



THE AGA KHAN UNIVERSITY

eCommons@AKU

Institute for Educational Development, Karachi

Institute for Educational Development

September 2009

Environmental hazards in school structures and role of school communities

Nilofar Vazir

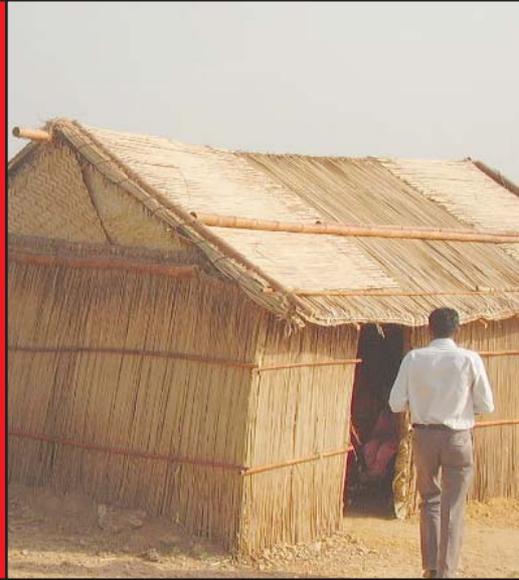
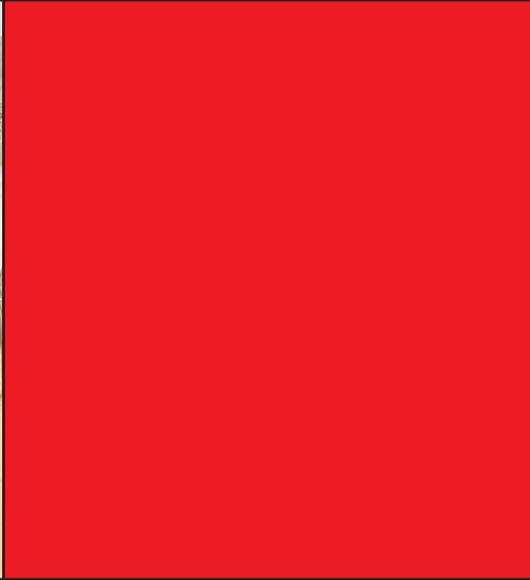
Aga Khan University, Institute for Educational Development, Karachi

Follow this and additional works at: http://ecommons.aku.edu/pakistan_ied_pdck

 Part of the [Educational Administration and Supervision Commons](#), and the [Pre-Elementary, Early Childhood, Kindergarten Teacher Education Commons](#)

Recommended Citation

Vazir, N. (2009, September). Environmental hazards in school structures and role of school communities. *Nurture*, (7), 14–18.



Environmental Hazards in School Structures & Role of School Communities



Introduction

Children are specially vulnerable and susceptible to environmental threats or hazards at early developmental stage of life. Reports have shown that children in developing countries are thirteen times more likely to die before they reach their fifth birthday than their counterparts in developed countries. While there are many biological and environmental factors associated with this high toll, lack of clean water and sanitation, as well as environmental-related diseases such as malaria, dengue fever and toxin swallowing are the most common.



The danger of plastic bags suffocation, lead and asbestos poisoning, eating molded food, flies infestation, skin diseases, and poor quality of building material and furniture used in schools, burning rubbish near school places which emit carbon mono-oxide fumes are a few that need mentioning as hazardous to children's life.

Role of Environment in Early Years Development



In many developing countries particularly in the rural environment, collecting water,

gathering firewood, tending crops, looking after young siblings, cooking meals and taking care of the household chores take up large amounts of time and energy. Children are affected by media such as water, air, food, objects or soil in their daily activities or circumstances, including eating, drinking, working and playing.

Children require a great deal of care, love and stimulation from parents, families, care givers and school as well as the best and safest of environments to survive and develop to their full potential simply because they are young. We as adults have the moral responsibility to protect them from any danger whether at home or at the school. It is the environment that we create which will influence children at all stages of their lives, before birth in their homes, and later in schools and communities. Therefore, it becomes pertinent to understand that as children develop and grow, they interact with and explore a world

that can offer either an array of life-enhancing discoveries and opportunities or a series of perils that can cause diseases and suffering. Medical and educational research has shown that the development of intelligence, personality and social behavior occurs most rapidly in humans during their first three to four years. It is estimated that half of all intellectual development potential is established by age four. According to recent research, brain development is much more vulnerable to environmental influence than was previously suspected, and the influence of early environmental quality on brain development is long lasting. Psychosocial and cognitive development begins at birth and parents are the children's earliest teachers. Therefore, strengthening the ability of the mother and all family members to care for and stimulate their children and encourage them to learn can set the stage for adult success. However, the ability to care for children is greatly



influenced by the physical environment such as the school and its teachers.



Children are curious and learn by exploring their world. They are, therefore, in close contact

with their environment. Infants tend to explore their world by putting their hands and objects in their mouths and are at risk from bacteria or virus and pollutants on these surfaces. Moreover, young children are small; they play; slip, slide and crawl close to the ground, where they can easily be exposed to dust and chemical particles that accumulate on floors and soil. Children are especially vulnerable to environmental hazards. They eat more food, drink more liquids, and breathe more air than adults. Children are in a critical period of development when toxic exposures can have profound negative effects, and their exploratory behavior often places them in direct contact with materials that adults would avoid.

More than 1.4 billion children from age 5 to 14 years – approximately 87 per cent of all children – live in developing countries, where many of the biggest environmental challenges exist. Several potential environmental risks are particularly

associated with children in this age period. Many school going children walk to school hence, injuries (usually crossing roads, falling and drowning in man-made pools and canals) are now the number one killer of children aged five to 14 years in developing countries. Other environmental factors such as exposed cooking set-ups, dangerous tools and equipment, protruding rusted iron nails and bars that lead to Tetanus, a child killer, besides,

open sewers, heavy traffic, dangerous construction or electrical sites and hazardous chemicals pose threats. Many children multi-task i.e. attend school as well as on some days are required to do other tasks depending on the contextual need of the family. Extreme poverty often forces children to work to help their families to survive. Hence, a child's health and growth may also be affected when he or she engages in wage-earning work or domestic chores unsuitable

for his or her age and ability, such as working long hours in a field, carrying heavy loads, and walking long distances for fuel wood or water. To exacerbate the situation further, with the limited budget allocated for education, schools are not purpose built as per universal standards, and are congested, dusty, inadequately ventilated and lighted and in some instances located near a garbage dump or open sewerage.

Children in Need of Protection

Every day, children of all ages are exposed to a harsh world, with few or no protections from environmental hazards, ill health and injuries. It has been estimated that during 1997-98, some 250 million children five to 14 years old were toiling in economic activities in developing countries and almost 70 per cent of them work in dangerous environments with threats to their health, safety and cultural values. For close to half of them, this work was carried out on a full-time basis, while for the remaining half it was combined with schooling or other non-economic activities. This figure has alarmingly grown over the years.



Environmental Hazards Affecting Children in Schools



Environmental hazards in our schools are increasingly becoming a concern. In developing

countries like Pakistan usually schools are surrounded by places where there is not a proper system of disposing waste which is breeding place for germs. Some of the schools have been constructed in the industrial zones, factories, mills and contaminated lands. Others are located in severely cold places where biome fuels, including wood, animal dengue or crop residues that give out carbon, carbon monoxide and where other indoor pollutants are burnt causing Tuberculosis.

Human Hazards

Environment hazards are also human executed. Harsh punishments rendered on young children and older students; whipping, fatal injuries causing punctures, broken or complete loss of body parts, burns, eye and hearing impairment, respiratory and gastrointestinal illnesses, fever and headaches from excessive heat in the schools, can all be fatal for children. Such hazards may lead to physical and mental disabilities, and without the access to basic health, and other social services, a denial of their rights increases their vulnerability to environmental risks and hazards.



Deterrent Plastic Bags

Plastic bags have become an indispensable part of our life because of their lightweight, flexibility and low cost. They are used for packing the food, shopping, delivering food and garbage packing etc. About 10 million plastic bags are thrown away every day as waste. Because of the slow process of degeneration these bags turn into pieces of plastic chunks or dust which is not biogradable as their molecular structure is too large for microorganisms to swallow. This characteristic of plastic causes serious environmental and health problems. Since the plastic bags

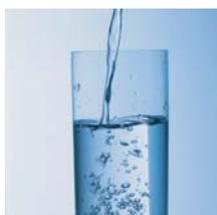


are picked up from the garbage and recycled, they tend to retain a lot of bacteria which are difficult to destroy, which in turn contaminates the food it will hold which children carry to school in or buy, causing ill health. Besides, burning of plastic in temperatures less than 800 degrees Celsius in an open space creates noxious fumes such as hydrogen cyanide and other poisonous gases which cause air pollution resulting in skin, and respiratory problems and also certain kinds of cancer.



Unhygienic food

In suburban and rural areas and quite often in big cities, food infested with flies, stale or cooked in low quality oils is sold outside schools. Such foods can be potentially life threatening if eaten on a regular basis. Some school canteens in urban areas offer junk food for children instead of encouraging children to eat well nourished foods prepared at home. It is important to teach children the importance of washing hands before eating food or after using the toilet and also the adverse effects of consuming unhealthy and unhygienic foods.



Unsafe drinking water

Unsafe drinking water remains a major environmental concern at school. Children drinking water from earthen matkas, often unwashed, results in harmful poisonous bacteria growing inside. Moreover, it becomes a breeding ground for mosquitoes, who lay their larvae in cool and still water. One is familiar with the Dengue fever that became rampant in the past and is yet a cause of concern. Tap water carries pollutants and can cause high risk diseases such as Cholera and Typhoid. In certain areas the water table is so low that sewerage containing human and animal waste seeps into the water contaminating it thereby causing epidemics and other stomach related diseases.



Harmful Asbestos Use

Many local and national schools in Pakistan have asbestos roofs and pipes. The United States Environmental Protection Agency estimates that there are asbestos containing materials in most nations; approximately 107,000 primary and secondary schools. It confirms that asbestos is commonly used in school buildings as insulations and in building material, ceiling tiles, floor, and cement pipe. Asbestos fibers can cause serious health problems especially in occupational settings. If inhaled these materials disturb the normal functioning of lungs, can cause lung cancer, cancer of chest and abdominal lining. Some of the schools in the west have been declared as "building sickness" where occupants usually complain of headache, nausea and eye, nose and throat irritation. Investigations have shown that the problem is not traceable to a single source or single contaminant but rather to multiple problems in the design, construction, operation or maintenance of the school building. Unfortunately Pakistan does not have any safety checking measure for educational setting and therefore this danger, that looms large in children's lives, goes unattended.



Air Pollution

Children in school are especially susceptible to air pollution. The same concentration of pollution will result in a higher body burden for children than adults because children breathe a greater volume of air relative to their body weight. For this and other reasons air quality in schools is of particular concern. Indoor air is being polluted in our schools due to the usage of chemicals, sources of contaminants, failure of quality ventilation system, air brought in to the building which is contaminated from outdoor sources, and usage of microbial contaminants which proliferate in humid and wet environments.

In developed countries asthma and childhood cancers are now major concerns. Acute leukemia is the most common type of cancer found in children, and its incidence appears to be rising in some developed countries. While the causes remain unclear, certain toxic substances in the air and radiation in the environment are believed to be factors in the cell changes that lead to cancer. Among the environmental factors that may play a role are lead smoke from vehicles, dust, radon, asbestos, ultraviolet light radiation, hazardous waste, chemical poisoning and some pesticides. Therefore, it is crucial that parental and school care and supervision be given for the safe and healthy development of young children.

Soil Pollutants

Many schools especially in the rural areas have kutcha (unpaved or not cemented) grounds. Children are often found playing bare-foot in soils, which have intestinal worms, or eating raw vegetables from farmlands sprayed with pesticides. These are common health hazards faced by school age children in developing countries. Such children commonly carry up to 1,000 hookworms, roundworms and whipworms at a time, which can cause anemia and other debilitating conditions. These illnesses can result in impaired learning, poor school performance and absenteeism from school.



Role of Teachers & School Heads

Children are the most precious natural resource we have. Taking action on environmental threats to children's health needs should become more of a priority for policy makers, school community and for all of us. These threats are very real and we must recognize them. The number of children diagnosed with cognitive disabilities is increasing and science has demonstrated that exposure to environmental toxins at critical stages of brain development may play a vital role in their mortality.

Besides, the school setting is a complex interaction of the physical structure (the building and grounds), occupants (staff, students, parents, visitors), furnishings (equipment and room materials), and activities (eating, physical activity, laboratory, cleaning, health care, cooking, art classes, industrial shop, canteen, etc.). The variety of specialty space types, human activities, and age range in a school is extensive. The school environment must be used and maintained in a way that promotes the health of all its inhabitants, especially growing children who have increased and unique vulnerabilities.

It is an ethical imperative to develop a framework to protect children from environmental hazards. Such a framework must include the government's writ and responsibility to regulate and to test new chemicals and other potential hazards before they are marketed. Stronger regulatory mechanisms to eliminate human exposures to recognized or

suspected toxicants must be disseminated to the public as an awareness campaign.

Reputable educational institutions must invest and strategize to conduct research necessary to protect children from persistent hazards that are widely dispersed in their environment. Guidelines about the ethical conduct of research and the role of experimental trials that test the efficacy and safety of interventions to prevent or ameliorate children's exposure to persistent toxicants or hazards that are widely dispersed in their environment must be shared through reports and findings.

Schools are second only to home among the primary places that children spend their time and thus are one of the significant places where children may be exposed to potentially harmful conditions. Additionally, the school environment is part of a larger community, a national environment and a global environment. Thus, the environmental quality of the community, nation, and world, especially relative to water, air, and selected hazards, impact the school environment and its human occupants. This must be carefully understood.

Moreover, each stakeholder must take the ownership to provide a safe school for its vulnerable children population. Orientation programmes for groups of parents, parents-teacher-student working group on

healthy life styles may be established. Curriculum must include topics on health hazards and benefits, maintaining a balance in ecology and environment; food and nutrition; water and soil borne diseases; safe and clean water; use of plastic bags and so on. The role of the teacher must be redefined as ethical practitioners who must organize and work with children on small projects related to health and environment. Designing games, puzzles, short stories and narratives based on daily life experiences are found to be very helpful in bringing a change in children's life.

Furthermore, different environmental agencies should assist school officials, school employees and parents in understanding and managing the environmental related problems. Schools need to participate in educating children about plastic hazards, dangers of asbestos and garbage crises etc. to promote a healthy physical environment. Schools also need to initiate programmes for collective learning to help the students respect the environment and develop positive attitudes and behaviors. Engaging children in activities such as recycling or cleanliness campaigns will possibly assure a healthy school setting that fosters full physical and academic potential in children. To ensure an environment free from hazards is a major task, yet small steps by many people will change the world and protect the environment.

Conclusion

Environmental hazards have become a growing concern the world over. Several reasons are to blame for this growing menace; such as rapid industrialization; rampant use of pesticides inhaled and eaten in food and water; industrial waste emissions into the sea, air and land; burning rubbish; increased use of non-biodegradable (e.g. plastic bags) materials; lack of sanitation and hygiene facilities; high lead and asbestos use in building materials etc. Children, who are most vulnerable, are not free from these threats and hazards of environment in the school. According to the 'Charter of Human Rights' it is the children's right to learn and grow in clean and safe environments. It is imperative that all school personnel; policy makers, principals, teachers, parents, administrators, parents and community members extend all possible efforts in ensuring and creating awareness for healthy and safe living. Establishing safety rules, healthy eating habits, provisions for clean water and toilets and conducting awareness campaigns through small projects are doable. To initiate change intrinsic motivation, readiness and willingness are important. Change, if brought about with a meaningful action plan, can happen if there is a political will and spirit to minimize the dangerous effects of environmental threats to our children. If taken at a war footing these major environmental hazards can be overcome and defeated only if each of us pledges and strives to ensure a cleaner and healthier environment for our children.

About the Writer:

Dr Nilofar Vazir joined AKU-IED in 1994 as an Academic Consultant. She has served the Institution as Coordinator of Certificate in Education (Cert.Ed) and Masters in Education (M.Ed) Programs at IED. Currently she is an Assistant Professor and Coordinator of the Early Childhood Education and Development (ECED) Programs at the Institute.