Education (SHE) trend to improve the health status of school children. School can play a major role in prevention of disease and promotion of health of the students as well as the community people. In the history of SHE, hygiene education was started in an integrated form along with physical education or some other

subjects. Early in the 19th century, the evidence of awakening interests in health welfare of children appeared in various parts of Europe (Hanlon & McHose, 1971). Generally, it is a necessity for preventing communicable and non-communicable diseases, maintaining health and supporting educational programmes. But in many cases, it was also realized that health and physical \education was essential because many young men could not qualify for military service.

School health movement was started from Europe and the United States of America has contributed greatly to it. The eminent European scientist Frank (1745-1821) published a series of papers dealing with the general subject of health. In 1833, France passed a law of responsibility of public school authorities for the health of school children and sanitation of school buildings. And after nine years, regular inspection by a physician was also made a provision in schools in that country. In 1870s, many European countries like Sweden, Germany, Russia, Austria, Brussels and Belgium made a provision for health examination or inspection by physician or medical personnel in schools (Anderson, 1972). But there was no provision of health instruction in classroom at that time, In USA, Alcolt (1798-1838) wrote an essay on construction of schoolhouse in 1829 focusing on the creation of healthful environment and recommended the attendance of a physician in school in 1840. He also wrote the first health textbook for children (Galli, 1978). In 1847, Horace Mann indicated the need for health instruction, and the American Medical Association (AMA) recognized this need in 1848. Mann's continued efforts for students' health led Massachusetts authorities to provide for hygiene as a compulsory subject in 1850. In the same year Shatgtguck published his report of the Sanitary Commission of Massachusetts impressing strongly the importance of SHE

(Bruess and Gay, 1978). By 1890, all the states laid down an essential requirement which was to teach the effects of alcohol, tobacco and drugs in public schools with the efforts of Women's Christian Temperance Union. In the same year, medical inspection programme was brought into the school for school children with the concept of health education as not only a matter of instruction by the classroom teachers, but enhancement of child health through the school environment (Rubinson & Alles, 1984).

In 1922, Turner conducted the Malden Study and organized a two-year school health demonstration programme with the co-operation of different voluntary organizations (Anderson, 1972). In 1924, the Joint Committee of Health Problems in Education of the NEA (National Education Association) and AMA issued its first report entitled "Health Education." After that many supporting reports came up on the best current thinking of the several disciplines involved in school health and health education, its objectives and practices in the field. And that helped in the upgrading and standardizing goals for health education practice across the USA (Jenne, 1976). The next study known as Cattaraugus Study was begun in New York in 1931 under the direction of Ruth Grout with the objectives of evaluating the influence of Health education on student behavior, the effects of a health programme on school environment and competencies of health teachers (Rubinson and Alles, 1984).

It is already mentioned that SHE was introduced through physical education, health service and other subject areas as biology and home science, etc. The special identity of school health was found when the American Association of School Physicians, 1927 was changed into American School Health Association in 1934 including other members concerned with school i.e. health professionals and educators

(Jenne, 1976). Similarly, while for a long period of health education or hygiene education was limited under the physical education. American Physical Educator, Association was changed into American Association for Health and Physical Education in 1937 and a distinction between health education and physical education was recognized in schools (Anderson, 1972). In the process of several studies on school health, a major study 'Denver Study' was begun in 1945 to discover pupils' needs and interests for providing the most meaningful health experience for boys and girls, and finding out at what grade level or levels, those experiences should be provided (Rubinson & Alles, 1984).

In 1954, the School Health Education Evaluation Study was launched in Los Angeles. The project was specially designed to consider the effectiveness of the SHP, which included administrative organization, SHS, SHI and HSL. It has also included behaviours of pupils combining knowledge, attitude and practices as well as the process of evaluation (Rubinson and Alles, 1984). Among the various studies, the largest and the most comprehensive survey, the School Health Education Study was carried out in 1961 in Washingtom D.C. through the generosity of the Sarnule Bronfman Foundation. Dr. Elena Slietcevich was the director of that study. The major activity of the study was to conduct a survey of the status of health education in the United States involving 135 school systems, 1460 schools and 8,40,832 students in 38 states. The result of research published in 1964, showed overall performance of SHEP to be lacking. The study also demonstrated that the general level of health education among students was poor and fundamental changes were needed in school education. With new support from Minnesota Mining and Manufacturing Company (3-M Company) the School Health Education Study carried out a comprehensive curriculum development task and decided

to implement a conceptual approach to the formulation of curriculum materials (Rubinson & Alles, 1984).

The concept of promotional health was developed in the field of health in 1970 by considering prevention of diseases and raising the level of health through positive life style instead of costly medical treatment (Rubunson & Alles, 1984). In the same way the changes came in conducting comprehensive health education programme in schools. In the process of revitalizing the school health programme (SHP) and giving it an organized, co-ordinate and integrated form, the definition of SHP was elaborated by Centre for Disease Control and Prevention in 1980s. The following eight specific components of SHP are identified (WHO, 1997):

1. School Health Service
2. School Health Education
3. School Health Environment (physical & psychological)
4. Health promotion for school personnel
5. School-community projects and outreach
6. Nutrition and food safety
7. Physical education and recreation
8. Mental health, counseling and social supports

Since the early 1950's WHO has recognized the importance of promoting the health through schools. Many divisions within WHO, UNICEF, UNESCO and other agencies have contributed separately and collectively to improve SHP. The meeting of WHO Expert Committee was held in SHS in 1954 and the joint meeting of WHO and UNESCO Expert Committee on Teacher Preparation for Health education in 1959. The report

pertaining to Planning for Health Education to Schools was published with the collaboration of UNESCO and WHO in 1966 (WHO, 1997). Throughout the 1970s and 1980s WHO produced a number of reports and technical discussions which addressed features of health of children and included observations on SHE (Tones and Tilford, 1990). First International Conference of Health Promotion was held in Ottawa, Canada in 1986. The Ottawa Charter focuses WHO's Initiative on creating health as well as preventing health problems. Thus, the WHO initiative calls for schools to enable individuals to: care for themselves and others, make decisions and have control over their life circumstances, and create conditions that are conducive to health (Jenne, 1976). Although since the early 1950s WHO has recognized the importance of promoting health through school, WHO's Health Education and Health Promotion Unit began steady efforts to enhance school health related activities in 1990. In 1991, WHO/ UNESCO/ UNICEF met for a Comprehensive School Health Education. That marked the beginning of a series of concerted efforts between WHO/ Health Education Promotion Regional offices, UN agencies and other international organizations to strengthen SHE, including education to prevent HIV infection (WHO, 1991).

WHO's Global School Health Initiatives was launched in 1995 to mobilize and strengthen health promotion and education activities at the local, national, regional and global levels. It was developed to improve the health of students, school personnel, families and other members of the community through schools. The goal of WHO's Global School Health Initiative is to increase the number of schools that can truly be called "Health Promoting Schools (HPS)" Although definitions will vary depending on need and circumstance, HPS can be characterized as a school constantly strengthening its

capacity for providing a healthy setting for living, learning and work. It has made for broad strategies; a) Building capacity to advocate for improved SHP, b) Creating networks and alliances for the development of HPS, c) Strengthening national capacities, and d) Research to improve SHP (Jones, 1998).

Similarly, for the development of programmes and policies of health promoting schools, the WHO Regional Office for the Western Pacific convened the workshops in Sydney and Singapore in 1994, and Fiji and Shanghai in 1995. The 4th international Conference on Health Promotion was held in Jakarta in 1997. Its one focusing area was 'Health Promotion through Schools.'

Besides conducting many researches, workshops and conferences, varied resource materials for building capacity to advocate for improved SHPs were developed by different organizations and related personnel. And many networks and alliances were started for the development of HPS on regional basis, such as European Network of HPS in 1991, and Regional Networks for the Development of HPS in Western Pacific in 1995, Latin America in 1996, Southern Africa in 1996 and South-East Asia and Western Pacific in 1997. National Capacities are also strengthening in different countries on the technical support of SHO for HPS. So SHEP has been the basic need for HPS. And SHO and other organizations have pleaded for providing comprehensive SHE to create HPS in all nations of the world.

Theoretical Review

Bucher (1963) said in his book administration of school health and physical education programs that there were many things to be considered in selection a suitable site for a school but the criteria/consideration would differ on the nature of community. For

example in an urban community it was desired to have the school situation near the transportation facility but at the sometime located away from road, factories, market, public pork etc. Suggested that consideration should be given to the trends in population movements and future development of the area in which the buildings should be constructed. Similarly, adequate space for playing and recreation should be provided

Anderson (1972) has written a handbook on "School Health Practice", the book has mainly focused on healthful school environment. He suggested that first of all every school has good planning of the school building. According to him, wherever possible the open type building plan should be employed. It has many good features.

1. Provides rapid horizontal traffic
2. Reduces five and other hazards.
3. Provides easy access to the ground for all parts of the buildings.
4. Reduces disturbing noises and odors.
5. Provides for better natural lighting and ventilation.

Likewise, with running water, fountains provide the most sanitary, drinking facilities for the school. One fountains per seventy-five pupils is an acceptable standard lie also shows that number of fixtures in the kindergarten toilet room can fallow the elementary school standards other special toilet rooms should be equipped with fixtures to meet the maximum needs of the enrollment.

Foder (1974) considered the school health programmed had three distinct interrelated pasts, likes healthful school environment, school health service and health instructions. Healthful School environment included building construction, safely, heating, lighting, ventilation food supply, water supply etc. According to Park (2009) the

school should normally be centrally situated with proper approach to roads market, Public Park, factories etc. On the other hand, it should be properly kept free from all hazards. He also noted that to areas to land should be provided for high elementary Schools and 5 areas for primary schools with all additional one area of land per 100 students. The emphasized the secondary and nursery schools as for as possible should be single storied, one class should accommodate not more than 40 students and furniture should suit the age of the students. Similarly urinals should be provided as one for 60 students and one latrine for 100 students with arrangements separately made girls and boys.

In 1995, WHO convened an expert committee on comprehensive school Health Education and promotion to assess what is known about promoting health through school committee was made-up of persons from Ministries of Education and Health, non-governmental organizations, universities and research in situations. The committee reviewed research from both developing and developed countries and concluded that, without questions, school health programmed can simultaneously reduce common health problems increase the efficiency of the education system and thus advance public health, education and socio-economic development in all nations. The committee set out ten steps which if implemented will enable school throughout the world to become "Health promoting schools." If we nurture the health, hopes and skills of young people, their potential to improve the world is unbounded. If they are healthy they can hope the best advantage of every opportunity to learn. If they are educated, they can live prosperous lives and contribute to building the future for everyone (WHO, 1996).

FRESH (2002) "Education for All" means ensuring that all children have access to basic education of good quality. This implies creating an environment in schools and in basic education of good quality, This implies creating an environment in schools and in basic education programmes in which children are both all and enabled to learn. Such as an environment must be friendly and welcoming to children, healthy for children, effective with children and protective of the children. If a child gets friendly learning environment then his quality of life improve and they will get chance to learn effectively. Program to achieve good health hygiene and nutrition at school age are those for essential to the promotion of basic education for all children. Good health and nutrition are only essential inputs but also important outcomes of basic education of good quality. Haag (1968), has written a book on "School Health Program". This book has mainly focused on the various aspects of the school health program. According to Haag, School personnel and pupils have definite functions in maintaining a healthful percent of the schools were not good, they had a lot of dust, mud, stones, papers and plastics in the schools complex. He noted that these were no school drainage facility 58.33 percent, of the school used pound to throw used water and 41.67 percent school used open field. He further found some of schools had common toilet rooms for boys and girls and there were locked of water supply in toilet.

Thematic Review

Health

Health is one of the most important aspects of human life, which is considered as a basic fundamental human right and a social goal now a day. It is the prerequisite and an integral part of the development of a human being. It is man’s most precious possession,

it influences all his activities; it shapes destinies of all people. It is the essence of productivity in life. It is a relative feeling of well being in body, mind and spirit, and normal functioning of tissues, organs and other parts of the body. It is conducive to harmonious, constructive and qualitative life. It is a multidimensional concept that is related to philosophy, culture, economic status, physical and social environment, education, personal behaviours, health services, nutrition, vocation, heredity, anatomy and physiology etc. Health is necessary for attaining individual and social goals. It can be gained from the combined efforts of individual, family, community as well as national and global institutions with co-ordinated boosting up of interrelated sectors. The goals and processes of attaining health are changing towards Health for All, Primary Health Care, Health Promotion and Promoting Health through School as the global targets. In the present context, equity in health, changing life style for the maintenance of health, health as a human right, health as a world –wide social goal, major social and environmental factors and international responsibility etc. are the new vistas of health.

Even though the concept of health is well known and relevant for all, it is difficult to express or define what health is. It is an abstract as well as a relative term. Combining many aspects of well-being and quality of life, it is possible to have a feel of health. Among various aspects of health, some are relatively measurable, but not completely, "Health is both a relative and an abstract term possessing emotional, spiritual, social, mental and physical components. Since it is a dynamic process, it must be continually pursued. An individual's genetic endowment and personal environment including social, cultural and physical conditions will influence his or her level of health at any given moment of time" (Galli, 1978). The concept of health is also different in

various cultures and nations, and it is changing in the global society with time and development of scientific technology. “Health is a relative concept and standards of health vary among different cultures, social classes and age groups. This implies that health in any society needs to be defined in terms of prevailing ecological conditions. That is instead of setting universal health standards, each country decides its own norms for a given ser to conditions and then looks into ways to achieve that level” (Park, 2009).

Early humans were primarily concerned with survival and freedom from hunger. In the middle Ages, need for safety was considered essential due to pestilence, starvation and wars. With the development and the advancement of technology, health was interpreted to mean freedom from disease. Until 1947, health was viewed from a simplistic unidimensional angle only (Galli, 1978).

After WHO’s definition in 1947 as “health is the state of complete Physical, mental and social well being and not merely the absence of disease or infirmity”, the scope of health was so broadened that many health specialists began to specify, analyze and reconsider the concept of health. Many health specialists opined that nobody could be healthy according to idealistic health view of WHO. Any individual’s health will not be static or fixed forever, it will be dynamic or ever changing according to an individual’s age, life, physical facilities, attitudes, changing environment, interaction with environment etc. In the process of commenting on WHO definition of health, Galli (1978) said, “Although the WHO definition is probably the best known and most widely accepted view of health, it still has several short-comings. First, the WHO still refers to health as a static condition. Health is not a condition, but a process that involves change.” In the same way, Sorochan (1978) pointed out – “Health is a relative and abstract term.

Well-being is not static, it is a continuous, ever changing, dynamic and evolving homeostatic process of the whole human organism adapting to the interaction of society and the environment" (Bruess & Gay, 1978). Similarly, they commented on the social dimension of definition of health as the most ambiguous because social maladjustment is the problem of mental health. And social interaction becomes a means for achieving health rather than a part of health itself. The felt needs of spiritual dimension in WHO definition also vary according to an individual's pattern of beliefs (Greene & Morton, 1984). In this light, it is relevant to give here some selected definitions and concepts.

A definition, given by School Health Education Study, Minnesota is –"Health is a quality of life involving dynamic interaction and among the individual's physical well-being, his/her mental and emotional reactions and the social complex in which one exists" (Shirreffs, 1978).

In Dunn's view, health is an integrated method of functioning oriented towered maximizing an individual's potential. Further, it requires the individuals to maintain a continuum balance and purposeful direction within the environment where he or she is functioning (Galli, 1978). In Dubos's view, health implies the relative absence of pain and discomfort and a continuous adaptation and adjustment to the environment to ensure optimal functioning (Park, 2009). Similarly, Hayman, who is known as an ecological doctrinaire states, "Health is a moving target… a dynamic ecological resultant involving the interaction of many factors and conditions…'(Fodor & Gus, 1974).

Bucher stated, "Health is that condition of the human organism that permits one to live happily and successfully. It favours efficiency and helps towards attaining the goals and ambitions of life" (Galli, 1978). Similarly, Turner (1966) has said, "Health is that

complete fitness of body, soundness of mind, and wholeness of emotions which make possible the highest quality of effective living and of service to the family and to society." According to Foder and Gus (1974), it is the ability of an individual to interact effectively, physically, psychologically and socially with the environment in which an individual and society function.

In the First Five-year Plan, the Government of India has stated "Health is positive state of well-being in which harmonious development and physical capacities of the individuals lead to the enjoyment of a rich and full life… It implies adjustment of the individuals to his total environment-physical and social." (Goel, 1984)

According to the psychological view of health:

> *The well-adjusted person is the one who maintains a balanced orientation towards reality. His life is like a sturdy ship riding the waves. He may be swayed this way and that way by the wind and water, but he always returns to an even keel. This even keel is his fundamental balance in life that enables him to withstand the thousands of disturbing stimuli which assail him and still keep his bearings and continue to move toward the goals which he has set for himself (Kalpan, 1959).*

Carlyon (1978) opines:

> *Health is entirely a philosophical territory. The outstanding feature of health is that it is a quality and therefore cannot be weighed and measured. Health is not a simple entity or a condition. There are levels of health that can be distinguished one from the other, but it is easier to observe the differences than to define health itself… It is a state of mind, a projection of our beliefs about the natural and perfectibility of human and our value judgments about what constitutes a good person in a good society.*

According to a group of scholars “Health is a state of feeling well in body, mind and spirit together with a sense of reserve power. It is based on normal functioning of the tissues and organs of the body, a practical understanding of the principles of healthful living, and an attitude which regards health as not an end in itself, but as a means to richer, fuller life as measured in constructive service to mankind” (Galli, 1978).

Ottawa Charter for Health Promotion, on the basis of consensus of opinion of health professionals from many countries states that “health is created and lived by people within the setting of their everyday life, where they learn, work, play and love Health is created by caring for oneself and others, by being able to take decisions and have control over one’s life circumstances, and by ensuring that the Society one lives in creates conditions that allow the attainment of health by all its members” (WHO, 1997).

From the above definitions and views of various health professionals, related groups and institutions, the concept of health that emerges is concerned with value and is multi-directed. In general, most of the concepts related to health are (a) a dynamic process (b) a subjective feeling of wellness (c) multi-dimensional factors (d) adaptation to environment (e) resistance to disease and stress (f) ability to use optimum potentiality. It can be concluded that health is a dynamic quality of life and self-actualization with the feeling of wellbeing in mind and body, and noticeable qualities in external and internal body for adapting and optimum functioning physically, mentally, emotionally and socially the in existing environment for attaining individual and social goals.

Health Education

Modern health education is a newly recognized academic discipline in the school curriculum. It has not found long roots in the field of education. It is borrowed from so

many other subjects like medicine, public health, human biology, psychology, Sociology, behavioural science, pedagogy etc. In the ancient times health education was based on religious codes of conduct. The dogmatic advise of elders, codes of conduct and religious rules were the means of health education. The regimented codes of conduct and religious disciplines were given by the teachers, priests, respectable persons and physicians (Baidyas) etc. In the process of celebrating religious and cultural festivals and maintaining socio-cultural customs, practice of personal hygiene, cleanliness of home and environment, eating various types of nutritious foods, visiting religious places, taking fast for mental peace etc. were also the means observing principles of health education in old age. But all these practices whether of advantage to health or not were done under the codes of conduct, regimens and religious beliefs. These practices (related to health) were transferred from one generation to another for long periods as cultural taboos and mores. Similarly, from the earliest days, the physicians have been played role of teaching health education on the process of diagnosis and treatment of diseases. Two ancient roots of health education were distinguished that in which the physicians made use of empirical methods based on their experiences, and that in which magical and religious beliefs or superstitions were the basis for advice as to how to avoid disease and death (Pirrie & Dalzell-Ward, 1962).

Health education was known as hygiene education and it was not developed as a professional and separate discipline some decades back. It evolved with physical education on the basis of life sciences and medicine. From physical education came the message that hygiene was a crucial part of its educational responsibility and a subject that should be included in all school programmes. The life sciences, including medicine, gave

strong and consistent support for hygiene education. Thomas D Wood, who is also known as the father of health education, played a significant role in establishing it as a discipline. His greatest contribution was professional preparation for school teachers in health education. Next, hygiene education was termed as health education by Sally Lucas Jean, the director of American Child Health Association (ACHA) in 1918. The ACHA reiterated that people should be taught to make appropriate decisions about their health behavior for enhancing the quality of their life rather than trying to memorize facts in order to correct behavior (Rubinson & Alles, 1984).

Ultimately health education is concerned with human biology, but it is an applied science drawn from other subjects. "It is a professional field, an academic discipline and eclectic in nature for its scientific base. Health education is an applied science and not a pure science. Since it involves all people, it is necessary to have bits of knowledge from a variety of other disciplines such as biology psychology, sociology and physiology" (Bruess & Gay, 1978). Behavioral science, education and public health are the foundations of health education (Greene & Morton, 1984). The nature of health education is somewhat different from medicine and public health. Medicine and public health do some things for people's health whereas health education motivates people for protecting, promoting and maintaining their own, family and community health. "Health cannot be attained through the efforts of medicine and public health alone. It is recognized that medicine and public health do things for people, whereas, the task of education is to guide people to do for themselves things that are good for their own health and that of others presently and for future generations" (Wood, 1960). So health education has its own importance in the field of people's health in the country. The ultimate goal of health

education is the improvement of nation's health and enhance the quality of life of the people.

Defining and clearing the concept of health education is somewhat difficult as different health education specialists deal with it differently due to its eclectic nature. In general, it is a process of gaining health knowledge, developing positive attitudes and adapting healthy practices in day-to-day life to prevent disease and promote health of the individual, family and community. It also consists of adjusting with the environment, enabling for self-actualization, developing quality of life etc. Some selected definitions are given below.

According to Kasey and McMahon (1965), "Health education is guiding individuals or groups to perceive given healthful actions as being in line with their own values and goals." Similarly, Pradhan (1995) has define "Health education is a Process of helping individuals to gain knowledge, develop attitudes and skills so that they car, modify their health related behavior in order to attain health."

According to Grout (1963), "Health education is conceived as the process of translating scientific knowledge about health into desirable attitudes, practices and habits by means of the educational process." In the same way, Rubinson and Alles (1984) state. "Health education is a process, based upon scientific principles, which employs planned learning opportunities to enable individuals, acting separately or collectively, to make and act upon informed decisions about things affecting their health."

The definition given by Joint Committee of National Education Association (NEA) and American Medical Association (AMA) on Health Problems in Education is "Health education may be defined as the process of providing learning experiences

which favorably influence understanding, attitudes and conduct in regard to individual and community health" (WHO, 1978).

> *"Health education is any combination of learning experiences designed to facilitate voluntary adaptations of behavior conducive to health" (Greene & Marton, 1984). According to Joint Committee on Health Education Terminology, health education means….. "a process with intellectual, psychological and social dimensions relating to activities which increase the abilities of people to make informed decisions affecting their personal, family and community well-being" (Galli, 1978).*

Ramchandran and Dharmalingam (1983) defined health education as "the process by which one enables any individual or group of individuals to realize the health needs and match them with necessary health related behaviors for the attainment of positive health.)

> *"Our interpretation of health education is also broadly based so as to include those planned experiences which we believe will benefit the physical, emotional and social lives of children….. It seeks to equip individuals with knowledge, skills, values and attitudes which will help them cope successfully with their present and future lives" (Cowley et al, 1981).*

According to Society of Public Health Education (1976), Health education is concerned with the health-related behavior of people. Therefore, it must take into account the forces that affect those behaviours and the role of human behavior in the promotion of health and the prevention of disease. As a profession, it uses educational processes to affect changes or to reinforce health practices of individuals, families, groups, organizations, communities and large social systems (Greene & Morton, 1984).

A definition given on Health Promotion Glossary is as follows.

> *Health education is not only concerned with the communication of information, but also with fostering the motivation, skills and confidence (self-efficiency) necessary to take action to improve health. Health education includes the communication of information concerning the underlying social, economic and environmental conditions impacting on health, as well as individual risk factors and risk behaviours, and use of the health care system (Nutbeam, 1997).*

According to National Conference of Preventive Medicine, USA. "Health education is a process that informs, motivates and helps people to adopt and maintain healthy practices and lifestyles, advocates environmental changes as needed to facilitate this goal and conducts professional training and research to the same end" (Park & Park, 2009). WHO Scientific Groups on Research in Health Education defined "Health education concerns all those experiences of an individual, group or community that influences beliefs, attitudes and behaviour with respect to health, as well as the processes and efforts of producing change when this is necessary for optimum health" (Pradhan, 1995).

From the above definitions, it is learnt that some components of health education are common, some are interrelated and some are diversified. Most of the definitions show that health education is a process aimed at providing positive health through various activities. Health education is neither a communication of health information and propagation nor adopting health behaviours forcefully. The entire cognitive, affective and psychomotor domain is necessary for health education. Communicating scientific knowledge, developing attitudes and changing behavior toward positive health are included in health education process. A Conference on Professional Preparation' held in

Towson, Maryland, 1976 accepted the following statement concerning the nature of health education (Rubinsson & Alles, 1984).

1. Health education is a professional field, academic discipline and is eclectic in nature. It has a scientific base.
2. Health education strategies provide needed approaches to bridging the gap between scientific discovery and its application for everyday healthful purposes.
3. Health education is an integral part of the school curriculum at all levels and an integral component of community based health programmes.
4. Health education contributes to the total education of the individual by providing meaningful experiences that can positively influence health behaviours.
5. Health education principles and strategies are based on and improved through basic and applied research.
6. The professionally prepared health educator most appropriately engages in health education.
7. Health education facilitates the primary prevention of health problems.

To conclude, health education is the process of giving learning experiences that enable the students, or people to make decisions and conduct positive behavior on health related matters in the present and the future life. It imparts scientific knowledge, helps to develop attitudes and maintain health practices and life styles. It also helps in taking responsibility and making efforts to prevent disease and protecting and promoting individual and community health. It is oriented to professional training and researches for solving health problems.

School Health Programme (SHP) and School Health Education Programme (SHEP)

In the beginning, the school health activities started from a single or a few general aspects in most of the countries. Gradually it assumed the multi-sector and an organized form. The developmental process and level of school health practices were vastly different in various countries. School Health Programme (SHP) is now recognized as an organized structure in the field of school health education. It helps in preventing, detecting and resolving health problems, promoting health, increasing educational achievement and enhancing the quality of life of school children and other school personnel through the various activities related to physical, mental and emotional health. Some definitions of SHP are given below.

Anderson has defined "School Health Programme (SHP) means the Prepared course of action taken by the school in the interest of the health of the school child and school personnel. It includes health services, health instruction and healthful school living" (Anderson, 1972). According to Pradhanang (1983), SHP means those activities that produce healthful environment in the school and the students get an opportunity to get involved in healthy practices and also get health care when the programme is implemented. It includes health service, healthful living, health instruction and school-community activities. The Joint Committee on Health Education Terminology defines SHP as "The composite of procedures and activities designed to protect and promote the wellbeing of students and school personnel. These procedures and activities include those organized in school health service, providing healthful environment and health education" (Redican et al. 1986).

> *"The term SHP is used to describe those activities within the school that are directed toward promoting the health of children and youth. The purpose of this programme is to provide learning opportunities, experiences, services and an environment that will favourably influence those skills which promote individual, family and community health" (Foder & Gus, 1974).*

The National Conference for Co-operation in Health Education has defined School Health Programme as:

> The school procedures that contribute to the understanding, maintenance, and improvement of the physical, emotional and social health of pupils and school personnel, including health service, health education and a healthful environment in the interest of expediting the learning process, that take place in the school and *usually* on school time, and that are the legal responsibility of school authorities (Bruess & Gay, 1978).

Sorochan and Bender (1978) stated "Essentially the SHP is all those activities provided by the school that are designed to preserve and promote health of the student. It is a multifaceted programme and includes three essential aspects. Health services, health instruction, and healthful environment, all ot these activities are interrelated and there is need for close articulation if the SHP is to be effective."

Launching of SHP is considered as the legal responsibility of the school. By this way SHP can be defined as combined procedures and activities launched by the school for the students and school personnel for the protection and promotion of their health through the proper facilities of school health services, healthful school environment and health instruction. "The philosophy of SHP places its emphasis on building up and

maintaining a high level of health in each child. Its primary concern is with the normal children.The school rightly assumes responsibility for watching a youngster during school hours and, in teamwork with the parents, for taking action essential to his welfare. Thus, children who are ill or have defects are not neglected" (Anderson, 1972).

SHP is most useful and cost effective for the health promotion and academic development of students. So it is desirable in all respects for the community and nation. "SHPs can be the most efficient and cost-effective way to improve students' health and, as a result, their academic performance. Thus for the students, the school staff, the school as an institution, the family, community and national health promotion through schools is financially, educationally, socially and politically desirable" (WHO, 1997). According to Redican et al. (1986), the SHP must be functional, it should be student oriented. It must also be flexible enough to incorporate the growth and development characteristics of the students, their needs and interests and any legal aspects imposed by the local community or state. Similarly, Anderson (1972) stresses that SHP is not only indispensable to the nation's health programme, but it is irreplaceable also. It has a unique contribution, a particular service to give, which no other agency can duplicate.

The term SHP is substituted by School Health Education (SHE) in many countries even though there is a provision of various activities related to health services, management of healthful school environment and health instruction in the schools. And both, SHE and SHP have included School Health Instruction (SHI), School Health Services (SHS), and Healthful School Living (HSL), in their Programme School community Co-operations/ relationship (SCC) is also included in some cases. There are some differences of opinion among the school health specialists on the component of

SCC. “It has been indicated earlier that there are four phases to the total SHP instruction, services, environment and community relations. It has also been pointed out that some more traditional programmes consider only three phases and either eliminate community relations or consider it as a part of one of the other phases” (Bruess & Gay, 1978).

Health education is only one of the three major components of SHP whereas it is the main target of SHE and other components are its subordinates. SHP includes three areas as services, environment and instruction with equal favour, as well as by engaging all community health personnel to pool their efforts with those of the school’s so that the end result is an integrated school and community health programme directed at helping the students to achieve optimal health status (Redican et al, 1986). But in fact, it gives more emphasis on SHS According to Bruess and Gay, SHP is considered as dominated by SHS. They state as under:

> *It is noteworthy that a traditional approach to the SHP is not utilized. This is because today there appears to be a trend away from school providing actual health services….. This non-medical approach (Implementing Comprehensive School Health) may bother some individuals, but for years many students, teachers and administrators have wondered why such a high percentage of School Health Courses have been devoted to technical aspects of health services that are not mandatory for most of the school health personnel (Bruss & Gay, 1978).*

SHS was a familiar programme earlier than health instruction in many European countries and in USA. In many cases, health education evolved from the SHS and physical education. Similarly, giving priority to health services and health education in SHP, Fodor and Gus (1974) expressed their views as follows:

> *The SHP can be viewed is having essentially a service function and an educational function. From one perspective the primary responsibility of the SHP might be seen as providing for the 'needy' and rendering aid. From another perspective the program might be considered a motivating force aimed at helping individuals to help themselves. The latter does not necessarily neglect or minimize possible service functions such as visual, dental, and physical examinations, but it does place the emphasis on education rather than on services…*

It has already been discussed what health education is and it does not need to manifest it further. But when the issue of school health does come up, a question is automatically raised what SHE is. According to C. E. Turner, "SHE refers to those learning experiences in health which take place in school or through the efforts of school personnel. It provides and utilizes a variety of learning experiences for purposes of improving attitudes, knowledge and practices relating to health" (Turner, 1966). It means the activities or efforts, under taken by school personnel to provide learning experiences to the students and they are intended to develop attitude knowledge and skills relating to health. Nicholas Galli, et al defined that "SHE is the process associated with activities, planned and conducted under the supervision of school personnel with the involvement of appropriate community resources" (Galli, 1978). Thus they also emphasized on the involvement and utilization of community health resources in the process of SHE.

Generally, people think that SHE means planned activities based on school curriculum, which are mostly limited to classroom instruction. Health education will be only complete or purposeful when it will result in behavior modification, gaining knowledge and developing desirable attitudes in the students. For this, the environment of

the school has to be made suitable. It means HSL and SHS should be facilitated in the school and they are the subordinates to health education process. Health education is not only a matter of health instruction by the classroom teacher, its overall goal of child health could be enhanced through SHS and HSE. “Health education can occur at any time or in any place, it is not synonymous with or limited to planned health instruction. Hence health education becomes the responsibility of everyone with whom the child comes in contact during his school experience” (Hanlon & McHose, 1971). So the term SHE is not limited to the formal classroom instruction.

As we talk about SHE, automatically School Health Education Programme (SHEP) also comes there for planned and organized form of learning experiences related to health opportunities and modification of health behaviour. “All the health opportunities affecting learning and behavior of children and youth in the total school curriculum come under SHEP. These health experiences are gained in both school and community setting as the individual interacts with his environment, including other students, school personnel, parents and community members” (Galli, 1978). SHEP also may be organized in particular or specific areas for especial purposed under school health. The field and volume of SHEP are dependent on mandated programmes and policies on health and education in the schools. Those countries, where SHS, SHI and HSL are not legal obligations, there may be a particular or some package of SHEP, which may be undertaken by some organizations and government sectors. There are so many countries, where there is neither a full phase of school health practices nor anything else and different types of easy and difficult programmes related to SHEP are undertaken at various levels in the schools. Mostly in developed countries, organized and firm

programmes are provided to schoolchildren through SHP or SHEP or comprehensive school health education. But in developing countries, hardly some nations have made provisions for or organized such programmes. Most of them have the provision of hygiene education, or integrated health education along with other subject areas and some have separate health education in school curriculum. SHS facilities are very poor in most of the developing countries. Besides the health instruction programme on the basis of school curriculum, other regular or short period health packages or programmes are also run in schools in many of the countries. But there is doubt in regarded to the efficiency and fulfillment of objectives of SHEP since most of the health education activities are limited to classroom instruction as per health education curriculum than their integration with SHS, HSE and SCC.

In the sense, many students and school educationists have taken SHP and SHEP synonymously. Both the SHP and SHEP have included SHS, SHI, HSL and SCC as their components. Turner comments on the SHEP these words.

> *Planning for effective health education in schools must consider all of the learning experiences in health ar school or under the control of school personnel, not merely the formal classroom instruction in health or hygiene. The healthful environment of the school contributes to pupil's education in health. He learns about his own health and its care from, his contact with the school physician or nurse in schools which have school services. School and home relationships influence his health education. The health education programmes in the schools of the world show that learning experiences in health are provided or influenced through HSL, SHS, SHI and school home and community relationships (Turner, 1966).*

Similarly, Rash (1966) has stated:

> *The responsibilities for the educational programme will best be carried out by encouraging healthful school living (HSL) through maintaining an environment which will safeguard and promote the health and welfare of both students and staff. Providing health services which will assist in protecting and promoting the health of students and staff, and providing health instruction which will enable and encourage each individual to intelligently direct his own health behaviour. The sum total of these experiences, which favourably influence the health education of students is what is commonly called the health education programme.*

From Turner's statement, it is clear that health education is not limited to the formal classroom instruction and it considers all the learning experiences in health under the control of school personnel. It also includes the activities of SHS, HSE and SCC, which influence or contribute to the students learning health education. And all the above components include and influence in SHEP. According to Rash, the sum- total experiences of HSE, SHS, and SHI having favourable influence on students is called Health Education Programme (HEP).

Many health education specialists have felt that there is a lack of co-ordination among all the components and activities that are running in the schools. Different programmes that lies under the SHP of SHE were launched independently without being integrated in many schools of the world. And so many items were duplicated and some were excluded as well as disconnected. This type of programme would be unable to fulfill the aims of SHEP or SHP and it is taken as a traditional one. For the improvement of such weaknesses and revitalization of the programme the concept of integrated SHP

and comprehensive, SHE are developed. All the activities and facilities of SHS, SHI, HSE and SCC need to be co-ordinated or integrated under these programme, "Within the school all the aspects are interrelated, they affect and are affected by each other. As has been stated, health education is dependent on the environment for behaviour modification. Students can be taught the purpose of the SHS procedures and health service workers provide health education when they do health counseling" (Jenne, 1976).

A comprehensive programme of SHE is the reflection of an organized, coherent approach to a wide range of health issues, implemented through comprehensive and holistic strategies. Schools that approached health in this manner began to be called 'Health Promoting Schools' (WHO, 1997). "Health promoting school is a place where all members of the school community work together to provide students with integrated and positive experiences and structures which promote and protect their health. This includes both formal and informal curriculum in health, the creation of a safe and healthy school environment, the provision of appropriate health services and involvement of the family and wide community in efforts to promote health" (WHO, 1996).

But health education programme was limited in classroom health instruction except some sporadic and voluntary facilities or activities in other components in Nepal. Even now there is no legal provision of SHP or SHEP except the provision of health instruction through school curriculum and some aspects of HSL. It seems some lags or shortcomings for protection, maintain and promotion of students' health as well as their future life. In practice, some schools and voluntary organizations or other institutions have launched different activities under the title of SHEP. Generally, some schools have

launched simple SHS activities from school teachers and some have manage irregular SHS from medical personnel through school's own initiative or support of other agencies.

In Nepal most of the health educationists and written documents have referred to SHP and SHEP synonymously for the activities of school health education. Even in the course of study to teacher training programmes in SHE in Tribhuvan University, SHP and SHEP are used interchangeably. So in this study SHP and SHEP are used simultaneously as a programme related to school health and both the terms are used for one the same purpose in this study.

Review of Contemporary Research Studies

Shrestha (1971) concluded in 'A Study of District School Administration of Nepal' that the District Education Officers (DEOs)/ Inspectors had not initiated programmes for the benefit of students even though they encouraged other persons to help them in specific areas of student services. The DEOs/ Inspectors were hardly performing any positive work in the area of community relations. The researcher also found that most of the School Management Committees (SMC) was not functioning properly and that they could be made more functional and useful.

Baidya (1982) from his research entitled 'A Need-Based Masters Degree Programme in School Health Education for Nepal' concluded that the existing health problems and needs of the Nepalese people can be resolved by providing a well-planned and professional programme for school health education in Nepal. He also concluded that there are several needs of school health educators in all the five aspects of SHEP, such as health instruction, school health service, healthful school environment, school community co-ordination, and administration and supervision. A competent health based programme

for professional preparation of school health educators can help improve the health status of the students by providing quality health education.

In the process of school and classroom observation of the primary schools in Nepal, Maharjan (1994) found that there were poor physical facilities and unhealthy environment in most of the schools. About one third of the schools had inadequate furniture. Fifty percent schools of the city were on the roadside and polluted by heavy traffic noise. A few schools outside the city were near the riverbank or the pond with polluted surrounding of unmanaged sewage and solid waste disposal etc. Many of the schools did not have furniture for students in the rural areas.

A research study was conducted by Maharjan (1994) on school health programme in 15 government schools of Kathmandu District. The finding of the study was that majority of the schools had least priority for health services. Two third of the schools had offered health education as an optional subject. The school environment was fair or moderately healthful and majority of the students ate say meal in the shops near the school. The study also concluded that there was no significant difference between the urban and semi-urban schools regarding the conditions of school health programme.

A survey conducted by the Nepal Multiple Indicator Surveillance (1995) in primary education showed that 16 percent boys and 10 percent girls (6-10 years) do not attend school due to physically and psychologically unfavourable environment of the schools. The survey was done on the parents of 1506 boys and 2771 girls from 41 districts that were not attending the school. Among 176 schools covered by the survey, half of the schools had their own specific source of water and about 15 percent schools did not have any kind of drinking water service and students had option to bring water

from home or get it from nearby houses. Similarly two thirds of the schools had no toilets and out of the schools having toilets, one third were in a bad condition. Only two third of the schools had good building. Remaining schools had inadequate walls, no walls or no roofs etc.

Bidya (1997) conducted a study of sanitary facilities and their management in government secondary schools of Birgunj Municipality. He found that two-third of the schools had inadequate school land (less than 16500 sq. ft or 3 Ropanies). The classroom condition (cleanliness, ventilation and lighting system) was good except in a few rooms. The refuge disposing system, water facilities and toiler facilities were not satisfactory. And the main causes of improper sanitation facilities in schools were jack of land and budget.

As reported by Beulah (1970), a survey study to assess the school health programme was conducted by Central Institute of Education in 44 selected middle school of Delhi Municipal Corporation in collaboration with various institutions. The data was collected through questionnaires from the respective headmasters covering 21,022 students from grade I-VIII. The study revealed that health education in both theory and practice was a badly treated subject in the schools though some schools had adopted health schemes. The teachers were unaware of desirable health practices in schools. The periodical medical check-up of students was not done regularly. Majority of the students were suffering from ailments of minor nature. The facilities for healthful environment were not provided adequately in 50 percent of the schools. The study suggested that health education programme should be emphasized in changing practices and habits towards better health and not only in information about health.

Vidyarthi (1987) conducted a study titled 'Comparative Study of Physical Facilities in the Government and Non-government Secondary Schools of Gaya District' He concluded that the play fields, sports equipment, condition of play grounds, availability of required physical education staff and standards in sports competitions of non-government schools of Gaya District were significantly superior to the government secondary schools. The data were collected from 10 government and 10 non-government secondary schools through the questionnaire method.

A survey was conducted by the health and physical education students of University in Ibadam on healthful school environment of 40 primary schools in Nigeria Udoh (1981) reported that most of the school buildings were not in good condition and they urgently needed either renovation or maintenance. Most of the schools did not have suitable space for games and recreation. Chairs and desks for students were grossly inadequate in most of the schools. Most of the schools had water tap installed on the premises but most of them had grossly inadequate toilet facilities. The food vendors/ sellers were mostly appointed by the health office in Ibadam City and took a course in elementary nutrition and personal hygiene meal duty teachers inspected the foods.

Shi et al. (1990) reported that 29.4 percent pupils of secondary level and 1901 percent of primary level in urban schools and 15.48 percent pupils of secondary level and 18.61 percent pupils of primary level in the schools of rural areas were found having poor vision in a survey of 250,000 pupils in China in 1980. In a survey of 1600 students in Liaong Province, China in 1987, it was found that 53 percent of pupils suffered from energy deficiency and 72 percent from protein deficiency. The Chinese Ministry of Public Health focused on poor vision, nutrition and dental care. It was decided to control

the vision problem through treatment, improved architectural design of school building and lessening of homework assignments. Nutrition problem was to be addressed through supplements of vitamins and minerals with community involvement. Dental care was to be taken through treatment and education.

A project was conducted by WHO (1992) in collaboration with the Ministry of Health in 1987 to construct VIP (Ventilation Improved Pit) latrines in primary schools of remote areas and prevalence of communicable diseases areas of Butha Buthe, Leribe, Mafeteng and Mokhotlog districts in Lesotho. The project found positive results so far as eliminating of diarrheal diseases and typhoid and demanding of VIP latrines in most of the other schools were concerned. But the few latrines built in these schools were not enough according to WHO standard of one toilet for every 30 pupils Generally four toilets per school have been built irrespective of the school roll as a part of this project.

School Health Education Practices in Nepal

The ancient and medieval education in Nepal was based on Hindu and Buddhist religions. Teachers home, hermitages, temples, monasteries etc. were the educational institutions where pupils got education, practiced meditation and devoted time to ritual performances. At that time, health education was limited to moral conduct, religious regiments, cultural rules and daily life routine. Besides, earlier history of health education was basically related to diet (Pathya & Apathya) and medical (Ayurveda) education.

Health education as ‘Arogya Shiksha’ was begun in Bhasha Pathshalas (Language Schools) in 1925/26 among other subjects which were Gorkha Shiksha, Arithmetic, Strotrabali (Literature) and grammar (Bista, 1996). Rana Prime Minister Dev Shamsher established Bhasha Pathshalas in 1900 (Shrestha, 1982), Similarly, a paper ‘Health and

Natural Introduction' was also included in Six-Pass Level (Primary level) in Shrestha Pathshalas, which were established for preparing manpower for government service in Rana Regime, (Nepalma Shikshya, 1982). The health and sanitation subject was also included in Gandhi's Basic Education Schools, which were established in 1948 putting emphasis on vocational and craft oriented education (Bista, 1996). At the end of the Rana Regime, hygiene and physiology was prescribed as an optional paper among a lot of subjects at the secondary school level, when the SLC curriculum was modified according to the situation of Nepal in 1945 (Shrestha, 1982).

After the dawn of democracy (1951 A.D.), health education was endorsed as hygiene at the primary level and hygiene and physiology at the lower secondary (middle) level in general schools in 1954 in the process of revising the curriculum according to the national situation (Shrestha, 1982). Before that, health education was not included at the lower secondary school level (grade VI to VII). The Nepal National Education Planning Commission (NNEPC) was formed in 1954 under the Chairmanship of Rudraraj Pande for developing policies and long term planning of education in Nepal. The commission launched a detailed survey all over the country and prepared an educational programme for Nepal. The curriculum recommended by NNEPC was adopted by HMG in 1959, which had endorsed a paper. 'Health and Physical Education (HPE)' at both the primary and lower secondary levels (Shrestha, 1982). When political change occurred (Beginning of Panchayat System) in 1960, All Round National Education Committee (ARNEC) was formed by King Mahendra in 1961 and that committee suggested slight revisions in the existing curriculum. At the primary level, health education was integrated with science education. But at the general secondary school level curriculum, hygiene and physiology

was included as extra-optional paper of 100 marks including other extra-optional subjects, namely commercial geography, rural economics, French and German Languages (Lohani, 1988). At that time extra optional subject was not compulsory to pass the SLC and that paper was prescribed only for adding marks in the grand total to secure good division.

Before National Education System Plan NESP 1971-76 (MOE 1971), health instruction was basically rote learning in schools. The condition of healthful school living HSL) and health services was very poor. In the aspect of HSL, physical environment was not good in most of the schools because classes were run in Pati (rest-house), under trees, religious buildings, temporary buildings etc. Teachers were very strict and many students gave up school due to their strictness. Students got chance to participate in a few sports/ game, drill, P. T. and scouting to some extent. Immunizations as T.A.B.C. (at that time existed against cholera), smallpox vaccination, B. C. G. (against tuberculosis), measles vaccination etc. were provided in schools through governmental or non-governmental organizations. Other health services were generally neglected in most of the schools. Community people were co-operative in developmental programmes of the school because they were interested in opening the school in their community. They felt greater responsibility of community in school management and functioning of the schools. (Shrestha, 1982). Eventually such schools also actively participated in community awareness and community development programmes.

In the educational history of Nepal, NESP, 1971-76 was the most popular highly ambitious and significantly planned educational development programme. It attempted to change drastically the existed education system and enforced vocational or technical

education. It tried to make education system in Nepal planned, systematic and productive. A strong financial support was given to the educational institutions by the government ever since the implementation of that programme. Organized curriculum and teaching materials were also developed in the process of implementing the NESP. The managerial structure of education was totally changed and supervisory system was also developed. In the process of implementing the NESP, SHE got high priority in the policy. In the NESP, it was clearly stated that health education would be made compulsory from class 1 to X (Thapa, 1990). HPE became a compulsory subject from grade one to ten carrying 50 marks in each grade. Besides extra-curricular activities (ECA), physical exercise and sports/ games were made compulsory in the schools. The teacher student ratio in the classroom was also specified. The physical environment of the school as proper ventilation, lighting system, furniture, playground etc. was also manifested in NESP. The supervisors frequently checked the physical environment of the school. But the government did not give support to the schools for physical development except the salary for teachers NESP, 1971-76 (MOE 1971).

As HPE was made compulsory from grade I to X, the HPE teachers were also needed in schools after the implementation of NESP. Before NESP, health education was a compulsory paper and physical education was introduced as an area of ECA in teacher training programme in the College of Education. The College of Education was converted into institute of Education (IOE) under Tribhuvan University (T. U.) in the process of implementing NESP in 1971 and HPE was offered as a specialization subject at I. Ed. And B. Ed. Levels. HPE teachers were produced from different campuses under IOE, T. U. The specialization on Health Education at Master's Degree level was offered

at T. U. Central Campus under the Faculty of Education (That was changed from IOE) to produce the higher level manpower especially in SHE in 1983/84. The curriculum structure of health education of B. Ed. Level was changed from time to time, as and when the structure of school curriculum was changed. Health education was separate d from physical education at the B. Ed. Level in 1992/93 and later, in 1996 it was combined into Three Years Bachelor System.

Even though the NESP was doing quite well in the educational field, it was revised within few years due to some of its drawbacks and political pressure. In the revision process of the school curriculum in 1981, health education was offered as a compulsory subject from grade I to VIII with the weightage of 20 marks out of 100, integrating it with science education. And health education and physical education were offered as separate optional subjects of 100 marks each in grades IX and X… In 1993/94 HPE was combined at the lower secondary level and for a total of 50 marks only. The major content areas of health education curriculum at the secondary school level during the data collection (in 19+98) of present study were human body system, nutrition, communicable and non-communicable diseases, first aid treatment, community health, family life education and health profession Recently, in 1999, a revision was made with an inclusion of a new compulsory paper, combining health, population and environment education of 100 marks in secondary school level. The optional paper, HPE has been retained in combined form. It is considered as a plus point in the field of SHE.

Health Education Programme (HEP) was introduced for health instruction under the school curriculum time and again. There are some prerequisites as terms and conditions for the establishment of a new school that are to be fulfilled by the school or

the School Management Committee (SMC) in Nepal Among the various prerequisites, some terms of agreement related to students' health and healthful environment (Shaikshik Manjari, 1998) are the following.

1. Organization of various ECA as well as sports and games
2. Provision of a hall for organizing ECA and a playground for a minimum of a halt Ropani (2738 sq. ft.)
3. Provision of drinking water and toilet facilities
4. Maintenance of cleanliness in school compound and repair of damaged building, furniture and other goods
5. The size of classroom should be one square meter per student
6. Provision of adequate and suitable furniture according to the age of students
7. Providing the standard food and nutrients for the boarding students
8. Provision of school garden or kitchen garden
9. Students' participation in various activities in community welfare programmes as Scouting. Junior Red Cross, social work, tree plantation etc.

Among the various terms and conditions related to students' health and health education, some schools have not fulfilled these prerequisites. But many schools have provided services/ facilities other than the mentioned prerequisites on the basis of their experiences and felt needs. Especially it seems more so in the private schools than in the government schools. Many schools have carried out various health activities and programmes under the support of different agencies or in their own capacity under SHEP. Different government sectors, NGOs, INGOs, inter-national projects, and private firms have taken initiative and give support for various aspects of HEP in schools.

As regards future plan of SHEP on the government level, no solid plans and policies are mentioned in the Ninth Plan, 1997-2002 (NPC 1997). Only physical education and sports/games and the nutrition programme at the primary school level are highlighted for future planning. Besides, controlling parasites and care ears and eyes of the students through the school health programme are mentioned in the Ninth Plan. SHEP is also mentioned in the job descriptions of district public health office, health post, sub-health post and primary health care centre (MOHP 1997). As mentioned in the job description of public health sectors, they should run health education programmes in the schools of their respective areas. But they have not done so except a few activities in some schools sporadically in rural areas. Some action programmes, which were carried out a few years back or the on-going programmes are given below along with their short descriptions:

Primary Education Project/Basic and Primary Education Project (PEP/BPEP)

Since 1985, the PEP (now BPEP) started supporting primary schools for school building, school sanitation, instructional materials, teachers' training and school management training etc. A concept of Comprehensive SHEP was also developed under PEP in 1987, but it did not come to be identified as such though many aspects of SHEP were implemented integrating the total project programme. In 1994/1995 the project launched a separate programme named School Sanitation Programme emphasizing on personal hygiene and environmental sanitation in six districts and gradually extended it to more districts.

1. Parasite Control and General Health Check-up Service

Nepal Family Planning Association has been carrying out parasite control service in the name of SHP in Kathmandu Valley since 1985. The students are educated and informed about parasites and its effect on human body through films, pamphlets and verbal communication method. After that stool samples of all students are collected for laboratory testing. The reports of laboratory tests are distributed to all the students. Medicine is also given to those who are infected by parasites. The association charges Rs.20/- per student for stool test and the medicine. Later, general health check-up service was also included in the service and Rs. 50/- per student was charged for that.

2. Parasite Control Programme and Blood Group Testing

A stool testing and blood group testing programme has also been launched in the schools of Kathmandu Valley and some other districts by a private sector named Nepal Parasite Prevention Control and Blood Grouping Research Centre. It started its work in 1995/96. The students are charged Rs. 25/- per stool testing along with the medicine and Rs 35/- for blood group testing. Now it has also started immunization service against Hepatitis B.

3. School and community Health Project

JICA (Japan International Cooperation Agency) and JMA (Japanese Medical Association) are implementing this joint project since 1992 in Khopasi, Kavrepalanchowk District. The project has provided health examination service in schools through a primary health centre. School health supporting committee is formed under this project and it gives training to teachers on first aid and then distributes first aid kits. It also supports different kinds of infrastructure programmes such as toilet construction and water supply in schools.

4. School Health Education Programme in Bhaktapur

This programme was initiated by Bahaktapur Development Project in 1980s. The programme concentrated on health education, basic health care and healthy environment in the schools of Bhaktapur Municipality. The project supported in the development of instructional and resource materials, development of physical facilities and health education training for teachers etc.

5. Plan's supporting to Schools

Plan International Nepal (Project) was started in 1978 in the rural areas of Kathmandu District and later extended to Bhaktapur District. Now it is shifted to rural areas of many districts of Nepal. The project supports, especially in construction of buildings, furniture, educational materials, drinking water facilities, lavatory construction, equipment for sports/ games etc. in the school sector.

6. Primary School Feeding Programme

This programme was started in 1969 with the support of World food Programme. Now it is running in rural areas of 12 districts. The programme provides flours of pulses and cereals, Ghee (Oil) and sugar in every school for the mid-day meal for school children through the SMC.

7. Nutrition Education Programme

A Nutrition Unit under the Curriculum Development Centre develops various nutrition education materials for making effective and practice based nutrition education teaching. The unit also analyses the nutrition component of school curriculum and gives training to supervisors, trainers, and teachers for nutrition education.

8. Education for Rural Development Projects

This project was taken up from 1982 to 1990 in five districts of Seti Zone. It had also supported school health activities. It organized primary care training programme for the primary school teachers and distributed first aid kits. It conducted de-worming programme in the schools, and supported in the construction of lavatories and ensuring of water supply, kitchen garden etc. in schools.

9. Child to Child Health Education Approach

Redd Barna, Save the children Fund (USA, Britain, Norway), Nepal Red Cross Society and other organizations have carried out Child to Child Approach in various districts of Nepal for teaching health education in the schools and community centres. It focuses on children and young people contributing to their own health and well-being and that of their families and community.

10. School Health Programme, carried out by CARE Nepal

CARE (Cooperative American Relief Everywhere) Nepal has carried out the different programmes in community organization, agro-forestry, engineering and health in different districts. School health programme is also being run under the health programme. Health check-up, de-worming, orientation/ training workshop for the teachers, construction of toilers are the carried out programmes in the schools by the CARE Nepal.

11. School Sanitation and Hygiene Promotion Activities

The District Water Supply and Sanitation Project has launched its activities in many schools of Eastern and Central Development Region. The project has taken up such activities as assessment of community sanitation behaviour and practices from baseline

survey, conduction of workshop for primary school teachers, support for water supply, construction of toilets etc. in the schools.

12. School Sanitation Programme: FINNIDA

The project has run on the support of FINNIDA. It has covered six districts of Lumbini Zone and carried out the major activities related to school health: assessment of common health behaviours, affecting the beliefs and practices of the community, supply of water, construction of toilets, training for headmasters, and health and science teacher, distribution of various materials for cleaning, supply of first aid kit, and organization of the within-the-country exposure tours.

13. Environment Education Programme

Students' Partnership world Wide (SPW) has carried out school environment education activities in 10 districts. The group of trained volunteers from Nepal and overseas, and students work as peer educations and agents of change in partnership with their community in this programme. Environment education including health and sanitation is conducted in schools under this programme.

Besides the above mentioned programmes, various international and national organizations, and other agencies have carried out some programmes. Other important activities may be existing in some places, carried out by various local, national and international agencies that are not generally noticed. Moreover, WHO, UNICEF, JICA, GTZ, Red Cross, Jaycees, Lions Club, Rotary Club etc. have launched different types of school health activities or they have supported various health related programmes in various ways in schools of different parts of the country. Similarly, the AIDS Control and Prevention Project, vitamin 'A' Project, Expanded Immunization Programme, National

Tuberculosis Centre, Diarrhoea Control Project, and other various national and local organizations concerned with health, social, educational and environmental groups have also organized various programmes related to respective subjects and SHE Institute of Medicine has also included some content of SHP in paramedical training curriculum. The value of SHEP is thus being increasingly recognized a comprehensive health education programme which needs to be launched in the schools of Nepal.

With the foregoing discussion in view the conceptual framework of SHEP including all its aspects is presented as the follows.

School Health Education Programme

Today's children are the citizens of tomorrow and only healthy children will be food citizens for the future. Children will be healthy when their physical, mental, social and emotional condition is good and properly developed according to their age. In the overall development of children's health, a lot of factors play a vital role. Generally education, health care and environment are the major influencing factors besides heredity. All these factors should be regulated properly for students' health promotion and their quality of life. But all these factors are dependent on their home, school and community environment. Children learn, grow and develop at home, in the school and community settings. All these fields are responsible for protection and promotion of children's health and their total development. These three fields are interrelated and interdependent. Among these three fields, school is the place where children come especially for learning and developing various aspects they need for their life. So formal, planned and organised learning experiences are gained in the school. Informal and incidental learning activities also come under the school programme. Students spend five to eight hours a day in the

school. The environment, available facilities and teaching learning activities affect directly students' health and their total development. And school is responsible for prevention, protection and promotion of health of school children within school hours it also provides education about different fields of life. So SHEP plays a vital role in all the activities related to students' health and their education.

For launching SHEP and fulfillment of its objectives, an organizational process under total school programme is needed. Only a planned and organized SHEP will be effective and fruitful to the school and the community. It means, the school can produce healthy people in the community only through organized SHEP. The major components of SHEP are school health instruction (SHI). School health services (SHS), healthful school living (HSL) and school- community co-operation (SCC). Which are interrelated and interdependent on each other. For launching the SDEP, a committee, school health council or DHEP co-ordination committee should be formed to find out health problems in the schools, to make policies and programmes, and to co-ordinate and evaluate the programmes. Members of such committee should be derived from the SMC, teachers, students, parents, community members and community health organizations.

Table 2.1: Organization of School Health Education Programme

School Health Instruction	School Health Service	Healthful School Living	School-Community Co-operation
1.Type of Instruction a. Planned inst. b. Integrated inst.' c. Correlated inst. d. Incidental inst	1. Appraisal Aspects a. Health examination b. Screening test of eye, ear, body posture, nutrition etc. c. Health observation by teachers/ nurse d. Health recording e. School clinic f. Dental examination	1. Physical Environment a. School plant, School site, School building, Furniture, Lighting, Ventilation, Noise control, Playground b. Sanitation facilities; Drinking water, Waste disposal, Cleanliness, Drainage, Toilet facilities c. Nutrition programme Tiffin practices, Canteen	1. Programmes for Community a. Parents' day b. Exhibition c. Seminar/talk Programme d. Parent-teacher association e. Parents visiting the school
2. Instructional Planning a. Work plan b. Unit plan c. Lesson plan d. Preparing instructional materials e. Evaluation	2. Preventive Aspects a. Prevention and control of communicable diseases b. Safety measures c. First aid and emergency care	2. Mental Environment a. Human relationship, Students-students, Students-teachers & Teachers-staff/teachers b. School programme: Daily schedule, Extra curricular activities, Sports & games facilities c. Pleasant atmosphere; Gardening, Plantation, School decoration	2. School's Participation in Community a. Teachers' visit to parents b. Students' participation in community health , Cleanliness campaign, Mass rally, Helping in immunization programme c. Participating teachers in community organization
	3. Remedial Aspects a. Referral system b. Follow up system/ correction of defects c. Health counseling & guidance d.Care of exceptional children		3 Using community resources a. Meeting with resource person b. Approaching for co-operation c. Conducting joint venture programmes

The school health council or co-ordination committee develops a plan and policies of SHEP. The school administrator, health teachers, health personnel, concerned staff and other appointed personnel implement the developed plans and policies. School health council or co-ordination committee for the improvement of the programme should do an evaluation of the programme. By this process. SHEP develops health status of students, makes them competent in maintaining health and develops efficiency in their performance. Moreover, they also need suitable environment, essential facilities and their continuous efforts in home and community. Free from diseases and infirmity, social adjustment, self-reliance and productivity are the major qualities of optimum health. These also depend on suitable environment, available facilities and personal efforts concerning health. Thus SHEP helps students to be healthy and gain optimum health or quality of life in future. For that purpose, they need continuous effort, proper environment and essential facilities.

The main aim of SHEP is to protect, maintain and promote the health of students at present and enable them to take intellectual decisions and inculcate healthy behaviours for that purpose in future life. It also intends to develop potentiality in achieving total school education. To accomplish the main aim of SHEP following objectives are formulated:

1. To provide appropriate learning experiences to the students for healthful living
2. To enable students to take good decisions regarding personal, family and community health.
3. To insist upon the students to inculcate responsible health behaviors.
4. To create safe and healthy environment (physical & mental) in the school.

5. To protect children against communicable and other preventable diseases and injuries.
6. To discover physical defects and other abnormalities in students and promote their correction, if they are remediable.
7. To maximize the potential of students' achievement in the school.
8. To collect the community support for optimum development of school health activities.

Conceptual Framework

SHEP comprises different components regarding the fulfillment of its aims and objectives in specific areas. The main components of SHEP are not uniform in all respects. Some time it was categorized into seven components (Anderson, 1972), some time four, some time three and now into eight. The main themes and covered subject areas were not so much different, and the categorization and presentation methods were somewhat different. But here in Nepal four components SHI, SHS, HSL and SCC represent all the essential aspects in school health practice. These four components have their separate identity on functional basis, but these are interrelated and health activities should be enforced commonly to achieve the goals of SHEP. The programme should be launched in a comprehensive, co-ordinate and integrated form in all its.

School Health Instruction (SHI)

Health education and health instruction are generally used as synonyms. In fact health instruction is a part of health education and health education is an entire process of providing scientific knowledge, developing positive attitude and skills, modification of

behaviours and enabling to make good decisions relating to health. According to C. L. Anderson, health instruction is the planned and incidental imparting of formal and informal health knowledge. It may be a lecture, a class discussion, a laboratory situation, or individual tutoring. It carries the commutation of something from the outside directed to the child for his understanding (Anderson, 1972). Green (1973) states, "Health instruction is the process of providing a sequence of planned and spontaneously organized learning opportunities comprising the organized aspect to health education in the school or community." Health instruction refers to a plan that provides for the sequential arrangement of learning opportunities designed to favourably influence health attitudes, practices, and cognitive skills that are conducive to the optimum development of the individual, the family and the community (Fodor & Gus, 1974). From the above definition it can be said that SHI is a process of providing planned, organized and sequential learning experiences within the school so as to influence attitudes, practices and cognitive skills regarding the optimum development of health of the students and the community. It comprises formal, informal and incidental learning opportunities through various teaching methods and media. The subject teacher provides formally the planned, organized and sequential learning experiences in the classroom as given in the curriculum. The learning experiences which are provided outside the classroom in actual situations or suitable conditions are known as informal or incidental instruction. To make health instruction effective, different teaching methods and materials need to be used properly.

Besides the objectives of SHEP already listed, the additional objectives of SHI are:

1. To motivate and facilitate understanding of and feeling in the students for sound health, positive attitude and healthy practices.
2. To give the students a feeling of responsibility on individual, family and community health.
3. To motivate students for participating in home, school and community health activities.
4. To impart knowledge about probable health problems and their solutions in future life.

Health instruction is purposeful and constructive when it is done in a planned way using various teaching methods, techniques and media. Health education should also be given through different sectors for the set targets. In the process of providing health services, managing for healthful environment and organizing school community health activities, health instruction can run side by side. Besides other appropriate time and situations are to be used for health instruction. The SHI can be given in a planned, correlated and integrated as also in an incidental way. The planned health instruction is done in the classroom by the subject teacher especially on health related subject areas on the basis of prescribed health curriculum and allotted time schedule. It is the best type of health instruction, which covers generally the basic and needed contents for the students according to their age and ability. The integrated health instruction occurs in a combined way or in broad subject areas on life related topics. For example, spreading the communicable diseases depends on various factors such as socio-cultural customs, economic condition, biological environment, physical environment, health education, available services, individual resistance power etc. All the mentioned factors are

responsible for health problem and the integrated instruction treats it in a holistic way from different dimensions. The correlated health instruction means the teaching of health, knowledge, attitude and behaviors through different related subject areas. In this type of instruction, health matters are given through home Science, biology, physical education, social studies, language and agriculture etc. in the concerned topics. It fosters in the students better health learning. For this sort of instruction, the teachers of other subjects also should have health knowledge and they should have positive attitude about health education. But incidental instruction can be imparted at any time while dealing with a practical situation related to health matters.

Without instructional planning expected outcomes may not be possible. Hence it is taken as the next part of SHI. Instructional planning embraces work plan, unit plan, lesson plan, selecting of teaching methods and using instructional materials under the curriculum. In Nepal, Curriculum Development Centre, Ministry of Education develops school curriculum for all schools of the nation Curriculum planning is not concerned with individual schools. But the school or the subject teachers should develop work plan, unit plan and lesson plan. Besides, selection of appropriate teaching methods and strategies, preparation of teaching materials also comes under the health instruction planning. In adequate planning of instruction and effective implementation lies the success of programme. This fulfils the objectives of health instruction.

School Health Service (SHS)

School is a social institution where students come for learning from different cultures, communities and geographical regions with various backgrounds of economy, education, society, culture and values etc. They may be suffering from or vulnerable to different

kinds of diseases, physical defects and abnormalities due to their individual weakness, backward family background and other causes. If their health problems are not solved or precautions are not taken in time, the children may suffer in future life. The health of students and school personnel is interrelated with total school education programme. Unhealthy students cannot participate properly in the educational process and they are unable to learn properly. Unhealthy school teachers will not be able to provide adequate learning to the students. Similarly, ignorant children can hardly maintain their health. Therefore the health of students as well as school staff should be good and there must co-exist conditions for better teaching-learning process. It means, though the schools are not totally responsible for maintaining. protecting and improving the students' health, they are morally obligated to provide basic health services for protection and promotion of students' health and for good educational achievement. Therefore school health services are necessary for both the students and the school personnel.

According to National Education Association (NEA) and American Medical Association (AMA), SHS are the school procedures carried out by physicians, nurses, dentists, social workers, teachers and others to appraise, protect and promote the health of students and the school personnel (Hanlon & McHose, 1971). "School health services include all school activities and procedures designed to affect the present health status of the youngsters. This encompasses appraisal of students' health prevention and correction of physical defects, health guidance and supervision, and emergency care" (Anderson, 1972). Similarly, Turner (1996) has given the following six commonly recognized activities of SHS:

1. Aiding in the prevention and control of communicable disease

2. Health appraisal of pupils and school personnel
3. Promoting or affecting the correction of defects
4. Emergency care in accident or sudden illness
5. Special health services for exceptional children
6. Supervision of environmental health

School health services have the following objectives:

1. To appraise the health status of the students and school personnel through observation, screening tests and health examination.
2. To maintain the health records of students, to develop in them interest in their health status and make them aware of or inform about health risks.
3. To provide emergency care in the case of accidents or sudden illnesses.
4. To prevent and control communicable diseases.
5. To correct the students' remediable defects and foster the abnormal and handicapped students.
6. Provide health counseling and guidance to the students and parents.
7. To give relevant and effective health education in practical situations.

To accomplish the objectives of SHS all health service activities can be divided into three major parts. They are health appraisal, preventive and remedial health. They are interrelated and play joint role in various activities or go side by side Medical examination, screening test of vision, hearing, body posture and nutritional status, health observation by teachers or nurse, dental check-up, health recording, school clinic etc. are included in health appraisal. Control of communicable diseases, immunization, safety measures, emergency care and first aid treatment etc. comprise the preventive aspect.

Similarly, correction of remedial defects, referral services, follow up services, health counseling, care of exceptional children lie in the remedial aspect.

Healthful School Living (HSL)

HSL is the basic need for preventing disease, protecting and promoting health and teaching-learning process in the school. In the absence of healthful environment or HSL, teaching learning process cannot be effective. There may be risk of different diseases, mental or emotional disturbances, various injuries or accidents and malpractice of habits and behaviours in the school. Sometimes it is associated with high rate of the student absenteeism, delinquency or vandalism etc. So HSL has a specific value in maintaining discipline, protecting health, supporting learning process and creating pleasant atmosphere. HSL helps in decreasing a likelihood of infection and injury, provides a laboratory for health educational process, creates good teaching learning environment and provides a feeling of comfort and relaxation in the school. Anderson defined "HSL means conditions and manners of existing and experiencing that permit effective accomplishment and joy in the experience. It means a safe, sanitary, aesthetic and wholesome physical environment in which children can participate in normal activity with a minimum of interference, disturbance and frustration." (Anderson, 1972) "Healthful environment means the promotion, maintenance and utilization of day by day experiences and planned learning procedures to influence favorable emotional, physical and social health." (Redican et al., 1986).

According to Joint Committee of National Education Association and American Medical Association, "Healthful living embraces all efforts to provide at school physical, emotional and social conditions conducive to the health and safety of pupils. It includes

providing a safe and healthful physical environment, organization of a healthful school day and establishing interpersonal relationships favourable to mental health" (Ramos, 1985). Clearly differentiating between the physical and Mental HSL, Jenne (1976) writes "A physical appearance of the school building and grounds together with the physical facilities available in the school would serve as one basis for judgment…. The feeling associated with interpersonal and say-to-day relationship between administrators, staff and students serve as another basis for judgment. Dutch feelings are associated with the climate of the school or its social and emotional environment."

Following objectives are given in healthful school living

1. To control or reduce the prevalence of diseases, defects in the body and injuries in the school.
2. To make the students free from various pollutants in the school area.
3. To create a suitable environment for effective teaching learning process.
4. To create a pleasant, calm and attractive environment in the school.
5. To provide practical health education through healthful school environment.
6. To develop wholesome relationship among students, teachers and other related personnel and agencies.
7. To manage and provide safe and healthy sanitary facilities, classroom facilities and nutritious foods in the school.
8. To develop students' potentialities through co-curricular activities (ECA)

The physical environment of a school denotes the carefully planned and well maintained school building, play ground, furniture and sanitary facilities which not only produce comfort for students and school staff but also help in controlling diseases and injuries,

maintaining and promoting health, and conducting effective teaching learning activities. It encompasses proper site selection and building of the school with proper ventilation, lighting system, furniture, cleanliness etc. in the classrooms, proper sanitary facilities, waste disposal, toilets and drainage, safe play ground and well-maintained gardens, facilities for fresh and nutritious food and drinking water etc. The psychological environment of the school represents relationship among students, teachers, administrative staff and their respective sections, daily schedule and ECA related to psychological and social aspects and other environment that produces satisfaction and self-reliance. According to Cornacchia, "The emotional climate in the school affects the mental health of both students and teachers. It is a setting that gives consideration to students – their feelings, their beliefs, their physiological and psychological needs as well as subject matter. It is a setting that treats pupils with kindness and humaneness" (Ramos, 1985).

Thus, both physically and mentally HSL has its own value to maintaining health of the students and adequate teaching-learning process. Physically and mentally/ psychologically healthful environments affect each other greatly and in that sense they have a reciprocal relationship.

School and Community Co-operation (SCC)

School is an important part of the community, which is responsible for the development of various aspects of the students, such as physical, intellectual, social, emotional, moral and aesthetic. It also includes self reliance and good behaviours in them. Without good schools, community members cannot progress and they are unable to solve their problems and enrich their life. Similarly, a school cannot run or exist without the support

of the community. The health of school children is a joint concern of home, school and community. The home, school and community, all are responsible for protecting and promoting the health of school children. Thus school and community are interrelated and interdependent. According to Anderson (1972) "The SHP could not be wholly effective unless it was integrated with home and the community, and with the forces in both that contribute to the health of the school child. Services of the personnel of public health department and staff members of voluntary health agencies were utilized as a regular part of the activities of the school." According to Barry Commoner's first law of ecology, "Every thing is connected to everything else", SCC is involved in school health and health education. These have traditionally included contacts of teachers and other school employees with parents. parents observation and participation in school health activities, and relationship with community health education, health services and social and physical aspects of the community environment (Jenne, 1976).

Students' health is basically influenced by home, school and community environment, which means the physical, social, cultural, emotional environment of the home, school and community should be favourable for the development of school children. If home and community environments where they reside are not suitable for protection and promotion of their health, the school cannot do well. Students use information and knowledge gained at home and in the community. Education will not be fruitful if they are not able to do so. Therefore the parents and community members should support the activities of SHE for preventing disease and maintaining and promoting their children's health. But the parents and community members are not aware of risky health practices and many of them have misconceptions and ignorance about

health. They may be conservative and controlled by socio-cultural taboos and some may be also superstitious. In such a situation they may stand against school's health activities or they are negligent of children's health and SHPE can be ineffective. So education the parents and community members on children's health problems and caring process is also one of the school's duties for better learning and conducting effective SHEP. Students should have chances to participate in community health activities during the school period for their practical knowledge considering all of those factors, school and community co-operation or relationship is necessary for SHEP.

Thus the SCC denotes the development of understanding and helping each other on their activities, launching programmes for one another and conducting joint venture programmes for health and educational benefit to the students, parents and the community people. It brings closeness between the parent, school personnel and the community members. The Objectives of school-community co-operation are:

1. To be familiar with the community resources that may be utilized to enrich and supplement the SHEP.
2. To find out the needs and expectations of parents and community members from the school regarding students' health.
3. To procure community resources for SHEP.
4. To arouse the consciousness of parents and community members on the state of students health.
5. To develop understanding and closeness of the parents and community people on SHEP and inculcate positive attitude in them.

6. To provide practical health education to the students on the actual situation of the community.
7. To vitalize the SHI, SHS and HSL according to students' family and community background with the support of parents and the community people or institutions.

The SCC encompasses the school programmes for community, school participation in community programmes and using community resources for SHEP Organizing parents' day, exhibitions and seminars, formation of parent-teacher organization, and parents visiting the school are included in the programme for community. School participation in the community comprises of the teachers visit to parents, students participation in community health activities, as cleanliness programme, mass rally for health awareness, helping in immunization programmes etc. Similarly, using community resources include the meeting with resource personnel or community agencies, approaching for co-operation, programme setting for resource mobilization and conducting joint venture projects in school or community for the SCC.

Effectiveness Criteria

In general, effectiveness of programme means the fulfillment of the objectives, satisfaction of concerned personnel and beneficiaries after the evaluation of the programme. With regard to effectiveness of SHEP, evaluation is inevitable to decide how much has it achieved the set goals, how much progress have been made and what improvements are needed for future. Anderson (1972) writes "In school health programme, evaluation is a process of determining the effectiveness of the programme and its several phases through the measurement of its progress and extent to which the health objectives of the school are being achieved." According to Redican et. al (1986),

"Evaluation is a very complicated process, particularly in the area of the school health programme. This problem is compounded by the fact that extremely precise measurement instruments are not available. Additionally, efforts in behaviour change might not manifest themselves until years after the students have left school." Frankel (1973) identified three general categories of evaluation purposes; diagnostic, formative and summative. Diagnostic evaluation denotes need assessment, which determines the most needed activities or aspects in the programme. Formative evaluation is commonly carried out in intervention process or for reforming the running programme for more of effectiveness. And summative evaluation is done after the completion of the programme for purposes of identifying the needed modifications or continuation it for further programmes. Green and Morton (1984) have delineated three general approaches to the general task of programme evaluation: process evaluation, impact evaluation and outcome evaluation. The first examines how the programme is being implemented. Properly carried out process evaluation can generate precise and valid results with clear identification of the strengths and weaknesses of the programme. Impact evaluation finds out how much favourable change has occurred in knowledge, attitude, behaviour and practices of the participants. The outcome evaluation is the ultimate stage of evaluation, which can create improvement in the quality of life of the community. It is a long-term evaluation process.

The health problems, health status and health aspirations will be different in various communities, regions and nations. Geographical region, socio-culture values, economic status, natural and human resources, health awareness and environment etc. to some degree affect them. " Health problems exist in every society and vary in nature and

severity with time and circumstances. What a society does about its health needs depends on its goals, its social philosophy, the development of its health knowledge and technology, and its economic and human resources" (Jenne, 1976). Therefore, there must be accountability of the health indicators before doing evaluation of SHEP. It is most important to clarify exactly who or what is to be evaluated. It means the objectives of the programme and norms of evaluating process should be fixed and the evaluation criteria must be conformed to for deciding the effectiveness of the programme. Anderson and Creswell (1980) have set forth five purposes for programme evaluation.

1. To determine the present status of school health programme.
2. To provide information about strengths and weaknesses of the programme.
3. To assess the progress made toward the achievement of programme objectives.
4. To provide data that can be used as justification for seeking additional support and funds for the programme.
5. To provide information about programme activities and health instruction as a basis for modifying the programme in order to improve it.

With regard to evaluation of SHEP, there are some standard evaluation scales of school health programme such as, 'Appraisal Checklist for School Health programme (Ohio)' developed by Ohio University, and 'School Health Programme Evaluation Scalt' developed by the Oregon State University. It needs specific criteria and indicators for evaluation of SHP according to their own needs and context. So some criteria of measurement or indicators of the effectiveness of SHEP have been set-up for the present study. Moreover, SHEP is basically divided into four components viz. SHI, SHS, HSL and SCC. Under these components various aspects related to availability of health

facilities, health practices in school, monitoring of health activities, existing health problems, probable solutions etc. are encompassed.

Keeping the above in view, the following criteria were followed in order to ascertain the effectiveness of SHEP for the present research study.

Health Instruction

a. Relevance of curriculum:

    1. Appropriateness of curriculum
    2. Need of health instruction
    3. Availability and use of resource materials

b. Types of instruction used in imparting the health information:

    1. Planned instruction
    2. Incidental instruction
    3. Co-related instruction
    4. Integrated instruction

c. Planning and teaching techniques used in health education

    1. Work plan
    2. Unit plan
    3. Lesson plan
    4. Availability of teaching materials and its appropriate use
    5. Use of various teaching methods
    6. Use of various evaluation techniques

d. Feedback of health instruction

    1. Good results

2. Satisfaction of the students, parents and school personnel
3. Behaviour modification

a. **School Health Services**

b. Availability of appraisal services in the school:

1. Periodic health examination
2. Screening test of eye, ear, body posture, nutritional status
3. Health observation by teachers/ nurses
4. Health recording system
5. Dental examination
6. Stool testing/ checking parasites
7. Clinic service with medical personnel

c. Preventive services practiced in the school:

1. Communicable disease control; immunization, isolation, closing the school, de-worming, hygiene and sanitation
2. Safety measures
3. First aid treatment and emergency care

d. Remedial services provided in the school:

1. Health counseling
2. Referral system
3. Follow up programme/ correction of defects
4. Special consideration for exceptional students

e. Involvement of health personnel in health services in the school:

1. Health teachers

2. Medical staff
3. Voluntary organizations
4. Government health sector
5. Others

A. Healthful School Living

a. Physical environment in the school – facilitation and maintenance of various aspects:

1. Sanitation – pure drinking water, toilets, drainage system and refuse disposal system.
2. Classroom management – lighting system, ventilation, furniture, blackboard and cleanliness
3. Site of school building – crowded, disturbing, and peaceful
4. Playground and sports facilities

b. Management of physical environment in the school:

1. School Management Committee
2. Headmaster
3. Health teachers/ teachers
4. The administrative staff

c. Mental/ psychological environment in the school:

1. Relationships – teachers and teachers, teachers and students, students and students, school and community
2. Extracurricular activities– sports and games, educational activities and cultural activities
3. Management of timetable- operation calendar and daily routine

4. Pleasant surroundings – plantation and gardening

d. Tiffin provisions in the school

1. Carry from home
2. Cafeteria in the school
3. Go home for lunch

B. School and Community Co-operation

a. Activities launched for community people

1. Teachers' visits to students' home
2. Meeting the parents/ Holding Parents' Day
3. Conducting exhibitions and seminars
4. Cleanliness programme in a public areas
5. Mass rally for health awareness
6. Help in community programmes

b. Co-operation received from the community and community health sector:

1. Voluntary service in school construction
2. Fund collection from donor agencies/ donors
3. Voluntary health services
4. Obtaining instructional materials and health facilities
5. Maintaining cleanliness in the school area
6. Supported by IGOs / INGOs
7. Supporting local development committees/ elected bodies

c. Efforts made for co-operation:

1. Conducting joint health programmes

2. Formation of Parent-Teacher Association
3. Approaching health institutions or health personnel for co-operation
4. Organizing interrelationship and supporting programmes

Besides the above-mentioned criteria, major problems, suggestions, opinions related to SHEP based on the involvement of various persons in SHEP activities have also been collected so that the information would help in developing a model of SHEP. It is considered that the effectiveness of programme in totality would be assessed in terms of the responses obtained in appropriate manner and available physical facilities. The given criteria of total aspects of SHEP are taken as the base of evaluating the SHEP in this study.

Chapter Summary

In this chapter the researcher reviewed different literature related to physical environment and school health. The researcher reviewed thesis, books, national and international journals related to school health and nutrition. The researcher read the literatures regarding student's status of Nepal, review of theory and practice, theory of school health, health care delivery system of Nepal, Nepal's progress towards education for all and review of contemporary research, historical development and current trends of physical environment and school health in general and also discussed in the context of Nepal.

The next chapter presents research methodology of the research which includes research design, research tools, methods of data collection, analysis and presentation, reliability and validity of the study.

CHAPTER III

RESEARCH METHODOLOGY

In previous chapter I have mentioned about the literature review of related studies, its findings and discussed about the findings related to this study. Now in this chapter, researcher included the research process, nature of research, design, research setting, the reasons of selecting the settings, study population, sample size and sampling techniques, inclusion and exclusion criteria, data collection procedure, implementation of oral informed consent, qualitative and quantitative data, schedule of the research, use of data and also discussed about the validity and reliability.

The purpose of this study was to assess, explore and analyze the significant factors in determining the physical environment and school health knowledge, attitude and practices. This chapter sets the research methodology, used to complete the research questions including research design, setting, procedure of sample selection, sampling technique, report of developing the instruments, inclusion criteria, exclusion criteria, instrumentation, validity and reliability test of the instrument, data collection as well as procedure for data analysis.

Research is the careful search, systematic investigation towards increasing the sum of knowledge. To search is to search again, to take another, more careful look, to find out more. We take another look because something may be wrong with what we already know. Social research is a systematic method of exploring, analyzing and

conceptualization social life in order to extend, correct or verify knowledge whether that knowledge aid in the construction of a theory or in the practice of an art (Lewin, 1946). Research is thinking through process (Frederic, 2002).

Nature of the Research

Research methodology is a way to systematically solve research problems. Talking about research method is not enough but also considers the logic behind the method we used in the context of my research study and explain why I am using a particular method, why I am not using other methods.

There are different natures of study. Study is done with the help of historical data. Historians, philosophers, social psychiatrists, literary persons and social scientists use this method to visualizing society as a dynamic organism, its structure, and functions as steadily growing undergoing change and transformation (Young, 2000). Experimental research is a design to test a hypothesis by reaching valid conclusion about the relationship between independent and dependent variables. Variables are to be manipulated and controlled, how observations are to be made, and type of statistical analysis to be employed in interoperating data relationships (Best & Kahan, 2002).

From exploratory research method, done on the subject that have either no or little information is available. This research provides a basis for general findings. Researcher and practitioners can explore the possibility of using such general findings in future (Panneerselvam, 2005). The purpose of explanatory method is also broader than the descriptive method, it is conducted to build theories predict events (McNabb, 2005). This method explains the causes of social phenomena and aims at establishing a relationship

between variables as for example explaining relationship between drug abuse and family control.

Descriptive research seeks to describe a field or a problem by using questionnaire and opinions. Recently, this type of research is very popular and is extensively followed by researchers to explore new areas of investigation. Researchers must prepare questionnaires opinion in such a way that does not injure the feelings of respondents. From this approach, many times researcher gains insights of other side of the problems, which may not be within the scope of his/her research program. S/he also gains invaluable experience of conducting such inquiries systematically and accurately (Ahuja, 2002).

Field Study method is very old and new for social science. This method has been used since many years and increasing methodological attention and refined in recent years (Babbie, 1975). This is the design which directs the study of field situations. There is difference between survey method and field study. Survey has greater scope while field study has greater depth. Survey deals with representatives of whole, field study may or may not involve sampling. A field study provides more detailed and more natural picture of social interrelationships of the groups than survey (Baker, 1994). Cross sectional method is used for describing the situation. In this study persons of different ages are studied at only one point of time. A cross section study can accomplish the aim of exploration, for explanatory studies or description. Studies describe the current state of something the reading abilities of students. The participants in the study would be given the same task and can compare the groups on their performance (Cozby, 2001).

There are many other methods like cross sectional, evaluation research, analytical, case study, field trials, or community trials with community as the unit of study. In summary, these studies cannot be regarded as watertight compartments, they complement each other. Observational study allows taking its own course, the researcher measures but not intervening.

A mixed methods research design is a procedure for and qualitative research and methods in a single study to understand a research problem. To utilize this design effectively, educational research in which the research decides what to study; asks specific, narrow questions, collects quantifiable data from participants (a large number of participants); analyzes these numbers using statistics; and conducts the inquiry in an unbiased, objective manner, must understand both Quantitative and qualitative research.

In my study, description schedule interview survey and focus group discussion method is used. Survey research can describe the knowledge, attitudes and behaviours (practice) of people by selecting in representatives as the sample of individual and soliciting their response to a set of questions. Such descriptive surveys are familiar to this researcher.

Survey is not just collecting data technique but also the technique of structured and in-depth interviews, observation, content analysis and also used in survey research (De Vaus, 2002). In this design, the researchers go to the field and conduct a survey that can be anything. The scope of survey design is very wide and extensive. Survey research can be approached through the personal interview/discussion, mailed questionnaires and indirect oral investigation.

Research Design

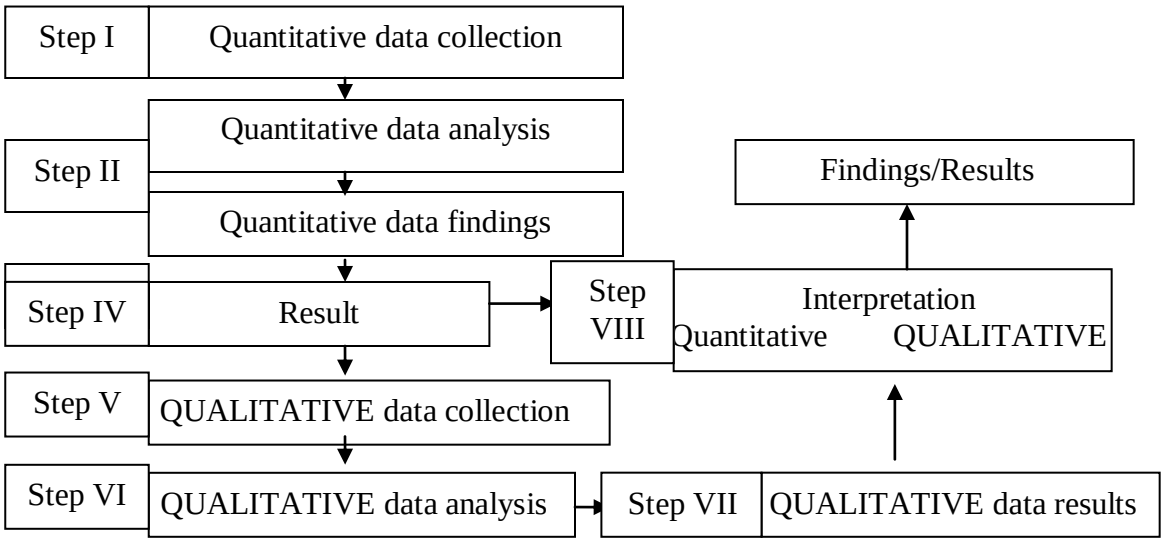
The previous chapter described about the different studies and its findings in different places from literature review. This chapter has focused on the design of the research used for the purpose of the study. A research design is the arrangement of the settings of the methods for the collection and analysis of data in a manner that aims of combining relevance to the research purpose with economy in procedure. In fact, a research design is the conceptual structure within which research is conducted. It constitutes the blueprint for the collection, measurement and analysis of data (Kothari, 1994). It is the plan of the study, which is determined by purpose of the study (Cohen, Manion & Morrison, 2000). It helps to layout the plan of study band and explains the procedure for analyzing and interpreting the findings. It is the plan, structure and strategy of investigation conceived so as to obtain answers to research questions and to control variance. It is aimed at enabling the researcher to answer questions as validity, objectivity, specifically conceived and executed to bring empirical evidence to bear on the research problem (Kerlinger, 1978). A research design is the determination and statement of the general research approach or strategy adopted/or the particular project. It is the heart of planning. If the design adheres to the research objective, it may ensure that the client's needs may be served. A research design is the specification of methods and procedures for acquiring the information needed. It is the over-all operational pattern or framework of the project that stipulates what information is to be collected from which source by what procedures. A research design is a framework of blue print for conducting the marketing research project. It details the procedures necessary for obtaining the information needed to structure and/or solve marketing research problems.

A simple cross sectional descriptive exploratory study design was selected to examine, describe and predict the relationship among variables based on schedule. Although the correlation studies did not reveal cause and effect relationship, it often used to reveal the systematic investigation of inter-relationship between two or more variables, and determine the most effective prediction of the values of one variable with the depended variables based on the values obtained from independent variables (Burns and Grove, 1997). In this study, the researcher has aimed to explore knowledge, attitude and practice on physical environment and school health among students and teachers. This study was based on primary information. Descriptive studies are investigation of populations, not individuals. The "defined population' can be the whole population in a study area or a representative sample. It can also be a specially selected group such as age and sex group, occupational groups, teachers, and school children. The research area should be stable, and not include the visitors, guests in the study. The schedule method is more important method for the study of social problems. It is more practicable than questionnaires. In this method someone gives the clarification as and when needed. A schedule is and tool of obtaining answers to a set of questions from the respondents and investigator fills it by face to face interview. Both questionnaires and schedule are very similar but they also differ in some aspects; questionnaires is sent to the respondents by mail, where as a schedule is used directly in interviews (Singh, 2004).

The research design was grounded in the naturalistic paradigm and methods employed were integrated into the overall design in an overt manner to assess knowledge, practice and attitude on physical environment and school health among students and teachers. Out of nine mixed methods design in practice (the inclusion of a quantitative

phase and a qualitative phase in an overall research study), the researcher made the primary decision to operate largely within qualitative dominant paradigm (Morse, 2005). Figure 3.1 illustrates the schematic representation of the research design applied in the study.

Figure 3.1: Schematic Representation of Mixed Method Research Design



In this research study, the researcher collected the quantitative data first, analyzed the quantitative data and extracted results through interpretative approach. On the other hand, the quantitative data concerning the learning style preferences and other related information were collected and analyzed using statistical tools. The information generated through quantitative data was studied qualitatively to generate findings regarding physical environment and school health among students and teachers of Nepal.

Theoretical Perspectives on Mixed Methods

Mixed methods research is formally the class of research where the researcher mixes or combines quantitative and qualitative research techniques, methods, approaches, concepts

or language into a single study. This method as the third paradigm can also help bridge the schism between quantitative and qualitative research (Leech, 2004). Research in a content domain that is dominated by one method often can be better informed by the use of multiple methods. A key feature of mixed methods research is its methodological pluralism.

The majority of mixed methods research designs can be developed from the two major types of mixed methods research: mixed –model (mixing quantitative and qualitative approaches within or across the stages of the research process) and mixed method (the inclusion of a quantitative phase and a qualitative phase in an overall research study). Nine mixed method designs (Morse, 2005) are in practice in which the researcher must make two primary decisions whether one wants to operate largely within one dominant paradigm or not and whether one wants to conduct the phases concurrently or sequentially.

The mixed methods research has strengths in the field of educational research. Words, pictures, and narrative can be used to add meaning to numbers in mixed methods. Numbers can be used to add precision to words, pictures, and narrative. The mixed methods can provide quantitative and qualitative research strengths and the researcher can generate and test a grounded theory. Similarly, these methods can answer a broader and more complete range of research questions because the researcher is not confined to a single method or approach. The specific mixed research designs have specific strengths and weaknesses that should be considered (e.g. in a two-stage sequential design, the Stage one results can be used to develop and inform the purpose and design of the Stage two component). A researcher can use the strengths of an additional method to overcome

the weaknesses in another method by using both in a research study. These methods can provide stronger evidence for a conclusion through convergence of findings and can add insights and understanding that might be missed when only a single method is used. The method can be used to increase the generalizability of the results. Quantitative and qualitative research used together produce more complete knowledge necessary to inform theory and practice (Creswell, 2003).

The mixed methods research process comprises eight distinct steps: determination of the research questions, determining whether mixed design is appropriate, selection of the mixed method or mixed model research design, collection of data, analysis of data and drawing conclusion. The benefits of moving beyond the traditional practice of choosing either quantitative or qualitative research methodologies have been suggested by Fraser (1988). He has successfully combined qualitative and quantitative research methods in studying environment at different grain sizes. Methodologically, mixed methods research and evaluation combine quantitative and qualitative methods, approaches, and concepts that have complementary strengths and non-overlapping weaknesses (Johnson and Turner, 2003).

In 1989, Greene, Carcelli, and Graham outlined five rationales for conducting mixed methods research: triangulation, complementarity, initiation (discovering paradoxes and contradictions that lead to a reframing of the research question), development (using the findings from one method to help inform the other method), and expansion (seeking to expand the breadth and range of research by using different methods for different inquiry components). When considering educational research, both qualitative and quantitative data have great relevance for the improvement of school

health and in fact can be supportive to each other on understanding the main factors that impact on health (Wiersma, 1995). A brief discussion of the basic principles of quantitative and qualitative research approaches applied in this research study is discussed in the following sections.

Study Population

The target population of this study was students and teachers including head teachers with at least one from each school. The students, teachers, their schools' environment managers and parents of the same schools were used for qualitative data doing the focal group discussion for qualitative data.

Nature of Respondents

Almost all (100%) respondents were local residents of sample districts, among them one third belonged to Terai castes (Muslim, Madeshi, Dalit, Tharu) and 25% Bahun/ Chhetri, 76% of them believed in Hinduism. The respondents were from five districts including Chitwan, Makwanpur, Bara, Parsa and Rautahat. From each school, the students and teachers were selected from the high schools and higher secondary schools where all were from community schools. The age level of the students were almost ranged from 11 years to 18 years of age where as the age of teachers were variable of size and in experiences. The head teachers were also from the various age group. For the focus group discussion, the students and teachers of similar age group and class, with similar experience were selected for the research purpose.

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Research Settings

This is school based study, conducted in mid Terai districts. The sample five districts are among 75 districts of Nepal. Administratively, Nepal is divided in five Development Regions 14 Zones and 75 districts. The selected districts lie in Central Development Region of Nepal with VDCs and one Municipality. These districts are the hot and wet locations in the country, where average temperatures range from 5.4° C in the winter to 43° C in the summer and where annual rainfall is 1000-1484 mm. (CBS, 2011/2012). The study area selected randomly considering the inclusion criteria of ethnicity, age, education, religion and others. The exclusion criteria were those people who did not have access to schools.

The Reason for Selecting the Setting

Various International Non-Governmental Organization (INGOs) and local Non-Governmental Organizations (NGOs) are implementing school health and nutrition related activities in the sample districts for many years, but health status of the school children and teachers is not improving, malnutrition and student absenteeism is high, still poor hygiene and sanitation are remarkable. Researcher wanted to explore the status of physical environment and school health of students and teachers among different variables like level of education, religion, ethnicity and level of awareness. There are different ethnic groups like Muslim, Hindus, Chhetri/Brahmin, Tharus. Researcher is interested to compare the knowledge, attitude and practice among them. To explore the educational level affect the knowledge and practice of school health and physical environment.

Sample Size

The sample area of the present study was from five districts of Narayani Zone namely Bara, Parsa, Rautahat, Makawanpur and Chitwan. The selection of these districts was made in order to make an appropriate representation of urban and rural areas. Unlike most of the districts of Nepal, the selected districts possess all the characteristics of urban and rural area. A simple random sampling procedure was applied to draw respondents from school of both urban and rural areas of the five districts. A purposive sampling procedure was introduced to collect sample for case study. The total sample size comprising rural and urban areas of five districts was 390. The sample equally represented by Secondary level school of five districts. The sample structure was categorized as stated in the following table:

Table 3.1: Sample and Population of the study

Study areas	Population (N)	Sample (n)
Bara	5000	90
Parsa	4500	80
Rautahat	3000	70
Makawanpur	4000	80
Chitwan	3500	70
Total	20000	390

In the selected districts, all teachers and students were the study population. For focal group discussion, students of same class and age groups and parents were involved in the study. The FGD was done in five-groups- two groups of students in each district, one parents groups. There were 10-12 members participated in each FGD.

Sampling Technique

Systematic sampling technique was used to select the sample districts. All head teachers, fulfilling the selection criteria were involved in the study, the first stage of sampling, the rural and urban were selected on systematic sampling system. In each selected area systematically respondents selected until 390 students reached.

Inclusion Criteria

Parents in the study area who have one either a male or female child in the school and who are interested to participate in the study were included.

Exclusion Criteria

People who are not the permanent resident of Sample districts, guests, recently migrated population, not interested to participate in the research, students and teachers who do not fulfill the criteria were excluded.

Data Collection

The task of data collection begins after a research problem has been defined and research design chalked out. While deciding about the method of data collection to be used for the study, the researcher focused on primary data. The primary data are those which are collected a fresh and for the first time, and thus happen to be original in character. The secondary data, on the other hand, are those which have already been collected by someone else and which have already been passed through the statistical process. The researcher would have to decide what sort of data would be using for my study and accordingly the researcher has to select one or the other method of data collection. The methods of collecting primary and secondary data differ since primary data are to be

originally collected, while in case of secondary data the nature of data collection work is merely that of compilation.

The primary data were collected using structured and unstructured questionnaires, interview with teachers and students who have inclusive criteria. Similarly, focused group discussions were carried out. Throughout the inquiry, in depth interviews were used to explore issues in more detail. In addition to this, direct field observation was the part of data collection.

Data collection was done in different stages. The first stage was preparation phase in which necessary preparation was made. The second stage was field visit for data collection. The researcher first approached to the respondents by explaining the purpose of the visit and arranged time and accordingly followed by visit to them and uncovered the data through filling questionnaire, interview and focus group discussion.

Tools for Data Collection

Data collection is the process for getting the necessary information from the units under investigation. The method of collecting the data depends upon the nature, object and the scope of the enquiry. This study research has used a number of tools to generate information on the theme under study. Qualitative data collection tools were developed and used in this regard. Field observation, interviews, structured questionnaire and focus group discussion are the major tools for Quantitative and qualitative data collection. A detailed explanation of each of the study tools is presented in the following paragraphs:

Observation

The distinctive feature of observation as a research process is that it offers an investigator the opportunity to gather 'live' data from naturally occurring social situations. In this way, the researcher looked directly at what was taking place in situation rather than relying on second-hand data. The use of immediate awareness, or direct cognition, as a principal mode of research thus has the potential to yield more valid or authentic data than would otherwise be the case with mediate or inferential methods. From the observation, we can observe the real situation of the situation. This is observation's unique strength. There are other attractions in its favor: as Robson (2002) says, what people do may differ from what they say and they do, and observation provides a reality check; observation also enables a researcher to look afresh at every day behavior that otherwise might be taken for granted, expected or go unnoticed (Copper and Schindler 2001). Observational data are sensitive to contexts and demonstrate strong ecological validity (Moyles, 2002).

In this study, the role of researcher was that of an observer, that is, during the attending school hour, physical environment of school and on and off school situation. The researcher observed the activities of students and teachers. The researcher recorded the activities of the students and behavior of teachers in the sample districts.

Interview

Interviews allow respondents to unfold in a conversational manner. Since the interview in research is not as structured as in a regular interview, the setting allows respondents to journey through their experiences and perspectives more freely. The researcher conducted interviews with teachers and students with inclusion criteria in sample

districts. For this, several contextual probing hints and search tips were used for each of the research questions that reflected major aspects and domains of physical environment and school health to explore their knowledge, practice and behavior. The rationale of using this approach is based on the notion that the participants' perspective on the phenomenon of interest should unfold as the participant views, not as the researcher views it (Marshall and Rossman, 1995). The interview schedule was mainly based on open ended nature schedule. This tool was used for interviewing to head teachers with inclusion criteria working in sample schools.

There are a number of techniques to interviewing. The researcher developed interview schedule to make the responses systematic. Patton (1990) has also given three basic approaches to collecting qualitative data through open ended interviews as the informal conversational interview, the general interview guide approach and the standardized open ended interview. According to Patton, the informal conversational interview is the most open-ended approach to interviewing, which relies entirely on the spontaneous generation of questions in the natural flow of and interaction. The general interview guide approach involves outlining a set of issues that are to be explored with each respondent before interviewing begins. The interviews guide simply serves as basic checklist during the interview to make sure that all relevant topics are covered. Finally, the standardized open-ended interview consists of a set of questions carefully worded and arranged with the intention of taking each respondent the same questions with essentially the same words.

Regarding the approaches, the researcher used the interview scheduled approach. From the interview, I was able to identify the knowledge, practice and attitude of mother

in-laws of Banke of Nepal. One of the reasons behind the selection of this technique of data collection was to gather information systematically as needed.

Questionnaire

The questionnaire is a widely used and useful instrument for collecting survey information, providing structured, often numerical data, being able to be administered without the idea of the researcher, and often being comparatively straight forward to analyze (Wilson and Mclean. 1994).The researcher have to judge the appropriateness of using a questionnaire for data collection, and, if so, what kind of questionnaire it should be. A set of questionnaire was used in collecting data from head teachers. The respondents were asked about their knowledge, practice and attitude regarding the physical environment and school health.

The questionnaire developed for the head teachers for interview related to the objectives of the study. Questionnaires administered personally to individuals have a number of advantages. The person administering the instrument has an opportunity to establish rapport, explain the purpose of the study, and explain the meaning of items that may not be clear. Although the foregoing discussion may seem to discredit the questionnaire as a respectable research technique, the abuse or misuse of the device was considered. Actually the questionnaire has unique advantages, and properly constructed and administered, it may serve as a most appropriate and useful data-gathering device in a research project (Best and Kahn, 1999).

Focus Group Discussion

An open discussion and interaction was conducted through interview technique to gather personal experiences, opinions, beliefs of the students and teachers which helped to draw implications for future action on school health and sanitation. In this connection, Patton (1990) also emphasized on people's response. According to Patton, "What people say is a major source of qualitative data, whether what they is obtained verbally through an interview or in written form through document analysis or survey responses".

Reasons in selecting the group interview and interaction techniques through interview guide approach match the view of a Patton (1990). The author says that the interview guide approach is especially useful in conducting group interviews. It keeps the interactions focused but allows individual perspectives and experiences to emerge. Focus group discussion was arranged to have an interaction session with the students and teachers having wide range of experiences on the school health and nutrition.

Analysis of Qualitative Data and their Interpretation

Qualitative data analysis involves organizing, accounting for an explaining the data; in short, making sense of data in terms of the participants' definitions of the situation, nothing patterns, themes, categories and regularities. It is a process that brings order, structure and meaning to the mass of collected data. Data from the interviews and other qualitative methods were in the form of written notes and transcripts of tape recordings. To develop a category system, the content of the transcripts was analyzed to identify common themes and points for further discussion, while processing the qualitative data rigorous treatment was carried out and issue wise categorization of the findings were presented on thematic basis. The analysis of qualitative data relies on a systematic

organization of data into categories and themes, the researcher identified patterns and relationship on which base and analysis of the findings.

Data analysis procedures vary from researcher to researcher. In this study, at the beginning, the collected data was edited and coded organized according to the responses of the respondents. After processing the data, necessary interpretation was made in a descriptive and analytical way. Interpretation is the heart of analysis through which finding occur, explains Patton (1990). According to the author, "interpretation involves explaining the findings, answering why questions, attaching significance to particular results and putting patterns into an analytical framework".

In order to process and analyze the data, the researcher used three interrelated parts of analysis, viz. data reduction, data display and conclusion drawing and verification as championed by Mills and Huberman (1994). Regarding the first part of the analysis, the researcher used data reduction technique through summarizing and sequencing the collected information in a periodic sequence. Data reduction is a form of analysis that sharpens sorts, focuses, discards, and organizes data in such a way that final conclusions can be drawn and verified.

In the second part of the analysis, the researcher used data display technique to present important views or thoughts in school health and physical environment. The opinions of the respondent were carried out to illuminate the ascending and descending order of students, teachers and other repeated participants on research.

In the third part of the analysis, the researcher used conclusion drawing and verification technique to analysis through verification, argumentation and explanation of

the collected information. According to Kahn (1990), the first step is organizing the data, the second step is description of data and final one is interpretation of data.

Despite these analytic differences depending on the type of strategy used, qualitative inquires often use a general procedure and convey in the proposal the steps in data analysis. An ideal situation is to blend the general steps with the specific research strategy steps.

Written permission was obtained from District Education Offices before data collection. At first permission was granted from thesis advisor for implementing the study. Informed consent obtained from the mothers-in-law to ensure the right of subjects prior to using them in the study. Data was collected by using semi-structured interview schedule regarding socio demographic information, knowledge, attitude and practices regarding physical environment and school health.

Before starting the data collection, detail information about that community was obtained with the help of head teacher, local parents, meeting the inclusion criteria were identified by school to school visit. Considering the convenient time of respondent, data was collected in the suitable time of head teachers and teachers. While collecting the data first come first priority was given. The teachers were assured for the confidentiality of their information given by them and also were assured their information was only for study purpose not for other. Researcher requested that they can refuse to participate in the study at any time.

The researcher conducted orientation training to five teachers on data collection techniques, inclusion and exclusion criteria along with printed draft questionnaire. Questions were pretested in Hetauda Municipality with five schools during training

session. Researcher himself and other trained/ experienced enumerated teachers collected data with verbal consent of respondents.

Data Analysis Procedure

The collected raw data edited daily for completeness and accuracy; coded and entered into excel data sheet for data processing and statistical analysis. The data analyzed according to the nature of variable using descriptive statistics such as frequency, percentage, mean and standard deviation. Association of selected variables with knowledge, attitude and practice of physical environment of the schools and school health was analyzed to see the significance level. The findings presented in different tables after analyzing and submit in the final thesis.

Data Management

Data management is one of the important parts of a research process. It is useful to pragmatic of primary data collection that leads to systematic, coherent process of gathering, storage and retrieval. This process begins right before the data collection and ends right after the data have been analyzed and archived. Data editing, coding and interpretations are the major sub process in my research. In this study, the researcher begins data management before the data collection and applied the principles of data gathering, sorting, storing, filtering and retrieving relevant to research objectives.

Implementation of Oral Informed Consent

Field team used the prepared oral informed consent form for each participant and confidentiality should be strictly maintained. All the respondents were instructed about the research procedure, confidentiality, research purposes and benefit of study. All head

teachers were working in the same community schools at least for five years. They had very good relationship with the parents.

Validity and Reliability

We often think of validity and reliability as separate ideas but in fact, they are related each other. The relationship between reliability and validity is the target. If we measure the concept perfectly for a person, we are hitting the centre of the target.

Validity

To ensure validity, any instrument must measure what was intended; it should be logically consistent and cover comprehensively all aspects of the abstract concept to be studied, it should be possible. There are different types of validity:

a. Internal validity refers to correlation questions (cause and effect); it may be helped by testing only interested to participate in the experiment.
b. External validity: This is the extent to which it is possible to generalize from data to a larger population.
c. Content validity-applies to validating the content of an achievements test or qualifying examination.
d. Criterion validity- reflects the success of measures used for prediction.
e. Statistical validity-this is the extent to which a study has made use of the appropriate design and statistical methods that allow it to detect the effect.

Validity of the instrument established by developing instrument based on literature review and seeking the opinion from subject expert and research advisors was done. The prepared instrument translated into Nepali language and opinion of language

expert obtained for comprehensibility and simplicity. Translated tools used for scheduled interview in the field, local language were used to clarify questions with the parents.

Reliability

Reliability is the degree of consistency between two measures of the same thing (Black, 2002). Reliability is a necessary contributor to validity but is not a sufficient condition for validity. Reliable instrument can be used with confidence; they are robust; work well at different time on different conditions. They should have stability, equivalence and internal consistency. Reliability established by collecting data by the researcher himself or in his supervision after pre-testing the instrument among in the similar setting who met the inclusion criteria. Pretest was done in Hetauda Municipality and the data of pretest was not included in this thesis. The results of FGD were included from the same schools.

Chapter Summary

This chapter has included the basic fundamentals of research methodology adopted on the study. All sampling strategies, data collection techniques, instruments, and techniques of data analysis and reduction were discussed in this chapter. The pursuit to find answers to research questions and gained informed knowledge the researcher decided to conduct a quantitative and qualitative study. The researcher used different tools for data collection like interview, observation, questionnaire and case study which helped to answer adequately to the research questions.

In the next chapter, the researcher has presented the findings of the research in detail.

CHAPTER IV

PHYSICAL ENVIRONMENT OF SCHOOL

The purpose of this study was to explore the level of knowledge, attitude and practices on school health environment of the students, teachers and head teachers. The specific objectives of the study were to explore level of knowledge on physical environment at schools, to assess the existing practices of school health and environmental readiness and to examine the relationship between selected factors on knowledge, attitude and practice of school health environment among stakeholders in Nepal. This chapter presents the following findings as the answers of research questions:

1. What are the existing situations of physical environment in school of Nepal?
2. What physical facilities are being available in maintaining school health?
3. What are the problems and corrective measures about implementation of physical facilities related to school health in Nepal?

The principle and practice of physical environment of school health readiness in the five selected districts of Nepal where there is prevailing unawareness of environment, inefficient infrastructure, poor transport system, and unpredictable access to skilled health provider have the potential of reducing the existing school health problems and environmental sanitation. It provides information on appropriate sources of care (promoters and facilities) making the care-seeking process more efficient. It also encourages students and teachers to set aside raising funds for setting landscape and

physical environment of the school, avoiding delays in maintaining health caused by the search for funds. The study is a need assessment designed to determine the level of knowledge, attitude and practice of students and teachers to access physical environment, and school health.

Demographics

A total of 390 students with their level in secondary level schooling were the participants of the study. All respondent (hundred percent) were from Central Development Region. The following table deals about the age of respondents. Relatively high proportions of both respondents are in the younger age groups, with more than half of the respondents (52 percent of girls) were between ages of 11-17 years.

Table 4.1

Age in Years of Respondents

Age in years	Numerator	Denominator	Percent
11-13	210	390	52%
13-15	160	390	41%
15-17	20	390	7%

Mean age of respondents=13.57091 SD = 4.95

In table 4.1, fifty two percent of respondents were between 11-13 years age group, 41% 13-15 and 7% 15-17 age groups. It means we can predict that the over aged children is still existing in Nepal as gross enrollment is higher. Class repetition and drop out is a major educational issue in Nepal. It can cause severe wastage of resources and quality of educational delivery. Moreover, an early start to relevant aged children greatly reduces inefficiency and ineffectiveness.

Education and Ethnic Composition

Studies have shown that education is one of the major socioeconomic factors that influence a person's behavior and attitude. In general, the higher the level of education of children, the more knowledgeable s/he is about the use of health facilities, educational planning methods, and the environmental management. Inspired by the collective commitment expressed in the Dakar Framework for Action 2000, Nepal has already adopted the "Education for All" (EFA) strategy. To achieve this, a National Plan of Action (NPA, EFA 2001-2015) has been in place since 2001 (Department of Education, 2004). In order to meet MDG targets, Nepal is committed to ensuring that by 2015 all children, and in particular girls, children in difficult situations, and children from ethnic minority groups, have access to a complete, free, compulsory, and good-quality primary education (UNICEF, 2006).

In the context of religion of respondents, 76% are Hindus, 22% Muslims and only 1 % Christians. Buddhist was only one that is 0%. It means that in the survey majority of the respondents is Hindu.

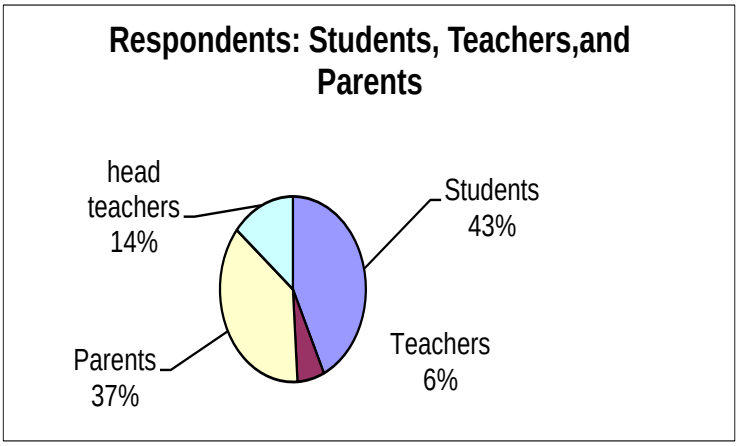
Table no 4. 2

Ethnicity of respondents

Ethnicity	Numerator	Denominator	Percentage
Dalit	34	390	12%
Muslim	64	390	22%
Madeshi	74	390	26%
Bahun/Chhetri	71	390	25%
Tharu	8	390	3%
Janajati	31	390	11%
Others	4	390	1%

During the field work we met seven types of social class or ethnicity and interviewed, among them majority of the respondents were Madeshi (26%), Bahun/ Chhetri 25%,

Muslim 22%, Dalit 12%, Janajati 11%, Tharu 3% and others 1%. This shows that the representatives of major castes were covered in this research.



Physical Location and Health Facilities of the School

Most of the schools were located 71% at a distance of less than 5km to main markets. Also, most of these schools (68%) were located less than 1 Km to busy main roads. Most schools had good ventilation (94%), and more than two-thirds had satisfactory doors, windows and adequate light. About three-quarters of schools assessed had recreation facility, one-quarter have ventilated pit latrine, 46% had pipe-borne water or bore hole and 67% were reported to be clean. The following observations were obtained from the survey in relation to the health facilities in the school:

1. 14% of head teachers indicated that pre-medical examination was mandatory in their school
2. Food handlers are screened only in 17% of schools
3. Four-fifth of schools do not have health facilities
4. 17% of schools have school first aid boxes

5. 6% of schools have linkages with government-designated school health kits
6. 29% of schools have social welfare services provided mainly by community based organization

While comparing with the standard health conditions, students demonstrated that 30% of students have low Body Mass Index (BMI) and 0.2% of students have lice on their heads. About 3% of students have skin rashes and 20% of students do not have normal visual acuity. Lip soars were observed in 0.8% and 0.5% of the primary and secondary school students respectively. Dental plaque was observed in more than 10% of students and 19% of students do not have normal hearing. Five common health problems of students that contributed to absenteeism are Fever / typhoid (56%), Headache (63%), Stomach ache (29%), Cough / Catarrh (38%) and Malaria (20%).

School, home and community relationships

Home visits by teachers, village health workers and social workers; Regular visit of parents to school; Regular communication of the health status of the learner to the home by the school health personnel and the teachers, Active participation of the school in community outreach activities and campaigns, Active participation of the school in community health planning, implementation, monitoring and evaluation. Advocacy and community mobilization for the SHP through traditional and modern media and the community shall be involved in the promotion of health related school policies. The characteristics of school, home and community relationships have included. Home visits by teachers, school nurses and social workers; Regular visit of parents to school; Regular communication of the health status of the learner to the home by the school health personnel and the teachers .Active participation of the school in community outreach

activities and campaigns ;Active participation of the school in community health planning, implementation, monitoring and evaluation. Advocacy and community mobilization for the SHP through traditional and modern media. The community shall be involved in the promotion of health related school policies.

The School Scenarios

The school observation and response delivered by the different stakeholders were found in the following situation in the schools:

Schools from Makwanpur District

Broken steps; crumbling wall/ceilings with cracks; medical conditions for both students made worse by school conditions, specifically dirt and garbage; peeling paint; windows painted or nailed shut; broken windows; poor ventilation; no air conditioning; offensive or musty odors in building; fans and vents don't work; illuminated fire exit signs don't work; classrooms overcrowded; desks not serviceable; water fountains don't always work; toilets don't always work and may break down daily or weekly; no soap in bathrooms; no toilet paper; brown or discolored drinking water; water has offensive odor and tastes funny; canteen not clean; food not fresh; canteen floors not clean; spills not cleaned up adequately; dirt and garbage around the school; bathrooms not clean; pest problem; lighting poor in halls; bus depot and waste transfer station near the school.

Schools from Chitwan District

Blocked fire exits; windows painted or nailed shut; windows broken; poor ventilation; inadequate heat; toxic smell from cleaning fluids; no fire extinguishers or alarms in classrooms or auditorium; illuminated fire signs don't work; classes overcrowded;

insufficient desks/chairs; water fountains don't work; sinks and toilets don't function properly, breaking down weekly; no soap; no toilet paper; brown or discolored water from fountains and with funny taste; cafeteria not clean; eating utensils not clean; floors not clean; food not fresh; spills not cleaned up adequately; garbage around the school; bathrooms not clean; pest problem; bus depot and transfer station near school.

Schools from Bara District

Blocked fire exits; inadequate lighting; crumbling walls/ceilings with cracks; medical conditions made worse by building conditions, specifically indoor air; peeling paint; windows broken; poor ventilation; offensive or musty odor in building; fire extinguishers or alarms not in classrooms; overcrowded classrooms; desks not serviceable; water fountains don't work; sinks/toilets don't work, breaking down once a month for a week or more; no soap; no toilet paper; drinking water has an offensive odor; canteen not clean; floors not clean; spills not cleaned up adequately; garbage around the school; pest problem; unsatisfactory lighting; bus depot and transfer station near school; glass and debris on playground.

Schools from Parsa District

Ceiling leaks in classrooms; no fire extinguishers or alarms in classes; overcrowded classrooms, with classes held in halls; no soap or toilet paper; drinking water has funny taste; garbage around the school; bathrooms not clean; bus depot near school.

Schools from Rautahat District

Inadequate lighting; crumbling walls/ceilings, with cracks; windows broken; no air conditioning; heat doesn't work; heat inadequate; offensive odor or musty smell in building; cleaning fluids have toxic smell; no fire extinguishers or alarms in classrooms;

no illuminated fire exit signs; classes overcrowded; insufficient desks/chairs; water fountains don't work; sinks/toilets don't function properly, breaking down daily, some for a month; no soap and no toilet paper; drinking water has offensive odor and tastes funny; cafeteria not clean; garbage around the school; unsatisfactory lighting; bus depot and transfer station near school; gym safety equipment inadequate.

Shaping the Physical Environment of School Health

Although this survey covered a relatively considerable number of school users and sampling of schools, there is no reason to believe that it does not illustrate problems existing broadly across Nepal's public schools. The school buildings, once inspirational "centers of Learning", are in a state of disrepair and that neglect threatens learning and health. Building maintenance, renovation, construction, and code enforcement, if done at all, has for the most part, looking at the results of this survey, been done badly.

There are simple solutions to many of these problems, some of which cost little or no money to implement. The following are the points that shape the current situation of school health in the country. In almost all the problem areas cited in this research are laws (documented in the footnotes) prohibiting the circumstances documented in these surveys. There are currently laws on the books that require regular inspections of schools to determine that safety standards are being met. Certainly in some of the schools that were part of this survey, such inspections, if occurring, are suspect or deeply flawed if they have not documented and then corrected the conditions discussed in the surveys received. Regular and thorough inspections of schools, with proper follow-up to determine implementation if there were environmental or health problems are necessary.

Environmentally sound “green” schools are obviously the standard of the future. They might maximize natural lighting and ventilation, promote energy and resource efficiency, encourage the selection of environmentally benign and non-toxic building materials, and reinforce recycling practices and the use of recycled materials. Department of Education has major voluntary programs focusing on educational buildings. The strategy of sustainable design, planning and development pertains to meeting the needs of the present without compromising the ability of future generations to meet their own. These reforms are also the topic of several ‘healthy school environments’ need to be formulated.

“Green”, “sustainable” and “healthy” schools are synonymous in educational facilities as they strive to create a better environment for children, and school personnel. As we all know, actions speak louder than words. To demonstrate a serious commitment to our children, we need to say that their environmental health is a priority, and then really make it one.

Chapter Summary

This chapter presented findings, results, practice and attitude of respondents on educational settings, physical environment of school health analyzed and presented in their own words, tables, figures and others. The analysis was based on demographics. Most of the respondents were found with knowledge and practicing as they had positive thinking. But rural people were found far behind to use the services available in their village.

In next chapter results of the study from the survey and focus group discussion related to school health has been presented.

CHAPTER V

MANAGEMENT OF SCHOOL HEALTH

The purpose of this section was to explore the level of knowledge, attitude and practices on school health environment of the students, teachers and head teachers from management perspective. The section has attempted to explore level of knowledge on physical environment at schools, to assess the existing practices of school health and environmental readiness and to examine the relationship between selected factors on knowledge, attitude and practice of school health environment among stakeholders in Nepal. This chapter presents the following findings as the answers of research question as demanded by the study to describe and analyze the management of physical facilities available in maintaining school health, the problems and corrective measures about the implementation of physical facilities related to school health in Nepal. The principle and practice of physical environment and school health readiness in the five selected districts of Nepal where there is prevailing unawareness of environment, inefficient infrastructure, poor transport system, and unpredictable access to skilled health provider have the potential of reducing the existing school health problems and environmental sanitation. The study is a need assessment designed to determine the level of knowledge, attitude and practice of students and teachers to access physical environment of school health.

Survey Analysis

Three different analyses were conducted on the 390 completed surveys.

1. Environmental Health (n = 190). On issues of school conditions affecting the individual's environmental health, surveys from all 190 respondents were tabulated and analyzed.
2. School Facility Snapshot (n = 180). The 180 respondents reported on conditions in 39 different schools. To avoid the bias introduced by having multiple surveys completed on one school, a methodology was adopted. For schools having only one respondent, we used that completed survey; for schools with more than one completed survey, we tabulated only one survey selected at random from surveys completed by that school's occupants.
3. The Problems of 20 twenty Schools (n = 20). For twenty different schools with two or more completed surveys we compiled a total list of problems drawn from all the returned surveys. (For one school with eight completed surveys, in the interests of time, we chose at random just three surveys completed by school occupants).

Environmental Health at School

In total, 190 people (including students, parents, teachers, and other school employees) responded to the survey. The results, discussed below, focus on the findings from the survey which indicate the environmental health areas that need the most improvement. They include poor indoor air quality and air circulation/ventilation; roach and rodent

infestation, chemicals and other odors in the buildings. Twenty-one percent said their schools were unsafe from an environmental perspective.

According to the head teacher, “It is common to think of air pollution as being an outdoor problem. However, according to the teachers, the amount of pollution inside buildings may be two to five times, sometimes even 100 times, higher than the pollution outside. In addition, most people spend about 90 percent of their time inside. As a result, indoor air pollution is ranked among the top five environmental dangers to the public,” This information is particularly relevant for students and school employees, who spend many hours each day in schools with poor indoor air quality near the industrial estate.

The results of our survey indicate that indoor air quality is a major problem area in Bara and Hetauda schools. Many respondents complained of inadequate heating and cooling; offensive odors; broken or closed windows; and particulates in the air. This is obviously troubling from a health perspective. It is equally so from a legal one. In almost all the areas we will document below there are already laws in place that recognize the problems and clearly prohibit these conditions in schools. The failure to enforce these laws in schools may be partly due to the fact that they were not designed to protect children but only adults in their workplaces. Existing laws need to be enforced and new legal safeguards specifically designed to protect children at school must be developed.

Many of respondents reported they had asthma or allergies, and felt that the reason behind their aggravated symptoms was the poor indoor air quality in their schools. High rates of hospitalization are one of the most accurate indications of the widespread severity of the disease, the researchers said.” Since most or all of these children attend or will attend public school it is all the more important that school conditions not exacerbate

what can become a life threatening condition. Currently, acute respiratory infection is one of the leading causes of school absenteeism due to chronic illness.

Of those with medical conditions, 39% felt that their condition was made worse by the air quality or cleanliness of the school. These were not all the same nine individuals as cited the causes of air contamination were construction, general problems, pesticides, toxic cleaning fluids, and dirt and garbage. Fourteen percent (14%) reported sensitivity to air or fumes in schools and 12% reported more frequent or more serious asthma or allergy attacks during the school day. Among those affected by fumes, 7% said cleaning fluids caused medical problems for them or people they knew, including vomiting, headaches, and allergies.

When asked if their school was safe, one respondent explained his/her concern as, "Unventilated classrooms! Very concerning for asthma, bronchitis infections, and hypertension," Furthermore, when asked what in particular about the air quality was bothersome, several respondents specifically mentioned the presence of dust in the air, with responses such as "The dust in the air kicked up my allergies and I was miserable" and "The dust has an old odor." One respondent in particular, who has asthma as well as anemia and diabetes, gave several disturbing responses. When asked about the medical conditions worsening from the indoor air quality, this student stated, "We have even floor in my school. We have first aid kits, but to obtain the treatment, one must be checked by the school teacher, many people fail, and have to walk up the steps." When later asked what brings on more frequent or serious attacks, the same student responded, "Racing up to class on the stairs in school, passing through a floor where there is a high smell from outside." This response is disturbing for several reasons: first, because this asthmatic

student must go up stairs each day to get to class, and second, because the possible hazardous pollutants from outside appear not to be properly ventilated. Such requirements on this child, depending on her condition, may be a violation of the health protection Act and/or the Individual with Disabilities and Education Act.

Snapshot of School Conditions

This section of the survey report is based on an analysis of 180 separate surveys, 100from students, 50 from teachers and other school staff, and 30 from parents.

One-quarter of respondents (26%) did not consider their schools environmentally safe. Other problems included general facility deficits.

1. 18 % said their school had inadequate lighting; asked differently, respondents (30%) said the lighting was not satisfactory, including two reading classrooms and seven general rooms as having unsatisfactory lighting
2. 26 % had crumbling walls or ceilings and 35 % had no playground
3. 14 % had no halls for extra-curricular activities
4. 24 % had cracks in walls or ceilings of classrooms and 18 % had cracks in walls or ceilings of halls
5. 27 % had peeling paint in classes and 17 % had windows painted or nailed shut in classes or bathrooms
6. 33 % had poor ventilation/air circulation
7. 73 % had no air conditioning, raising questions about their suitability for summer sessions for everyone, but especially for those on medications or with pre-existing health problems

8. 24 % had no heat or inadequate heat and 43 % without fans or vents and 4 reported with non-working fans/vents
9. 6% schools had no water taps and 25 % had water taps that did not always work

Similarly the Health occupants in the schools were found in the following states:

1. 42 % had personal medical conditions, although clearly every school in every municipality had occupants with health problems
2. 42 % reported that the building conditions made the health of occupants worse
3. 31 % had offensive or musty odors and 21 % had toxic smells from cleaning fluids

Fire safety indicated the following results from the responses:

1. 35 % without accessible fire alarms or extinguishers in classes, four without alarms or extinguishers in halls and 12 without them in rooms for assembly
2. 15 % respondents were unaware of a safe strategy for exiting the school

In case of overcrowding and class space, 42 % of schools were overcrowded, 11 with more than 70 in each class, four holding classes in halls, two in open ground, and six without sufficient desks or chairs. Overcrowding might also affect fire safety, air quality, cafeterias, lavatories, building heating and cooling, and the ability to keep a building clean as well as complete minor repairs in a timely fashion.

Sanitation was rated in the following ways by the respondents:

1. 9 % schools were reported as having sinks or toilets that did not function properly; 34 schools were reported having these facilities break down once a month or more often, and six had them out of order for a few days to a month at a time

2. 34 % had no soap in the bathrooms and 20 % had no toilet cleaning brooms
3. 45 % did not have clean latrines and 17 % had brown or discolored water from faucets or fountains, and one was reported as having water with an offensive odor
4. 37 % had water that tasted strange, 24 % had dirty canteens and 19 % did not have clean floors in canteens
5. 17 % did not clean up spills or food waste adequately, 40 % had garbage or discarded waste around the school and 26 % had evidence of rodent problems

External pollution sources were found as

1. 31 % had school buses parked outside; at six schools these buses leave their engines on, sometimes as long an hour or more
2. 34 % were near bus depots, one was near a waste transfer station and another was near a sewage treatment plant

On the other hand, playgrounds and equipment were identified as in the following status:

1. 38 % schools were reported as having no safety equipment such as rubber padding or matting for use on the playground
2. 21% had glass or other debris on the playground and 35% stated their schools did not have a playground at all
3. Indoor areas fared better, with 94 % of schools reported as having a usable ground and 24 of those having safety equipment in the ground

Once the public school buildings of sample districts were "Places of Learning", built by community people to inspire the children of the areas to learn and succeed. Part of the old design features that promoted public health and controlled disease were large windows, and high ceilings that helped with indoor air quality. Schools were also built on corner

lots or with inset or interior courtyards to promote cross-ventilation. In addition, fifty to sixty years ago when many of the school facilities were in their prime, far fewer cleaning chemicals were in the marketplace, and few pesticides. At that time, children may have spent more hours playing out of doors. Today, however, children and most adults spend most of their time in indoor environments. The building decay of these schools has undermined learning and health, and provided children with daily role models of civic neglect and negligence. These unintended lessons have health and learning effects today, and may have unintended consequences tomorrow.

According to the national education commission report "Condition of Nepal's Schools" an estimated 24% of sample district schools had indoor air problems; another 36% had ventilation problems; 21% had inadequate heating; 16% inadequate lighting; 28% poor plumbing; and some 11% life safety (fire) code problems. The results of this survey concur with the results of the general survey. In this survey, while there was no direct question on indoor air pollution, 33% of schools were reported by survey respondents to have ventilation problems, 24% inadequate heating, 18% inadequate lighting, and 21% had plumbing that regularly breaks down; and fire safety was also deemed a problem.

Air Quality

A major concern was the lack of fresh air in schools. Seventeen percent of those responding said that some windows in their school are either painted or nailed shut; the estimates of how many windows ranged from one to 20. Four respondents had noticed windows painted or nailed shut in classrooms. Similarly, three said there were broken windows in their schools, in one case as many as 75. When asked if their school's

windows open, one student responded, “They only let it open a little they have rules.” This is problematic considering the number of responses indicating poor ventilation; if the windows either can’t open or aren’t allowed to be opened, this could be an indicator of Tight Building Syndrome, a condition in which buildings are sealed but have inadequate circulation and ventilation. “An analysis of the sample district’s most recent school-by-school engineering survey by DOE shows that at least 40 percent of the 1,100 school are plagued by porous roofs, disintegrating facades or windows that do not open or shut.” A porous roof does not provide building ventilation; it provides for water infiltration, which sets up damp conditions for mold growth and contamination. Many survey respondents spoke of odors and fumes in school buildings. Combined with the aforementioned poor ventilation, this can be dangerous to children’s health. Thirty-two percent stated there was an offensive or musty odor in the building, and seven respondents (in the larger survey of 65) said they could pinpoint the source of the odor; the most frequent answers were the trash and the latrines. Furthermore, 21% complained of a strong, toxic smell coming from the factories; most said the fumes smelled like ammonia, bleach, or chlorine.

One respondent wrote that the fumes “Smell very high and gives me a burning sensation in my nose,” while another said that they “Smell like harsh bleaches or ammonia and it burns my nose and gives me headaches.” Clearly, the use or mis-use of these cleaning agents is counterproductive, as it is interfering with learning by causing or exacerbating health problems.

Basic cleaning agents like these, when properly diluted and applied with good ventilation and drying times, can be used without undue health effects; there are,

however, 'greener' products on the market that avoid strong or irritating odors and clean effectively.

Pests and pesticides

Roaches and rodents are environmental hazards for several reasons. Not only do they carry diseases that can be transmitted to humans, but they can also aggravate existing conditions in humans, such as allergies or asthma. Furthermore, the pesticides used to combat these vermin can cause serious health effects in humans. The department of health survey stated that, "Respiratory problems, especially asthma caused by allergic reactions, are linked to antigens found in cockroach feces, saliva, eggs, and shed cuticles."

Of those responding to the survey, 25% said their school had a roach or rodent problem. Many respondents said that their roach/rodent problems were not very serious, but then went on to describe instances in which they had seen mice or roaches. This in itself is problematic, as it may indicate the low standards many respondents have in terms of pest infestation at their schools. One student replied that the roach/rodent problem in his/her school was, "Not that serious, I have seen mice. I was at the hall sitting watching a performance and I felt something run over my feet. I look down a (sic) saw a mice (sic), in class I saw one too." Another respondent commented that the pest situation was "BAD! Vermin in the classrooms," and then went on to say that, "The lunchroom at canteen is horrible in terms of sanitation. People find bugs in the food and it is very filthy."

As discussed previously in the introduction, the pesticides used to combat pests such as roaches and rodents can, in their own right, be dangerous to children's health.

Pesticides are poisons, designed to kill pests, but can also do a great deal of damage to humans, especially children, who are already more exposed to pesticides than adults. “five million children live in poverty in Nepal’s rural areas. These children are at high risk of exposures to pesticides that are used extensively in rural and urban schools, homes, and ECD centers for control of roaches, rats, and other vermin. Pesticides are most likely to target the nervous system, but can also damage the brain, disrupt the immune system, and increase the risk of cancer.

The dangers of pesticides have become so widespread and so apparent that the Nepal government has been called upon by numerous health, food safety, and environmental groups to ban the use of a common pesticide on food products. It is in fact unable to keep up with the safety testing on a wide range of chemicals used in pesticides and cleaning products. None have been tested for safety on children and few have been tested in combination with others. Pesticides and their top-secret inert ingredients, like other toxic chemicals, are linked to learning disabilities, autism, attention deficit disorder, cancers, and other serious health problems.

Structural Problems

Structural problems such as cracks or holes in the walls and ceilings; cracked ceilings; and peeling paint were all addressed in the survey. These problems can, for the most part, be attributed to the fact that most of sample district schools have been poorly maintained for many years. The legacy of deferred maintenance and lack of code enforcement is endangering students and school employees. While some groups have found 50 years to be the life span of a school, many well-maintained civic and commercial buildings are as old or older.

One-quarter of those responding had noticed cracks in the ceilings of classrooms, and 18% reported cracks in the ceilings of hallways. Some comments about the structural integrity of the school were basic. One survey respondent told this story: "There's scaffolding all around the building because the pointing is falling down. A few years ago and one of the old ceiling skylights shattered—thanks goodness not during a school day so no one was injured."

Other issues are not as obvious, but potentially as dangerous. Cracks in walls and ceilings are problematic in that they indicate weaknesses in the building's structure, and can expose people to lead and asbestos, and they also provide areas for roaches and other vermin to hide and breed. They can create dust, a condition that was noted by several survey respondents. One respondent, a parent, complained that, "Four years ago the school management committee spent three lakhs of rupees to repair crumbling walls and ceilings. The job was not done properly and the conditions are returning. This should be reported to the public to see how SMC wastes money!" The same parent, when later asked about worsening medical conditions, said, "The crumbling walls and ceilings are spreading lead dust in the air. The students reported feeling better when the walls and ceilings were repaired but as they fall apart again the children are feeling worst".

The results of the survey also indicated that peeling paint was an issue in many of the schools. Twenty seven percent reported peeling paint in classrooms, and 13% in halls and corridors. Several survey respondents specifically stated that this was an area in need of improvement. When asked about general safety violations, there were comments such as, "Paint job that's all," and "Still have chip paint hallway door." On their walls, it is imperative that old paint layers remain covered and intact to protect children from

exposure. The same issue exists for old playground equipment, especially in primary schools. The consumer act of the country says this threat is "primarily to children six years and under. Some equipment was painted with lead paint, and over time, the paint has deteriorated into chips and dust containing lead, due to exposure to sunlight, heat, moisture, and normal wear and tear. The lead paint chips and lead dust can be ingested by young children who put their hands on the equipment and then put their hands in their mouths."

Overcrowded Classes and Schools

Overcrowded classrooms and classes held in nontraditional spaces are environmental hazards for a variety of reasons. Not only are they less conducive to learning, but illnesses spread more quickly in crowded classrooms. Moreover, according to a report by the department of education, "Recent national research which demonstrates a strong link between smaller classes and improved student achievement has led to major initiatives in class size. It is clear that sample district's schools have a substantial need for these promised class size reduction resources."

Forty-two percent of those responding to this survey thought that schools were overcrowded. It is easy to see why they felt that way, as 28% then indicated that there were thirty or more or more students in a class. A parent considered the school safe, "Except for overcrowding," and a student echoed similar sentiments by stating that the most obvious safety risk was that, "The school was overcrowded."

Strikingly, many indicated that classes were being held in a variety of nontraditional spaces, such as in halls (13%) and grounds (7%). Furthermore, these classrooms, both traditional and nontraditional, were ill equipped for learning, as 18%

indicated that there were not enough desks and chairs to go around. Additionally, two respondents said they felt the lighting was not satisfactory in classrooms, and 23% said the same of halls. Once again, there are clear laws on the books regarding overcrowding and proper lighting requirements.

Fire and Earth Quake Safety

There are few images more frightening than that of a fire breaking out inside a school. Shockingly, the results of our informal survey indicate that some schools would not be prepared for such an emergency. One student felt that an obvious safety violation was, "The school has 10+ floors and a 1000+ students, I don't recall seeing extinguishers and the school rarely has fire and earth quake drills!" Nearly half, 44% of those responding to the survey said fire extinguishers and alarms were not easily accessible in classrooms. Similarly, 52% said that extinguishers and alarms were not accessible in the classrooms. Furthermore, 22% said their schools lacked illuminated fire signs, and of those with the signs, one said that they did not work. Fifteen percent of those responding said their school lacked a strategy for exiting the building safely and quickly. When these statistics are combined with the poor ventilation and overcrowding, as inadequately lit halls, it would appear as though a disaster is only waiting to happen in sample district's public schools.

Drinking Water Quality

The Ministry of Urban Planning has estimated that in 2004, approximately 10 million Nepalese drank water from systems that violated one or more public health standards. Keeping this in mind, it is all the more disturbing that in our survey 18% responded that

the water coming out of the tap in their school was brown or discolored, and one said it had an offensive odor. One student reported that, "Water in the school smelled like sea water," and a parent said of the water's taste, "It's blah!" One parent in particular specifically stated that the reason why he/she did not feel his/her school was a safe space was because, "The plumbing looks old." According to the quality control department, this is certainly a valid concern, as "Drinking water is another source of lead poisoning. Lead gets into drinking water when old pipes in the plumbing of a building wear down or corrode, or when lead solder is used to connect pipes." There are numerous laws regarding lead in water. Nevertheless, no school is required to test for lead at the tap.

Furthermore, although most survey respondents (94%) reported having water taps in their schools, 25% indicated that the water taps did not always work, meaning that students and school employees did not have access to drinking water throughout the school day. This too is a violation of law.

Public Health Problems at Schools

Clean and functional latrines, with soap, and clean canteens with fresh food and clean utensils, seem more like necessities than privileges, but unfortunately, many survey respondents indicated that they were being denied these basics, most of which are guaranteed by law.

Although most indicated that the sinks and toilets worked properly, when later asked how often the sinks and toilets broke down, a larger number of respondents answered affirmatively, stating sinks and toilets broke down once a month; 3 stating they broke down once a week or more often. When further asked for how long the sinks and toilets break down, six respondents said they break down for a few hours to one month at

a time. When asked if the school was considered to be a safe space, a student commented, “In a way no because at times it’s not exactly a safe space in terms of plumbing and bathroom situation,” and added that safety concerns included, “Plumbing, flooded toilets, no toilet tissue.” When asked if toilet paper was available, 20% of respondents answered no or only sometimes. Soap was not available for 34% of respondents, and one parent commented that soap was only available “In the classroom not in the children’s bathroom.” A significant percentage of respondents (42%) indicated that the bathrooms are not clean, and one astute parent commented that, “Overcrowded school leads to over-used bathrooms which sometimes get smelly- especially ECD centre’s ones.” Other comments indicated that at least in some cases, “The teachers’ bathrooms are cleaner” than the students’.

One-quarter of respondents (24%) indicated that the canteens were not clean, and 22% said that the floors were not clean. Not only are clean floors unsanitary, but as dirt and waste accumulate on the floors, the risk of injury and of pest infestation also increases. Some respondents further indicated that the food served in their canteen was not fresh, and 26% said that spills and food waste are not or seldom cleaned up adequately.

To further emphasize this point, 40% of respondents indicated that garbage and discarded waste are present around the schools. While the survey does not identify if the source of the garbage is the school, some comments lead to that conclusion. One student said that he/she was able to identify the musty or offensive odor in his/her school as, “The smell of food garbage, when you sit down, when you pass by the garbage outside, sometimes in the classroom it smells so awful like sweat.” Clearly, the smell of food

waste from the cafeterias or from sources near the schools should not be reaching classrooms and affecting children.

Playgrounds

Children in school should have access to a playground; this is a right protected by the education act, which states that children cannot be kept in school for more than five hours without being given a recreation period during which the outdoor play space should be used whenever the weather permits. Another law states that no school may be constructed in the community without being attached to an open-air playground. Given these laws, one would assume that all children attending public schools would have access to playgrounds. However, over one-third of those responding to the survey, a startling 35% said that their schools did not have a playground. Of those with playgrounds, 38% of respondents said that no safety equipment, such as rubber padding, matting, etc., was available for use on the playground. Twenty-one percent complained that their playgrounds were strewn with pieces of glass and other debris, obvious safety hazards.

Qualitative Information Obtained from FGDs

Five focal group discussions were conducted on physical environment of school health including students, teachers and parents. The focal group discussions were done separately with different groups. The information of discussion recorded during the FGD and report prepared immediately after discussion. Main points of the discussion highlighted and included here. During this process, attitudes, feeling towards health facility assessed. During informal discussion (walking in community or teashop) the

researcher focused on this issues asking questions with parents about schooling their children, after answer, the researcher asked why they are not preparing for schooling children and complication of school health related issues, asked about their ideas, feelings and incorporate in the report. The quotation from the community about their views, ideas and expressions were recorded their own words. The determinants of school health were discussed as for example service provider side, users' side and socio-economic and socio-cultural factors were analyzed in this research.

Formal & informal meetings and discussions with key informants, stakeholders, personals and people of different background and social identities were conducted in the study from rural and urban schools. The main informants were girls children, boys children, teachers and parents, health workers, informally school teachers, local leaders' and social workers.

The discussion showed enough knowledge of danger signs and complications of poor environmental situation. Similarly some knowledge of danger signs and complications were reported for environmental hazards. They also know about school health management. They have positive thinking towards health facilities. According to FGD, they also refer or take to students for regular checkups and explained about the future consequences of poor health. The survey report and FGD report were not different on knowledge part of parents and students but most of the teachers knew something about school health and emergency readiness but do not practice.

Issues Emerging

The issues emerging ranged from the high illiteracy rates amongst the parents, to social inequalities and patriarchal norms as women are only regarded as housewives, schooling

is seen as part of that role which leads to lack of access to information and is manifested by lack of knowledge related to danger signs, available resources and schemes. Other identified issues were of poor physical facilities, they do not have any information related to school health. Within the same group/village, many poor and ignorant families were living and they were not accessing any government entitlements or schemes and many girls working as either farm workers or laborers with little income in the household yet the sums of money spent and charged on health care services, transport and services rendered by doctors and nurses in institutions are relatively larger than the total household income creating and an additional burden and expenses for the family and relatives.

Government is implementing free and compulsory schooling practices and free school health facilities, incentive program but due to the access of information and attitude of health workers, most of the parents and teachers especially from marginalized family are not using existing health services.

Chapter Summary

This chapter presented all findings, results, practice and attitude of respondents on physical environment of school health analyzed and presented in their own words, figures and others. The analysis was based on age, ethnicity, education, occupation and religions. Most of the respondents have knowledge and practicing as they have positive thinking. But parents from marginal communities were found far behind to use the services available in their school for their children.

In next chapter discussion on the findings and researcher's own experiences related to physical environment of school health has been presented.

CHAPTER VI

DISCUSSION OF THE RESULTS

This chapter deals with the discussion of the results presented in previous two chapters four and five. The general objectives of this study are to explore the level of knowledge, attitude and practices on physical environment and school health of students and teachers, to assess the existing practices and to examine the relationship between selected factors on knowledge, attitude and practice of school health and nutrition among students. The following themes arouse from the results discussed so far:

Landscape Design in Schools

The schools in Makwanpur and in Chitwan were more prepared their physical environment in environment friendly. The landscape of the schools in these districts was found more structured and fenced. The gardens were developed in some schools but most of the lands were used for the play ground. The buildings were built in here and there without the care of the used of land for environmental assessment. The building codes of schools were not followed by the schools as prescribed by the government. In case of the schools in Bara, Parsa and Rautahat, the schools were mostly in open barren lands mostly in the river banks or near the jungle. The lands were not fertile and students in the sample schools were not more conscious about the land structure. The people were not aware about the vulnerability of the land in the time of disasters. The land donated to schools in the sample districts by the people and the government was mostly the waste lands.

Safety and Protection

The schools were not found safe in case of disaster mitigation. The community school buildings were not located in safe places. They were found mostly in river banks, barren lands, near the terraces and slope lands. The possibility of occurrence of disaster is more and the areas were found disaster prone areas. People donated lands to the schools which they thought not useful for themselves for farming and other business purposes. Similarly, school buildings were mostly old and even the new buildings were not constructed based on the principle of mitigating the risks of disasters. The furniture used in the class rooms were not maintained properly. The doors and windows were not opened outside. They were felt needed to be renovated and reconstructed to make them disaster resilient. The safety measures and protection strategies felt need to be intervened in the districts.

Earthquake Resiliency

The schools were not found safe in case of earth quake situation. The community school buildings were not located in safe places as most of the people gather in the school premise during earth quake in the territory. Schools were found mostly in river banks, barren lands, near the terraces and slope lands. The possibility of occurrence of earth quake is more in Nepal and the areas were found earth quake prone areas. People donated lands to the schools which they thought not useful for themselves for farming and other business purposes. Similarly, school buildings were mostly old and even the new buildings were not constructed based on the principle of mitigating the risks of earthquake. The furniture used in the class rooms were not maintained properly. The doors and windows were not opened outside. They were felt needed to be renovated and

reconstructed to make them earthquake resilient. The safety measures and protection strategies felt need to be intervened in the districts. Retrofitting of the old and unsafe schools was in extreme needs.

Environmental Pollution

The schools in Bara, Parsa and in Rautahat were more polluted with environment hazards. The physical environment of toilets, drinking water and sound pollution were found more in these sample districts which were not environment friendly. The toilets and drinking water system of the schools in these districts were found less maintained and with poor sanitation. The students in some schools followed open defecation along with the community people mostly in the early morning and in the night. There was less awareness on the children and parents about the protection of the environment that needed to be developed in these schools. The toilets were not cleaned properly, and there was problem of water in the toilets. The researcher felt that there was need of environmental assessment. The building codes of schools were not followed by the schools as prescribed by the government. In case of the schools in Bara, Parsa and Rautahat, the schools were mostly in open barren lands mostly in the river banks or near the jungle. The lands were not fertile and students in the sample schools were not more conscious about the land pollution. The classrooms were not free from sound pollution. In comparison to the lower Terai districts, the schools of the Makwanpur and Chitwan districts were found to be more environments friendly. People of this region were more aware of environment pollution. The teacher training modules were reported not to incorporated to teach about environmental hazards.

Extracurricular Activities

The schools in Makwanpur and in Chitwan were more prepared for outdoor games like football, volley ball and other sports. The schools in Bara, Parsa and Rautahat were with fewer facilities for outdoor games than in other sample districts. The students reported that the indoor games and other extra co-curricular activities were less emphasized in the school hours. Their physical environment for extracurricular activities was not environment friendly. The landscape of the schools in these districts is found not in playful environment. The gardens were developed in some schools but most of the lands were used for the open ground. The sports facilities were insufficient and children in the school reported that they do not get more access on the extracurricular activities. In case of the schools in Bara, Parsa and Rautahat, the schools were mostly following rote learning methods and just conducting traditional teaching learning methods. The teacher professional development modules have not addressed to capacitate the teachers in this regard.

School Health and Nutrition Practices

The cohesive among the diversity, people do not have differences in their social phenomenon. They helped each other during the natural as well as human made disaster. Among the diversity there is uniformity in environment related activities. The perception towards school health and environmental sanitation among different ethnicity, found negative in Muslim and Dalit communities. The perception towards health and health facilities are totally negative. The multi sectoral intervention on the improvement of school health and nutrition practices was felt needed in the sample districts. The health

sector, agriculture and education were reported more complementary for the improvement of school health and nutrition of students.

Safe School Practices

The schools were not found safe in case of disaster mitigation. The community school buildings were not located in safe places. They were found mostly in river banks, barren lands, near the terraces and slope lands. The possibility of occurrence of disaster is more and the areas were found disaster prone areas. People donated lands to the schools which they thought not useful for themselves for farming and other business purposes. Similarly, school buildings were mostly old and even the new buildings were not constructed based on the principle of mitigating the risks of disasters. The furniture used in the class rooms were not maintained properly. The doors and windows were not opened outside. They were felt needed to be renovated and reconstructed to make them disaster resilient. The safety measures and protection strategies felt need to be intervened in the districts. The children were more trained in Makwanpur and Chitwan districts for the protection from earth quake and other disasters and they were found involved to aware community. The nongovernmental organizations were involved to intervene for the practice of drill in disaster mitigation.

Beyond the Sports

The schools in Makwanpur and in Chitwan were more prepared for outdoor games like football, volley ball and other sports. The schools in Bara, Parsa and Rautahat were with fewer facilities for outdoor games than in other sample districts however they were keen on Cricket playing. The students reported that the indoor games and other extra co-curricular activities were less emphasized in the school hours. Their physical

environment for sports activities was not environment friendly. The landscape of the schools in these districts is found not in playful environment. The gardens were developed in some schools but most of the lands were used for the open ground. The schools in Makwanpur were following the community drama practices demonstrated by the students facilitated by the teachers. They were found more important in the areas of learning life skills and building confidence.

Increased Institutional Delivery

The Behavioral Change Communication practices in environmental improvement have been implemented since November, 2009 through NGOs in Makwanpur and Chitwan. During this study, one FGD was conducted with students that demonstrated high recall of the delays, its management and mange the fund, transportation, and skilled person to assist class room delivery. The students knew all the preparation and did not hesitate to complain against a particular teacher in front of head teacher for their unfriendly behavior. During the field visit, observation tours found that even Muslim students expressed their dissatisfaction with toilet facilities. Overall, the qualitative data suggested that the awareness of students has been increased and the existing teachers were busy to provide services in environmental sanitation and school health. There is improvement in health seeking behavior, created demand of health services, health kits and the health facilities. One parent claimed that the health facilities should be open for 24 hours to students and parents.

Class room versus Open Ground Learning

The schools in Makwanpur and in Chitwan were more crowded in classroom. The schools in Bara, Parsa and Rautahat were with fewer facilities for teaching and learning

than in other sample districts. The students reported that the teachers made the strategy to divide the group into many mini groups and teach in the open ground. Their physical environment for learning was not environment friendly. The sound pollution hampered the listening capacity of the students in open ground in these districts. The fencing walls were not built in some schools but most of the lands were used for the open ground. The learning facilities were insufficient and children in the school reported that they do not get more access on the practical activities. In case of the schools in Bara, Parsa and Rautahat, the schools were mostly following rote learning methods and just conducting traditional teaching learning methods. The teacher professional development modules have not addressed to capacitate the teachers in this regard for adopting childfriendly learning.

Greenery Practices in Schools

The schools in Bara, Parsa and Rautahat were with some plants in the ground of the schools for sun shedding. The schools in Makwanpur and in Chitwan were more prepared for maintaining greenery. The students reported that the plants around the school were damaged by the cattle of the community and there is extreme need of fence to protect the plants they planted. Their physical environment for healthful living was not environment friendly. The landscape of the schools in these districts is found not in natural environment. The gardens were developed in some schools but most of the lands were used for the open ground. The watering facilities were insufficient and children in the school reported that they do not get more access on the drinking water and water for cleaning toilets. In case of the schools in Bara, Parsa and Rautahat, the schools were

mostly following open defecation in nearby jungles. The community awareness and capacity building of the teachers about the environment protection felt needed.

Hygienic Condition of the Classrooms

The schools in Makwanpur and in Chitwan were more clean and usable. The schools in Bara, Parsa and Rautahat were with fewer facilities for water and sanitation than in other sample districts. The students reported that the classroom conditions and cleaning activities were less emphasized in the school hours. Their physical environment for maintenance was not environment friendly. The position of the furniture of the schools in these districts is found not in child friendly. The blackboards were placed in some schools but most of them were used for the teachers. The laboratory facilities were insufficient and children in the school reported that they do not get more access on the laboratory activities. In case of the schools in Bara, Parsa and Rautahat, the schools were mostly following rote learning methods and just conducting traditional teaching learning methods. The teacher professional development modules have not addressed to capacitate the teachers to maintain hygienic conditions of the classrooms.

Toilet Practices

The schools in Makwanpur and in Chitwan were aware for toilet practices but the schools in Bara, Parsa and Rautahat were habituated on using toilets and soap for hand washing than in other sample districts. The students reported that there were less number of toilets as compared to students and no separate toilets for girls in some schools. Their physical environment for toilet use was not environment friendly. The landscape of the schools in these districts is found not in healthful environment. The toilets were constructed in some schools but most of the them were not used due to lack of water. The hand washing

facilities were insufficient and children in the school reported that they do not get more access on the soap and clean water.

Midday Meal

The students reported that the mid day meal and other Tiffin practices were less emphasized in the school hours. Their nutritional habit for good health was not found practised. The schools in Makwanpur and in Chitwan were more prepared for managing school tiffin and lunch boxes. The schools in Bara, Parsa and Rautahat were with lack of mid day meal practices. The menu were developed in some schools but most of the food students used were junk food bought from the market. The food were insufficient in nutritional value and children in the school reported that they do not get more access on the dietary facilities. In case of the schools in Bara, Parsa and Rautahat, the schools were mostly following household made food to use for midday meal for the students.

Use of Health Institution and Education

There is a strong association between health facility delivery, children's education, and wealth quintile. About the basic care of students' knowledge increased based on level of education.

Increasing the percentage of school health facilities is important for reducing retardation in growth arising from complications of stunting. The expectation is that if complications arise during growth in children in a health facility, a skilled teacher can manage the complication or refer the parents early to the next level of care. Hence, Nepal is promoting safe schooling through initiatives such as providing financial assistance through school incentives schemes to care in a health facility. SLC and higher level of

education and those in the highest use of health facilities, school health and nutrition has been promoted.

Younger age and KAP

The younger the age, more knowledge, practice and positive thinking, behaviour were found. The statement about the affordability and accessibility of health services, they perceived that these are not the problems, majority of teachers disagreed with these statements. The respondents of this research, most of them disagreed with families' contribution is less on maintaining the school health and environment of the school.

Younger the age, disturbed the education of girls, missed many opportunities in their life but they are more knowledgeable, practicing good behaviour, and positive thinking about the health, health service and the service providers. Younger the age, higher the knowledge, and good behaviour/ beliefs and good practice of school health and nutrition process were found in reality.

Innovations in School Health

The schools in the sample district were practicing with some innovative models in physical environment and school health. The community awareness for disaster preparedness resilient society through street drama, protection of water sources, management of first aid kits, moke drill of Duck Cover and Hold (DCH) during the assembly line everyday has made behavioral and attitudinal change in the school children and teachers. The preparation of seasonal menu for dietary reference for midday meal, distribution of the tiffin box to children were another innovation on school health and nutrition. The school children were also practiced for hand washing and teeth brushing daily.

Chapter Summary

From the findings of the knowledge, practice and behavior (attitude) among different variables, the researcher discussed in main themes like KAP Diversity in different communities. The physical environment and school health related the experience of the research participants. Having the knowledge, it could not claim that they have good practice, all the data are primary and pointed from the experienced participants who are practicing for many years by observation, helping, participating different orientation meetings, discussing with informers in their own life time. The researcher also spent many years on environment and health-as a teacher, planners and implementer, monitor, and researcher. The experience of the researcher added the value to write this thesis.

In the next chapter, the researcher has presented the summary, conclusion and implications of the study.

CHAPTER VII

SUMMARY, CONCLUSION AND IMPLICATIONS

In the previous chapter, the new grounded settings and emerging themes were identified and new knowledge was claimed. This chapter deals with the brief summary of my research study and conclusion along with implications and recommendation for further research.

Summary

The researcher has considered that the problem related to environmental school health would be in the area of students' health and environmental sanitation in which nutritional enrichment and preventive care as the central point of the inquiry. School Health Dilemma: A Perspective From Physical Environment in Nepal has been considered as the theme of the present study focusing on the water, health and sanitation with nutrition in combination. A single statement of the problem was devised to govern the total research study. The statement was stated as – To What Extent was the physical environment of school health prevalent and working in practice?.

The main aim of the study was to analyze the school health from the perspective of physical environment. The specific objectives of the study are to:

1. to explore the existing situation of physical environment in school of Nepal.
2. to analyze the input of physical facilities in school of Nepal

3. to assess the problems and corrective measures to improve the healthy physical school environment.

A set of three research questions was formulated to make the study more specific and to carry out the analysis and drawing conclusion in more precise manner.

1. What are the existing situations of physical environment in school of Nepal?
2. What physical facilities are being available in maintaining school health?
3. What are the problems and corrective measures about implementation of physical facilities related to school health in Nepal?

The researcher performed in depth theoretical reviews followed by a series of literature reviews from the related research papers, articles, books and other sources. Unaddressed issues were identified and an integrated framework was designed as a theoretical framework to guide the study.

Following this statement, the researcher carried out an in depth study focusing on the school health condition of Nepal from the perspective of physical environmental condition. The researcher followed mixed method research design with focus on its philosophical premise which encompasses ontological, epistemological and methodological assumption. The ontological framework for this study subscribes to the notion of multiple realities regarding the school health environment including preventive and promotional health condition of the students. The researcher's epistemological assumption dwelt on inters objective discourse through observation, questionnaires and rating scales where as subjective discourse that knowledge can access through focused

interaction (personal interview) with research participants and through focus group discussion.

The researcher adopted post positivist paradigm in order to derive substantive meaning from the uncovered knowledge along with the objective realities. Following interpretive paradigm, the researcher derived meanings with analysis and reflection on the beliefs, values, and feelings expressed by research participants about impact of school health environment in promotional and preventive measure of health. The researcher made the study more substantive and authentic by incorporating relevant ideas that were gathered through literature study that provided with a strong foundation for critical analysis in the study area.

Major findings of the study revealed aspects for physical environment for health and sanitation status of community schools.

This study mainly discussed on the suffering students, teachers and head teachers and their related surroundings. The research also explored the issue of general information of school life, relation between physical environment and school health, and recommended for the management and responsibility. It emphasized on the efficiency and effectiveness concerning healthful environment of the school. A holistic representation approach and observation has been maintained through the research discussion and findings.

Although this research revolved around in physical environment, school health and sanitation problems of school, it dealt with the multitude of questions related to this topic. On this basis of groundwork, the researcher drew key concluding remarks highlighting the peoples' perspectives.

Increase in awareness programs demonstrated that school health is a preventable and promotional condition. Timely precaution and proper management during maintenance period, availability of physical infrastructure, proper care and promotional activities play a major role in physical environment of school health. This can be done by ensuring students, teachers and head teachers to inform preventive measures and promotional strategies for school health at each stage. It is also important to emphasize that students and teachers should get ample opportunities, share the work load and give their body time to recover before resuming sanitation status as part of physical environment of health care services. Access to medical services is another key factor as quality health services should be made available to all students according to international standards. Preventive measure and awareness raising components should be promoted everywhere, and good hygiene and sanitation as an option should be provided and conducted.

During analysis and presentation, the data analysis framework was used. The quantitative data were processed and analyzed in SPSS software whereas the qualitative data were transcribed and coded accordingly. The findings were illustrated on the basis of research questions and specific objectives. The research results were categorized and the themes were generated during the discussion that may contribute to the Nepalese society for school health improvement.

Conclusions

The study has confirmed that very few studies provide information about the effects of students' life on the symptoms that led them to seek treatment in the first place or on the long-term outcomes that contribute to the patient's quality of life. Reports often lack

enough data about study design, sample size, patient characteristics, reasons for treatment, and other information critical to interpreting and weighing the results. Alternatives to water, sanitation and health, the physical environment of school fall into three general categories: curative health services; preventive health services and promotional health activities; and other strategies, including physical infrastructure and environmental condition, and watchful waiting. There has been little research on how physicians or their patients choose among available treatments.

The study has made a contribution to the field of public health focusing on environmental condition of school health. The study confirmed pointing out that there is the synergic effect due to the combination of physical environment, behavioral change and school health and nutrition interventions. A set of underlining root causes, preventive measures, alternative promotional activities including spiritual affinity have been generated from this study. The main aim of the study was to design and develop a framework or a model of promotional and preventive measures for reducing the problems of environmental health. Furthermore, the research was denoted to devise a conceptual framework for the alternative ways of finding root causes of the school health and nutritional problems and preventable and promotional remedies in this area. This aim was achieved by generating a framework for the emerging themes explained in the previous chapter. This framework can be used as a baseline for similar purpose in the future. The design framework addressed issues of school health covering physical environment and nutritional status of students. This method provided a valuable window to see through what happens when innovations on environmental physical diagnosis and promotional activities are brought into preventive settings of school health and nutrition. This

research, therefore, made a practical, scientific and holistic treatment approach for the contribution of improving health of students and ensured a more productive inquiry.

From the students' perceptions and experiences, it can be inferred that the research was implemented successfully. Those particular aspects of the design framework that were engineered into environmental study were experienced positively by the students. In addition to crafting a design framework that can be used in similar contexts, the study has empowered students and teachers to engage confidently with different aspects of school health including school specific and school sensitive factors. The study has been concluded by making the knowledge claim that there is extreme need of considering the physical environmental school health consequences to be addressed while making improvement in promotional, preventive and curative school health system.

Implications

On the basis of the findings and conclusions drawn from this study, the following implications have been incurred. It would be more relevant that prevention of students from health hazards needs organized and comprehensive manner for the inclusion of preventive and curative aspects. There is also need of advocacy and awareness creation program to all the concerned stakeholders. The program is realized to be planned in coordinated manner with all partners of government who is committed to reduce the problems of school health, sanitation and hygiene throughout the country by establishing the national and district alliances in a integrated manner with multi sector approach.

The long term and the short term strategies would be useful to increase the access of health service and provide quality service to students and teachers with physical and

environmental infrastructures. Preventive measures can be advocated in the community level.

Implications for Policy Interventions

Neither the National School Health Strategy nor the Multi sector Nutrition Policy has included school health as an important environmental or public health issue in Nepal. It is recommended that physical environment of school health should be included in the Health Policy and Environmental Health Strategy. This problem should be considered as an important part of safe school and environmental health as a whole. Environmental school health must be included in the list of Essential Health Care Services, so that local health posts can provide clinical services and advice to the students suffering from health hazards. Health workers should be provided with orientation and training on both preventive and curative aspects of environmental school health. The school health issues should be incorporated in the relevant curricula of school grades, and for Health Assistants, Community Medical Assistants and village health volunteers.

The government and concerned civil society organizations should work with the mass media to raise awareness on physical environment of school health issues, through radio, TV, print media. More sustained and explicit messages are necessary to draw attention to this. The government should prepare clear policies for different sectors, such as curative service providers, social service sectors, human resource development and media for effective delivery of services. There should be a forum to exchange information and build synergy amongst the concerned stakeholders. It would be relevant if the government looks for the funds from donors to support specific work on physical environment of school health and related problems.

Implications to the Social Institutions

Awareness on the prevalence and causes of physical environment of school health deterioration factors is equally important to the targeting groups, like adolescents in and out of schools, teachers, parents and communities, health workers, volunteers and village health volunteers. The above target groups need to be aware of both the social and medical causes of school health. Since the most of the causes are related to gender issues, awareness should be focused on gender discrimination, environmental health and rights of children.

School health should not only be viewed as a problem of students, it should be taken as an issue of families, society and the country as a whole. A mass campaign for reducing the prevalence of school health hazard should be undertaken at different levels of interventions similar to that has been undertaken for other communicable diseases.

Parents in the community should be organized to demand the services needed for physical environment of school health at different levels. Social researchers need to be introduced for addressing the school health problem to study it further from different sociological perspectives, to provide a basis for making physical environment for school health a national issue.

Implications to Medical Practitioners

Practices during physical check up and the environmental assessment has been felt needed to be diagnosed in detail, as there is hardly few literatures that relates physical environment of school health with unsafe practices during the critical periods, such as newly entered students, students in puberty period and menstrual monthly period of adolescent girls.

Physical environment of school health is noted in the literature as a part of public health; however, people involved in public health do not appear to see it as a major public health issue. It is viewed as a problem for individuals only. This issue should be discoursed among sociologists and medical/health personnel. This study would provide a guideline for the medical practitioners to consider the school health with spiritual aspects while conducting medical practices.

Implications to Health Educators

Physical environment of school health has been one of the major public health problems of the nation at present. Developing the awareness knowledge in each and every sector of health related field by the health educator, it may affect positively to reduce the problem of school health. This research would be useful for all the health educators to reform the health education curriculum and contents to be addressed related to school health. The universities and colleges should design and implement the curriculum and prepare the human resources that handle the physical environment and school health practices in the educational institutions.

Implications to Development Partners

There are a lot of interventions that has been carried out in public health sector by different development partners including non government organizations; community based social organizations and even the business organizations. This study has identified that there is need of taking the issue of physical environment of school health not only from the physical point of view for the infrastructure development but needs more to be addressed along with the physical, there should be preventive and promotional health

counseling that may relief the school family throughout their life. The development partners should not only focus on curative interventions rather it has been found better to focus on preventive and promotional measure in the fore front.

Implications to Sociologists

The sociologists who define, restructure and make lots of interventions in the society can be another aspect of this study to imply with. The physical environment related to school health problem has not only been the physical problem of health sector but it has been the lifelong social problem in reality. It has brought many consequences in the community through the existence of culture of silence. It is thus can be one of the areas where social scientists can bring lots of innovations for betterment of life of students with healthful life to be with them.

Implications to Health Therapists

The study has claimed that specific treatment during health camp does not work for whole life of students as this is the case of preventive and promotional health practices. Multiple approaches would produce multiplier effects that can reduce the intensity of the sickness and attack by the diseases and some relief can be felt. There is also room for religious practices, yoga and spiritual therapies along with the medical therapies in mass campaign.

Recommendations for Further Research

A research can contribute to a theoretical understanding of health sector inquiries and lead to a refinement of the educational materials and the design. It would be valuable to be able to make a claim about acceptance and efficiency of the findings of the research if

further researches produce evidence of the value of the design framework in similar situations. There needs to be more research conducted in the field of physical environment of the school health and its consequences in the societies of Nepal.

This research was an exploratory study to examine school health dilemma of the Nepalese schools in physical environment and how these problems can be addressed from the social and medical point of views. This was an exploration to identify the relationships between preventive, promotional health and medical therapies while treating students' health conditions. This exploration has indicated that condition of school health is a severe problem and has brought hidden complications in the life of students and in the societies. Further research is needed to determine if these findings are transferable to a larger audience, or if they are unique to them. It is possible that other physical environmental variables might be equally influential in promoting school health. Further research should involve a large number of students in different contexts and also the study should focus on school health specific and school health sensitive practices.

Further research might also cover psychosocial problems of students, discrimination related consequences, investigation about the effects of different school health practices, ways for making enjoyable life of students. In addition, further research is needed to more deeply understand the spiritual perspective of promoting school health and consequences of health related problems in educated uterus prolapsed women. This research may help explain why the students fall in culture of silence with the teachers in telling their stories about health conditions. Future research might explore which strategies are most appropriate for culturally and socially diverse Nepalese families when

there occurs the poor hygiene and sanitation in school and poor performance of the students.

A Final Word

This research study was underpinned by three philosophical epistemologies in contemporary public health education research, namely: preventive aspects, promotional aspects and social science theories within a critical framework. These underlying philosophical assumptions embraced the research methodology which explicitly exploited the design process as an opportunity to advance the researchers' understanding the problem of physical environment on school health, how students live with their hygienic and sanitary conditions. Furthermore, the research supported the design framework which focused on the collection of coherent design guidelines.

The research questions that were defined start with "How is..." and "What is …" or "What are .... ". This illustrates that the researcher was interested not only in knowing whether the problem of school health of students, but specifically in understanding how it does this. This character of the research questions linked to the general objectives of research design. The positivistic perspective is concerned in uncovering the truth about specific school health problems and associations among physical, psychological and social variables and presenting it by empirical means. Through the post positivistic lens in this study, the researcher managed to capture how the students live with multi sectoral problems of school health in their whole life, in a real-life context.

The interpretive discourse, on the other hand, facilitated interpretation of how the students and teachers perceived the design of the tools. At the same time, these philosophical positions opened the door for critical reflection on how the students and

teachers experienced in their life before and after getting suitable physical environment. The content through the inquiry and what can be learned from their experiences would be the main theme of the research.

The study has provided a design framework that was generated from the three theoretical lenses, or pillars: the preventive perspective, promotional perspective, and spiritual aspects. This framework was used for the design of the school health strategies for the exploratory research. The positivist position is that a statement is proved true if it agrees with an independently existing reality, and is false if it does not. The student's positive experiences of the use of the supportive devices as curative tools, then, confirmed that the design framework agreed with the independent existing reality of their experiences. The post positivist concept interprets and evaluates the outcomes of the school health practices. The students interpretation and positive experiences of the tools based on the design framework offer evidence that they have realized the real problems of the environmental hazards. Simultaneously, the paradigm of critical theory encourages evaluators and medical practitioners to question the underlying design framework for the effectiveness of the intervention products. From the above philosophical positions it can be seen that the framework generated by this study for the design of psychophysical treatment, may be utilized for prospective design in future.

Chapter Summary

This chapter provided about the over view of the research work as a summary, the conclusion of the research findings, contribution of the research and implications of this study in different sectors of environmental aspects of public health fields. The purpose of this study was to explore the hidden realities of the school health problems and best ways

of remedies of physical environmental hazards. This exploratory study was constructed through multiple lenses of medical practitioners, social scientists, psychologists, patients themselves and the researcher. This study revealed that there is multiplier effect of promoting physical environment of school health in medical, psychological and spiritual ways.

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ANNEX I

NAME OF THE SAMPLE SCHOOLS

(i) District – Makwanpur

1. Shree Buddha Secondary School.
2. Shree Mahendra Higher Secondary School
3. Shree Mahendra Kuran Higher Secondary School
4. Shree Bal Ujjwal Secondary School
5. Shree Nirmal Higher Secondary School
6. Shree Araniko Secondary School
7. Shree Janajagriti Secondary School
8. Shree Navajyoti Secondary School
9. Shree Janajyoti Higher Secondary School
10. Shree Gyanada Secondary School
11. Shree Amar Secondary School
12. Shree Rastriya Secondary School
13. Shree Krishna Secondary School
14. Shree Jyoti Higher Secondary School
15. Shree Gorakshya Nath Secondary School
16. Shree Janapriya Higher Secondary School
17. Shree Adhunik Rastriya Higher Secondary School
18. Shree Bhutan Devi Higher Secondary School
19. Shree Bal Jagriti Yuwa barsha Secondary School
20. Shree Chandrodaya Higher Secondary School

(ii) District – Parsha

1. Shree Shardha Secondary School
2. Shree Sidharth Secondary School
3. Shree Birgunj Ratri Secondary School
4. Shree Mukhdew Sushila Secondary School

5. Shree Devnandan Devraj Higher Secondary School
6. Shree Nepal Rastriya Ma. Vi. Manawan-5
7. Shree Nepal Rastriya Ma. Vi. Dakauila bahuarwa
8. Shree Mahabir Sah Ma. Vi. Nagardaha
9. Shree Bhangi Higher Secondary School
10. Shree Nepal Railway Secondary School
11. Shree Tribhuwan Hanuman Higher Secondary School Birgunj-7
12. Shree Maisthan Vidhyapith Maisthan
13. Shree Nareeshigh Higher Secondary School
14. Shree Nepal Rastriya Vidhyapeeth Higher Secondary School
15. Shree Suraj Devi Secondary School
16. Shree Sundarmal Ramkumar Kanya Higher Secondary School
17. Shree Ram Charan Sah pannalal Secondary School
18. Shree Trijudha Higher Secondary School
19. Shree Radha Krishna Chaurasiya Secondary School
20. Shree Dwardevi Secondary School

(iii) District – Chitwan

1. Shree Chitwan Higher Secondary School
2. Shree Pancha Kanya Higher Secondary School
3. Shree Bakullar Secondary School
4. Shree Kankali Secondary School
5. Shree Khairahani Higher Secondary School
6. Shree Malpur Secondary School
7. Shree Nepal Higher Secondary School
8. Shree Madi Secondary School
9. Shree Jana Kalyan Secondary School
10. Shree Bachhauli Secondary School
11. Shree Khairahani Secondary School
12. Shree Janajeewan Higher Secondary School
13. Shree Janajagriti Higher Secondary School
14. Shree Prithivi Secondary School

15. Shree Bharatpur Higher Secondary School
16. Shree Mohana Higher Secondary School
17. Shree Someshwor Higher Secondary School
18. Shree Bairiya Secondary School
19. Shree Kaparphori Secondary School
20. Shree Jhuwani Higher Secondary School

(iv) District – Bara

1. Shree Anup Dipni Higher Secondary School
2. Shree Janta Secondary School
3. Shree Janta Higher Secondary School
4. Shree Nepal Rastriya Higher Secondary School
5. Shree Janasamudayik Higher Secondary School
6. Shree Nepal Rastriya Higher Secondary School, (Bakuliya)
7. Shree Nepal Rastriya Secondary School
8. Shree Nepal Rastriya Mauwadevi School
9. Shree Nepal N. Higher Secondary School
10. Shree Nepal Rastriya Higher Secondary School
11. Shree Nepal Rastriya Higher Secondary School, Pathlaiya
12. Shree Nepal Rastriya Higher Secondary School, Dumarwana
13. Shree Netrodaya Secondary School
14. Shree Nepal Rastriya Secondary School, Belwa
15. Shree Nepal Rastriya Higher Secondary School
16. Shree Sarwajanik Secondary School
17. Shree Gauri Shankar Higher Secondary School, Nijgadh
18. Shree Mani Higher Secondary School
19. Shree Gauri Shankar Higher Secondary School
20. Shree Janta Higher Secondary School, Sakhuwaghat

(v) District – Rautahat

1. Shree Secondary School, Dumariya
2. Shree Janapriya Higher Secondary School
3. Shree Rupa Nepali Pal Higher Secondary School

4. Shree Higher Secondary School
5. Shree Janajyoti Higher Secondary School
6. Shree Kankali Higher Secondary School
7. Shree Higher Secondary School, Kankpur
8. Shree Batahu Secondary School
9. Shree Himali Janta Secondary School
10. Shree Secondary School, Rangpur
11. Shree Om Secondary School
12. Shree Kalika Secondary School
13. Shree Secondary School, Bhasedhwa
14. Shree Higher Secondary School, Dudhiawa
15. Shree Subalal Bhagabat Higher Secondary School
16. Shree Krishna Secondary School
17. Shree Durga Secondary School
18. Shree Higher Secondary School, Bijayapur
19. Shree Janshakti Secondary School
20. Shree Secondary School, Rangapur-1

Annex II

QUESTIONNAIRES FOR HEADMASTER

Name of School:

Date:

Name of Headmaster:

Age:

Academic Qualification:

Sex:

Special Training:

Teaching experience:

Service year of head master:

A. Management of school building and classroom.

1. Do you have your own building and land of your school?

a) Yes b) No

2. How much total land do you have in your school?

…… (Bigha/Kattha)

3. Have any agencies is helped to construct your school and building?

a) Yes b) No

4. if yes which agencies have helped you?

……

5. Is there boundary wall in your school?

a) Yes b) No

6. If not, why didn't you construct it?

a) …….. b) ……. c) ……..

7. How many rooms are there in your school?

a) Classroom……. b) Staffroom…… c) Library…… d) Teachers room……..

8. Are the room sufficient for the student?

a) Yes b) No

9. Are the furniture sufficient for the students?

a) Yes b) No

10. In average, how many students sit in a bench?

…….

11.. What is the distance of blackboard from the first bench (in meter)?

…….

12. Is there provision of electric bulbs in classroom?

a) Yes b) No

13. When do you clean the classroom?

……

B. Management of playground and safety consideration.

1. Is there play ground in your school?

a) Yes b) No

2. How much area of playground do you have?

……. (Bigha/Kattha)

3. Is the playground sufficient?

a) Yes b) No

4. What are the sports facilities in your school?

……

5. Is the play ground sufficient for completing sports?

a) Yes b) No.

6. What are the sport facilities in your school ?

……

7. What things are you doing for safety consideration in your school?

……

8. Do you check the playground, toilet, tap, canteen, classroom, electric system, Windows, desk, benches etc. regularly?

a) Yes b) No

C. Management of water supply.

1. Is the water available in school?

a) Yes b) No

2. How much water available in school?

a) Sufficient b) Satisfactory c) Poor

3. What are the sources of drinking water in school?

a) Tap water b) Hand pipe c) Well

4. Where is the water stored?

a) In water tank b) Drum c) Other pot

5. What methods do you apply during purification of water?

a) Filter b) Chemical

D. Lending & Management of sanitary facilities (Toilet and Solid Waste Disposal).

1. Is there latrine in your school?

a) Yes b) No

2. If yes, what types of latrine do you have?

a) Septic tank b) Water seal c) Bore hole

3. Is there separate toilet for boys and girls?

a) Yes b) No

4. Is there provision of water in your toilet?

a) Yes b) No

5. If do not have a toilet, where do you go far defecation?

a) Jungle b)Farmland

6. Who cleans the toilet?

a) Sweepers b) Students c) Peon

7. How often is toilet cleaned?

a) Daily b) Weekly c) Monthly

8. Is there any problem related to management of latrine?

.....

9. What is the major waste product of your school?

a) Paper b) Bricks/Stone c) wood /Plastic

10. Which methods do you follow for disposing wastes?

a) Incineration b) Dumping c) composting d) others

11. How often is it disposed?

a) Daily b) Weekly c) Monthly

12. Do you have any problem dispose the wastage?

a) Yes b) No

13. Who cleans the school?

a) Sweepers b) Students c) Peon

14 Do you have permanent sweepers/Students/peon for cleaning?

a) Yes b) No

15. Does the community participate in school cleaning?

a) Yes b) No

E. The facilities and conditions of ventilation, light and cleanliness in classroom.

1. What is the size of the classroom?

a) Length…… b) Width…….. c) Height……

2. How many students are located in a classroom?

a) 30 b) 40 c) 50

3. What means are used for ventilation?

a) Windows b) Electronic fans

4. What problems are you facing to managing Ventilation, lighting and cleaning the classroom?

a) …… b) …… c) ……

5. Is there provision of electric bulbs in classroom?

a) Yes b) No

F. Management of Nutritional Practices and Sanitary Facilities.

1. Is there a canteen in your school?

a) Yes b) No

2. If yes, what ingredients are found in canteen & do you think the varieties are sufficient?

……

3. If no, what methods do you follow for Tiffin system?

a) Side wise hotel b) Tiffin taken from home

4. What is the sanitary condition of canteen?

a) Good b) Satisfactory c) Poor

5. What types of foods are kept in the canteen?

……

Annex III

QUESTIONNAIRES FOR THE STUDENTS

Name of School: Date:

Name of Student: Sex:

Grade: Age:

A. Management of Building and Classroom

1. Where is the school located?

a) Near the village b) In the village

c) Far from the village d) Side of the road/Industry

2. Is there any noise come from outside?

a) Yes b) No

3. How is the ventilation management in classrooms for the study?

a) Good b) Satisfactory c) Poor

4. The state of blackboard in your classroom is:

a) Good b) Glaring c) Very small d) Rough

5. Is there any problem to see the blackboard?

a) Yes b) No

6. Is there proper light in your classroom and other places?

a) Yes b) No

7. Is there sufficient furniture all of you?

a) Yes b) No

8. Is your classroom clean?

a) Yes b) No

9. How often your classrooms clean?

a) Daily b) Weekly c) Monthly

10. Is there leakage or dampness in the classroom?

a) Yes b) No

11. Who cleans the classroom and school boundary?

a) Student b) Peon c) Sweeper

12. Do the health personnel or teachers counsel students or parents on students school health problems?

a) Yes b) No

B. Condition of Water Supply

1. Is there water available?

a) Yes b) No

2. If yes, what are the sources?

a) Pipe tap water b) Hand pipe c) Well

3. Is there any water filter?

a) Yes b) No

4. What are the problems of drinking water at your school?

.....

C. Management of Toilet and Waste Disposal

1. Is there toilet in your school?

a) Yes b) No

2. If yes, is there separate toilet for boys and girls?

a) Yes b) No

3. Is the water available in the toilet?

a) Yes b) No

4. Is the toilet clean?

a) Yes b) No

5. Is the toilet adequate all of you?

a) Yes b) No

6. Who cleans the toilet?

a) Peon b) Sweeper

7. How often does your toilet clean?

a) Daily b) Weekly c) Sometimes

8. What is the major waste product of your school?

a) Paper b) Stone/Bricks c) Plastic

9. Who dispose the waste product?

a) Peon b) Sweeper c) Students

10. Which method do you follow for disposing waste?

a) Incineration b) Dumping c) Compositing

D. Management of Tiffin Practices.

1. What system is in practice for tiffin in your school?

a) Carry from home b) Provided by school c) Buy from school canteen

d) Go home for lunch e) Buy from shop outside the school

2. Is there any canteen in your school?

a) Yes b) No

3. If yes, is the canteen separate or attached with school?

a) Attached b) Separate

4. What tiffin system will be good for students?

a) Carry from home b) Provided by school c) Buy from school canteen

d) Go home for lunch e) Buying in other shop

5. What types of food are kept in the canteen?

……

6. If no, what methods do you follow for tiffin?

a) Side wise hotel b) Tiffin taken by home

E. Management of play ground & safety consideration.

1. What sports and games are provided in your school?

i) Major games:

a) Football b) Volleyball c) Basketball d) Kabaddi

e) Kho-Kho f) Badminton g) Table tennis

ii) Athletics:

a) Running b) Jumping c) Throwing

iii) Simple games:

a) Carrom b) Chess c) Tenkoite d) If any other (Please, specify)

2. How often do you get a chance to play sports and games?

a) From time to time b) Seldom c) No chance to play

3. How often is the extra-curricular activities organized in your school?

a) Regular b) Quite often c) No

4. What extra-curricular activities organized in your school?

i) Exhibition:

a) Art/Crafts b) Science equipments c) School product goods

ii) Literary programs:

a) Essay b) Poem c) Story

iii) Cultural programs:

a) Dance b) Song c) Drama d) Music

5. Are you interested in participating in cleanliness program, plantation & other kinds of group work in the school?

a) Yes b) No

6. Can you afford extra fee to improve healthful environment in your school?

a) Yes b) No

Annex IV

OBSERVATION CHECKLIST

Name of the School :

Address :

Existing Condition of School Plant

1) Is the school area compounded?

a) Yes b) No

2. Fencing of school compound;

a)Brick wall b)wire fencing c) De marketing only d) Nothing

3) Where is the school location?

a) Near the village b) In the village

c) Far from the village c) Side of the road

4) Is there any noise come from outside?

a) Yes b) No

5) If yes, what are the sources of noise?

a) Industry b) Transport c) Crowd d) Market

6) Which direction does of the building face?

a) East b) West c) North d) South

7) What is the shape of the building face

a) U b) L c) I d) C e) E

8) How many school building are there?

a) One b) Two c) Three

9) Is the play ground plain?

a) Yes b) No

10) Are there any ditches in school ground

a) Yes b) No

11) Is there garden in the school?

a) Yes b) No

12) If yes, what types of plant are found there?

a) Big plant b) Shrubs c) Shrubs and flowers

13) Condition of the observed class room

Description	Good	Tolerated	Poor
General cleanliness	----------	----------	----------
Light	----------	----------	----------
Ventilation	----------	----------	----------
Seating arrangement	----------	----------	----------
Furniture	----------	----------	----------
Blackboard	----------	----------	----------

14) Is there ventilation in the classroom?

a) Yes b) No

15) If yes, is it properly used?

a) Yes b) No

16) What types of light are used there?

a) Artificial b) Natural c) Both

B. Lending & Management of Sanitary Facilities

1) Is the school neat & clean?

a) Yes b) No

2) If yes, what is the condition?

a) Good b) Satisfactory c) Poor

3) If not, what types of wastes are there?

a) Paper b) Stones/ bricks c) Mud

4) Are there any dustbins in the school area?

a) Yes b) No

5) Is there drainage facility in the school?

a) Yes b) No

6) Is there drinking water available?

a) Yes b) No

7) If yes what are the sources?

a) Tape b) Well c) Stream d) Spring

8) Where is water stored?

a) Tank b) bucket c) drum d) clay pot

9) Is the drinking water filtered?

a) Yes b) No

10) Is there any toilet?

a) Yes b) N0

11) What is the cleanliness condition of toilet?

a) Good b) Satisfactory c) Poor

12) What are the types of toilet?

a) Toilet with septic tank b) Pit latrine/bore hole c) Slay Sauchalaya

13) What is the distance of toilet from school (meter or feet)?

……..

14) Is there separate toilet for boys & girls?

a) Yes b) No

C. Nutritional Practices

1) Is there canteen in the school?

a) Yes b) No

2) If yes, what is its condition?

a) Good b) Satisfactory c) Poor

3) What types of food are kept in canteen?

.....

4) Do the students take their Tiffin themselves?

a) Yes b) No

Annex V

GUIDELINES FOR HEADMASTER

Name of Headmaster: ... ...

School: ... ...

1) What is your concept about the School building and its' location?

.

2) What factors are to be considered to manage the School Classroom?

3) What are the possible impacts of School compuund in School environment?

4) What kind of furniture should be used in School Classroom?

5) What are the responses of the teacher about the use of instructional materials like blackboard, whiteboard etc?

6) What are the basic factors to be considered on the management of School Sanitation?

7) What roles should School administration play for students' personal hygiene?

.

8) What would be the effect on School environment due to ill-management of pure drinking water, clean toiler and proper waste management?

9) What methods do you apply to manage waste product in your School?

10) What do you think about the system of lunch in School?

11) What is the condition of available play ground in School?

12) How are the its mentally affected by the School garden management?