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MAXIMIZING THE BENEFITS FROM WATER AND ENVIRONMENTAL SANITATION

Madimba peri-urban integrated sanitation project: A zambian experience

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Paper discusses baseline results from one of Lusaka's peri urban communities known as Madimba and highlights practical experiences. The project implemented through Integrated Environmental Sanitation (IES) with the intentions to develop an Eco-model (PUHEIM) for the integration of peri urban communities. It also discusses strategies that empower vulnerable poor communities with cost sharing skills to run communal water sources and waste management. It brings out how implicit experience and tacit knowledge translated into shared experiences and explicit knowledge result into effective community structures for implementing Environmental sanitation concepts. It points out negative and positive experiences on how integrated environmental sanitation programs are implemented through community participation, considering gender perspectives, cultural background as well as the socio-economic situations of the vulnerable groups of the poor.

Background

The challenge of unplanned settlements in African sub Saharan region has resulted into a number of adverse effects that affects urban human ecology, natural ecosystems, human health and social life for both young and old. "The rate of urbanization has also resulted into numerous un-planned informal settlements commonly known as peri-urban communities. The peri-urban population is estimated to range from about 40% in small towns to 80% in cities. Lusaka City has 33 Peri-Urban Areas. Although local authorities regard these settlements as "illegal" or "squatter" compounds they continue to grow without planning controls." (GRZ-MLGH, 2001: 1-5)

Urbanization in developing countries like Zambia, poses a major challenge to the urban environmental planning and management at community level that may demand re-examining of urban environmental management issues.

Up grading the peri urban communities through integrated environmental sanitation can solve some of the challenges in the urban and peri urban environment.

Lusaka was inaugurated as capital of Zambia (then Northern Rhodesia) on 31 May 1935. At independence in 1964 the city had a population of only 195,700, "currently the city is a fast growing town, with estimated Population of about 2000 million." (CSO Census, 2000: 23-25) Eighty percent (80%) of the population live in un-serviced areas (shantytowns/ compounds) or peri-urban communities usually located in flood-prone areas where formal developments are avoided. "The common excremental sanitary disposal systems in these areas are on-site traditional pit-latrines, which are characterised among other things by short life span, no standard design, odours, permeability, breeding ground for vermin and pathogenic (bacteria and parasites) making a pit-latrine a source of pollution (air and ground water) as well as source of infectious diseases and environmental hazard." (Lusaka City Council and GRZ, 1997: 10-25)

The "Pit-latrines that covers about 45% are widely used in high-density residential areas of the city. When they are filled they are emptied into side holes of the pit and back fill or back fill the pit and construct a new one." (Wamukwamba and Share, 2001: 212)

One way to integrate these un-serviced peri-urban settlements in Lusaka such as Madimba is by introducing environmental sanitation as well as dry toilets like ecosan suited for these high water table areas. (O. Kawanga, Personal communication) "Lusaka area forms part of the great mildtertiary peneplain of Central Africa that stands at 1,260m (4200ft) above sea level." (Lusaka City Council and ECZ 1998). The flat terrain, high water table and soil porous especially around the areas of limestone, has contributed to high ground water pollution because of the percolation of feacal coliform from traditional pit-latrines into groundwater sources, including shallow wells, making this receptacle environmentally un-friendly (Kawanga, 2004: 4-5).

Madimba

Madimba is one of the peri urban areas in Lusaka that started as an unplanned settlement with an estimated population of over 3,000. 47% of these population are male and 53% are female. They occupy an area of about 1.2 Square Kilometers (KM2), representing 0.33% of an estimated 360 Square Kilometers (KM2), of Lusaka district. There is approximetry567 number of households occupying more than 500 housing units. Madimba is a local name that means gardens (Farms). It is located to the northwestern side of the city center about 10KM away, towards Barlastone park in Lusaka west. Since the area is not serviced and the underground water table is high, many residents dig shallow wells in their yards adjacent to their homes and use the water for daily activities. The openings of these wells are generally at ground level, and occasionally up to 4-5 inches above ground (Kawanga, 2004: 4-5). The problem is that toilets, generally traditional pit-latrines are often dug within several yards from the wells. Solid waste is dumped indiscriminately. A scenario of having waste dumped indiscriminately and pit-latrines closer to shallow wells has resulted into massive ground water contamination. The biological analyses of the water samples collected from three points in 2004 isolated E.coli, Salmonella and other bacterial responsible for Diarrhoeal cases. During the rainy season, the excrement in the latrines and solid waste overflow with rainwater as well as percolation of feacal coliform into the shallow wells causing the situation to be even worse.

PUHEIM concept

The PUHEIM is a flexible indigenous concept developed in Madimba with a holistic approach that considers gender perspectives, ecology, culture backgrounds, norms, socioeconomic, community as well as stakeholder participation. PUHEIM stands for Peri Urban Human Ecosystem Integration Model where as ;

- P = Peri or peripheral urban settlements
- U= Urban communities or settlements
- H= Human beings in the peri urban communities
- E= Ecology of the peri urban communities
- I= Integration or upgrading of urban ecosystem
- M=Model or pattern

Methodology

The study employed quantitative method, observation and literature review. The major stages were:

- Interviews: to capture primary data from key informants in the pilot area by the use of structured questionnaire.
- Review of existing literature to capture secondary data from the publication about urban human ecology, ecosystem and urbanization done in other countries in Africa and elsewhere.
- Direct Observation of the ecology of the pilot area (Madimba) and took some pictures.

Lesson learnt

The lesson learnt is that majority of the people in the periurban Madimba community are poor, hence when implementing any sustainable environmental integrating project we consider small incentive for the project to be a success. Women do most of the community based voluntary work as compared to men. Foodstuffs are more appreciated than small cash incentive for peri-urban voluntary community work especially if an incentive is less than \$1. The household economic status has a very big influence on community participation on voluntary work. An integrated community based environmental sanitation projects should consider income-generating activities. The practical experiences of an eco-model development and integrated environmental sanitation pilot project in Madimba community revealed that community knows their problems and can be addressed that way. Several community concerns that adversely affect the residents have been highlighted and discussed to come up with intervention strategies that empower the peri urban vulnerable groups of the poor such as:

Accepting payments in kind such as providing labor instead of cash payments for service. Excepting vulnerable like the old fork and orphans from paying for the service. Supporting individual households with project ideas that could benefit the community at large.

Conclusions

The baseline recommended interventions appropriate to the local conditions that will facilitate the implementation strategies that would directly or indirectly provide healthy peri-urban human environment with diverse opportunities for income generating among the target groups. Several factors and indicators affecting the alternative livelihood were examined.

People's cultural background is an important influence factor on several aspects of livelihood, including their attitudes towards their well being that include acceptance of ecosan concepts especially in African societies. Implicit experiences and tacit knowledge revealed that cultural inheritance is an important factor that needs to be incorporated when designing community projects, awareness campaigns and sensitisation programmes to make it more focused and action oriented.

The cost sharing strategy in the peri urban communities like Madimba depends on the legal framework designed at community level by various community structures to ensure effective and efficient running of communal social amenities







such as water sources. Community participation on voluntary basis have been low due to the number of factors such as socio-economic status, lose of confidence in some civic leaders and lack of policy.

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