

SOCIOLOGICAL PERSPECTIVES ON SOLID WASTE MANAGEMENT

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ABSTRACT

The purpose of this study was to outline sociological theories that are relevant to solid waste management. The study was motivated by the observation that the explosion of post-industrial, toxic, and municipal waste is one aspect of the wider discussion of environmental risk and global climate change. In order to go beyond the idea that garbage poses a harmful threat to people, the study employed a sociological perspective to view waste as a social problem. This allowed for a more critical analysis of waste as a reflection of historically and socially established power relations. An analysis of the sociological theories revealed that no other discipline is better suited to combine the terminology and methodologies of studies on social inequality, urban planning, and environmental risks than sociology. The research findings indicate that gender and socio-cultural factors have a significant impact on the formation of solid waste, with socialization processes being crucial in determining attitudes and actions related to waste management. Gender dynamics and garbage generation are closely linked. Women in Africa play a major role in waste management techniques. The study concludes that knowledge from society and social education is profound in comprehending solid waste processes outside the scope of scientific models. Consequently, the assessment of ordinary people's perceptions and localized knowledge is just as important as theoretical frameworks and scientific teaching.

Keywords: Sociology, Perspectives, Solid Waste, Management.

1. INTRODUCTION

As the study of society, sociology is intrinsically concerned with empirical observation of society. Sociology is premised on revealing patterns and divisions across space, gender, class, race and ethnicity. Hardin (1968) termed it as the 'tragedy of the commons', In his analysis human beings exhibit a strong predisposition to over use natural resources by way of pursuing short term self-interest at the expense of common interest for the whole world. All these excesses are caused by human behaviour hence they can all be reversed by changes in human behaviour. Sociologists consider how human behaviour may be imbedded in feelings, norms, attitudes and values or institutionalized within cultural systems and social institution.

As espoused by Rada (2014), dumping of solid waste in a landfill is the slightest wanted approach due to the possibility of negative social impacts. Vlek and Steg (2007) assert that to successfully reduce social impacts, people should alter their behaviours, since many environmental problems are rooted in human behaviour. Gardner and Stern (2002) postulate that numerous conservation glitches such as air pollution, water pollution, and odours produced by waste dumping are costs of human behaviours thus, residents' obligation to maintain sustainable waste management behaviours should be widely promoted. Waste management is one of the emerging challenges in Zimbabwe's urban cities and towns. Maseva, (2005: 9) and Kaseke, (2005:1) concur that the problem solid waste is positively correlated with four variables, namely; rapid urbanization,

population increase, use of non-biodegradable materials like plastics and bottles. Increased population and improved living standards have resulted in an increase in commercial, domestic and industrial waste generation.

Waste generation is intractably linked to resource consumption. Zerbock, (2003) assigns urban solid waste management in Zimbabwe to their local authorities. The current way of life and consumption patterns have had adverse influences on the urban environment. Urban local authorities are now grappling with challenges increased waste, as well as increased costs involved in waste management. There are three notable features that can be observed with respect to waste. These are disposal of waste by landfill, upward trend of waste in terms of volume generated by urban residents and change in composition of waste generated. These features are pertinent to the challenges of solid waste management in Zimbabwe. Solid waste management systems in emerging economies often lack facilities, and suffer insufficient service coverage, improper disposal and treatment methods that greatly lead to major environmental and social problems.

1.2 Statement of the problem

In Zimbabwe, the capacity of local authorities in terms of financial and technical resources does not match the growth of solid waste generation in the country. Capacity of local authorities to collect, process and dispose waste is limited in view of inadequate infrastructure, finance, political priority and awareness. Low collection levels and rudimentary disposal methods employed trigger illegal dumping and rampant waste burning. Practical Action, (2005: 75) records an excess of 2, 5 million tonnes of household and industrial waste produced in Zimbabwe's urban areas per annum. Two factors account for this disposal rate which continues to rise; the unprecedented rural to urban migration and the absence of waste minimization strategies.

1.3 Research Objectives

The main objective of this study is to analyze sociological theories related to waste management

1.3.1 Supplementary Objectives:

1. Identify social factors affecting solid waste management system
2. Assess sociological theories related to waste management
3. Examine the usefulness of sociological theories in solid waste management discourse

1.4 Research Questions

Main Research question

What are the theories related to waste management in Sociology

Complementary Research Questions

1. What are the social factors affecting solid waste management system?
2. What are the theories related to waste management in Sociology?
3. To what extent is the sociological perspective useful in solid waste management discourse?

2. LITERATURE REVIEW

2.1. Theory of planned behaviours

There are several sociological theoretical perspectives which can be implemented to examine factors which regulate residents' commitment in justifiable waste management behaviours. Ajzen (1991) initially proposed the concept of planned behaviours. It is an addition of the model of rational action forwarded by Ajzen and Fishbein, (1980). This theory explains individuals' pro-environmental behaviour. The concept of strategic behaviours is premised on the implicit

assumption that pro-environmental behaviour is influenced by behavioural objective, which is based on three underlying factors which are subjective norms, attitudes toward behaviours, and perceived behavioural control.

Stern (2000) forwarded the value belief norm theory which involved the ethical dimension of the human decision-making process and perceived environmental values. Although the theory of planned behaviours and the value belief norm theory make available rich enlightenments on how environmental attitudes, optimistic approaches towards pro-environmental behaviour and perceived normative social pressure could give rise to pro-environmental behaviour, they could not provide an understanding of the potential motivators governing the pro-environmental behaviour in the context of risk and uncertainty. In fact, both environmental and health risks faced by an individual can raise his/her motivation to perform an action to minimize those risks. A leaf from this theory informs those campaigning for waste management to emphasise the risks that are associated with poor waste management and garbage littering.

The theory of planned behaviour was necessitated by the initial concept's confines in handling behaviours over which people have partial volitional control. A vital issue in the theory of planned behaviour is the individual's intention to perform a given behaviour. Intentions are assumed to capture the motivational factors that influence a behaviour, they are indications of how hard people are willing to try, how much of an effort they are planning to exert, in order to perform the behaviour. As a general rule, the stronger the intention to engage in behaviour, the more likely should be its performance. It must be clear, however, that an interactive objective can find face in deeds only if the deed in question is under volitional control. Its direct implication is that, effective waste management must be under the public's volitional control.

As espoused by Ajzen (1985), some behaviours are aligned to the volition control obligation. However the performance of most actions hinge on non-motivational factors. These include availability of requisite opportunities and resources such as time, money, skills, and cooperation of others. Collectively, these aspects denote people's genuine mechanism over their ultimate behaviour. The extent to which a person has the required opportunities and resources, and motivation to perform the behaviour is positively correlated to success in doing so. Lewin, Dembo, Festinger and Sears (1996) argue that the notion that behavioural attainment hinge on motivation (intention) and ability (behavioural control) is not a new aspect. It establishes the foundation for theorizing on such varied matters as animal learning.

The original derivation of the theory of planned behaviour proposed by Aizen (1985) distincts intention and its other theoretic constructs in terms of trying to perform a given behaviour rather than in relation to actual performance. However, early work with the model showed strong correlations between measures of the variable including effort to accomplish a tasked behaviour and procedures that dealt with real performance of the behaviour. Schifter and Ajzen, (1985) noted that since the latter measures are less burdensome, they have been used in subsequent research, and the variables are now defined more simply in relation to behavioural performance.

Other sociologists similarly proposed that certain origin of behavioural control be involved in our more general models of human behaviour. Sarver (1983) noted origins in the practice of facilitating factors. Liska, (1984) added the perspective of opportunity and resources. The assumption usually made is that motivation and ability interrelate in influencing behavioural success. Thus, intentions would be expected to influence performance to the extent that the person has behavioural control. Performance should rise with behavioural control to the extent that the person is motivated to try. Remarkably, notwithstanding its intuitive credibility, the interaction

hypothesis has received only restricted realistic support. The significance of definite behavioural mechanism is undisputable in that, the resources and opportunities available to a person must to some extent dictate the likelihood of behavioural achievement. Of greater psychological interest than actual control, however, is the perception of behavioural control and its impact on intentions and actions. Perceived behavioural control plays an important part in the theory of planned behaviour. In fact, waste management is a planned behaviour guided by human behaviour.

The concept of planned behaviour contrasts the theory of reasoned action due to its addition of perceived behavioural control. In view of perceived behavioural control in the prediction of intentions and actions, it is instructive to compare this construct to other conceptions of control. Significantly, perceived behavioural control differs greatly from Rotter's (1966) concept of perceived locus of control. Consistent with an emphasis on factors that are directly linked to a particular behaviour, perceived behavioural control refers to people's perception of the ease or difficulty of performing the behaviour of interest. While locus of control is a universal expectancy that remains stable across situations and forms of action, perceived behavioural control can, and usually does, vary across situations and actions. Presentation of behaviour in line with the concept of planned behaviour is a combined role of intentions and perceived behavioural control. For precise forecast, numerous circumstances have to be met. First, the processes of intention and of perceived behavioural control must correspond to or be compatible with the behaviour that is to be predicted. That is, intentions and perceptions of control must be assessed in relation to the particular behaviour of interest, and the specified context must be the same as that in which the behaviour is to occur. For waste management to be sustainable, all stakeholders must find themselves in control of the process.

Secondly, for correct behavioural prediction, intentions and perceived behavioural control must remain stable in the interval between their assessment and observation of the behaviour. Intervening events may produce changes in intentions or in perceptions of behavioural control, with the effect that the original measures of these variables no longer permit accurate prediction of the behaviour. The third prerequisite for predictive validity is underlined by the accuracy of perceived behavioural control. As noted earlier, prediction of behaviour from perceived behavioural control should improve to the extent that perceptions of behavioural control accurately reveal real control. The relative importance of intentions and perceived behavioural control in the prediction of behaviour is expected to vary across situations and across different behaviours. Once the behaviour gives a person total control over behavioural performance, objectives only can predict behaviour. The addition of perceived behavioural control should become even more useful as volitional control over the behaviour declines. Both, intentions and perceptions of behavioural control, can make significant contributions to the prediction of behaviour, but in any given application, one may be more important than the other and only one of the two predictors may be needed.

2.2 Protection motivation theory

Protection motivation theory was motivated by Rogers in 1983 as a way of explaining how and why persons react to possible threats to their well-being and protection. Protection Motivation Theory suggests that equally individual and environmental influences can offer either reassurance or caution for indulging in defensive behaviours and that the impact of such features are facilitated by individual reasoning procedures. The protection motivation theory was initially established to predict people's commitment in health risk avoidance behaviours. Protection motivation theory

advances motivational aspects that may impact persons' environmental awareness and pro-environmental behaviours. These reasoning procedures are projected to differentiate expectation from direct relationship of emotional fear on protective responses. The protection motivation theory suggests a theoretical agenda to clarify issues forecasting danger, precautionary behaviours such as managing waste to avoid diseases. The theory adopts that persons' decision to engage in risk precautionary behaviours is grounded on their enthusiasm to safeguard themselves from threats such as natural disasters, global climate change and nuclear explosion. People balance different risks and potential benefits. The decision is made based on the results of threat and coping appraisals.

Rogers (1983) advanced the protection motivation concept adding one more academic viewpoint of pro-environmental behaviour and highlighting roles of danger awareness on a person's enthusiasm to reduce possible effects. Protection motivation theory reiterates that when individuals are threatened with environmental and health risks, individual choices to participate in precautionary activities are made grounded on awareness of the impacts and liability. Other key variables pertinent in individual decision making are the strictness of the hostile penalties as well as the professed possibility to lessen those dangers over the person's alleged reaction effectiveness and supposed self-efficacy on the other hand. When individuals have advanced professed sternness, vulnerability as well as high perceived self-efficacy and response efficacy, they are likely to be involved in pro-environmental behaviours in order to minimize the risks. El-fadelf et al (1997) in a study of Bangkok city observed that enormous fires at a dumping site and landfill explosions sometimes occur, and always cause polluted black smoke high into the sky, lasting for a period of time. As a result, Bangkok city faces a serious air pollution problem due to fires at rubbish dumps. El-fadelf et al (1997) concluded that it is possible that individuals' perceived risks (effects of polluted air) also the ability to cope with those risks might have influenced their decision to manage their waste by burning.

Risk assessment is a rational practice that entities use to approximate the impact of danger. It involves two important elements which are; assessment of the perceived severity of the threat and the perceived probability of receiving adverse impacts from the threat (vulnerability). Perceived severity of the threat refers to the degree of seriousness of the possible dangers that are perceived by an individual. Perceived vulnerability entails an individual's perceptions of their susceptibility to the dangers. Threat appraisal embraces the perception of the reward, which denotes perceived benefits of current practices (maintaining risky behaviours). These perceptions of vulnerability, severity, and the reward can motivate individuals to perform adaptive responses such as pro-environmental protection behaviours. Higher perception of severity and vulnerability is likely to heighten individual motivation to perform risk preventative behaviour, while higher perception of rewards from current practices will impede risk preventative behaviours. Besides threat and coping appraisal, the estimation of an individual's capacity to perform risk preventative behaviours also influences the protection motivation. The coping appraisal includes self-efficacy and response efficacy. Self-efficacy is an individual's perception of their capability to perform the risk preventive behaviours.

Response efficacy refers to the perceived effectiveness of the recommended risk preventative behaviours. Coping appraisal considers the response cost, which is the cost of performing the recommended waste management behaviour. A high cost of performing preventative behaviours like digging waste dumping sites might deter people from being involved in recommended waste dumping methods. The coping appraisal is the result of the difference between appraisals of the

self-efficacy and the response efficacy less the costs of performing the recommended preventive behaviour. The theory predicts that the higher the response efficacy, self-efficacy, and the lower response cost, the more possible one will decide to perform adaptive behaviours. Hence awareness campaigns must aim to reduce response cost and increase participants' self-efficacy. Although the protection motivation theory is primarily applied to explain people's decisions to partake in health risk mitigation behaviours and disaster prevention, it has not been applied in waste management. Kim et al (2013) suggested that peoples' intention to participate in pro-environmental behaviours was largely influenced by protection motivation theory attributes such as the perceived severity of the consequences associated with climate change, perceived response efficacy, and self-efficacy. Unfortunately, there is limited knowledge of climate change in Zimbabwe's population. Marquit (2008) carried out a study of how residents' perception of air pollution problems and threats to human health affected their engagement in pro-environmental behaviours. The findings revealed that people in general tend to be involved in environmental management behaviours that require minimal physical effort to carry out. For example driving fewer miles and avoiding idling, more than those requiring greater physical effort such as riding a bicycle and walking. Keshavarz and Karami (2012) also applied protection motivation theory to explore farmers' pro-environmental behaviours during a drought. They found that a number of variables related to the theory such as farmers' response efficacy, perceived severity, response costs, perceived vulnerability, and self-efficacy significantly predicted farmers' engagement in biodiversity conservation, environmental pollution reduction, soil and water resource protection. The factors also had reduction of pressure on land and energy resources.

An important component of the model was sources of information. These include environmental and intrapersonal factors. These variables provide an individual with suggestions regarding potential victimization threats, potential protective options, and reasons why the individual should or should not engage in a given protective response. Environmental sources of information also known as verbal persuasions include conversations with or direction from others such as family members, neighbours, media, or the police regarding victimization threats and potential protective responses. Environmental sources of information can also include directly witnessing acts of victimization or the use of protective responses [observational learning]. Intrapersonal sources of information relate to an individual's characteristics or experiences that may influence his or her perceptions of crime or willingness to use protective measures.

Rogers (1985) identify individual personality variables and prior experiences as effective intrapersonal sources of information. These intrapersonal sources suggest that an individual's prior experiences with victimization or the use of protective measures as well as his or her own personality characteristics may contribute to knowledge of potential threats. Together, environmental and intrapersonal sources of information provide the individual with a general knowledge of potential threats and potential protective responses. Based on information an individual obtains over time about potential threats and protective responses, the individual then must assess this information to determine whether or not to engage in a given protective measure in response to a given threat.

2.3 Ecological Modernisation Theory

Ecological Modernisation Theory is premised on the idea that a modern industrial society creates and experience ecological crisis. The theorists Mol, Spaargaren, Jänicke and Huber (1996) suggested that industrial societies provide a role model for mitigating and preventing further

deepening of the environmental crisis by managing their solid waste. Their approach became widely known as Ecological Modernisation Theory. Ecological Modernisation claims that industrialised societies can reach a balanced relationship with nature by engaging with the latter more techno-scientifically and in ways more mediated by the market economy. In Zimbabwe, industrial waste management is regulated and enforced by the law. This claim, however, is also the focus of fundamental critique. Ecological Modernisation claim can be categorised as ideological because it is sustained by techno-corporate élites. It does not take into account well-known criticisms which compellingly highlight that the ecological disaster has been created systematically by those structures which Ecological Modernisation aims to modernise.

Mol (2000) contends that capitalism, cannot establish a suitable substitute for abolishing this economic order as it also fundamentally constitutes an ecological order in which profit is always more important than nature. However, Ecological Modernisation as rationality exists. On the other hand, Opponents of Ecological Modernisation propose that the answer to the predicament has to be explored outside capitalism, industrialism or both. The social existence of EM in Zimbabwe and its work in and on reality are reason enough to look more closely at what Ecological Modernisation rationality assumes. Two claims can be identified: (a) volatile technologies ought to be substituted by proactive technologies and (b) the government shall enable the market to allocate environmental goods efficiently. Implementing these moves would lead to win-win solutions. Redclift and Benton (1994) advise that The Ecological Modernisation shrewdness goes together with the discourse of Sustainable Development.

Sustainable development as a form of Ecological Modernisation has become the key dialogue through which ecological glitches are deliberated. Ecological Modernisation Theory asserts that nature and capitalism are in the course of being resolved. Advocates of the theory contend that the environment is becoming autonomous from the economic sphere. These sociologists further argue that by Ecological Modernisation Theory cannot become a reality without abolishing the capitalist mode of production. Schanaiberg (2000) advances that the ploy into which this theory falls is that it construes instances of tiny considerations of the environment as green societies becoming true. Such instances might be analytically distinct from ignoring the environment altogether but are clearly not enough to change the essence of capitalism. In its comparatively short existence, Ecological Modernisation Theory has developed with substantial variety and discussion, not only by domestic background and theoretical foundation, but also chronologically. Huber (1985) outlined three stages in the development and maturation of this school of thought. His opinions were characterised by a heavy emphasis on the role of technological innovations in environmental reform especially in the sphere of industrial production. Huber (1985) distinguished clearly, a critical attitude towards the (bureaucratic) state, a favourable attitude towards the role of market actors and dynamics in environmental reforms.

Between 1980s and mid-1990s, there was not as much of prominence on technological innovation as the key motor of ecological modernisation. Sociologists such as Jdnicke (1991) and Wale, (1992) were advocating for a more balanced view on the respective roles of states and 'the market' in ecological transformation. More attention was placed to institutional and cultural dynamics of ecological modernisation. During this period, scholarship on ecological modernisation continued to emphasise national and comparative studies of industrial production in the Organisation for Economic Co-operation and Development (OECD) countries. Since the mid-1990s, the frontier of Ecological Modernisation Theory has broadened theoretically and geographically to include studies on the ecological transformation of consumption.

Nevertheless their sequential, national, and theoretical differences, one can gather this scholarship together under the tutelage of Ecological Modernisation Theory. Such studies arguably have three broad perspectives in common. These are (i) moving beyond apocalyptic orientations to see environmental problems as challenges for social, technical and economic reform, rather than as immutable consequences of industrialisation; (ii) emphasising transformation of core social institutions of modernity and (iii) positioning in the academic field distinct from counter-productivity, strong social constructionist, and many neo-Marxist discourses. Beginning from the preliminary submissions going forward, the aim of Ecological Modernisation Theory has been to analyse how contemporary industrialised societies deal with environmental crises. The core of all studies in the tradition of Ecological Modernisation focuses on environmental reforms in social practices. Jdnicke et al., (1992), underscore that these social alterations in institutions, practices and discourses are paralleled by physical changes in tendencies of environmental disruptions and material flows. According to these latter scholars, from the mid-1990s onwards, a process of decoupling or delinking of material from economic flows emerged in ecological front-runner nations such as Germany, Japan, the Netherlands, Sweden and Denmark. In a number of cases environmental transformations debatably even lead to a total deterioration of natural resources used and emissions produced, irrespective of economic growth in the country's financial policy. Substantial discussion has developed about whether these developments have really taken place and to what extent any such improvements are structural or incidental. It is not physical improvements per se, however, but rather social and institutional transformations which have been and still are at the core of much current scholarship on ecological modernisation. These transformations can be grouped in five clusters:

(1) Changing role of science and technology: Science and technology not only are judged for their role in the emergence of environmental problems but also valued for their actual and potential role in curing and preventing them. Traditional curative and repair options are replaced by preventive socio-technological approaches incorporating environmental considerations from the design stage of technological and organisational innovations. Science and technology are not marginalised despite an apparent growing uncertainty of expert knowledge regarding definitions and causes of, and solutions for environmental problems.

(2) Increasing importance of market dynamics and economic agents (such as producers, customers, consumers, credit institutions, insurance companies) as carriers of ecological restructuring and reform (in addition to the more conventional categories of state agencies and new social movements that prevail in almost all social theories on the environment).

(3) Transformations in the role of the nation-state: More decentralised, flexible and consensual styles of governance emerge, with less top-down, national command-and-control environmental regulation - often referred to as political modernisation. Hogenboom et al., (1999) advanced that in this cluster, there were some sub political arrangements whose emergent supranational institutions undermined the nation-state's traditional role in environmental reform.

(4) Modifications in the position, role and ideology of social movements: Social movements were considerably involved in decision making institutions regarding environmental reforms. Along with this is a partial shift from anti-systemic, modernisation to reform ideologies. These changes in turn, have led to debates within social movement organisations regarding tensions of dualistic strategies and ideologies.

(5) Altering expansive practices and evolving new principles: Spaargaren and Mol, (1992), concur with Hajer, (1995) that in this cluster, there is comprehensive disregard of the environment. The

fundamental counter positioning of economic and environmental interests are no longer accepted as legitimate positions. Intergenerational solidarity in dealing with the sustenance base has emerged as an undisputed core principle.

A simple analysis shows that these social transformations feature as central topics of scholarship on ecological modernisation in western industrialised countries, and increasingly elsewhere as well. Some scholars use these clusters as analytical tools to understand the social dynamics of present-day processes of environmental reform. Whereas others move beyond this position, claiming that these clusters have not only analytical value but also normative merit in outlining desirable and feasible paths for environmental reform hence they contest such premises. Taken as a whole, the Ecological Modernisation Theory has been expounded on at least five fronts namely: its geographical scope, coverage, and applicability. Its theoretical stance relative to other environmental social science and policy perspectives and coverage of dynamics of consumption as well as production were considered fronts. Also important is the theory's attention to issues of national and civic culture, relevance to transitional and newly industrialising as well as advanced industrial countries were considered.

Conclusively, it can be argued that it is too early to ascertain the full extent of Ecological Modernisation Theory's applicability to different economic, cultural, political-institutional and geographical settings and locations around the world. The studies assembled report mixed results. They converge, however, in finding that the approach and tools of Ecological Modernisation Theory are useful for social scientific analysis and policy formation, even where all conditions for development of ecologically modern institutions do not yet exist. At the same time, some processes of ecological modernisation are global hence this body of theory remains at least partially relevant around the world. Ecological Modernisation Theory is very much a living and growing school-of-thought which require application for verification.

2.4. Actor Network Theory

By way of drawing on sociological theories especially Bourdieu's theory of practice and Actor-network theory, sociologists are able to illustrate societal implications of thinking about transforming communities towards sustainable conduct. Thus, sociological theory allows for problematizing and improved grasping of the societal implications and limitations of environmental management. Callon and Latour (1981) introduced the Actor- network theory.

Fundamental to this approach is that they break, like Haraway (1991), with the culture/nature dualism. In Actor Network Theory, an actor can be anything that acts. These are human beings, institutions and hybrid objects, especially those which are shaped by society through technology or discourse. This claim is necessary for Actor network theorists in order to avoid false assumptions about which actor has how much power. Therefore the Actor Network theory is based on an ontology which does not discriminate between humans and non-humans. In this study, it encourages researcher to widen the scope of her population and include as many actors as possible. The concept of Actor Network Theory as suggested by Callon and Latour denotes all those who act or are subject or object of relations of representation. These are called octants and they are mapped principally in symmetry. The actor-network is not assumed to be asymmetrical from the outset. Rather, who has power is a matter of empirical study.

Power derives from networks which actants control. Callon and Latour, (1981:293) pronounces that the fundamental problem of society is its agent's interest in more power. In order to win, or to increase power, an actant, arranges other actants such that they provide power to him. This activity

is called enlistment. In residential areas in Zimbabwe, ward councillors survive on enlisting. Hence, their inclusion in the waste management model may improve effectiveness of the model implementation. Actor Network Theory proposes that the leader “makes other elements dependent upon himself and translates their will into a language of his own” (Callon and Latour, 1981: 286). Actants are constantly engaged in controversies and struggle. The Actor Network Theory is then used to explore how controversies are dealt with in this network. Callon (1999:67) observed that “the simultaneous production of knowledge and construction of a network of relationships in which social and natural entities mutually control who they are and what they want”. According to Actor Network Theory, to gain power the main actant has to establish himself as an Obligatory Passage Point such that others need him. He would construct obstacle-problems for others, that is, make them believe: (a) that they have a certain aim. (b) that such an obstacle-problem is in their way and (c) that he is/provides the solution. Thus, by constructing an obstacle-problem one creates problems for others. In this process entities/elements/actants are enlisted. To enlist them they need to be interested. To actually mobilise actants one creates new, rather than pre-existing roles in which they are put. This is called enrolment. Callon (1999) postulates that for the main actor to achieve successful participants’ enrolment the actants need to be willing to be enrolled. If the main actant who enrolls other actants, is successful and establishes himself as an Obligatory Passage Point then he can represent the others. This is the basis for one being elected as ward councillor.

In his representation he construes himself as speaking and acting for the others. If the others do not participate in these processes they become dissidents and, by that, destabilise the network which the main actant aims to construct. The process which is necessary to construct the network successfully, that is to shape other actants such that they support a network, is called translation. Callon (1999: 81) refers to two aspects of the process of translation which include: (a) placing the other actants strategically and (b) the establishment of himself as a spokesperson. Through translation social and natural worlds progressively take new forms. To exercise the sociology of translations it is necessary to provide a symmetrical and tolerant description, starting with a clean slate of complex socio-natural processes and by that one explains how some obtain the right to represent. This study is encouraged to form translations involving counsellors and village ward chair persons. Consequently the constructor is in conflict with other actants who also want to gain power. Hence, to become stronger a constructing agent needs to enrol others and disassociate from ambitious elements. Callon (1995) points out that translation is not about truth. What Actor Network Theory does seems to be a translation of the strategies of the actants. In his famous study some elements of sociology of translation: Domestication of the Scallops and the Fishermen of Saint Brieuc Bay, Callon (1999) looks at a situation in which scientists try to make themselves necessary to problems which a fishermen’s community supposedly has. In the course of his study we come across several actants: fishermen, scientists, and scallops. According to his sociology of translation, for enrolment to be successful the scallops need to want to be enrolled: “To negotiate with the scallops is to first negotiate with the currents” Callon (1999:74). Thus, he suggests that the scientists try to communicate with natural objects which he sees as social.

2.5. Bourdieu’s Theory of practice

Bourdieu (2001) advances an approach to social theory which transcends the dichotomy between structure and agency. Thus, by following his thinking we are likely to find results which are not bound to the dualist framing in the sense that either the agent can solve all problems or only structural change will help. Bourdieu’s theory attempts to explain how humans influence others

both directly and indirectly. Bourdieu uses an open set of concepts to theorise members of society and their agency. He views communities as existing in social space, a field which comprises all social relations. Bourdieu conceptualises action as neither a mechanistic reaction, nor deliberate, free and rationally planned moves. The field influences people's moves and at the same time people influence the field. Actors can emancipate themselves through reflection and changing their practices. Nevertheless, this subjective acting is societal and therefore unlikely to easily change society's status.

In his theory of practice, Bourdieu (2001) advanced that individuals are positioned in society. These social positions are always contested and changing thus positioning is an on-going process. It is assumed that no one knows any absolute position however individuals must imagine positions relative to each other although they can enquire about the relations between positions. The forms of relations are manifestations of access to capital which is relevant in society. Bourdieu (1988:782) affirms that fundamental to an understanding of the theory of practice is his intention to overcome the opposition between objective and subjective structures which "stand in dialectical relationship." The objective can influence people independent of their consciousness and will. Subjective structures are those through which individuals perceive the world and make sense of it. Bourdieu puts forward that to understand actors we need to grasp them in terms of both kinds of structure. Thus, the social fields comprise both objective reality as well as agents' perception of it. This study is interested in the objective reality of waste generation, transportation and disposal.

Such a social field can be imagined like a game. The players know the rules hence they take them and what is at stake for-granted. Only those with the characteristics such as access and knowledge of rules can participate in the game, be an agent of the field, try to win what is at stake. Rather than talking about interest, Bourdieu uses the concept illusion to refer to such an attitude of an agent to the game in which the agent is trapped and lost. This happens when the stake is important to the agent and is not questioned.

Bourdieu uses the concept of capital to refer to what is at stake. Capital is anything which allows such an influence. Therefore players compete over all kinds of capital. Thus, the field structure can be described in terms of the distribution of capital, which refers to the same as the relations between players. Therefore, Bourdieu constructs fields as independent from individual access to capital, as long as the distribution of capital has effects on individuals who are part of the field. Under these conditions what were singular perceptions and rational practices become a scheme of dealing with the world. This sense is durable and can be conveyed even over generations. With this, the habitus enables players to deal with situations. Thus it is a system of potentialities and what happens in a situation is not predictable. Most experiences are repeating and thus being strengthened through learning and reflecting habitus changes. The outcome is an open and historical product at the same time. It is durable but not eternal. Thus, people's habitus is contingent with the situation and environment.. Bourdieu defines habitus as a property of social actors. It is 'structured' by one's past and present circumstances (such as family upbringing and educational experiences), and helps to shape one's present and future practice. Habitus comprises a system of dispositions that generate perceptions, appreciations and practices (Bourdieu 1990: 53). Habitus is thus a result as well as a cause for an individual's way of being, acting and thinking. It accounts for the 'practical knowledge' of social actors in the sense that they 'know', through socialization, how to act, feel, talk and hold one's body.

Practice, according to Bourdieu, results from relations between one's disposition (habitus) and one's position in a field (capital), within the current state of 'play' of that field Bourdieu (1986:

101). Consequently, practice does not possess distinctive qualities such as its own structure that would not be an effect and cause of habitus' relation to the field. If so, cognitive, emotional and habitual aspects of practice need to be understood as analytical categories inherent to habitus acting in the field. Thus, in order to understand the practices of actors, it is crucial to understand their habituses and the nature of the fields they are active in. Such a requirement calls for an analysis of residents' perceptions of waste and waste management .Bourdieu (1993: 46), contends that the challenge though, is to account for the evolving 'logics and histories' of both habitus and a field and for their mutual influences. The field, as part of the on-going contexts in which we live, structures the habitus; while at the same time the habitus is the basis for actors' understandings of their lives and the fields in which they act.

In his analysis, Hardy (2012) insists that Bourdieu often neglected to make change explicit in his theory yet he writes: 'habitus, as a product of social conditionings, and thus of history is endlessly transformed.' Bourdieu (1994:7) claims that a change in the field necessitates a change in habitus, as well as vice versa. Thereby, he distinguishes two possibilities: when change occurs gradually in following already anticipated pathways and when the field is under crisis and changes occur abruptly or even catastrophically with corresponding consequences for the participants in the field. In the first case, habitus and field are well matched and the change is homeostatic. Individuals then feel, in the field, like "fish in water". When a field changes abruptly, habitus might be lagging behind this change, it might misfit the field. Bourdieu (1977: 78) maintains that the two elements that depend on one another are habitus and field. If the field changes abruptly, for example due to some external intervention that offers new opportunities, the participants of the field might not be equipped with the attitudes and practices that are needed to recognize, grasp and occupy these new field positions. Such utterances call for an incremental change process for the introduction of new waste management strategies.

Hardy (2012:128) reveals that Bourdieu uses the term 'hysteresis' for this situation which he borrowed from scientific experimentation context. It means a mismatch between two elements which were previously coordinated. Time-lag between a change in a property and changes in an agent on which it depends become critical elements for the success of any change system. Bourdieu (2000b; 1988) describes and analyses a number of examples of habitus field misfits and transformations, mainly in respect to educational and professional fields. Yet, he also offers an account of the personal experiences of an Algerian family in Paris. The expectations and practices of the older generation that they acquired in rural Algeria are difficult to maintain in the new environment in Paris. They do not possess the right capital to claim desirable field positions hence experience problems. Their struggles to find a sustainable way of living are misrecognized within the local field of their neighbours.

Reflexivity allows the distancing of oneself from habitus. Habitus is most constraining when the actor is not acting consciously. Enlightening reflexivity can thus help to change how one is influenced by dispositions. This means that relevant to the patterning of our perception, then, is Bourdieu's idea that the field configures the habitus. The habitus then, helps to understand and create the field as a meaningful world in which investing is worthwhile.

The world is shaped by human actors and thus, the social world exists both as habitus and field as well as in things, bodies and minds both within and external of actors. The social world becomes part of the actor and produces the categories which the actor uses to understand the world and therefore the world seems self-evident to the actor. This is relevant in two respects: First, all interactions in waste management are power-relations and if power-relations are not recognised

managers will be unconscious accomplices in actualising these relations. Second, if our perception of the world is never all encompassing but relative to our position, which makes us take at least parts of the world as self-evident toxic stance, then one cannot speak of the actor as using strategies referring to purely intentionally and rationally acting. Bourdieu uses the concept 'strategy' to refer to practice which makes sense, thus is reasonable or rational, in certain constellations of the field. Habitus explains why people are not necessarily stupid although they do not make conscious plans all the time. The habitus is a conditioning to deal with the situations which the agent is likely to meet. The concept helps to explain why dispositions or tastes are so durable. The implication is that actors can act more or less consciously. The less conscious an actor is of her actions, contexts, her habitus and the field structure, the more grip the habitus has on her actions. Some sociologists questioned how Bourdieu conceptualises reason. For him, the economy of practices relates to any kinds of ends and functions. Practices can serve these functions or meet these ends without being consciously reasoned. However they can still be reasonable. In an evaluation of Bourdieu's theory of practice, it can be summarized that the theory is as an apt method of situating an environmental manager in terms of her habitus. It remains to be discussed in more depth how technology and materiality can influence the actor. This study then is challenged to either alter residents' habitus or their environment.

2.6 Environmental Racism

Environmental racism is a dominant sociological approach which was used to understand practices that place a disproportionate environmental burden on minority populations. Wark (2014) argues that in the social sciences, it cannot be assumed that governments will address social inequalities as part and parcel of environmental risks. This is because governments do not necessarily act rationally in the face of crises. As such careful sociological deliberation on the extent to which different kinds of stratification and institutional practices shape different environmental outcomes for people is warranted.

3. RESEARCH METHODOLOGY

The study used qualitative research. Qualitative research approach is focused with understanding the social phenomena from the perspective of the participants. Qualitative research is usually associated with the social constructivist paradigm which emphasises the socially constructed nature of reality. It is about recording, analysing and attempting to uncover the deeper meaning and significance of human behaviour and experience, including contradictory beliefs, behaviours and emotions. Researchers are interested in gaining a rich and complex understanding of people's experience and not in obtaining information which can be generalized to other larger groups. Gray (2009) asserts that constructivism is based on the premise that learning is a product of mental construction. It is a cognitive social construct in which meanings do not occur in some outside world but is generated by the questions within the individual with the assistance of those in the community.

4. DISCUSSION

4.1 Usefulness of sociological perspectives in solid waste management discourse

The Actor-network theory and Bourdieu's theory of practice enables one to problematize the Ecological Modernisation practices in any locality as well as to highlight limits of its' manageability. Thus, discussions of theories above show possibilities of how social theory can be

used in the study of solid waste management. Whereas Bourdieu does not emphasize the role of material items, Actor-network theory renders them as potentially decisive actants. For this theoretical analysis to be actually useful for conceptualizing solid waste management it is appropriate to discuss how a Bourdieusian approach can account for technology and materials which influence social action. Sterne (2003) focuses on this very issue. He argues that technology is part of the habitus that is part of a socially organized form of movement. This complies very well with the paradigm of Ecological Modernization which states that problems are approached by way of integrating them into capitalist market mechanisms and finding technical solutions.

An analysis of sociological perspectives points to a move towards conceptualising technology relationally. In the relational logic, things exist relative to each other rather than having absolute characteristics. The purpose of exploring sociological perspectives then is to focus on the social context of this very existence and therefore be able to analyse how social theory can be of help to problematize environmental management practices and technologies, including their social and environmental implications. Management of solid waste is therefore embedded in a variety of hegemonic relations, amongst them capitalist and technological ones. Sociological perspectives illuminate the social context in which solid waste management is socially and materially constructed. Drawing on the writings of the French sociologist Pierre Bourdieu, researchers are able to problematize the societal conditions under which solid waste management is useful and meaningful. The purpose of this study therefore was to analyse sociological perspectives which are useful to problematize limits of managing the environment. On the one hand Ecological Modernisation Theory is good at sketching the rationality underlying hegemonic discourses and practices of environmental management. On the other hand the partially conflicting perspectives of Pierre Bourdieu and Actor-network theory allow situating solid waste management practices in their relations.

5. CONCLUSION

To sum up, this research emphasizes the complex interplay between societal variables and the production and handling of solid waste. More sustainable and successful waste management techniques can be created by taking into account the effects of social dynamics, gender roles, cultural norms, and community involvement. Adopting a multidisciplinary strategy that incorporates social, cultural, and environmental factors into waste management policies and initiatives is crucial going forward. The demands of both the current and future generations can be met by developing a more resilient and inclusive waste management system through cooperative efforts with communities, women's emancipation, and cultural sensitivity. It is feasible to organize collective action towards sustainable waste management methods by integrating community members in decision-making processes, encouraging collaborative partnerships, and building a sense of ownership and responsibility. The significance of incorporating local opinions and knowledge into waste management methods is further highlighted by the study. In addition to scientific methods, indigenous knowledge and culturally created realities provide distinctive insights into garbage processes. It is possible to create more comprehensive and contextually appropriate waste management systems that cater for the unique requirements and difficulties of local communities by incorporating a variety of knowledge and expertise sources. Cultural values, customs, and behaviours shape how waste is viewed and handled, influencing attitudes toward waste disposal, recycling, and reuse. It is feasible to create culturally sensitive waste management plans that connect with local communities and encourage more participation and engagement by

acknowledging and respecting cultural differences. Another important point that the study emphasizes is community engagement. Given the crucial role that communities play in the generation, treatment, and disposal of waste, strong community involvement and participation is important to the success of waste management projects.

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