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Chapter 1

Assessing healthful school environments in Hyderabad's primary education system

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1.0 Problem explanation

Education and health form a virtuous circle. Healthy, attentive and secure childrencan fully participate in classroom activities to achieve their full potential. And better education leads to improved health (WHO 2004). Children who are ill, hungry, weakenedby parasitic disease, malnourished, scared, or tired are not capable of learning well. Meagre attention to the health needs of children diminishes efforts to achieve education for all in the short term and minimises the benefit of education in the long term. Beautifulschools, efficient teachers and high quality learning resources are of no use for children who are not in school. But bringing them to the school is not enough either. The best teachers in the world won't be able to eliminate the attention and learning deficits of children who are starved, ill or intellectually challenged. Health, nutrition and hygieneare key determinants which make education wholesome (WHO, 1996).

Global scenario- The international school health outlook offers scope for cautious optimism. For a variety of reasons, including population growth, reduced infant and child mortality and the success of efforts to improve access to schooling, more children than ever before are now enrolled in basic education programs. This is a situation of great potential for governments endeavouring to enhance the productive capacity of their citizenry through efforts to provide Education for All (EFA). But when health and nutrition problems among school age children prevent them from attending school regularly, impair their ability to learn or cause them to leave school early, this potential

is threatened. School attendance drops when children or their family members are ill, when the school is not clean or not equipped with sanitary facilities, when parents cannot afford to send children to school, when children have to work, or when students fear violence or abuse on the way to, from or in school. Many children suffer from preventable diseases like malaria, hepatitis, worm infestations. Poor health and malnutrition are important underlying factors for low schoolenrolment, absenteeism; poor classroom performance and early school drop out as reflected in World Declaration on Education for all. The poor health status of school children are attributed to nutritional deficiencies (as 1/3 of them live in abject poverty andneglect), unhygienic conditions, lack of water and sanitation facilities and improperhealth and hygiene education/behaviour.

The school children suffer around the world from the following:

- Diarrhoea- affects 1.7 million children and is associated with inadequate water supply, sanitation and hygiene.
- Worm infestations– worms infect more than one third of the world's population. Worm infection (helminthes) is ranked as the main cause of disease in children aged 5-14 years old. They are spread through unhygienic environment such as contaminated soil or water and unhygienic behaviour" (IRC international thematic review).
- Other diseases- related to inadequate water and sanitation services and include skin and eye infections, and dengue.
- Nutritional disorders– several children suffer from nutritional disorders like anaemia, vitamin A deficiency, protein-energy malnutrition, etc." (NCERT 1981-82).

EFA (2000) summarised its assessment of the global school health initiatives in the 1990swhich doubled up as a problem explanation in the following points:

- Health initiatives in schools focused primarily on disease prevention.
- There was confusion about the concept and definition of school health.
- Single, uncoordinated intervention strategies dominated.
- Few formal mechanisms for multisectoral collaboration were in place.
- Didactic, topic-by-topic teaching was the typical approach to health education.
- Evidence of the effectiveness of interventions was not well known ordisseminated.
- Few tools were available to guide assessment and strategic planning.
- Few donors earmarked school health programs as a priority for funding."

- Even in the highly developed United States of America, past U.S. Government Accounting Office reports showed survey results that reflected the generally poor conditions of school facilities in the nation during the early 1990s. Recently, The American Society of Civil Engineers conducted a survey that reported widespread poorconditions in the nation's schools.

Many studies on school health in various parts of the world have indicated that poor school health scenario is a global problem. According to Cohen Hubal et al (2000), several environmental, social, cultural, and personal factors like health, gender, age, time- location-activity patterns) affect children's exposure to pollutants in the microenvironments they inhabit. Golub (2000) notes that young school children are more susceptible to pollutants in the microenvironments. Schools are one such microenvironment. Classroom design is one important aspect of school health environment but almost completely ignored in our elementary schools all over the nation. One interesting environmental psychology study done by Martin (2002) examined classroom design, in terms of mobility related to occupant density and fixed versus movable objects like furniture. Martin (2002) concluded that classroom design affects day-to-day teacher tasks and performance. He went on to state further the need for classroom environmental quality awareness in teachers.

By and large school absenteeism could be an indicator of the student or teacher's overall health, even though a complex interaction of many factors could be responsible (Weitzman, 1986). Pepler (1968) studied the possible impact of types of ventilation, low ventilation, temperature and relative humidity, and potential pollutants inside traditional classrooms on student attendance and adverse learning or health outcomes.

Healthy Schools Network (2004), while reviewing several studies, reports that remediation of moisture and mold damaged school buildings, particularly classrooms, and primary prevention through diligent operations, maintenance, and cleaning practices are commonly suggested. Otherwise, a grandly launched school campus will decline fast from the school health perspective. In addition, Healthy Schools Network (2004) reports that the studies on measurements of biological agents in school classrooms around the world collectively suggested that if a school practices good hygiene, the air and surface dust are bound to be low compared with the outdoors. To summarise, poor hygiene enhances the threats from environmental agents.

New York State Board of Regents (1994) stated that "Although focused on teaching and learning, education reform must also address the need to maintain a safe, secure, and healthy school environment. The capacity of children to learn is impeded if their school environment contains elements which are hazardous to their health". Alliance for Quality Education (2003) asserted that "sound, safe and modern school buildings

are an obvious cornerstone of a good education. Children cannot learn in an environment where classrooms and schools are overcrowded, roofs are leaking, and windows threaten to break and

fall on students' heads. The conditions of many schools not only create an inadequate learning environment, but also may actually threaten student safety.” This study seeks to probe the aforementioned school conditions. The fact that school health environment problems are global with similar issues and concerns is best reflected by the same New York State Board of Regents (1994) which came out with some findings like:

- Reports of environmental problems have raised public concerns to new levels
- Some students and school personnel have experienced mild to serious health problems which interfere with health, activity and ability to learn
- Parents and school personnel have become frustrated by a system that, in some cases, has ignored or dismissed their inquiries and complaints about school environmentalquality
- Decisions must be made at both the state and local levels to determine responsibility and how to address the problems
- It should be recognised that when health threats are present, the costs to individual districts and the State Education Department are enormous in terms of staff time and effort, clean-up costs, school closings, and the liability damage to health
- The problems are not isolated incidents. They are statewide problems with far reachingeffects on the health and safety of our children.
- The current standards for environmental health and safety are not adequate to protect children.

It was recognized by WHO Expert Committee on comprehensive school health education and promotion that schools in virtually every nation could do more than any other single institution to improve the well-being and competence of children and youth. Yet the evidence suggests that schools around the world have difficulty in meetingcritical physical, mental and social health needs of children and youth.

How sanitary can conditions be when 90 young children in a school are sharing one toilet? Or when 54% of the toilets are not functioning? Primary schools in some of the poorest countries have inadequate sanitation facilities, according to a pilot survey of 14 countries in 1995. The average number of users is often higher than 50 students per toilet in city schools. None of the 14 countries had increased the number of school toilets by more than 8% since 1990, suggesting that they are barely managing to keep up with the rise in student populations. Somewhat better progress had been achieved in providing safe water in schools. Inadequate sanitation and water in schools jeopardize not only students' health but also their attendance. Girls in particular are likely to be kept out of

school if there are no sanitation facilities." (UNICEF, Progress of Nations 1997, p.13). Hence from the rights perspective, access to sanitation facilities is a fundamental rightthat safeguards not just health but even human dignity.

Indian scenario- The national school health outlook is quite disturbing on the whole. The UNICEF India-centric MDG statement provides a pointer. "Providing quality education also implies the provision of an enabling learning environment in which children can perform to the best of their ability. Nonetheless, in India, the sanitary and hygienic conditions at schools are appalling, characterised by the absence of properly functioning water supply, sanitation, and hand washing facilities. In many cases, toilets are heavily used and filthy; in other cases, the toilets, water supply, and hand washing facilities are spotlessly clean but are not used and are even locked because water is unavailable, because separate facilities for teachers are not provided, or because children are not trusted to use the facilities properly. In such an environment, children must resort to open defecation around or even at the school compound" (MDG UNICEF). Such a scenario calls out for better school education through robust school health measures.

The World Bank (2005) makes it clear that the problem of child under nutrition inIndia is not one of just alarming magnitude, but also of great complexity. The World Bank (2005) also notes that the prevalence of underweight in India is one of the highestin the world, nearly double that in Sub-Saharan Africa and that India's pace of under nutrition improvement trails its own economic growth. Most of the modest progress in reducing under nutrition over the previous decade has been driven by improvements among higher socioeconomic groups. The World Bank (2005) projects that even if India comes close to achieving the nutrition MDG in 2015, it will still have levels of under nutrition equivalent to those that exist in Sub-Saharan Africa today. Iron, iodine and vitamin A deficiencies are widespread among the Indian children and entail serious consequences for child survival and economic productivity.

The 2005 World Bank study observes with concern that while aggregate levels of under nutrition are extremely high, the picture is further worsened by the significant inequalities across states and socioeconomic groups. Girls, rural areas, the poorest, and scheduled tribes and castes are the worst affected. The study concludes that while under nutrition is a national problem, the problem is clearly more acute among certain groups,and inequalities in malnutrition appear to be increasing.

Some studies have established that in most states of India, schools are not safe (especially government schools) for children due to neglect of the operation and maintenance of the facilities. In addition, there has been a lack of hygiene education ofthe students. A survey among school children in India revealed that about half of the ailments found are related to unsanitary conditions and lack of personal hygiene.

Numerous studies have described the types and frequencies of sickness found in school children. The common morbidities found are nutritional deficiencies. National Nutrition Monitoring Bureau (NNMB) survey (2000) indicates that about 70% of the children are undernourished and there is about 30% deficit in energy consumption, dental, visual and hearing problems, respiratory infections, skin conditions, loco motor disabilities and congenital heart and other problems. The fact is that most of these conditions are preventable or avoidable and curable especially in early stages (Raghava Prasad, 2000).

There are two further developments over the last 50 years which have made itdifficult to create effective school sanitation and hygiene education programs. First,school systems in India have retained a largely academic orientation despite many efforts at reform. These are led, to a lesser or greater extent, by examination syllabi that do not include life skills such as hygiene or health education. As a result, these subjects are sometimes under-emphasised or omitted. Secondly, the growth of mass education has brought hundreds of millions of children into school that would never have been able to attend in earlier generations. The influx has been so great that education systems would not provide sufficient facilities for hygiene and water." Many school health and hygiene programs have been initiated in different states of our nation at various levels but most have few accomplished goals to their credit. (SSHE, 2000).

The weaknesses and challenges that appear in many programs include rapid rundown of facilities, irrelevant organisation so that maintenance does not take place, lack of interest among supervisory staff, etc. Unfortunately the promises of school health and hygiene education programs have not always been fulfilled. Though MDM program has solved the nutrition deficiency and could draw children to school, the hygiene behaviour and sanitation aspects have been completely neglected. One can find the corridors of the school, or other places (where the children have their food) scattered with food grains. This shows that proper eating habits have to be inculcated in the child to avoid wastage offood as well to keep the surrounding clean. Even hand washing facilities are inadequate or absent. Safe drinking water is another problem in many of the schools. Maintaining a school garden is probably a dream. Under these conditions schools become unsafe places where diseases are transmitted affecting the health of the children. Poor health of childrenaffects their ability to learn and therefore influences their prospects in life.

State scenario-The state government affirms that school facilities have been substantially enhanced and the enrolment of children in primary schools has risen from 73 lakhs to 91 lakhs between 1989-90 and 1999-2000 (Strategy paper on poverty eradication, Government of Andhra Pradesh). Unfortunately, such efforts by the state

government have not succeeded in bringing the desired changes with respect to theschool health environment or health service

Local scenario- Not much local evidence is available to study the existing school health problems in Hyderabad. But one of the articles published in "The Hindu" Hyderabad edition on March 13, 2008 titled "Schools languish in neglect" by Ravikanth Reddy presents a sorry state of affairs about the city school health scenario. Recounting a typical scene in a Rasoolpura government school, it seems that a sun peeps into aclassroom through factory sheets covering the three-room school with 230 children. A dilapidated structure lies a few yards away from the posh locality of this happening city, and the government doesn't seem to turn back and see the extremely poor condition in what it calls a school.

The government girl's primary school at Rasoolpura is just a reflection of poor conditions in government schools negating its claims of best of facilities being providedto schools. The condition is almost similar in a majority of 57 government schools in the cantonment constituency. Where ever they have permanent buildings, classrooms are not sufficient. Lack of furniture and absence of drinking water facility and toilets are common factors among them. (The Hindu, March 2008)

The same article notes that though the mid-day meal scheme is being implemented, teachers say students have to sit on the road and eat. Students, who are all from poor and lower middle classes, do not seem to understand the need for better facilities. Interestingly, out of the 57 schools, there is not even a single school in this constituency that can boast of having all facilities like sufficient teachers, furniture and minimum sanitation facilities. For e.g., the Zilla Parishad High School at Risala Bazaar does not have furniture, water, electricity, sanitation and moreover it runs in a private building. There are not many studies to suggest that conditions are as deplorable as mentioned above in most private schools of Hyderabad.

This article laments that if this is the situation in schools within city, one can imagine the condition in rural areas. In stark contrast to the claim that no school building has beenconstructed in the last 10 years here, officials reel out statistics to claim that schools have been provided with own building and better facilities. Certain aspects of school health have been identified by International Resource Centre (IRC) which shows the realistic picture of our schools and points out the lacunae very clearly. It can be used as a checklistto assess the schools in terms of healthful school environment, health services and health education

The article infers that most of the government primary schools in Hyderabad are suffering from poor infrastructure due to leaking roofs and cracked walls, no drinking water and toilet facilities, poor ventilation, inadequate benches and chairs, playground, etc. Health education has to be integrated with all the subjects like science, social studies and languages and can be taught by teachers informally. All the above mentioned factors appearing as economic constraints also reflect the apathy of government officials, school administrators and teachers as concluded by this article.

Another aspect of healthy environment is noiseless and peaceful surroundings. Noise is any unwanted, extraneous sound. WHO (2001) emphasises that children, during their formative years of academic development, require better sound quality than adultsin classrooms, since good speech recognition is essential for optimal comprehension and learning while reading language. Nelson (2003) adds that children are ineffective listeners to speech (i.e. cannot hear and understand) in noise until adolescence. Outdoor noise from sources such as playgrounds, construction sites, and nearby traffic is a huge threat in the Hyderabad-based elementary schools. This study seeks to examine the noise scenario in these schools.

In urban settings, children are exposed to outdoor air pollution from industry and traffic exhaust fumes on their way to school, and outdoor air pollutants may enter into the classroom. Air pollution in developing world cities is estimated to be responsible for 50 million annual cases of chronic coughing in children younger than 14 years of age

(WHO 1996). Lands near or directly beneath schools in Hyderabad may pose health threats to children. Schools located near transportation corridors, bus depots, industrial sites, abandoned lots, landfills, and construction sites may present health problems to the students and staff occupying the school.

All the above problems ring true even today and are equally applicable to elementary schools in India and Hyderabad. Considering the various research studies that look at neatly-defined approaches to promote health through schools, this researcher has made a meticulous effort to examine the school health environment and health services and the problem has been precisely stated as "An investigation into School Health Environment and School Health Services in Primary Schools of Hyderabad District".

1.2.0 Background of the study

As health is now known to be required for learning to happen, it is clear that efforts to nurture both the bodies and minds of the next generation of adults will fetch the best results. But the heartening aspect is that most of the infections which are related to poor sanitation and hygiene are preventable. Diseases such as diarrhoea and parasitic worm infections can be easily prevented by ensuring basic water and sanitation facilities. However, such facilities must be accompanied by hygiene behaviour change in order to prevent transmission of these diseases, improve the sanitation environment of schools,and ensure benefits from safe and clean facilities, thereby leading to a proper use of the facilities as well as to organized maintenance of the facilities.

Global background: As more countries adopt universal basic education strategies, it is the combined effect of increased enrolment, reduced absenteeism and dropouts that bring more of the poorest and most disadvantaged children to school, many of them girls. "It is these children who are often the least healthy and most malnourished, and who have the most to gain educationally from improved health" (Odaga and Heneveld, 1995; Bundy and Guyatt, 1996). Child rights are blatantly ignored in elementary schools in not just Hyderabad but in many parts around the world. This missing

perspective was sought to be addressed by the New York State Board of Regents (1994) which formulated a set of guiding principles for children's environmental health and safety at school. These principles are:

- Every child has a right to an environmentally safe and healthy learning environmentwhich is clean and in good repair.
- Every child, parent and school employee has a "right-to-know" about environmentalhealth issues and hazards in their school environment.
- School officials and appropriate public agencies should be held accountable for environmentally safe and healthy school facilities.
- Schools should serve as role models for environmentally responsible behaviour.
- Federal, state, local, and private sector entities should work together to ensure thatresources are used effectively and efficiently to address environmental health and safety conditions

These principles establish a starting point for state recognition of the role of school environmental health and safety in student health and learning.These school health environment problems are well addressed by the promising concept of "healthy, high-performance school building" which was promoted in the 'No Child Left Behind" (NCLB) act, signed by the U.S.A. President George W. Bush in January 2002 and refers to a "school building in which the design, construction, operation, and maintenance —

- Use energy-efficient and affordable practices and materials;
- are cost-effective;
- Enhance indoor air quality;
- Protect and conserve water." (Source: NCLB act, U.S.A., 2002).

Bell and Dyment (2007) focus on another problem, that of data collection from the crucial stakeholder, the elementary school child. They conducted a pilot study to underline the importance of collecting data across a range of age groups and across the entire school year in order to capture the range of play activities and to understand how they are influenced by age and seasonal differences. Their study concluded that to fully appreciate the influence of greening on physical activity, future research should include schools with greened and non-greened school grounds. This study has incorporated such concerns by collecting qualitative data from the elementary school children and covering both schools with green playgrounds and schools with bare playgrounds.

Numerous organisations throughout the world agree that the best opportunity to positively affect an individual's health is to work through the schools. The evolution of school health from a simple disease prevention program a century ago to a complex coordinated (formerly comprehensive) school health program has been guided by the

fiveprinciples defined by The Ottawa Charter on Health Promotion (WHO, 1986). The application of these principles to health promotion in a school setting has become known as the 'Health Promoting School' concept (Kickbush, 1992). Originating in Europe, the 'Health Promoting School' concept incorporates the five principles of the Ottawa Charteras a framework for linking health and education. It proposes that school community members in collaboration with the local, wider community can have a positive effect on children's health status by creating a healthy school environment; addressing school policies relevant to health issues; involving local community groups in activities and sharing resources; improving health-related knowledge, attitudes and skills of students and staff; and re-orienting school services to provide healthy choices (WHO, 1995). A 'Health Promoting School' looks at the whole school environment and all aspects of school life. Healthy school communities are those in which the classroom, the whole school atmosphere, and the home/school/community relationship consistently caring about health and well-being (WHO, 1996). According to WHO Information series on school health (2003), supply of basic necessities and protection from physical threats as well as chemical threats form the crux of school health environment. Unfortunately, these are not available in most elementary schools, be it government or private, all over Hyderabad.

National background- The primary education system in India is one of the largest inthe world with over seven lakh primary schools and over 30 lakh teachers (SSHE 2006). Over one-fifth of India's population comprises children aged 5-14 i.e. primary school children. India has 37.5 crore children, more than any other country in the world (SSA2009).The current situation in Indian primary schools, according to SSHE, comprise :

- About 7, 00,000 primary schools in our nation
- Only half of primary schools have safe drinking water.
- Only 1 in10 primary schools have sanitary facilities.

The persisting morbidity among school children in India suggest that health interventions at school-level would be successful and cost-effective as children spend more time at school after home. Several studies including that of a report by World Bank (2005) confirm the same. The role of the elementary school is indeed crucial in improving child nutrition through food services. Measham and Chatterjee (1999) are of the opinion that the demand for preschool education, and for feeding the older children, could be met by devolving these responsibilities to the Department of Education or to local authorities.

Khan, Farooq et al (2007) are sure that school-based, activity-oriented, hygiene education techniques - if appropriately implemented –in India can lead to sanitation and

hygiene improvements beyond schools, into households and wider communities. Teachers and students can help parents and communities at large to realize and adopt better practices. The key challenge is adoption of relevant strategies by the main players and capacity building of key facilitators. Once realization sets in, communities can be innovative in appropriate sanitation solutions, which are affordable and hence sustainable. effects of hygiene education in schools, this studylooks into this aspect as well. Mahesh et al (2005) note that India, a developing country, faces many challenges in rendering oral health needs. The majority of Indian population resides in rural areas of which more than 40% constitute children. They conducted a survey based on WHO, 1999 Oral Health Assessment, which has been modified by including gingival assessment, enamel opacities/ hypoplasia. The survey results about these children revealed that dental caries is the most prevalent disease affecting permanent teeth, more than primary teeth and more in government schools than in private schools, thereby, correlating with the socioeconomic status. The authors concluded that the greatest need of dental health education is at an early age including proper instruction of oral hygiene practices and school based preventive programs, which would help in improving preventive dental behaviour and attitude and also ensure life-long results.

State background- The macro school health picture is not clear. But it becomes imperative to mention one school health program which did not materialise. It was Andhra Pradesh School Health Project (1991-97), which aimed to develop the state's existing school health program and which included regular medical inspection and treatment but which was hampered due to lack of personnel and proper planning and implementation. It was realised/ recognised that such projects should include carefully executed baseline studies of the health of children and of children's knowledge, attitudes and practices with respect to health. Further without studies, the impact of projects cannot

be measured; project activities should be piloted in selected small areas before introduction at full scale; activities of different sectors (health, education, etc.) should be coordinated; adequate management information is essential for the success of any program and the programs must be responsive to surveillance and monitoring. The project shows that in the absence of planning even ascendant resources cannot guarantee the success of programs (UNESCO, 2006).

1.3.0 Conceptual framework

It is essential to conduct a thorough conceptual analysis on significant concepts constituting school health. This will ensure a sound conceptual foundation that wouldlater translate into appropriate practical applications. It appears that the school health scenario in Hyderabad, the focus of this thesis, is such that both conceptual

clarity and commitment are sorely lacking in the major stakeholders, be it the policy-makers or school management or school teachers or parents of students, consequently leading to neglect of the end-user, the school student, on the school health front.

Healthy school environment : The National Health and Medical Council, Canberra, Australia (1996) has defined healthy school environment as a combination of the following elements:

The World Health Organization (WHO, 2000) defined the physical environmentof the school as one that encompasses the school building and all its contents including physical structures, infrastructure, furniture, and the a school is located and the surrounding environment, i.e., the air, water, and any materials with which children may come into contact, as well as nearby land uses, roadways and other hazards.

The concept of safe and healthy school environment as described in Health Framework for California Public Schools, California Department of Education, 2003, relates to the physical and emotional environments of the school. Above all, a safe and healthy school environment ensures that the school is a haven from the violence many young people encounter elsewhere. Such an environment is one that is well maintained and is free of such hazards as asbestos dust or drinking water contaminated by lead. A plan to be implemented in case of fire or natural disasters or other emergencies should be provided and should be well rehearsed. In addition, lavatories and other sanitary facilities should be kept clean, supplied with soap and towels, and maintained well; play equipment should be inspected for safety at regular intervals; and the school grounds should be monitored and kept free of alcohol, tobacco, and other drugs. (*Adopted by the* California State Board of Education, 2002, published *by the* California Department of Education, Sacramento, 2003)

Centers for Disease Control and Prevention, USA defines it as “the physical and aesthetic surroundings and the psychosocial climate and culture of the school”. A condensed definition is offered for healthy school environment by California Department of Education, Sacramento, 2003 which states that “this component relates to the physical and emotional environments of the school.” A simpler definition comes from the FRESH association (2009), according to which “a healthy school environment pertains to the physical, emotional, and social climate of the school.”

Diseases linked to poor sanitation and contaminated water affects primary school children the most as affirmed by the World Health Organisation (WHO) in its studies. Poor sanitation brings a variety of worm infections through parasites which absorb nutrients from the children they infect, causing or worsening malnutrition and retarding children’s physical development which can further lead to underweight and iron

deficiency anaemia. Fresh evidence suggests that such illnesses may hurt these children's mental development as well.

The primary school also provides the most favourablesetting to encourage behaviour change in the children. Primary schools alone cannot be held responsible for student health, but it is their duty not to make it worse. Research has proven without doubt that health and education are inseparable: when students are sick, or where the school environment is unhealthy or hazardous, attendance is bound to dip. The updated FRESH framework (2009) emphasises on a "healthy and secure learning environment as necessary for student participation and learning."

The FRESH association (2009) reiterates that a "healthy school environment supports learning and contributes to students' health by minimising distractions; minimising physical, psychological, and social hazards; creating a climate in which students and school staff do their best work expecting that all students can succeed and implementing supportive policies". It further recommended a broad action plan.

The FRESH association (2009) has recommended a broad action plan for schools around the world as follows: develop and use a data collection system for assessing and monitoring the school environment; provide leadership and administrative support for creating and sustaining a healthy school environment; create a team to identify needs, set priorities, and identify resources; develop and implement policies and a plan for creatingand sustaining healthy school environment.

Children spend long hours in schools due to which the school health environment partly influences these children's health and well–being. Compared to adults, children are more receptive to new ideas and can easily change their behaviour with the aid of enhancement in their knowledge as well as school health environment. Teachers as professionals and influential individuals, supported by the school management, can play an important role in the development of pupils through training.

School health services

The National Health and Medical Council, Canberra, Australia (1996) has defined school health services as a range of health services both on the school premises and in the community that are available to school students. Specifically, medical clinics, mental health counselling, public health measures and education, special education, and welfare services and agencies can be included in the definition of health services. In the school setting, such services focus on prevention and early detection, treatment of acute conditions, and management of chronic conditions. It involves teachers trained in firstaid, school nurses and doctors, and specialist community health workers, such as dieticians and paediatrists.

Centers for Disease Control and Prevention, USA, 2009 defines school health services as services provided for students to appraise, protect, and promote health. The FRESH framework defines school health services as a combination of preventive services, education, emergency care, referral, and management of acute and chronichealth conditions. According to the former, these services are designed to ensure accessor referral to primary healthcare services or both, foster appropriate use of primary healthcare services, prevent and control communicable disease and other health problems, provide emergency care for illness or injury, promote and provide optimum sanitary conditions for a safe school facility and school environment, and provide educational and counselling opportunities for promoting and maintaining individual, family, and community health. The latter has a simple interpretation regarding its design which is to promote the health of students, identify and prevent health problems and injuries, and ensure care for students. Qualified professionals such as physicians, nurses, dentists, health educators, and other allied health personnel provide these services.

The California Department of Education, Sacramento (2003) defines health services as those health-related procedures, screenings, or referrals coordinated at the school site by the credentialed school nurse or school-linked service providers. The nature and extentof health services vary from place to place. But the California Department of Education, Sacramento (2003) sets common duties for all schools with regard to school health services as: To treat minor illness and injuries, provide routine first aid, and assist in medical emergencies; to identify and help manage the care of students with chronic conditions; to conduct preventive health screenings, such as those for vision, hearing, or detection of scoliosis; to refer the family to health providers in the community when problems are detected and do the necessary follow-up with the family as needed and to keep up-to-date records of immunisations and health status.

Marx, E. and Wooley, S.F. (1998) delineate the scope of school health services as screening, diagnostic, treatment, and health counselling services; referrals and linkages with other community providers; health promotion and injury and disease prevention education and other services based on students' health needs and access to needed services. In a nutshell, school health services help link the resources of the health, education, nutrition, and sanitation sectors in an existing infrastructure, the school. As such, school health services offer an effective way of improving the health and nutritional status of children (Partnership for Child Development 2000, Mwanri et al. 2000, Beasley et al. 2000), especially when they are supported by school health policies, adequate water and sanitation and health education including hygiene education.

Health and nutrition services can also serve as an opportunity for improving school health programs by considering the ways in which school health policies, a healthy school environment and health education can complement such services. They also provide opportunities for the wider involvement of the local community and other key stakeholders in improving education and health. Both the family and the community

view the delivery of health and nutrition services through schools as a positive activity in their community (Partnership for Child Development, 2001). “School health programs that target poor health and nutrition are therefore an investment in a country’s people and their capacity to thrive both economically and as a society” (Stephenson, Latham and Ottesen, 2000).

Healthy nutrition

WHO (1998) in its information series document four on school health has elucidated on healthy nutrition as one that takes many forms and is understood differentlyin different countries and among different cultures. “In general, healthy nutrition should be an integral part of daily life that contributes to the physiological, mental and social well-being of individuals. It is the combined effect of food, health and care. Nutritional well-being is determined by consuming safe food as part of an appropriate and balanced diet that contains adequate amounts of nutrients in relation to bodily requirements. The health and lifestyle of an individual influences the extent to which food contributes to good social, mental and physical well-being. Care is shown by providing time, attention and support in the household and the community to meet the food and health needs of the child and other family members. Furthermore, social ties are validated and maintained by the exchange of food since offering food is associated with offering love, affection and friendship.” (WHO 1998). Access to a variety of nutritious and appealing meals that accommodate the healthand nutrition needs of all students. The school nutrition services offer students a learning laboratory for classroom nutrition and health education, and serve as a resource for linkages with nutrition-related community services. Qualified child nutritionprofessionals provide these services (Centers for Disease Control and Prevention, USA).

Counselling and psychological services

WHO (1998) has broadly defined counselling and psychological services as maintaining and supporting the mental health of students and staff in a manner which complements and supports nutritional and physical health. An individual's psychological well-being, including self-esteem and self-confidence, is critical in maintaining physical health and the ability to make healthy decisions and avoid risk behaviours. Thus, school counselling programs and actions to provide social support are important components ofa health-promoting school that can help students, school personnel and families in coping with difficulties, adjustments, growth and development. Personal feelings and emotions influence food choices. For example, one's body image or low self-esteem can affect eating practices and lead to conditions of malnutrition.

Achieving and maintaining desired body weight and shape can be very important for young people, especially for girls, and may lead to dieting, meal skipping and nutritional disorders. Consequently, counselling services or actions to provide

psychological support can be provided by a health-promoting school or should be addressed through referral to a community service. This will help adolescents clarify misconceptions about their self-perception, which is a prerequisite to developing a healthy self-image and adopting a healthy lifestyle and good eating habits. For children and adults to thrive they not only need an appropriate diet and body image but also care and nurturing. Care is the provision of time, attention, support and skills that can help meet individuals' physical, mental and social needs. A supportive psychosocial environment within the school can provide a buffering effect on transitions or stressful life events experienced by students and others. For instance, social and emotional support can be provided during meals by any member of the school community for individuals who are changing their eating behaviour. Thus, care and support services can enhance nutrition interventions by encouraging students and others to make appropriate choices about their diet, promoting self-esteem and supporting students' efforts to fulfill their physical, psychological and social potential (WHO 1998).

Services provided to improve students' mental, emotional, and social health. These services include individual and group assessments, interventions, and referrals. Organisational assessment and consultation skills of counsellors and psychologists contribute not only to the health of students but also to the health of the school environment. Professionals such as certified school counsellors, psychologists, and socialworkers provide these services. (Centers for Disease Control and Prevention, USA)

Health education

A planned, sequential curriculum that addresses the physical, mental, emotional and social dimensions of health. The curriculum is designed to motivate and assiststudents to maintain and improve their health, prevent disease, and reduce health-related risk behaviours. It allows students to develop and demonstrate increasingly sophisticated health-related knowledge, attitudes, skills, and practices. The comprehensive health education curriculum includes a variety of topics such as personal health, family health, community health, consumer health, environmental health, mental and emotional health, injury prevention and safety, nutrition, prevention and control of disease. Qualified, trained teachers provide health education" (Centers for Disease Control and Prevention, USA). Life skills training as promoted by FRESH and used in water and sanitation education can help children make informed decisions and avoid risky situations and behaviours and give them opportunity to practice these skills. They are more effective than traditional teaching methods in influencing behaviour rather than just imparting knowledge. These skills are best acquired through learner-centered, participatory, experimental programs (WHO, 1996).

Children are future role models and parents. What they learn at school is likely to be passed on to their peers and to their own children. It is obvious that all health education programs should be adapted to the different physical and cultural needs of girls and boys at different ages, key aspects enshrined in the concept of child-friendly schools. Programs that provide accurate information, to counteract the myths and misinformation, frequentlyreport improvements in knowledge and attitudes, but this is poorly correlated with behavioural change related to risk taking and desirable behavioural outcomes (Gatawa 1995, UNAIDS 1997a).

Physical education

"A planned, sequential curriculum that provides cognitive content and learning experiences in a variety of activity areas such as basic movement skills; physical fitness; rhythms and dance; games; team, dual, and individual sports; tumbling and gymnastics; and aquatics. Quality physical education should promote, through a variety of planned physical activities, each student's optimum physical, mental, emotional, and social development, and should promote activities and sports that all students enjoy and can pursue throughout their lives. Qualified, trained teachers teach physical activity." (Centers for Disease Control and Prevention, USA).

Health promotion for staff

WHO (1998) has defined health promotion as promotion of healthy lifestyles among all who study, work and use the school. For example, strategies to promote health and nutrition should become an integral part of in-service training. School health promotion programs for staff are intended to increase their interest in health and help them acquire healthy lifestyles. Examples for nutritional health promotion include printedmaterials from national or local organizations, healthy meals and guidelines provided by the school cafeteria, and workshops for staff members held by community nutritionists or others.

There are several reasons why health promotion for school personnel is important.First, healthy employees are better able to fulfill their responsibilities. Thus, health promotion activities should help them assess and improve their own eating practices. Second, teachers and school personnel need to be aware of and responsible for the messages they give as role models to students and others. Third, school personnel can help identify policies and practices that are needed in order to support health and well-being in a health-promoting school. A health promotion program for staff can help develop those policies that support their health and find ways to change those policiesthat are not conducive to the health of teachers and other staff.

Opportunities for school staff to improve their health status through activities such as health assessments, health education and health-related fitness activities. These opportunities encourage school staff to pursue a healthy lifestyle that contributes to their improved health status, improved morale, and a greater personal commitment to the school's overall coordinated health program. This personal commitment often transfers into greater commitment to the health of students and creates positive role modeling. Health promotion activities have improved productivity, decreased absenteeism, andreduced health insurance costs.” (Centers for Disease Control and Prevention, USA)

Parent/Community involvement

“An integrated school, parent, and community approach for enhancing the health and well-being of students. School health advisory councils, coalitions, and broadly based constituencies for school health can build support for school health program efforts. Schools actively solicit parent involvement and engage community resources and services to respond more effectively to the health-related needs of students.” (Centers for Disease Control and Prevention, USA). In fact, without mobilisation and motivation ofthe community as a whole, the impact of a school health education program may remain limited.

WHO (1998) affirms that health-promoting schools should closely collaborate with parents so that children are less likely to experience inconsistencies between suggestions and practices at home and at school. Thus, establishing dynamic, positive andproductive links with families is an important part of a health-promoting school. Connections with parents can be established, for instance, during a school health fair to which parents are invited, a health related workshop for parents, a parent-teacher meetingor a parent's visit to relevant food services at school or in the community.

WHO (1998) also affirms that cooperation and coordination between the school health program and the community is likely to be most successful where there are dynamic, positive and productive school/community links. Schools and communities can benefit from partnerships with local businesses and representatives from agencies and organizations, such as local health departments, farmers' organizations, youth-serving agencies and local retailers. For instance, the school can utilize the potential of specialist services in the community for advice and support in nutrition and health matters and can actively involve community nutritionists and community health services at school. Commercial organizations and businesses can offer health-related and relevant visits to their stores, advice on healthy choices or donations in support of nutrition programmes.

Subsequently, they may gain customers and recognition for their efforts in supportof health. Constructive collaboration is especially important with national and local food businesses, supermarkets, restaurants and food vendors in an effort to gain their support for healthy nutrition and to involve them in supplying food with high nutritional value. Partnerships may involve communication among organizations and schools, cooperation of jointly scheduled activities, coordination of resources and collaboration under a mutually agreed mission.

Schools are an integral part of a community. Involvement of the local community in school sanitation and hygiene activities increases the effectiveness of the programs. It also promotes the sense of ownership within communities that is needed to sustain the school systems for operation and maintenance, particularly important in the absence of aneffective local municipal corporation to provide such services. Although school health education can bring health benefits for the children and their family members, it is clear that health is a public good and that health improvement has much greater benefit when itis achieved by a whole community. Experience shows that children can act as potential agents of change within their homes and communities through their knowledge and useof healthy practices learned at school.

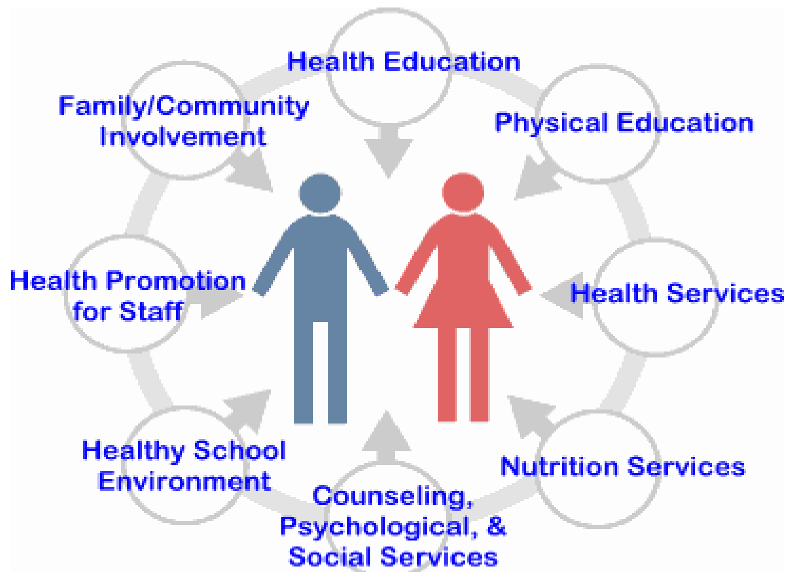

Figure 1: Courtesy of Centers for Disease Control and Prevention

Health policies in schools, including health education and health services, promote the overall health, hygiene and nutrition of children. But good school health policies should go beyond this to ensure a safe and secure health environment. In this process, policy-

makers must look first at all issues that affect student enrolment, attendance, retention and learning. Policies regarding the health-related practices of teachers and students can reinforce health education: teachers can act as positive role models for their students, for example, by not smoking in school. The process of developing and agreeing upon policies draws attention to these issues. The policies are best developed by involving many levels, including the national level, state level and district level, and the school level – including the teachers, children, parents and the local community.

According to the updated FRESH framework (2009), school health policies promote school health and nutrition programs in the following ways: School health policies can provide highly visible opportunities to demonstrate commitment to equity, non-discrimination, gender issues and human rights and be a positive model for the whole society; Policies are necessary for and can give a clear structure to a safe, protective and inclusive school environment; Policies, when clearly communicated to the school population and the whole society, can give rules on how to behave and what is accepted or not in the school setting; Policies that are actively accepted and endorsed by the PTA and the community can be followed more effectively. In cases when policies are not followed there will be a demand for change and stricter monitoring will be possible. School health policies must be formulated and supported by key stakeholders at all levels. At the national level, for example, responsibilities and action must be shared between the key government ministries such as health and family welfare and human resource development ministries. At district and school levels, policies should be clearly understood, implemented and supported by all those responsible for the education, health and well being of the children. Policies should cover a broad spectrum of areas critical for the health and development of school age children.

The Convention of the Rights of the Child (CRC), ratified by India lend central and state governments the political responsibility to endorse and monitor clear health-related policies. School policies should be clearly communicated to the school population and actively monitored by the PTA and the community.

The four interventions, namely school health environment, school health services, school health education and school health policies will ensure better learning outcomes and health status of school children in this knowledge age. Multiple, coordinated strategies produce a greater effect than individual strategies, but these strategies need to be selective and targeted with regard to school health as suggested by several studies.

School health models

Allensworth et al (1997) report the existence of three school health models aroundthe world. These are summarised as follows:
The three-component model: This is a traditional model. According to this model, the three essential components of a school health program are health education, health services, and a healthful environment.

The eight-component model: According to this model, the eight essential components ofa school health program are health education, physical education, health services, nutrition services, health promotion for school staff, counselling and psychological services, a healthy school environment, and parent and community involvement. Full-service schools: In addition to quality education, these combine a wide range of health services, mental health services, and family welfare and social services for students and their families.

1.3.0 Significance of the study

The overall condition of children has improved in the last five decades, with child survival rates up, school drop out rates down and several policy commitments made by the government at the national and international levels. But several inadequacies still exist, ignoring the healthcare needs of children, their educational development and protection. (WHO, 2004)

As 1/5th of the population comprises of age 5-14, the school becomes the obvious focal point for reaching future generations with organized programs that can instil health-creating behaviours and responsible attitudes. As compared to adults, children are more receptive to new ideas and can more easily change their behaviour and practices from school to home and are potential agents of change within their homes and communities. School children are tomorrow's parents. The overall condition of children has improvedin the last five decades, with child survival rates up, school drop out rates down and several policy commitments made by the government at the national and international levels. But several inadequacies still exist, ignoring the healthcare needs of children, theireducational development and protection. (WHO, 2004)

Ensuring that children are healthy and able to learn is an essential component ofan effective education system. Good health increases enrolment and reduces absenteeism. It also ensures attendance of the poorest and most disadvantaged children to school, manyof whom are girls. It is these children who are often the least healthy and most malnourished and who have the most to gain educationally from improved health.

There are manifold economic and social reasons for ensuring safe water, adequate sanitationand complementary hygiene education in schools. Among the benefits are:

- Effective learning. Children perform better and their dignity is raised in a clean, hygienic environment.
- Better enrolment and retention of girls. Girls and their parents are encouraged by water and sanitation facilities, curricula, policies and improved school environments that provide protection and respect.
- Child rights. Water, sanitation and hygiene are key to securing children's rights tohealth and education.
- Reduced disease burden. Properly used and maintained sanitation facilities, safe drinking water and an adequate supply of water for personal hygiene prevent infections and infestations.
- Reaching the home and community. School children can introduce and reinforce positive hygienic behaviours and attitudes in their homes and communities.
- Environmental cleanliness. Properly maintained and used facilities contribute to overall public health and environmental protection." (SSHE, Oxford round table conference, 2000)

Four critical aspects that are worth considering are as follows:

- Role of health-promoting schools in improvement of health and education
- Our investments in education pay off only if children attend school.
- Schools can do their job only if children who attend school are capable of learning.
- Investments in education are more likely to pay off if the school uses its potential as an organisation to promote and protect health.

After the family, schools are most important learning settings for children and are central to life in the society. Schools can and should be stimulating environments for children. Schools can also influence community through outreach activities, through theirstudents, who are in touch with the whole community. Children are future parents and what they learn is likely to be applied in the rest of their lives. If children are brought intothe development process as active participants, they can become change agents within their facilities and a stimulus to community development. Through schools, children can develop as cleanliness teachers, development agents and responsible adults.

The school health program should be organized within and outside the classroom with clear roles and tasks for all children in maintaining personal cleanliness, using facilities currently, helping younger children do the same in cleaning the facilities themselves,

among many other facilities themselves. Being tomorrow's parents, children are also likely to ensure the sustainability of a program's impact. To achieve this, teachers mustbe able to guide and become motivators, fulfilling the promise of the school as a resource base.

In the past few decades, countries have succeeded in reducing some of the gravest threats to our children's health. Overall, children now live longer, with more immunisation facilities and are healthy than in the past (WHO 2000). As a result, more number of children survives to school age and more number of children are now enrolled in schools than ever. But in many cases, however, ill health still prevents children from acquiring new knowledge and skills and thus affecting their growth into productive and capable citizens. School children must participate in all activities of school to achieve their potential and this is possible if they are healthy and emotionally secure. A recent review done by Esrey *et al.* (1990) of 144 different interventions demonstrated the impact on morbidity of general water, sanitation and hygienic interventions as follows:

- About 36% median reduction of diarrhoea from the safe disposal of faeces
- About 35% median reduction of diarrhoea from hand-washing with soap aftercontact with stools
- Almost 20% median reduction in diarrhoea from protection of water from faecalcontamination
- Nearly 26% median reduction in diarrhoea from the integration of hygiene education or promotion in water projects

A child's ability to attain his or her full potential is directly related to the synergistic effects of good health, good nutrition and quality education which are tools to lead productive and satisfying lives. School health is an investment in a country's future socio-economic well-being. It is desirable to promote health through schools wherein learning experiences shape desirable health habits, attitudes and knowledge. Schools provide certain experiences which encourage the children to take care of their own health and surroundings. Cleanliness and sanitation practices can be reinforced in school apart from the house. A school should become a health promoting school so that time, money and resourcesinvested towards school is fruitful. The time, money and resources devoted to schools areamong the most important investments that people make. Creating a health-promoting school offers a way for everyone in the community to reap the greatest rewards from theirinvestment in schools.

The global investments made on efforts for education for all and in media like "universalisation of primary education" as a constitutional commitment in the form of Sarva Siksha Abhiyaan would pay off only if children attend school. School attendance drops when children fall ill, when the school is not clean and or when the school is not

clean and sanitary facilities are non-existent. The objective with which a school functions would be achieved only if children are healthy. Many studies have proven that health and learning are strongly interrelated (WHO 1996). Hunger, malnourishment and other preventable health problems would interfere with the learning capacity of the child. This would adversely affect the overall development of the child and in turn have a negative impact on the long-term goals of a nation's progress.

'Education for all' would be achieved if the nation strives for its commitment of 'Health for all' simultaneously. In many communities however, political, social, health and education leaders, as well as the public at large, lack both sufficient knowledge about the potential impact of school health programs to make them a priority and information about how to implement such a program efficiently.

"The school health services comprise immunisation, screening, surveillance, counselling, early detection and treatment and referral services. These are well known and need no elaboration. However, referral services have to be emphasised because without a good functioning referral system, school health services cannot be successful intheir objectives (Raghava Prasad, 2000). Studies suggest that health and hygiene education have led to improvement in the health of children. Trained and committed teachers also have an impact on health of their students.

Effective school health programs that are developed as part of community partnerships provide one of the most cost-effective ways to reach school age children, adolescents and the broader community, and are a sustainable way to promote healthy practices. Hence, this study seeks to investigate the nature and scale of existing school health programs in both government and private elementary schools at Hyderabad. The findings of this study will enable policy-From aforementioned studies, it can be aptly summarised that good health is fundamental to everyone, rich or poor, urban or rural, male or female; we need school health education because medical and public health records show clearly that present health practices are poor. Innumerable instances reveal the spread of both organic and communicable diseases as the result of unhygienic living. Habits affect health and school can help to develop health habits.

This study shall help in

- Sensitisation of the concerned authorities/ stakeholders to recognise school health as an important component of overall development and enable them to evolve an effective school health program
- Motivation of the school authorities to take care of the school health environment and fulfil the inadequacies.

- Sensitisation of the teachers, so that they can make a difference by developing certain habits which lead to healthy life.
- Formation of health clubs and school health council to record the healthproblems and problems related to school sanitation etc. and eradicate/find solution to fuse problem.
- Creation of awareness among primary school children about the importance of health and develop willingness and concern towards sanitation, hygiene practices and hygiene behaviour.
- Transformation leading to proper hygiene behaviour in the absence of which more provision of water and toilet facilities or other materials would be of no use and cannot be sustained.
- Further research related to cost-effective measures to improve school health environment, and relation between various dimensions of school health affecting the health status of students and teachers.

"Education for all" and "Health for all" concepts have school environment as common background and gaps existing between these need to be addressed as one without the other cannot accomplish the targets. All the aspects of school health i.e. school environment, which lead to healthful living, health services and health education require due attention of policy makers, school personnel and community.

This study may inspire the concerned personnel to develop and implement school health programs. For example, if SHSP has been initiated, social and economic benefits would also accrue. Besides the number of deaths which would be avoided, children will have the chance for a better education. Increasing number and standard of school toilet facilities would decrease the pride. Some factors influencing priority for school health are often related to an understanding of the relationship between health and education; financial support to implement health programs; training for teachers and other school personnel and teaching/learning materials and resources.

The significance of this study is underlined by the following issues raised by the World Bank in 1998:

- There are more school-age children, and more in school, than ever before.
- School children are neglected by most health systems
- Freedom from disease promotes intellectual as well as physical development
- Healthy children get maximum benefit from their only opportunity for education
- The benefits are the greatest for the most disadvantaged- the girl child, the malnourished, and the poor
- The combination of an accessible population and an extensive trained workforceof teachers keeps financial costs to a minimum

- Builds on the investment in early child development, and builds the basics forappropriate social behaviour in adolescence

There exist huge gap between policies and practices and causes as mentioned earlier which reflect the sorry state of affairs as far as school health and its components are concerned. It is immensely challenging to tackle the health problems of several million children, but if this challenging task is not taken up urgently all other initiatives and efforts for all round development of the nation would be in vein. This study marks a step in the right direction to undo the apparent school health neglect in this promising megacity of Hyderabad.

4.0 Objectives of the study

- To study whether the elementary schools of Hyderabad city havehealthful school environment
- To examine school health services in the elementary schools of Hyderabad city
- To study opinions of teachers about school health
- To understand perceptions of students about school health.
- To evolve necessary recommendations for promotion of school health environment and adequate school health services.

1.5.0 Overview of the study

After dealing with the background to school health environment, school health services and school health education; the objectives of the study, rationale for the study and the significance of the problem are addressed in,

chapter-1. A thorough review of the related literature is done in

chapter-2. The second chapter presents a description of the nature of school health environment, school health services and school health education which will be used in the context of this study. A part of the chapter is devoted to the school health theories in order to build a theoretical base. This review provides anopportunity to understand the global as well as national perspectives on school health andsee how these are matching with the ground realities.

In chapter-3 A description of the research methodology followed in the present study is specified. Besides this, a detailed description of the participants, research instruments, procedures of data collection and analysis are provided.

Chapter-4 Presents an elaborate data analysis of the scenario concerning school health environment and school health services in elementary schools of Hyderabad aswell as perceptions held by teachers and students of elementary schools in Hyderabad on

school health as collected in the observation checklist and the two-part questionnaire. Ananalysis of the focus group discussions followed to corroborate the findings elicited from the survey analysis. The focus of this chapter is to describe the school health scenario andresultant perceptions in relation to the objectives formulated in the study. The findings, research and practical implications, recommendations and holistic school health policy framework drawn from this analysis are presented in the fifth and last chapter.

The chapter-5 Commences with a summary of the findings that reflect the diverse range of perceptions the participants of the study hold with respect to school health. Thenprecedes a discussion of the findings which endeavours to provide a comparative analysisof the school health scenario in government and private elementary schools of Hyderabad. Towards the end, research implications and practical implications are drawn from the study and general and specific recommendations for further positive action made.

1.6.0 Conclusion

An overview of the school health scenario in government and primary schools and possible relationships between involved variables lead to the development of the objectives and assumptions of the study. The demarcation of the field of the study as wellas study format was discussed. The next chapter will deal with the literature review.