iJRASET
International Journal For Research in Applied Science and Engineering Technology

INTERNATIONAL JOURNAL FOR RESEARCH

IN APPLIED SCIENCE & ENGINEERING TECHNOLOGY

Volume: 9 **Issue:** VI **Month of publication:** June 2021

DOI: https://doi.org/10.22214/ijraset.2021.35512

www.ijraset.com

Call: 08813907089 | E-mail ID: ijraset@gmail.com

International Journal for Research in Applied Science & Engineering Technology (IJRASET)
ISSN: 2321-9653; IC Value: 45.98; SJ Impact Factor: 7.429
Volume 9 Issue VI Jun 2021- Available at www.ijraset.com

Capping or Ground - Zero: What has the Closure of Ahmedabad's Pirana Dumpsite Taught Us?-The Resident's Perspective

Utkarshi Arya
Faculty of Planning, CEPT University, India

Abstract: ***Dumpsite are often most neglected public infrastructure in all our cities today. Largely because it entails least development and operation cost required among all the types of solid waste disposal and thus it is the most prevalent type of disposal facility also in most countries today. With time as these landfill sites have grown in size and their environmental implications the closing and upgradation has emerged as an essential step in reducing serious public health impacts. Landfills by definition are sited designated for dumping rubbish, garbage, or other sorts of non-reducible solid waste. With the increasing amount of waste from our homes. offices, hospitals, markets and schools it is high time that this issue of waste dumping is handled in a scientific manner. However, despite many attempts to manage our wastes most communities and cities leave the landfill sites unattended which causes severe land pollution, degradation of ground water and an uncontrolled built up of all sorts of solid waste material. Since most of these wastes are non-biodegradable they heap in landfills and stay there for years. The scenario gets even worse when these landfill sites are used beyond their prescribed capacity causing unbearable stench and serious health risks which can be gastrointestinal, dermatological, respiratory and even genetic in nature.***
Keywords: Dumpsite; Solid waste management; landfill:garbage:segregation;

I. INTRODUCTION

Today ULBs in India are struggling to find a fair solution of either closing or alternatively upgrading open dump sites. The problem is worse because often a suitable land designated especially for this purpose is not found in the urban periphery in many instances. Additionally, no separate provision is made to designate a place separately for dump sites right at the stage of preparing the development plan. Other major issue regarding finalizing a dedicated space for landfill is that the urban periphery itself is quite 'liquid' in nature. The direction of growth of any urban center is not always what is predicted. As a result, often it is found that these dumpsites is engulfed by the ever changing city 'limits' every ten or fifteen years thus bringing the condition back to square one.

II. SETTING THE CONTEXT

Taking the example of one of the most emblematic dumpsites of the Indian subcontinent, the Pirana dumpsite has been a subject of sheer disgrace to both the authorities and the public since the last 35 years. It has been witnessing non segregated, open dumping for up to more than three decades now. Due to this it has become an epicenter for endless controversies of air and land pollution, frequent fires, vexation and contamination of surrounding groundwater. It was commissioned in 1984 and covers an area of 84 acres. Over the years approximately more than 200 lakh metric tons of MSW has been accumulated. The stench rising from the dumpsite can be easily sensed from as far as a kilometer away giving the idea of a dumpsite nearing. It has been reported that the awful stench generated in the air is so strong that it can be felt inside a car with its windows shut and AC working to its maximum. Visually also the distant view of Pirana resembles nothing less than three small and big mountains of trash with smoke and fire at few spots all over. Apart from his few industries can also be spotted clearly speaking of their dependency on the dumpsite and how the interaction of people with is dumpsite is almost inevitable .But what is most atrocious to find as a prominent land use pattern in its vicinity are the tracts of agricultural land and residential pockets comprising of slums .Another alarming issue in this regard is the spewing of leachate happening for more than 35 years as of today which silently speaks of what losses the people around are incurring in regards to their ground water supplies and the kind of crop they produce .

However as the saying goes, every cloud has a silver lining ,according to a study conducted by a private agency, 40-45 % of waste in the landfill is biodegradable which makes it a rich source of methane .It is estimated that the flow rate of methane emission is 100-1700 cubic meter per hour, enough to support a 1.3 MW power plant(IEA,2008).Due to its such volatile dynamics Pirana has managed to seek intense media scrutiny from time to time and amidst all that Pirana still silently stands tall and unaffected overlooking the city of Ahmedabad in pride.

©IJRASET: All Rights are Reserved

It should also be noted that in response to the utter hue and cry made by the public the government has been since long trying to promote incentivizing and de-commissioning of this dumpsite ,however it goes without saying that projects of such massive scale involving so many direct and indirect impacts needs to be a well-coordinated collective venture of a range of stakeholders from various tiers of government to NGOs ,research institutions to private agencies and last but not the least the informal sector deriving their livelihood out of it and the residents living in its direct vicinity. This complex nexus of stakeholders is what makes this project even more complex in the decision making and execution in itself. After all, closure and relocation of dumpsites are among the few non- 'celebrated' and non- 'glamorous' works in the city which imperatively is a problem of all but sadly not the priority to all.

Pirana has had a long history of events in regards to its containment as a landfill capping project or a landfill mining and reclamation project. The chain of events dates back to 2011 when a few private companies expressed their intent to cap the dumpsite on a PPP mode with no cost to AMC. However, the project could not advance further as the companies did not find the project feasible to be executed at no cost to AMC model citing the reason that 'the extraction was insufficient to draw enough profit to the company'. It was later in 2013 during the Vibrant Gujarat Summit that few more companies at their own cost and risk submitted a DPR in which later only three out of six companies submitted their detailed technical and financial offers. Later one of the companies along with AMC and GPCB held a meeting in which it was found that the company did not provide any clarity on technology and methodology and above that demanded huge financial assistance from AMC.AMC now left with just two more offers of bid in hand along with a legal firm issued relevant paper for acceptance but till date there has not been any revert from the firms with their final offers.

It was eventually in late in 2016 that a fresh tender of RFP was floated by AMC globally on DBFOO model following the evident lack of interest in local private parties in doing the same. The outcome was not as expected as there were no companies ready to take up the project that time. Things took a positive turn four years later when the state government assigned 100 Cr for a bio-mining project in the Pirana dumpsite in the year 2018, the clearance of which is awaited from the center till date.

With this chain of events running for nearly a decade there are certain points which are worth pondering on. Firstly, why is it that despite repeated appeals on bid for tenders that very few agencies seemed to be interested in laying their hands on the project. Also why did AMC take so long to realize that Pirana is functioning beyond capacity and its closure should be done the earliest. These questions do reveal of the sheer incapacity and lack of sense of corporate social responsibility among the private parties. Another issue which can be identified is with the flaw in the process of bidding itself. The current bid for the closure of the dumpsite is an open ended one with the terms and selection of technology in the hands of the bidder. This entails huge risk in itself for instance, the solution being temporary in nature and also the mode of operation which is DBFOO has higher risk of pushing public land to the hands of private party.

Besides this, Pirana has been a subject of immense debate and concern also partly due to the fact that it has a plethora of stakeholders which are highly ill-coordinated within themselves. It can be cited as a classic example of a popular saying 'too many cooks spoil the broth'. Here, it must be noticed that each of these institutions and community group have their own set of interests and constraints in the closure of the dumpsite which in many instances are found clashing with each other. Often in such cases arriving at a common consensus becomes very difficult. On one end we have institutions like AMC, AUDA and the standing committee who are striving hard to find a technically and financially feasible solution to the situation and at the same time struggling with issues of unavailability of alternate land. They being the prime facilitator are still incapable of carrying out such works. The standing committee has still not till date been able to find a way to achieve sufficient funds despite being totally aware of the serious threats the landfill poses to the city as a whole.

Similarly, on the other end with a different set of stakeholders involving the NGOs, local rag pickers, and the residents living in the immediate vicinity of the landfill have a completely different story to tell. Smoke and foul smell is a part of their lives today for people who stay barely 500 m from the landfill site. The smoke keeps flowing inside households throughout the night and only after sunrise does the fire goes out. Every day, AMC collects approximately 4,700 metric tons of solid waste to dispose of at the landfill. The landfill is characterized by three 75-feet-high massive mounds of garbage, each weighing 69 lakh metric tons. The stench from Pirana has been a continuous companion for residents, even the ones who stay two or three kilometers away from the landfill site.The landfill has been accumulating all of the city's waste, unsegregated and often hazardous ever since 1980s . Plight of these people are beyond imagination for the others in the city. Fires are a frequent sight at Pirana and it takes thousands of liters of water to put down a fire as it takes time for water to penetrate deep through the thick mountain of garbage and operations cannot be stopped unless the fire dies down completely. Materials mostly found in the Pirana landfill are plastics, rubber, synthetics, electronics such as discarded parts of mobile phones and other non-biodegradable items. Further, methane gas trapped below the garbage dump adds fuel to the fire, increasing its intensity and making it more difficult to put out. The garbage shaped mountains also partly adds to making the occurrence of fires more frequent and difficult to put out. Due to lack of space in the landfill, the

©IJRASET: All Rights are Reserved

garbage is piled upwards and not spread out evenly and is dumped near the existing garbage mountains. It goes without mention that the fumes emerging out of the fire are severely toxic in nature. Methane and carbon dioxide are the main lethal gases in these toxic fumes generated in these fires. Thus needless to say, daily visitors at Pirana, as well as the residents who have made the landfill site their home for several years are the worst sufferers as toxic fumes as lung and cardiac disease are common among Pirana residents. The landfill comes without any scientific method of treating garbage and are just large expanse of areas where garbage is dumped. "When fires break out, it becomes very difficult to deal with them and the resulting air pollution is highly damaging for the environment. The garbage should at least be spread evenly if frequent breaking out of fires is to be tackled at Pirana," says D. Thara, Senior Member, Gujarat Pollution Control Board**.**

While Pirana is often recognized as a stinking garbage dump across Ahmedabad, for the 300 odd families which reside in and around the landfill, it is their sole source of income. Rag pickers, garbage collectors and even metalsmiths have made their home in Pirana, collecting garbage from the landfills. Living on meagre monthly income of 3000-5000 Rs, many of Pirana's residents walk daily across Garbage Mountains, only to bring out trash that they can sell and earn a livelihood. Many of Pirana's residents, some of whom are immigrants from Bangladesh have been staying here for 20 years. They collect scrap materials among extremely unhygienic conditions and sell it outside. Since they have led all their lives in Pirana, they are immensely prone to lung diseases, cardiac problems but there has been no initiative on behalf of either the state government or the local civic bodies to relocate them, says Kalim Siddique from the NGO INSAF Foundation, which has been working for the welfare of Pirana residents for the past twenty years. The AMC has been unable carry out a health survey in the area and both the civic body as well as the Urban Development Board is yet to take a major step regarding the relocation of people in the area speaking of their sheer indifference to the situation of the people. Though the Solid Waste Management Rules of 2016 state that there should be a minimum gap of 500 meters between a landfill and a residential area, the presence of numerous makeshift houses inside the landfill are itself breach of the rules and needless to say, no plans have been announced yet to relocate or provide temporary housing to Pirana residents.

The immediate concern for the city's civic body should be to clear as much garbage as possible from the landfill, and put a permanent stop on garbage disposal at Pirana. Instead, the AMC in March, playing a blind eye to residents living there declared them to be illegal also refusing to provide any sort of compensation if they are relocated somewhere else. Despite repeated notices being issued from the state pollution control board, there has been no attempt to reconstruct the landfill site scientifically. According to AMC, such a redesign initiative is not possible as the current volume of garbage is too much to remove and even closure of the landfill is not an option since the city has no other alternate landfill site of that scale to accommodate such an amount of garbage. The only waste treatment plant in Pirana has long been nonfunctional due to the civic body's sheer inability to maintain it. The plant had a capacity of treating only 700 tons of waste compared to the landfill's daily intake of over 4,000 metric tons which amounts to almost more than four times its designed capacity. "Pirana is a huge concern for us but what many do not understand is that we have very few limited options as a civic body. Closing the landfill will see the city full of overloaded garbage trucks and nothing else. Instead, we have introduced e-rickshaws which will collect segregated waste from households and bring it to the landfill. We have begun large scale campaigns to make people aware about waste segregation, so that the daily garbage generated is less", says an official from Ahmedabad Municipal Corporation's solid waste management department.

In June 2018, Gujarat Chief Minister Sri Vijay Rupani made an ambitious statement, declaring that the Pirana problem will be solved at the earliest even if it cost Rs 500 crore. Though the financial strength of the municipal corporation is of equal importance, the state government must realise that merely spending money will not solve the Pirana issue. The job is highly tedious and time taking .It would take months to just level down the mountain before eventually capping it. Meanwhile is also important that the civic body continues its separation and segregation works and restore the capacity of the WTPs to it maximum. In one of the stern steps taken, the AMC has already discontinued collection of unsegregated waste from households hoping to bring about a change in the mindset of the people in regards to waste management. But the AMC still needs to be on top of this waste management game because the Pirana landfill has already advanced towards the dangerous territory of becoming unmanageable, and if not done something at the earliest Ahmedabad's skies may be soon filled with toxic and polluted air if this landfill crisis continues.

III.CONCLUSIONS

To conclude the situation one can easily say that a project of such huge scale and high stakes are something which should be dealt with utter sensitivity, especially when there are direct impacts on lives of thousands of people. The decisions do require careful handling by both the provider and the facilitators. One should bear in mind that such urban issues are highly unique in itself and there is no one stop solution which shall resolve all kinds of conflicts amongst all the stakeholders at play in one go. Often such issues bring with itself a host of decision dilemmas, endless negotiations and some carefully balanced trade-offs with itself.

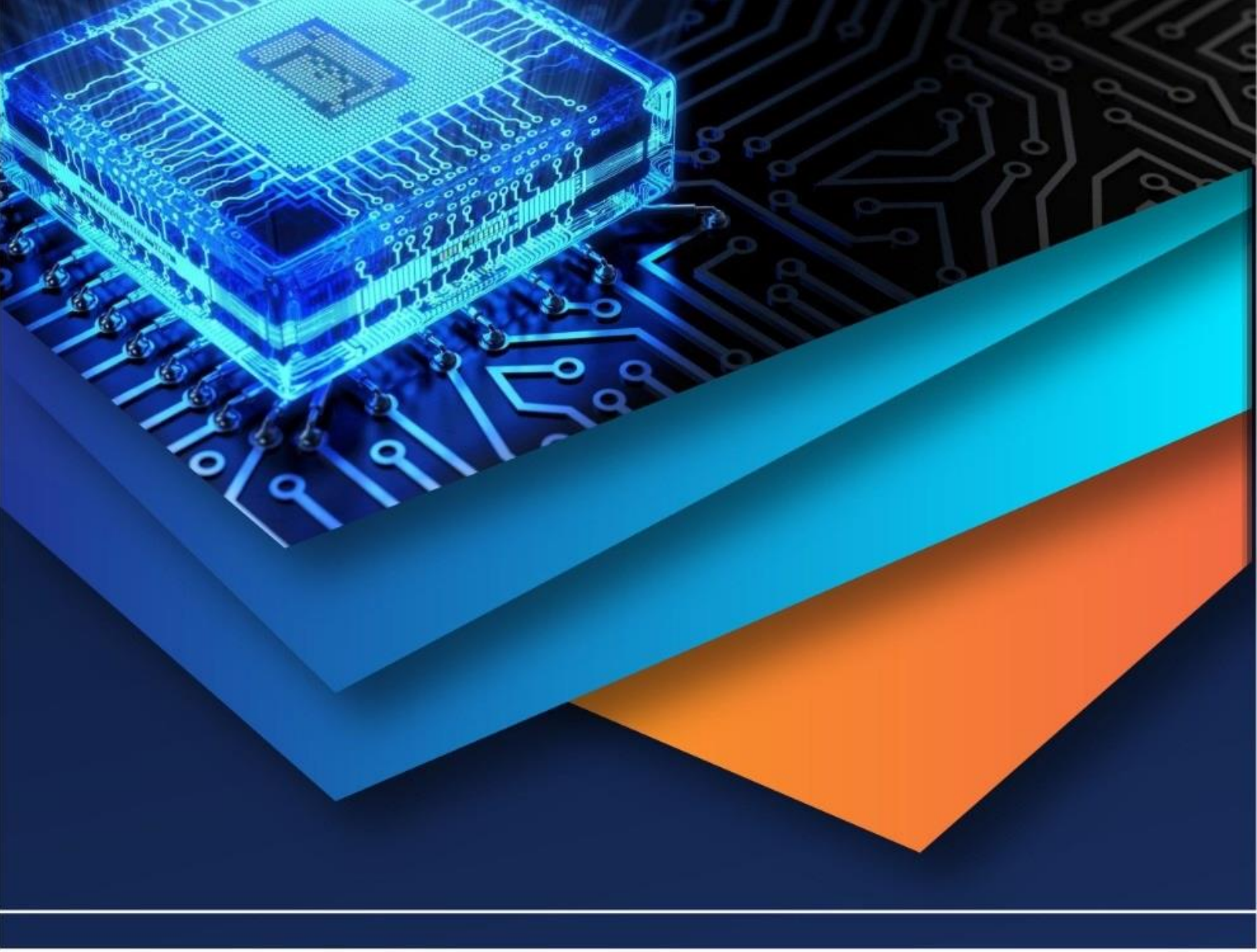
©IJRASET: All Rights are Reserved

In the case of Pirana it is clearly evident that it is not just AMC which can be held solely responsible for the disturbing situation created. With many other equally important priorities in hand it is quite likely that issues on MSW gets sidelined. The 63 lakh residents of Ahmedabad are also to be held equally responsible for this disgraceful condition. Because it is our homes, schools, offices and hospitals that this waste is generated in the first place. Awareness on reducing, recycling and reusing is something which seem to be grossly missing from their lives today. It is essential that we realize it is high time we keep a check on the amount and kind of waste we generate along with segregating it right at the source. Of course this is definitely going to take some good amount of time but then at least we may have an assurance in hand that Ahmedabad will not give birth to another Pirana in at least another thirty years down the line. This sense of assurance of a clean and healthy common future in itself is a reason big enough to start being waste- 'wise' from today!

REFERENCES

[1] Berglund, M, Börjesson, P Assessment of energy performance in the life-cycle of biogas production. Biomass and Bioenergy 30: 254–266. 2006.
[2] Drosg, B, Fuchs, W, Al Seadi, T. Nutrient recovery by biogas digestate processing. IEA Bioenergy.1892, pp.68–73.2015
[3] Atasoy, M, Cetecioglu, Z Bio-based volatile fatty acid production and recovery from waste streams: Current status and future challenges. Bioresource Technology 268: 773–786.2018
[4] Zeshan, Visvanathan, C Evaluation of anaerobic digestate for greenhouse gas emissions at various stages of its management. International Biodeterioration & Biodegradation 95: 167–175.2014

©IJRASET: All Rights are Reserved



10.22214/IJRASET

45.98

IMPACT FACTOR: 7.129

IMPACT FACTOR: 7.429

INTERNATIONAL JOURNAL FOR RESEARCH

IN APPLIED SCIENCE & ENGINEERING TECHNOLOGY

Call : 08813907089 (24*7 Support on Whatsapp)