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RESEARCH ARTICLE

CRITICAL APPRAISAL OF SOLID WASTE MANAGEMENT IN DEVELOPING COUNTRIES: MYTHS AND CHALLENGES

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Abstract

The aim of this research article includes the critical scrutiny of the existing solid waste management system in developing countries to determine the potential impacts of challenges on the functionality of the system of solid waste management. The paper pinpoints corruption, departmental dishonesty, mismanagement, lawlessness and lack of reasonable policies as the major challenges that are required to be discussed and addressed for the protection of the environment and public health. With this aim, this research article conducts a qualitative study in the form of interviews with closed-end questions and filled from 175 solid waste management organizations' officials to highlight the challenges that are being faced by developing countries concerning the solid waste management system. Currently, the management of solid waste is not an easy task to perform, therefore, the situation of the system of solid waste management is quite dire in developing countries in comparison to developed countries. Hence, there is a need for the acknowledgment of the impact of unreasonable solid waste management systems and there is a need to change it for sustainability of the public health and environment. The betterment of the system of solid waste requires endeavours in increasing the funds, awareness in the public, recognition of new innovative technology, and development of an infrastructure. For the progress of the countries, there is a need to accept a new system for solid waste management. Along with this, there is a need to recognize the problem in the existing system.

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Introduction:-

The health of the environment and public is "associated with the solid waste management and advancement of humankind" and is intrinsically connected with it. The solid waste management has a long history(Nzediegwu& Chang, 2020). The development of this program started after the Industrial Revolution because the introduction of factories and industries led huge accumulation of solid waste. For the maintenance of public health, the communities started to organize the system of waste collection as garbage cans as well as sanitary landfills were introduced(Sharma et al, 2020).

More and More improvements and technological advancement, institutional regulation, regulations, new laws and policies were imposed (Naeem et al. 2023. Recently, the solid waste management industry has applied several other new and better technologies such as the composting and recycling of solid waste. Procedures and process of

management of solid waste are in the phase of evolution and development and this process of innovation will never end (Pujara et al, 2019).

However, the developing states have yet to see many innovations and improvements in their system of solid waste management (Malav et al, 2020). The condition of the solid waste management system in developing countries is quite dire. The condition of these developing countries concerning “Solid waste management is more reminiscent of the situation” that existed in the solid waste management system of the developed states. Many challenges are being faced by underdeveloped states concerning the system of solid waste management (Ejaz et al, 2010).

To highlight these challenges, the developing countries specifically of the Asian region are the main focus of this study. This research article conducts the qualitative research methodology based on the grounded theory and interviews officials of “solid waste management organisations in eight developing countries of Asia” including India, Pakistan, Nepal, Cambodia, Myanmar, Bangladesh, Mongolia and Sri Lanka to collect data for analysis. This study found that corruption, mismanagement, departmental dishonesty, lack of innovative techniques, insufficient budget, lack of supervision and no proper implementation of laws and policies are the main challenges. Moreover, these states have no advanced system of collection and disposal of waste which is why the health of the public and environment has become a myth in the major cities of these states (Ahmad, 2024).

The research article critically discusses the major challenges that are being faced by underdeveloped countries in the context of solid waste management systems. With this aim, the main objectives of this research paper include the critical scrutiny of the existing solid waste management system in developing countries to determine the potential impacts of challenges on the functionality of the system of solid waste management. The paper pinpoints corruption, departmental dishonesty, mismanagement, lawlessness and lack of reasonable policies as the major challenges that are required to be discussed and addressed for the protection of the environment and public health.

RQ: What are the primary challenges faced by solid waste management systems in developing countries, particularly in terms of corruption, mismanagement, and lack of effective policies?

RQ: How do public awareness, budgetary constraints, and technological gaps impact the effectiveness of waste collection, segregation, and disposal practices in developing countries?

Literature Review:-

This segment of the research article will describe the existing literature dealing with the critical appraisal of the “system of solid waste management in developing countries” and what are the challenges being faced by the countries concerning the management of solid waste.

Major Problems with respect to Solid Waste Management

Generally, it happens that when the system starts to fail or break down, various problems start being part of it to escalate the issue and people start looking into the societal factors to solve the problems. This is the usual practice of developing countries to cope with the concerns relating to the management of solid waste or system of solid waste management. Milea (2019) states that waste problems are caused due to the behaviour or attitude of mankind and the solution to such problems is to change the attitude of the people (Milea, 2019).

Educating people concerning their obligations towards the management of solid waste can be as helpful as changing the “existing system of solid waste management (Zhu et al, 2008).” What is the definition of waste in developing countries and what are the social norms and attitudes of people towards can generate a question of whether they knew about the implementation of the laws and policies concerning the management of solid waste and their duties in this regard.

Awareness Issues

One of the major challenges that “the system of solid waste management is facing is the lack of awareness in the public” as the people are not educated in the context of their duties which is why lawlessness occurs while practising the effective and reasonable solid waste management. Bolaane (2016) discusses in his study that people are not aware of the processes and procedures of solid waste, which means that the public is not playing a role in pro-environmental activities. Due to their limited knowledge and “lack of acknowledgement of the techniques of solid waste management,” the public has not embraced the reforms of the solid waste management system (Bolaane,

2016). The lack of interest and less participation of the people in the decision-making process promotes the unreasonableness of the existing system (Poswa, 2022).

Response versus Choice

Another issue that can be observed is that many individuals consider that they have no impact on the process of decision making due to which they choose not to register them into the problems and they never complain about the mismanagement of solid waste in their locality to the authorities. They show no concern with the existing problems and move on materialistically. This is not a common attitude because it varies in different socio-economic groups. Usually, the wealthier people play their role when the matter is related to the health or conservation of the environment and they try to get involved in such issues and address to fix the issues. While the lower income groups usually do not get involved in such concern that is why because the poverty rate in developing countries is very high so people get less involved in the problems related to solid waste management issues (Periou, 2012).

Budgetary issues

In developing countries, usually, budget constraint is usually one of the challenges which is being faced by the Department of Solid Waste Management due to which they are encountered with the less resources. Moreover, the funds that are obtained by these departments are direly mismanaged in developing countries (Ali et al, 2023). Due to this many municipalities are trying to get adequate financial assistance for the coverage of their services. In Palestine, a study has been conducted by Al-Khatib et al, (2020) in which they stated that in urban areas more than 50% of the residents are facing problems of lack of solid waste collection services in the middle and low-income countries. There are very inadequate budgetary issues due to which the overlooking of the proper and reasonable solid waste collection is occurring (Al-Khatib et al, 2020).

A study performed by Henry et al (2021) in Kenya states that the municipal budget for the management of solid waste is paid to the under-qualified and over-staffed labour force (Henry et al., 2021). However, these studies have not highlighted the departmental corruption and dishonesty in the system of solid waste management which is why it is necessary that whether in developing countries the evils including corruption and departmental dishonesty, be pinpointed because corruption is the main evil among others that destroys the development of any system.

Innovative Technological Gaps

Another main challenge being faced by the developing countries is the innovative technological gaps and ineffectiveness of the equipment due to which the inadequacy of the coverage in the service and inefficiencies about the operations and functions of the service are occurring and increasing over time. Zhu et al., 2008 state that roads in low-income countries are in dire conditions so there is the issue of transportation which cannot be easily done due to small roads full of hitches.

Hazra and Goel(2019) state that there is no proper replacement and maintenance of the equipment including the containers that cause the littering of the dumping and the solid waste is not properly dumped or disposed of in such old and outdated containers. However, there is also a need for the proper supervision of these containers and equipment and the visitation of supervision is necessary for watching these issues but these studies have not described this provision. Good governance and public trust in the successful implementation of solid waste management policies are very important (Ahmad & Esposito, 2023).

Research Methodology:-

Qualitative research methodology is a systematic approach used to explore and understand individuals' experiences, behaviors, and perspectives deeply and holistically. Unlike quantitative research, which focuses on numerical data and statistical analysis, qualitative research seeks to uncover the less tangible aspects of human life and provides rich, nuanced insights in subjective terms. This methodology is widely applied in many fields, including social sciences, psychology, anthropology, and market research, among others (Mohajan, 2018).

Qualitative research methodology provides a valuable approach to understanding complex human experiences and behaviours (Bowen, 2008). Through techniques such as in-depth interviews, focus groups, participant observation, and textual analysis, researchers can explore the subjective perspectives, meanings, and social dynamics surrounding a given phenomenon. While qualitative research has its limitations, its strengths lie in generating rich and contextually grounded insights, offering valuable contributions to various fields of study (Urcia, 2021).

Qualitative research captures the complexity and richness of human experiences, offering detailed insights into participants' beliefs, motivations, and behaviours. Qualitative research allows researchers to adapt their approach and research questions based on emerging findings, leading to a more thorough exploration of the topic. By examining the social, cultural, and environmental context, qualitative research provides a deeper understanding of how individuals are influenced by and interact with their surroundings. Qualitative research generates new theories or refines existing ones, contributing to the development of knowledge in various fields. This methodology is particularly suitable for studying vulnerable and marginalized populations whose experiences may not be adequately captured through quantitative methods.

Employability of Grounded Theory

Grounded theory is a qualitative research methodology developed by sociologists Barney Glaser and Anselm Strauss in the 1960s. It is used to develop theories grounded in real-world data rather than starting with preconceived hypotheses. Grounded theory is closely related to qualitative research because it emphasizes understanding social phenomena from the perspectives of the people involved (Chun et al, 2019).

It is particularly useful when studying complex, dynamic, or understudied phenomena where existing theories may not fully explain the phenomenon. In grounded theory, researchers collect and analyze data systematically to generate concepts and theories. The process involves coding and categorizing data, comparing codes, identifying patterns, and forming theoretical frameworks (Urcia, 2021). The goal is to create explanations or theories that emerge from the data itself. Qualitative research, in general, focuses on exploring and understanding social phenomena through direct observation, interviews, and analysis of textual or visual data. Grounded theory is one approach within qualitative research that provides a systematic and rigorous way of developing theories that are rooted in the data (Charmaz&Thornberg, 2021).

Techniques

Researchers immerse themselves in the natural setting of the participants, either as a complete observer or as a participantobserver. By keenly observing and documenting everyday behaviours and interactions, researchers gain a deep understanding of the context and underlying dynamics. This method involves a group of participants who discuss a specific topic under the guidance of a facilitator (Snyder, 2012).

Focus groups foster interaction among participants, enabling the exploration of shared beliefs, attitudes, and experiences. Researchers analyze various forms of texts, such as documents, diaries, or online interactions, to uncover patterns, themes, and meanings. This method allows researchers to explore cultural artefacts, narratives, and discourses shaping individuals' experiences. This approach entails an in-depth investigation of one or a few cases, often selecting unique or extreme cases to explore unusual phenomena or patterns (Islam &Aldaihani, 2022). Case studies provide detailed accounts and allow for a holistic understanding of specific contexts. However, this study is based on the interviews and the researcher engaged with participants in detailed interviews, allowing for an exploration of their perspectives, experiences, and meanings. These interviews are often conversational and can be structured, semi-structured, or unstructured, depending on the research objectives (Jamshed, 2014).

Approach, Data and Sampling

Qualitative research gathers non-numerical data, such as narratives, interviews, observations, and texts. These data sources provide detailed and context-rich information that enables researchers to develop a comprehensive understanding of the studied phenomenon. Qualitative research adopts an inductive approach, meaning that the researcher develops theories or frameworks after analyzing the collected data rather than testing pre-existing hypotheses. This allows new themes and patterns to emerge naturally from the data (Chivanga&Monyai, 2021).

Unlike quantitative research, where the researcher strives for objectivity and detachment, qualitative research recognizes the researcher's subjective involvement. Researchers can influence the study through their interactions, interpretations, and reflexivity, making it important to acknowledge and address their biases. Qualitative research aims to understand individuals' subjective lived experiences and the meanings they attach to those experiences. Researchers focus on exploring the participants' perspectives and interpretations through in-depth interviews or focus group discussions (Charmaz&Thornberg, 2021).

Qualitative research typically uses purposive or theoretical sampling, where participants are chosen intentionally to provide insights and depth rather than for statistical representativeness. Researchers seek diversity to capture the breadth of experiences related to the phenomenon under study (Urquhart, 2022). In this study, the data in the form of

interviews has been collected from eight developing countries' solid waste management officials of the Asian region and the interviews have been conducted from the 50 big cities of these countries.

Methodical Layout

In this study, the researcher has used the data from various research reviews and journals to check the practices of solid waste management and various other important factors. The questionnaire has been developed from the journals referred to in the literature review. The interviews with closed-ended questions were performed in the fifty big cities of the eight developing countries from Solid waste management organizations including Pakistan, Bangladesh, Mongolia, Cambodia, Nepal, Sri Lanka, Nepal and India. The existing literature, city visit reports, the interviews of the experts and the survey datasets have greatly contributed to this study. The researcher has conducted extensive research with deep inspection and critical scrutiny. However, the developed questionnaires were transported via interview survey using emails to various solid waste management departments of the developing countries. The interview questions were distributed equally among each country. The questionnaire has been developed below:

Table 1:- Questionnaire.

Queries	Possible Choices
1. How many times in a month is the solid waste collected from any point?	1) Daily 2) Weekly 3) Fortnightly 4) Monthly
2. After collecting solid waste what do you do with it?	1) Burn it 2) Dump it 3) Recycle it 4) Throw it on the ground
3. Do you know what segregation of solid waste is whether it has been performed in by your department?	1) Yes 2) No
4. What is the main hindrance in the management of solid waste?	1) Corruption ' 2) Poor Management 3) Lack of Machines and Equipment 4) Fraud and Dishonesty
5. People are penalized or fined if they breach protocols of solid waste policies?	1) Yes 2) No 3) Don't know
6. How many times a month you visit the solid waste sites?	1) Daily 2) Weekly 3) Fortnightly 4) Monthly
5) Rank the performance of your department.	1) 10/10 2) 5/10 3) 7/10 4) 2/10
6) Are you satisfied with the management of the budget of your department?	1) Yes 2) No 3) Need improvement
7) Why the government machinery is stolen from the site?	1) Mismanagement 2) Departmental Dishonesty 3) Poverty 4) Never been stolen
8) Do you think corruption is the reason of failure of solid waste management department?	1) Yes 2) No

Source: Own Collaboration

Results and Analysis:-

In this study, the researcher depicted the results that he acquired after the meticulous analysis of the data. The principle objective of this study has been strictly followed which is “to highlight the challenges and myths of solid waste management in the developing countries.” The research in this study has critically appraised the objective by using the qualitative research methodology as discussed above. The interview was performed by various solid waste management organizations in developing countries.

Graphical and Descriptive Analysis of the Content

The research in this segment will perform a descriptive analysis of the content to examine the relationship between the phenomena and to check the validity of the study.

Table 2:- Descriptive Analysis.

Queries	Possible Choices	Percentage
How many times in a month is the solid waste collected from any point?	5) Daily 6) Weekly 7) Fortnightly 8) Monthly	10% 35% 25% 30%
After collecting solid waste what do you do with it?	5) Burn it 6) Dump it 7) Recycle it 8) Open dumping	35% 15% 18% 32%
Do you know what segregation of solid waste is whether it has been performed in by your department?	3) No 4) Yes	74% 26%
What is the main hindrance in the management of solid waste?	5) Corruption ‘ 6) Poor Management 7) Lack of Machines and Equipment 8) Fraud and Dishonesty	45% 13% 17% 25%
People are penalized or fined if they breach protocols of solid waste policies?	4) Yes 5) No 6) Don’t know	22% 53% 25%
How many times a month you visit the solid waste sites?	9) Daily 10) Weekly 11) Fortnightly 12) Monthly	15% 25% 13% 47%
Rank the performance of your department.	5) 10/10 6) 5/10 7) 7/10 8) 2/10	16% 32% 12% 40%
Are you satisfied with the management of the budget of your department?	4) Yes 5) No 6) Need improvement	33% 42% 25%
Why the government machinery is stolen from the site?	5) Mismanagement 6) Departmental Dishonesty 7) Poverty 8) Never been stolen	30% 42% 18% 10%
Do you think corruption is the reason for the failure of the solid waste management department?	3) Yes 4) No	60% 40%

Source: Own Collaboration

This section of the study will critically analyse the statistical data collected after the perusal of the questionnaire. This segment will not only critically analyse the collected reports but also present the graphical representation of each question separately and describe the analysis of each question distinctively.

The first question was asked to examine whether the solid waste management organisations pick up the waste and what is their frequency. Moreover, if they are not visiting for the collection of solid waste then necessarily the ordinary waste picker may performing their function which is quite the destruction of public value(Hettiarachchi, 2018). The perusal of the statistical survey points out that, 10% of the respondents informed that the workers usually go daily to the places where they have to pick up the solid waste. Moreover, 35% of the respondents stated that the waste is picked up weekly while 25% stated that the waste is picked up every fortnightly. However, 30% stated that waste is picked monthly in their particular locality. It can be seen that the response of respondents is flexible and it reflects that the waste is collected not consecutively.

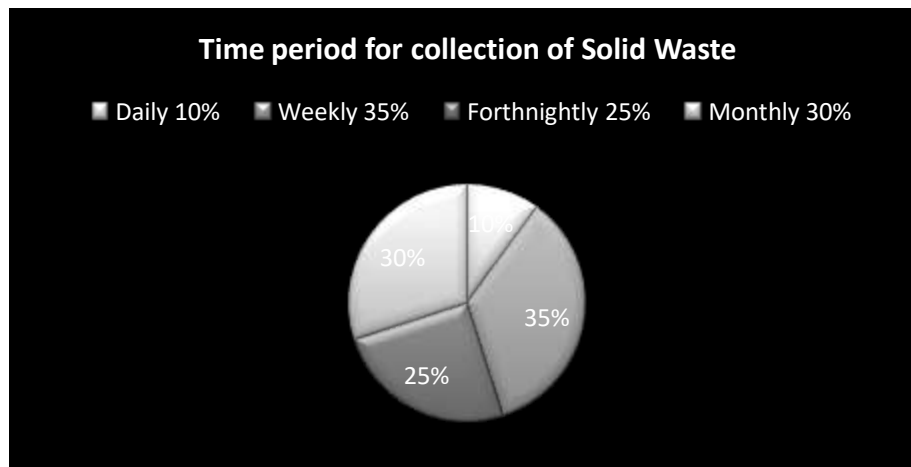


Fig.1:- Collection time of SW.

To find out the way that the solid waste management organisation utilises the treatment of solid waste, the researcher arranged the second question. This question is very important because it can also describe the impact of solid waste on the conservation of the environment but this study has a limited scope and does not discuss the impact of solid waste treatment on the environment(Lema et al, 2019). However, the survey enshrines that 35% of the respondents clearly stated that the solid waste is burnt after being collected. 15% stated that the solid waste is dumped and 18% stated that the solid waste is recycled. An astonishing 32% stated that the solid waste which is gathered is thrown on the open grounds or openly dumped. These are astonishing results that “there is no proper mechanism in the developing countries for the proper disposal of the solid waste.” Burning tons of garbage is the destruction of the environment. They not only cause air pollution but also become the cause of global warming(Alam&Ahmade, 2013).

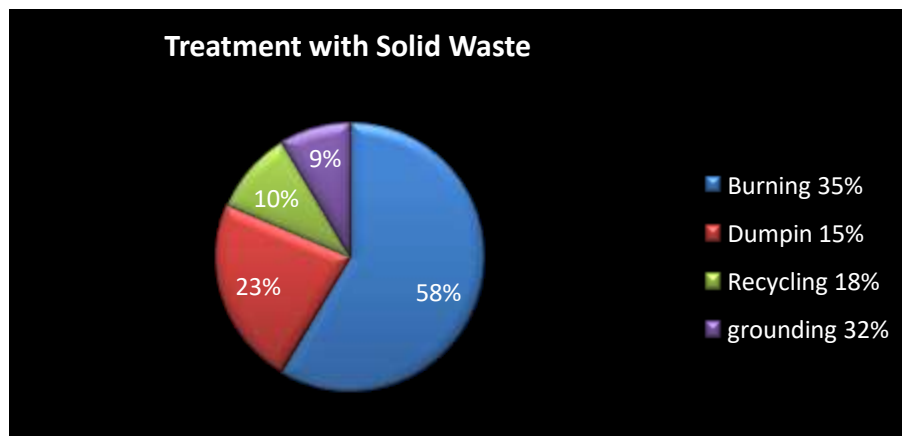


Fig. 2:- Treatment of SW.

To examine whether the solid waste that is collected is segregated or not, the third question has been included in the questionnaire. First, the segregation of solid waste can help separate the food for animals like the peels of fruits, grasses etc. Moreover, the rotten fruits and leaves can be used as fertilizer for living plants(Akmal&Jamil, 2021). Above all, a substance like plastic needs special treatments for disposal as it cannot be disposed of carelessly. The results showed that 74% of the respondent did not know what the segregation of solid waste is and it is clear if they do not know about the segregation of solid waste, their department is not performing it which depicts the mismanagement of solid waste. However, only “26% of the respondent knew about the process of segregation of solid waste” and they stated their department is performing it which is a good thing.

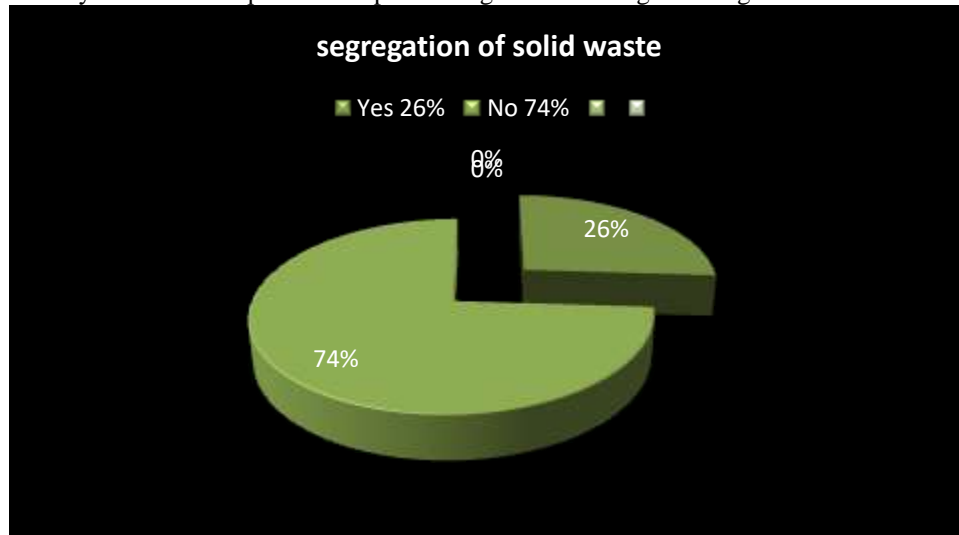


Fig.3:- Segregation.

The importance of the fourth question increases because it pinpoints “the main impediment in the management of solid waste which is causing the mismanagement in the department”(Ziraba, 2016). The survey showed that only 13% of respondents consider poor management as the cause of the failure of the department while 17% think that the lack of machines and equipment is causing the hindrance in proper solid waste management department functioning. While two categories think corruption, fraud and dishonesty at the departmental level are the cause of proper management of solid waste. 45% of respondents think corruption while 25% consider fraud and dishonesty inthe department as a main hindrance and cause of the solid waste management department failure. The superiors at the department are destroying not only their department but also the public values destruction is going side by side.

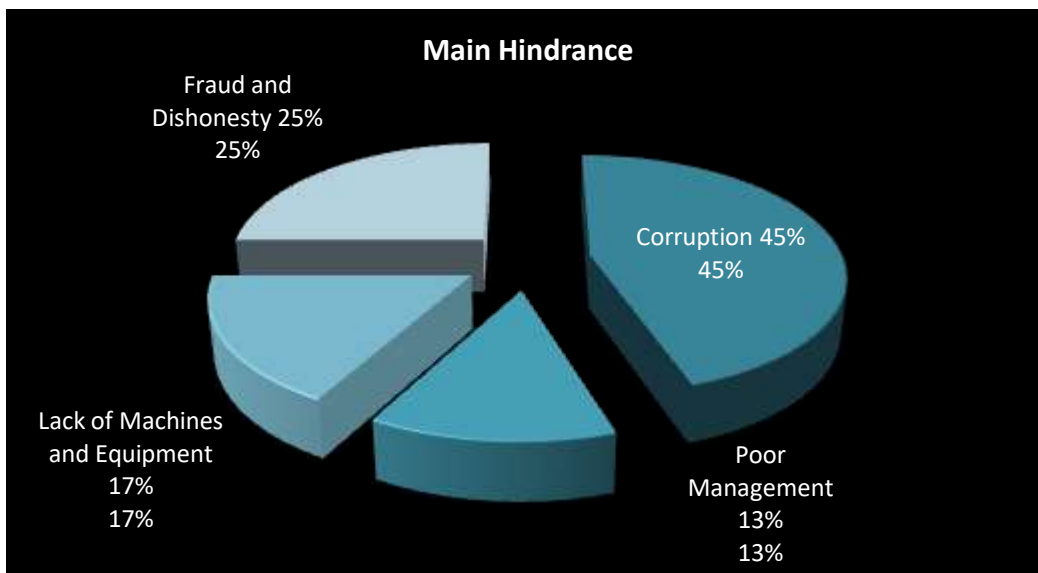


Fig. 4:- Hindrance.

In the sixth question, the main aim was to know about the coordination between the public and the solid waste management organisations in the waste gathering. Whether the solid waste management organisations involve the public in their functioning or not if the public is charged with a breach of policies concerning solid waste management then it depicts that the public is also employed (Guerrero, 2013). However, if they are not fined for breaching the protocols that means that the policies are not properly applied. The survey results show that only 22% of respondents say that people are penalized or fined if they breach protocols of solid waste policies while 25% were unaware of the matter of this penalization or fine but the majority of respondents comprising 53% stated that people are not fined or penalized. Thus, it is clear that the policies concerning the implementation of proper functioning of solid waste management and the surety of the role of people in assisting the department are not working properly.

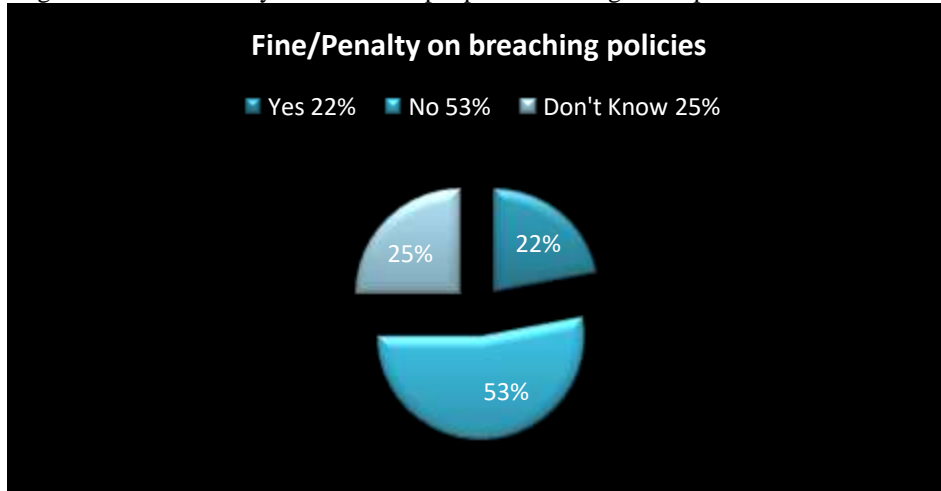


Fig.5:- Fine/Penalties.

The seventh question was asked to examine whether the superior of solid waste management organisations visit the sites and what is their frequency. The sites are not only where the waste is picked but also the sites where the solid waste is treated. The visitation of the superior is very much for the check and balance and over-seeing the reasonableness of the processes and procedures (Serge & Simatele, 2020). The perusal of the statistical survey points out that, 15% of the respondents informed that the superior usually go daily to the places where they have to pick up the solid waste. Moreover, 25% of the respondents stated that the superior visits weekly while 13% stated that the supervisors visit every fortnightly. However, 47% stated that the supervisor visits monthly in their particular locality. This shows that proper inspection of the site is not occurring.



Fig.6:- Visitation on sites of SW.

The next question was about the performance of the department which inspect how the respondent is going to rate the performance of his department. The results show that 40% respondent ranked their department 2 out of 10 which

shows that the department are not functioning properly. 12% considered it good performance while 32% considered the performance normal and only 16% were satisfied by the performance of their department.

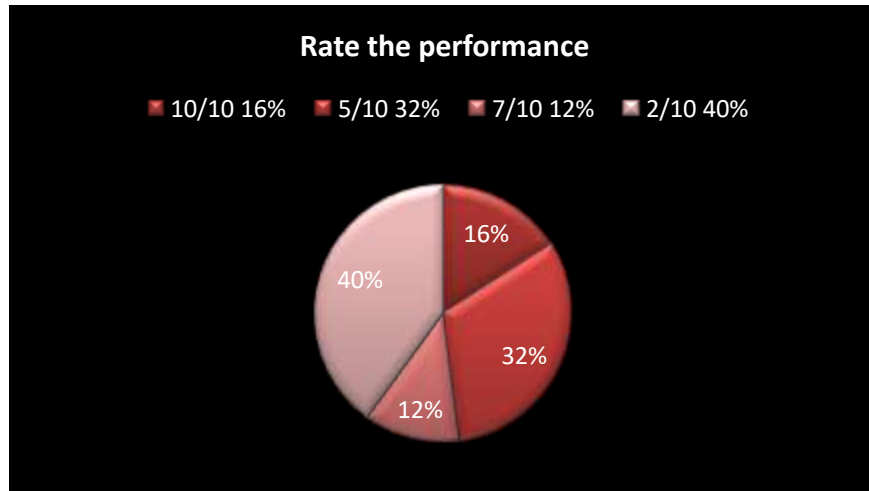


Fig.7:- Performance rate of SWM.

To examine whether due to corruption if the solid waste management departments are underperforming then what is the impact of corruption on the management of the budget can be a valid question in this regard. Hence, to know whether the fixed budget of the department is mismanaged or not, the question about the management of budget has been asked from the respondents. 33% of respondent stated that they are satisfied with the budget management at their departments. While 42% considered that corruption in budget management is occurring in their departments the 25% stated that they are not quite satisfied by the management of the budget because the budget is mismanaged at various stages. This shows that in the majority of cities corruption while management of the budget is destroying the development of the department.

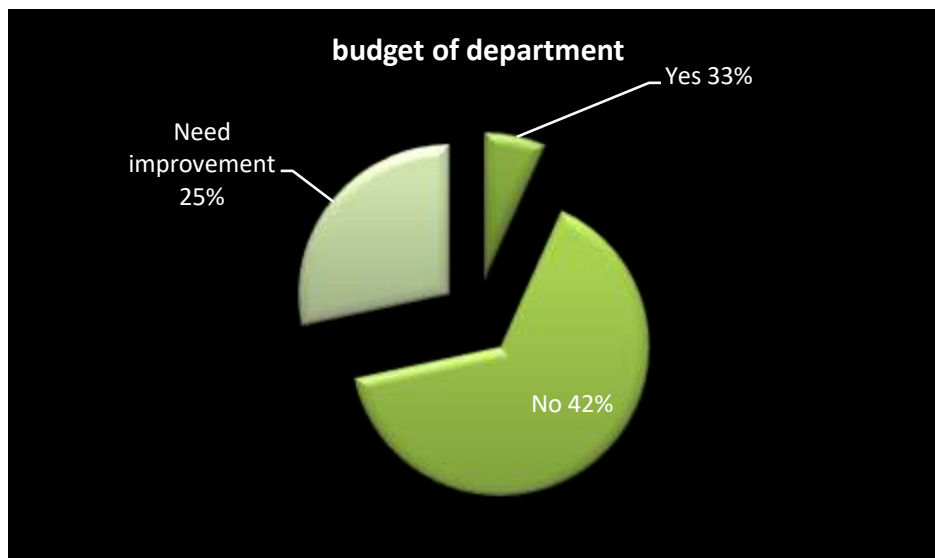


Fig.8:- Budget of SWM Department.

The second last question relates to the destruction of public value through mismanagement in solid waste management because if the government machinery has been stolen from the site like the parts of the vehicles, petrol, dust bins etc. then it is explicitly destruction of public value(Vinti&Vaccari, 2022). All the respondents agreed that the government machinery is being stolen they gave different reasons as inquired from them. 30% considered due to mismanagement the government machinery is stolen while 42% considered it is stolen due to departmental dishonesty means the officials of the department used to be involved in the disappearance of objects of government.

While 18% stated that due to poverty people stole the government machinery while 10% stated that this never happened in their departments.

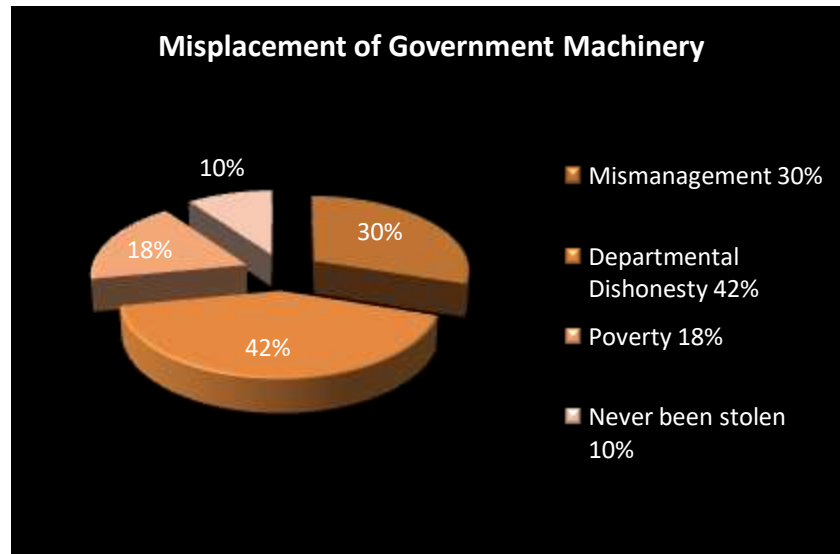


Fig. 9:- Mismanagement of SWM.

Similarly, the last question again revolves around the issue of corruption where explicitly the respondents are asked whether corruption is the reason for the mismanagement of the solid waste department. 60% of respondents considered it true while 40% disagreed.

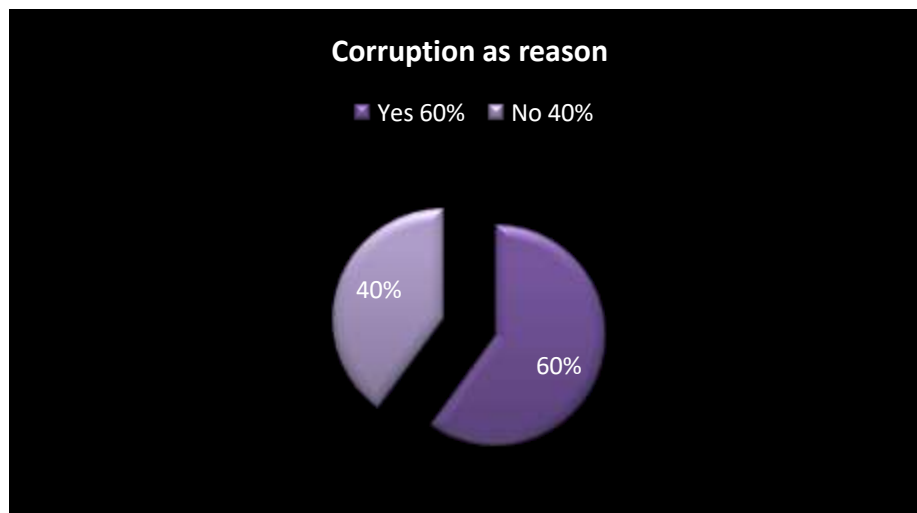


Fig. 10:- Corruption in SWM.

The respondents answered the questions differently. The questions were asked to find out the challenges and the myths that are being faced by “the solid waste management departments. In the next segment, the study will provide a discussion on the analysis of the collected data.”

Discussion:-

If “solid waste management is not reasonably occurring, it causes several issues but first, to check the causes of the unreasonableness of the solid waste management it is better to know what are the main challenges that are being faced by the departments of the solid waste management.” First, the solid waste is not being picked from the sites properly. This causes the pungent odour to arise from the different sites where the stock of waste has openly occurred. This not only affects the environment of surroundings but also causes health problems in the individuals

namely breathing issues, eye irritation and headache as well. The gases produced by the waste like methane not only cause lung infection but also can cause death of a person. Additionally, the eroded solid waste causes the deterioration of road networking in the city as well as affects the drainage system of a city very badly.

Secondly, if solid waste is collected then it must be disposed of properly because the conservation of the environment is very important. Throwing garbage or solid waste openly on the grounds has a great impact on the depletion of the environment as it can germinate various diseases like Malaria which can be caused through the throwing of solid waste openly. Moreover, the burning of waste is the cause of global warming and the consequent rising of the temperature and it can be observed through interviews that maximum treatment with solid waste is to be done to burn it. It is the reasonability of solid waste organisations to think highly of the conservation of the environment. However, the majority of the respondents were unaware of the fact that burning solid waste causes global warming or affects the environment.

It is evinced from the results of the study that the main impediment that the department is currently facing is the dishonesty at departmental level as well and corruption is one of the foremost challenges that is the cause of “mismanagement of the solid waste departments in the developing countries.” The corruption led to mismanagement of the budget of the department as well and the proper petrol was not given to the vehicles that is one reason the old condition vehicles usually do not visit the sites for collection of solid waste. Furthermore, corruption is an evil that destroys the development of a department. No accountability mechanism causes corruption at the departmental level. Moreover, departmental dishonesty means the government machinery is not stolen without the involvement of the department like spare parts of the departmental vehicles. Corruption and developmental dishonesty are the main challenges that are required to be eradicated for the development of the department.

Next, the supervisor or the senior officials usually do not visit the sites for supervision. Their visitation is a requirement and necessary for the supervision of the processes and procedures occurring that destroy the value of the public. Like burning of waste shows that the departments in developing countries have never thought of using solid waste for economic purposes. Many economic resources can be generated by utilizing solid waste properly. It seems impossible at the departmental level because the solid waste departments according to respondents segregated the solid waste. If it is not segregated then how can it be useful? The collected solid waste unsegregated is not more than mere rubbish.

It has been also observed that the public is not being educated in the context of dealing with solid waste means they don't know about the policies and they don't know their limitations because as the study shows they have never been penalized or fined whenever any protocol of solid waste management policy is breached. To conclude the discussion, it can be observed that various challenges that are encountered by the solid waste management department require to be adjusted and the myths should be broken new systems for disposing of waste and using it economically and the introduction of new policies has become a need of an hour. The role of sustainable practices and employee empowerment in improving the performance of solid waste management systems is very crucial and also crucial for environmental development (Ahmad, 2024, Khan et al, 2021, Esposito et al, 2023).

Conclusion:-

It is concluded that the main function of the solid waste management organisation is the collection, transportation and disposal of the waste to the sites where the proper disposal of the solid waste is legally permitted from the sites from where the solid waste is being collected. However, after conducting this study, it can be concluded that there is no proper mechanism which could entertain the proper treatment of the gathered solid waste due to which the collected waste is thrown on the open grounds or is burnt which only affects the health of public but also damages the environment badly. Careless open dumping and the burning of the waste have opened dumping. There is no concept of technological innovation in developing countries likewise there is no concept of recycling “solid waste. The system of solid waste is undoubtedly in dire condition if it is compared with the developing countries.”

The evil of corruption and departmental dishonesty is the main challenge which is being faced by developed countries due to the lack of proper accountability mechanisms the problem of corruption is impeding the development of the department. There is a need to save the departments by implementing proper policies and an accountability model so that the budget mismanagement and corruption in the department should be prevented otherwise it would be difficult to turn the fate of the system of solid waste management. Moreover, there is a need to educate the people so that they can play a role in the conservation of their environment and protection of their health

through proper management of solid waste otherwise their value will be destroyed if they show a lack of response or interest.

Theoretical Implications

This study uses grounded theory to develop a nuanced understanding of the challenges and opportunities in solid waste management in developing countries. By systematically analyzing real-world data, the study contributes to the theoretical framework of grounded theory, especially in the context of environmental management. It demonstrates the application of theory based on the investigation of complex, dynamic, and understudied phenomena, thus enriching the methodological toolbox available to researchers in this field.

The study links socioeconomic theories to environmental management theories, highlighting how social factors such as corruption, public awareness, and Budget constraints are linked to environmental practices. This intelligence creates a more holistic theoretical framework for understanding the multi-plant nature of solid waste management, giving us an insight into how socioeconomic conditions affect environmental outcomes.

The study contributes to public administration and policy theories by identifying the role of corruption, misjudgment and lack of effective policies. It highlights the importance of governance, accountability and policy enforcement in the effective management of public services. This theoretical contribution may inform future studies on public sector management and policy development in other areas outside of waste management.

Practical Implications

The results of this study could inform policymakers in developing countries about critical areas that need attention to improve solid waste management. The study highlights the impact of corruption, misrepresentation and inappropriate policies, providing a guide to developing more effective and transparent governance structures. Policymakers can use these concepts to design and implement policies that encourage accountability, enhance budget management and provide proper control over waste management practices.

The study highlights the importance of public awareness and education in effective waste management. Practical measures can be taken to inform the public about their roles and responsibilities in the areas of proper waste separation, recycling and disposal. Education programs and information programs are extensive (Joiya et al. 2023).

The study identifies technological gaps and the need for innovative solutions in waste management. Practical implications include investing in modern waste management technologies such as recycling plants, composting plants and waste-to-energy projects. The development of infrastructure that supports these technologies can significantly improve the practices of collecting, sharing and disposing of waste, thus improving environmental conservation and public health.

The study's findings on corruption and departmental dishonesty highlight the need for robust accountability mechanisms. Practical steps may include setting up independent oversight bodies, regular audits and transparent reporting systems. These measures can help fight corruption, ensure proper use of funds and improve the overall efficiency of solid waste management department outcomes (Ahmad, 2023).

The study highlights the importance of community involvement in waste management practices. According to the practical findings, local waste management committees, public consultation and response mechanisms include the creation of platforms for community action. Encouraging community participation can lead to more effective residual management practices and foster a sense of ownership and accountability among residents.

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