PHAST APPROACH TO SUPPORT SAFE WATER AND SANITATION IN PERI-URBAN AREAS; CASE OF LUSAKA –ZAMBIA

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ABSTRACT: Lusaka is the capital city of Zambia, a fast growing town in sub-Saharan Africa. The population of Lusaka is estimated at 2 million. The peri-urban population ranges from 40% in small towns to 80% in cities, although local authorities regard these settlements as “illegal” or “squatter” compounds they continue to grow without planning controls. The compounds are characterised with poor water and sanitation that has led to outbreaks of most human infections, such as water borne and water related diseases, due to poor sanitary facilities as well as sanitary conveyances. The paper discusses the practical experiences of a pilot, primary health care project implemented through Participatory Hygiene and Sanitation Transformation (PHAST), supporting sustainable water supply and sanitation in peri-urban areas of Lusaka. It also discusses the number of strategies employed to empowered poor communities in peri-urban settlements with cost sharing skills to run communal taps and toilets through community health management structures. The paper brings out how implicit experience and tacit knowledge translated into shared experiences and explicit knowledge resulting into the expansion of the project to phase II covering five more communities.

The paper points out negative experiences on how voluntarism without legislation as well as unemployment has affected community work participation, considering gender perspectives, cultural background and the socio-economic situations. PHAST is an information, communication and knowledge-sharing tool, and has proved to be a suitable and convenient approach for both educated as well as those who have never been to school with proper integration of knowledge and behaviour improvement of the venerable groups of the poor. Through PHAST, the project has achieved and promoted sustainable water and sanitation in peri-urban areas of Lusaka, which as resulted in the number of deaths due to cholera in pilot compound reduced drastically from 70/10,000 in 1994 to 1/10,000 in 2000. The project is now being extended to six (6) more peri-urban areas of Lusaka.

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Methodology, both qualitative and quantitative approaches applied. Primary and secondary data was collected through review of existing literature; Interviews, focus group discussion and observation. Data Analysis was subjected to both quantitative and qualitative analysis and the variables to analyse include; socio-economic, cultural background and gender perspectives regarding participation in water and sanitation. Statistical Package for Social Sciences (SPSS) was used, Integrated Microcomputer Processing System (IMPS) for data capturing, errors and validation checks.

OBJECTIVES

The main or overall objectives of this project is to evaluate the effective of the Participatory Hygiene and Sanitation Transformation (PHAST) concept to support sustainable water supply and sanitation in peri-urban areas of Lusaka and to induce environmental health as well as the right of the citizen to clean and health environment. The study aims to investigate the PHAST methodology to see if it has contributed positively to environmental health integration in peri-urban areas.

DISCUSSION

The increasing and fast growing urban population of Lusaka, Zambia has brought about a number of unplanned settlements around the city where as resulting into adverse effects in the peri-urban settlements. At independence (1964) the population of Lusaka was 195,700. The population of Lusaka is now estimated at 2 million where as the annual average growth rate of 3.5 percent, Central Statistical Office (2000).

Despite Lusaka experiencing a rapid growth of population especially in peri-urban areas for over last 25 years, little has been done to address the trend, although local authorities are aware of the developments and they regard these settlements as “illegal” or “squatter” compounds they continue to grow without planning controls. There are about 33 peri-urban compounds around the city which most of them are characterized with poor water and sanitation. The prevailing poor water and sanitation is caused by the little attention these peri-urban settlements or squatter compounds receive and has led to outbreaks of most human infections such as water borne, water based and water related diseases. These include diseases whose transmission will be reduced following an increase in the volume of water used for hygienic purposes, like diarrhoeal diseases an example is cholera. Water related diseases are these diseases spread by insects which either breed in water or bite near water, and an example is Malaria.

The poor design and maintenance of the drains (surface or open) results in stagnation of rainwater, which contributes to road damage and creates nuisance in the compounds as well as creating breeding grounds for malaria carrying mosquitoes. See figure 1.
<table>
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<tr>
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</tr>
<tr>
<td>2</td>
<td>Diarrhoea</td>
<td>16,534</td>
<td>144</td>
</tr>
<tr>
<td>3</td>
<td>Respiratory</td>
<td>13,861</td>
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<td>4</td>
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<tr>
<td>5</td>
<td>Intestinal worms</td>
<td>3,171</td>
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</table>

Figure 1. Top 5 cases of Morbidity overall in 2001 in Lusaka, LDHMT/JICA-PHC April 2002.

The conceptual framework in (figure 2) shows the importance of Participatory Hygiene and Sanitation Transformation (PHAST) has information; communication and knowledge-sharing concept or tool, proved suitable by recognizing that the learner can also provide something to achieve sustainable community developments by not pivoting any human being regardless age, sex, social class or education background. PHAST methodology encourages the participation of individual in a group process; it works in the premise that all partners are equal. This could be a possible and participatory way of improving water and sanitation in peri-urban communities and promoting knowledge integrations, hence, positively trigger development in various aspects of the environment. It is clear from the framework that effective application of PHAST can with little doubt lead to: - Improved Sanitation in peri-urban Communities, Integrating the Environment to insure the right of citizens to clean and health environment, To increase the effectiveness in voluntarism and the need to review existing volunteering legislations as well as strategies. It also gives a clear understanding of PHAST concept and how suitable it is to local conditions in developing nations like Zambia.

With the framework in mind and the reality of PHAST concept to improve as well as to achieve sustainable water and sanitation and any other environmental health projects in unplanned communities, it would be fair to conclude that PHAST methodology is effective and can partially, if not wholly prevent adverse effects brought by poor management of community projects.

Zambia is one of the developing countries of the World. Developing Countries of the World are those that are poor and behind in providing many things, such as good education, health services, sanitation and wholesome water supplies to their population. They have high death rates and high birth rates and their population often increases at such a rapid rate that they can hardly keep up with new jobs. Monica and Bennett (1986).

UNESCO-UNEP, has given a worldwide overview on water and sanitation. Lack of safe drinking water and adequate sanitation for a great number of people in the world is one of today’s most critical environmental problems. While the estimated water and sanitation coverage is close to 100% in industrialized countries, the situation in the poor developing countries is far from satisfactory (Egil 1998).
In 1980, the General Assembly of the United Nations declared the period 1980 – 1990 as the International Drinking Water Supply and Sanitation Decade. The global target of “Safe drinking water and adequate sanitation for all people in 1990” was widely published and a mood of enthusiasm and high expectation was generated. It soon became obvious that the goal of the decade was unrealistic. However, increased efforts during the decade created awareness about the sector and more systematic approach to the problems. Even the goal of the Decade was clearly unrealistic; two factors particularly had a negative impact on the development. Firstly, the world population continued to grow rapidly, from about 4.5 billion in 1980 to 5.3 billion in 1990, with most of the increase (about 614 million) in the developing countries, particularly in urban areas. Secondly, the downturn in the world economy made fewer funds available for the sector in many countries. In the early 1970s, it was estimated that only one third of the people in the developing world had access to safe drinking water and adequate sanitary excreta disposal. Furthermore, population growth and increasing urbanization made the prospects for achieving the decade target grim. Inadequate Urban Sanitation and urbanization is often the major source of pollution of ground and surface water bodies (Egil 1998).

Inadequate urban sanitation is a worldwide common failure related to excremental disposal problems, which in the developing world, is a very serious situation. Zambia is no exception. To solve these environmental health problems, the Government of the Republic of Zambia, through Japan Technical Co-operation (JICA), has embarked on the Primary Health Care Project, which is a long-term commitment to stimulate the interest and investment in community-based environmental health services, reduce morbidity and mortality, and to promote the fundamental right of citizen to a clean and health environment.

The rapid demographic changes especially in Lusaka peri-urban settlements, are caused by an annual population growth rate of 3.5%, industrialization, increased demand for social amenities and general economic decline. These changes pose a threat to the sustainable use of community based water supply and sanitary facilities which, in turn, threatens community health in the peri-urban settlements in long run.
The city of Lusaka attracts numerous migrants because of its various small-scale businesses and both formal and informal employment. However, since the mid 1990s when the country began to experience serious economic downturns, job opportunities became very limited and most migrants ended up in the informal sector. The high level of urbanization taking place in Lusaka and the lack of adequate management of the city have constrained the city authorities in providing basic services such as adequate road drainage, sanitation, water supplies and many other public amenities in peri-urban compounds.

A survey conducted by CSO and the University of Zambia (1992) on country profiles identified that the Government has recognized the need to promote and maintain the welfare of the people by adopting sustainable policies, for the benefit of both the present and the future populations. An implementation program to achieve these goals by adopting appropriate policies, incentives, guidelines and public awareness at local, provincial and national levels could be done by carrying out studies and providing information in order to promote citizens right to clean and health environment and for policy formulation. Most urban municipalities have failed to provide social services, such as clean water, adequate sanitation and waste disposal. Migration into urban centres has lead to the sprouting of unplanned settlement areas (shantytowns). Inadequate sanitation and lack of clean water supply pose great health dangers and environmental hazardous. Out breaks of diseases, formerly rare in Zambia, such as cholera, have now become endemic problems.

Bland and Kilama (1985) conducted a study to determine the causes of most infectious diseases. The investigation identified that poor sanitation is the major cause of most human infections. Infections spread through inadequate sanitation include: viral diseases like cholera, typhoid, paratyphoid and bacillary dysentery; protozoan diseases like amoebic dysentery and worm infections like ascariasis pinworm spread through direct contact and indirectly via water, soil and food or carriers. The study further found that, without effective community-wide method to contain excrement, the full health impacts of a plentiful water supply will not be appreciated.

From the foregoing review of literature, it is evident that a number of community based environmental health projects have been conducted in Lusaka and elsewhere in Zambia, but they lack sustainability. Therefore, the importance of this study cannot be over emphasized. If the trend cannot be reversed most projects will continue to lack sustainability.

APPLICATIONS

Data collection involved review of literature; stakeholder interviews using questionnaires (10 institutions and 500 household were core informants) and inspections (observations) of sanitary and drinking water supply facilities. Both qualitative and quantitative data was collected. Specifically, the JICA primary health care project was evaluated in the George compound where it was implemented. George is one of the squatter compounds. The 5,000 households of the George compound were stratified and a sample of 500 households was selected. The circular systematic sampling method was used in the selection of households, which assumes the following relationship:
Let \( N = nK \)

Where \( N = \) total Number of household assigned sampling serial numbers; in this case \( N = 5000 \).
\( n = \) the sample size of the households, i.e. the required number of households; in this case \( n = 500 \); \( K = \) the sampling Interval calculated as \( K = \frac{n}{N} \).

A random Number was obtained from a table of random numbers. This number was between 1 and \( N \) (both inclusive), In this case, the sampling interval \( K = \frac{n}{N} \), was calculated as \( K = \frac{5000}{500} \).

The households required for the survey were then selected using the circular systematic sampling method.

The community health management structure within catchments consists of Community health worker (CHW), Nutrition Promoters (NP) and Neighborhood Health Committees (NHC) who perform various health promotion duties such as education on nutritional promotion,
environmental health education which includes hygiene as well as environmental sanitation. The structures are identified by the community themselves and grouped as per area of interest to work as environmental health service providers’ trained as trainers in capacity building to maintain the existing sanitary as well as water systems in the compound. It was found that extensions are made in private cartilages with or without permission from the local authorities, using the environmental health organization structures all illegal extensions; water and sanitation connected illegally are reported to the authorities Figure 3 shows a housing structure extension within a yard, drains and sewer are connected illegally.

![Figure 3. Housing extensions within yards](image)

It was evident that the socio-economic and practices of urban communities have contributed to lack of satisfactory participation in community voluntary work due to various small-scale businesses or informal employment commonly known as street vending. Informal sector that includes street vending and other small businesses is one of the main sources of income for most families in peri-urban communities to sustain their livelihoods. Although street vending is illegal in Zambia, the practice continues in the main busy roads in the city centre. There some negative impacts on how voluntarism without legislation as affected community participation, those who sell depends on the daily sells to feed the family, therefore, they prefer to go where the can find some thing for their families. Considering gender perspectives on community participation, there more female than male taking part in community voluntary work because most married women are fulltime house wives. Figure 4 & 5 shows venders selling along main roads.
Figure 4. Vendor selling along main road

Figure 5. Vendor selling along main road
PHAST is information; communication and knowledge-sharing tool, proved suitable and convenient concept for both educated or those who have been to school as well as those who have never been to school. The education attainment in George compound revealed that there more people who stopped school premature before reaching high education where as 55% attained grades one to seven while 27% reached grade eighty and nine. Regardless of these education attainments PHAST as influence in knowledge transfer or integration of knowledge and behaviour improvement of the venerable groups the poor. See figure 6

![Figure 6: Education Status in George Compound](image)

Through PHAST, the project has achieved as well as promotion of sustainable water and sanitation in peri-urban areas of Lusaka, which as resulted in the number of deaths due to cholera in pilot compound reduced drastically from \( \frac{70}{10,000} \) in 1994 to \( \frac{1}{10,000} \) in 2000. The project is now extending to five more peri-urban areas of Lusaka to cater for six compounds.

In 1997/1998 rainy season, the Central Board of Health reported that by February 19, 1999 there were 1,540 cases of cholera in 14 districts countrywide. There were 43 deaths, 19 of them from Lusaka alone\(^1\) and that was before PHAST was fully implemented.

**CONCLUSIONS**

The conclusions drawn are that peri-urban water and sanitation is a common failure especially in developing countries like Zambia but with the coming up of PHAST concept the Globe target could be realized. The disposal problem of solid waste are regarded as less important than the consideration of portable water supply, which is very wrong these two should be given equal attention or considerations. . The fact is that without effective community-wide method to contain excremental, the full health impacts of a plentiful water supply will not be appreciated, community themselves would be given chance to participate in any community based projects.
just from the beginning. The historical roots of such an assumption originated in times when it was acceptable to plain for the less privileged or venerable groups the poor, but with PHAST the trend has to be revisited.

Urbanisation is often the major problem in Lusaka and other cities in developing countries. The concept of ruralisation is not fully implemented so as to control urban drift. Capacity building through PHAST and political will can contribute to improve water and environmental sanitation situation in peri-urban settlements. Regarding developing countries, the key issues to achieve ecological environmental sanitation and adequate wholesome drinking water supply is community empowerment as well as involvements and political recognition of the importance PHAST to improve sanitation, poverty alleviation and peri-urban economic development not forgetting the development of adequate policies. Efficiency, equity and vitality are the three dominating agents in PHAST concept application that requires totally functioning design, management and help local people through capacity building.

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