

Eco-Club as an Effective Community Participation Tool in Solid Waste Management For Engineering Institutions



Engineering

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ABSTRACT

Bangalore is presently reeling under solid-waste management crisis due to the lack of effective disposal measures and the non-availability of potential sites for newer landfill. The city generates about 3,000 tonnes of solid-waste daily, out of which only about 1,139 tonnes are composted. The remaining are collected by the municipality and dumped in open spaces and on roadsides outside the city. Apart from infrastructural obsolescence, this is due to the lack of awareness and environmental responsibility among public. This problem can be resolved if it's tackled at the point of generation, by targeting the major source and population contributing to it. In this context, an eco-club can create conservation practices among its engineering fraternity to decamp the waste from the campus. Strategic locations needs to be identified based on the source of waste generation and present disposal means. While new on-site compost pits may be constructed to handle the bio-degradable waste, the plastic wastes ought to be handed over to the authorized recycling units. The eco-club may also additionally propose placement of dustbins at strategic points across the campus and conduct seminars on the ill-effects of unsustainable disposal. The club thereby can suggest measures as to how a college can go about reducing the generation of solid-waste within its premises, so as to present an ideal picture within the stricken Bangalore city.

INTRODUCTION

For generations, an individual's community has served a vital role in terms of offering camaraderie and acting as a support system. Community participation concerns the engagement of individuals and communities in decisions about things that affect their lives, all within a process that requires power sharing, maintenance of equity and flexibility in pursuing goals, methods and time frame, to fit the priorities and capacities within the cultural context.

On a smaller scale, community participation is observed in educational institutions in the form of forums, serving a vested purpose. One such forum would be the eco-clubs, which empowers students to participate and take up meaningful environmental conservation activities. The impact of the same is when this micro-community enhances the student's ability to explore environmental concepts and actions beyond the confines of their syllabi or curriculum. It has been often our culture to leave the management of our precious environment to a very few, with the remaining huge majority staying away. In most academic institutions, environmental education within the realms of an 'eco-club' is ineffective. Major episodes of environmental pollution, apart from infrastructural obsolescence, hence, may also be attributed to the lack of awareness and environmental ethics among the major population, i.e., the youngsters and the student population. This compounding problem can be resolved if it's tackled at the point of generation, by targeting the major source and population contributing to it.

RESEARCH PROBLEM

Bangalore, once called the 'Garden City of India' and the 'Pensioner's Paradise', is today a large cosmopolitan city with diminishing green/open-land spaces, in its attempt to support a large working population. With the standard of living constantly improving and the amount of solid waste generated by the city piling on a mammoth scale, the city's civic administration 'Bruhat Bangalore Mahanagara Palike' (B.B.M.P.) responsible for handling this waste has failed miserably. Blamed due to lack of lands for landfills, the inefficiency to manage the waste has been garnering global attention with news-reports also making it to the New York Times, keeping in mind Bangalore's 'global' city status.

Bangalore generates about 3000 tonnes of municipal solid waste every day from households and commercial establishments, which during the post festive season the pathways and the sidewalks of the city is worsened. Municipal waste, commonly known as the trash or garbage, is a combination of the entire city's solid and semisolid waste, generated from mainly

the residential and commercial sector, with the exception of industrial hazardous wastes. Around 70% of this waste is organic, consisting of wasted fruits and flowers. As the population and lack of natural spaces has reached the peak, the traditional energy saving practices of managing the wastes (composting) have disappeared with city heavily banking on the landfill methods.

Figure 1: Piling Garbage menace of Bangalore.



Source: Google Images

Lately the city is more of trash town (figure 1), due to the recent shutdown of three landfills that supported garbage from the city. With the refusal of surrounding villages to receive anymore of Bangalore's garbage citing pollution and health hazard, the elected government is in deep despair as the city now presents emanating stench arising from the tonnes of garbage spilling onto the city roads. The problem is so serious that it has virtually held B.B.M.P to ransom with the Karnataka High Court directing it to clean up or quit (figure 2).

Figure 2: Internationally telecasted Court Order.



Source: Google Images

Facing the heat, the B.B.M.P. has issued the guidelines for garbage segregation on basis of biodegradable or non-biodegradable waste, by dividing wastes into Dry and Wet category. While dry waste includes wood and related products, metals and glass; wet waste, typically refers to organic waste usually generated by eating establishments. The objective of doing so, strives at reducing waste that gets landfilled and so that the different processes such as composting, recycling, and incineration can be differentially applied. The B.B.M.P.'s current focus on waste segregation though does provide a reliable solution in waste handling, is unsustainable. Nevertheless, even this drive due to the lack of back-end systems to take away the increasing piles of waste and the absence of landfills may soon end up with citizens losing interest in the well-intended drive.

RESEARCH LOGIC

The problem faced by Bangalore is only an eye-opener to what can be faced across the nation and probably worldwide.

About 80% of our nation's garbage goes to landfills, half of which have already been closed with the beginning of the millennium. The present study in the framework of research furvatively proposes sustainable measures (corrective and curative) overlooked by the decision makers and B.B.M.P. alike. In this context, the solution doesn't lie only in identifying potential sites for new landfills or waste segregation practices, but in its often overlooked root cause, its "quantum of generation". The basic logic of the study underlines the fact that if the quantum of generation is controlled, then it invariably can reduce the load of waste inflowing into land-fill sites.

It also highlights the role of eco-clubs in effective management of solid-wastes within an engineering college premises. The need for awareness and active participation from communities needs to be achieved right from the micro-level. Engineering colleges can hence be considered as micro generators of the solid-waste, which exponentially propels considering the bloom of educational institutions in Bangalore, in terms of numbers. If it's possible to ascertain how much an engineering college generates, it roughly can give vital inputs that how much the educational institutions are alone contributing to the Municipal Solid-wastes to the city. The further section unveils the steps taken to resolve this.

RESEARCH METHODOLOGY

The eco-club needs to initiate awareness and waste clean-up drive within the college premises, to highlight present and desired conservation practices among its engineering fraternity. Strategic locations must be identified based on the source of waste generation and present available disposal means. The members in advance needs to be briefed about safe waste handling instructions, before being divided into several teams to identify, classify and decamp the waste acre campus.

RECOMMENDATIONS

The Garbage that is generally generated within the campus includes wastes such as paper, food, plastic etc. Mostly these end up in the municipal landfill dumps through the B.B.M.P. Also due to lack of interest and ignorance, horticultural waste, kitchen and non-biodegradable waste also find their way into open water-bodies and green spaces (figure 3), if available within college premises. This may also propel felling of trees in order to create disposal space for the same. The same also can unfortunately pave way for open burning of paper and other combustible wastes (figure 3).

Figure 3: Open Burning amidst Tree felling.



Source: Photograph snapped by Author

On a brighter note, the positive side of the clean-up exercise can reveal the true potential of effective community participation. The true motivation to promote the conservation measures stems from the unique mixture of experience, vigor and youth among the members, to serve the nature and society alike. As a solution, the eco-club can rightly also suggest recycling, recovery and reuse measures (figure 4).

Figure 4: Reuse of Wastes in leisure activities.



Source: Photograph snapped by Author

While the use of one-sided papers may be promoted for writing, printing and in photocopy centers, adequate measures can be undertaken to arrange the vastly generated non-usable papers to recycling mart, rather than being dumped for open burning. While on-site compost pits can be suggested for kitchen wastes, the plastic wastes needs to be handed over to the authorized recycling units, with the unusable and the non-recyclable waste delivered to the B.B.M.P. officials for final disposal.

As an innovative measure, paper wastes and demolition wastes ought to be advocated for newer make-shift constructions, and also in model-making for student leisure activities. The placement of differently color coded dustbins at strategic points across the campus must be pointed out for effective segregation. To instill environmentally friendly behavior among the 'target population', the eco-club can also organize clean-up drive and seminars on the ill-effects of unnecessary wastage of food and presently practiced non eco-friendly disposal means. If the activity is done with collaboration of B.B.M.P., the message can be effectively put forward to the society.

CONCLUSIONS

An effective eco-club and meticulously planned clean-up drive can unveil the ludicrous quantum of solid waste that is generated on a daily basis from an educational campus. This shall empower an eco-club in introducing corrective measures for sustainable solid waste management, so as to present an ideal picture within the problem stricken Bangalore city. The eco-club, hence apart from creating awareness among the 'target population' of the ills of solid waste generation, can also instill the true potential role of community participation in environmental responsibility. It is hence inferred from the study that the synergistic effort of a community even at micro-level can be a very massive force as the ultimate necessity for environmental protection.

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