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SOCIAL AND BEHAVIOR CHANGE INSTRUMENTS FOR SOLID WASTE MANAGEMENT AND EFFECTIVE SANITATION

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ABSTRACT

*This paper examines the limitations of using coercive policy instruments in addressing solid waste management and sanitation related issues in Nepal. Despite improvements in economic and social indicators, the current situation of these two sectors remains poor, leading to the spread of diseases and negative impacts on public health, communities, and the environment. The paper highlights the need for a comprehensive, non-coercive approach that balances different policy instruments and addresses the underlying drivers of behavior. The focus is on conceptualization and application of instruments and interventions based on behavior change theories, education, and communication strategies. Several examples of non-coercive policy instruments, including the use of pictures of gods, the Open Defecation Free campaign, and nudges such as the "Fly in the Urinal" and the use of deodorizing beads are given. These examples demonstrate the effectiveness of acknowledging and addressing the factors that influence people's attitudes and behaviors in promoting positive change in a sustainable way***.**

Key words: *nudge theory, social and behavior change, sanitation, solid waste management*

INTRODUCTION

Despite significant advancements in economic and social indicators over the past two decades, the status of solid waste management (SWM) and sanitation services in Nepal remains inadequate, leading to the widespread transmission of diseases and negatively impacting public health, community well- being, and the environment. The major attributes contributing to this situation are limited physical infrastructures and inappropriate policy instruments. Many current policy instruments related to solid waste management and sanitation services are coercive in nature, relying on fines and penalties to discourage littering and open defecation/urination and promote proper waste management and sanitation practices. The coercive policies rely on the threat of punishment to motivate compliance. While these policies can reduce littering and open defecation/urination and promote proper waste management and sanitation practices to some extent, they are not always sufficient in bringing about long-term behavior change and the goal of universal access to quality services and resilient facilities.

Coercive measures may lead to temporary compliance, but they do not address the underlying attitudes and motivations that drive waste management and sanitation behaviors. This can lead to resistance and resentment towards waste and sanitation management efforts and may limit the effectiveness of these policies in promoting positive behaviors. Figure 1 (a) and Figure 1 (b) give an insight into the outcomes of such coercive policy instruments. Figure 1(a) shows a picture of general public urinating in front of a signboard that mentions imposing fines for throwing waste or urinating in the area. Figure 1(b) shows a picture of a littered area right below a signboard that mentions imposing a heavy penalty and/or jail sentence for throwing waste in the area. As exemplified by the pictures, coercive tools emphasize the negative consequences of non-

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compliance towards proper conduct related to waste management and sanitation, and do not address the underlying attitudes and motivations for such undesired public behavior.
Secondly, users tend to behave irrationally at the user-facility interfaces. One of the reason for doing showing this behavior is that the facilities like toilet or bathroom is considered as private and secret place. People tend to behave differently in such places. Secondly, if the facilities are not hygienic and safe, the users are forced to not follow the rules or common practices. If the facility is used differently,it would go out the system and would cost more to operate and maintain it.

(a) (b)

Figure 1: Examples of users breaching the notice provided by the authorities

EXISTING ISSUES AND CHALLENGES

Poor sanitation and inadequate facilities for solid waste management pose significant threats to publichealth and well-being, affecting the quality of life, particularly in developing countries like Nepal. Around the world, the most widely used traditional municipal solid waste (MSW) treatment methods are open dumping, sanitary landfilling, and incineration (Sharma & Jain, 2020). Rapid urbanization and population growth have led to an increase in the generation of solid waste worldwide, with an estimated
2.24 billion tonnes generated globally in 2020, and it is projected to rise to 3.88 billion tonnes by 2050 (World Bank Group, 2022). This increase in waste generation poses a significant challenge for waste management systems and regulations. As per World Bank Group (2018), nearly 37% of global MSW has been managed via landfills (only about 8% in sanitary landfills), 33% in open dumping sites, 19% through recycling/composting, and the remaining 11% through thermal and

waste to energy facilities in 2016. The lack of toilets and basic sanitation facilities results in the practice of open defecation, which spreads diseases and infections and contributes to poor health outcomes. According to WHO & UNICEF (2020), approximately 673 million people lack access to toilets and practice open defecation, while about 698 million school-age children are devoid of basic sanitation facilities in their schools.

The impact of poor sanitation and inadequate waste management is far-reaching and affects social and economic development, hindering progress and perpetuating a cycle of poverty and poor health. Effective and sustainable behavior change instruments are needed to address this critical issue and improve sanitation and waste management systems around the world, particularly in developing countries like Nepal.

BEHAVIOR CHANGE BARRIERS AND IMPORTANCE

Promoting behavior change for waste management and sanitation is challenging due to a variety of factors. Behavior change is influenced by social, cultural, and economic factors, such as community norms and values, access to resources, and the availability of adequate sanitation and waste management infrastructure (O'Connell, 2014). Attitudes and beliefs about waste management and sanitation may be deeply ingrained and resistant to change. There may also be a lack of awareness about the importance of proper waste management and sanitation practices, and financial constraints in low-income communities can limit access to necessary facilities. Cultural practices and beliefs can also make it difficult to change waste management and sanitation behaviors. In addition, limited access to resources, such as water and infrastructure and improper operation and maintenance, can be a barrier to change in both rural and urban areas. Additionally, people may be resistant to changing long-standing waste management and sanitation practices, even if they understand the benefits of change.

An example of the importance of addressing the underlying behavior is related to the transition from open defecation to the use of modern toilets. In many rural areas of Nepal, until few decades ago, the open defecation (OD) was rampant. As of low population density and availability of open areas, the feces and urine were directly disposed in the open areas and did not cause much issues. There used to be no structure or facility for defecation while practicing OD. People used to squat on the ground and defecate. As of the growth of market areas and cities, the open defecation started to become difficult. Therefore, pit latrine and Ventilated Improved Pit (VIP) latrines were introduced. These facilities used have squat pans for defecation. Later on Western styles toilet with commode facilities were introduced. The transition from open defecation to the later ones emphasized transfer of technology not the software. Therefore, accidents while using a Western-style commode toilet can be a common problem, especially for people from rural areas who were not used to this type of facility. This can be a barrier to continued use of the toilets, especially in areas with cultural or social stigmas associated with using toilets. Thus, addressing the issue of accidents while using Western-style toilets through a comprehensive non-coercive approach, combining education, resources, and community support are important for encouraging behavior change and promoting the transition from open defecation to using toilets.

Behavior change in the sanitation and waste management sector is essential for improving public health, reducing environmental degradation, and promoting sustainable development. It involves changing the attitudes, beliefs, and behaviors of individuals and communities toward waste management and sanitation practices. Behavior change in the sanitation and waste management sector requires a comprehensive approach that balances different policy instruments and addresses the underlying drivers of behavior. Despite the recognition of the importance of promoting sustainable behaviors, a major challenge for policymakers and researchers remains to identify effective strategies for encouraging such behaviors across a diverse range of social, cultural, and economic contexts.

BEHAVIOR CHANGE FOR THE WASTE MANAGEMENT AND SANITATION SECTOR

Change in individual and community behavior is essential for the waste management sector because it can reduce the amount of waste generated, improve waste segregation, increase participation, save costs, and protect public health and the environment.

Encouraging individuals and communities to adopt sustainable behaviors, such as reducing consumption, reusing products, and recycling can reduce the amount of waste generated. Encouraging individuals and communities to properly sort and separate their waste can make it easier for SWM systems to process and recycle materials. Thus, it helps to reduce the amount of waste that ends up in landfills and the burden on management systems. Encouraging individuals and communities to take an active role in SWM can increase participation and support for waste management programs. This can help create a sense of ownership and responsibility among community members, which can lead to greater long-term success for SWM programs. By reducing the amount of waste generated and improving waste segregation, SWM systems can operate more efficiently and at a lower cost. Solid waste, if not properly managed, can have a significant impact on human health and the environment. Changing individual and community behaviors can help to prevent pollution and environmental damage and reduce the risk of public health issues.

Behavior change is a crucial aspect of the sanitation sector, as it plays a vital role in improving health outcomes, increasing access to toilets, improving living conditions, protecting the environment, and ensuring the sustainability of sanitation investments. Open defecation and poor sanitation practices can lead to the spread of diseases, such as diarrhea and cholera, and have serious health consequences, especially for children and other vulnerable groups. Encouraging behavior change around hygiene and sanitation can help prevent the spread of disease, create cleaner and healthier communities, and reduce the negative impacts of poor sanitation practices on the environment.

SOCIAL AND BEHAVIOR CHANGE COMMUNICATION (SBCC)

The behavior change approaches have undergone a transformation, evolving from the traditional Information, Education, and Communication (IEC) approach to the more comprehensive and integrated approach of Social and Behavior Change Communication (SBCC).

The Information, Education, and Communication (IEC) approach are focused on changing individual behavior through increasing knowledge and awareness, and addressing beliefs, attitudes, and other individual factors (USAID, 2021). The IEC approach is one-way communication and is based on the assumption that providing information alone would change behavior. Recognizing the limits of the IEC approach, and stretching beyond its focus, Behavior Change Communication (BCC) was introduced. This approach recognized that behavior is influenced by complex social and cultural factors and that communication alone is not sufficient to bring about behavior change. However, the BCC approach primarily focuses on the individual level and does not fully consider the impact of social and cultural norms on behavior change (USAID, 2021). In response, the BCC approach was modified to incorporate a more comprehensive view of the various factors that influence individual and community behavior, and thus Social and Behavior Change Communication (SBCC) emerged (USAID, 2021). SBCC is a systematic application of interactive, theory-based, and research-driven communication processes and strategies to address behavior changes at individual, community, and social levels (IHBP, 2013). SBCC is a systematic process that uses a Socio-Ecological approach and operates through three strategies (behavior change communication, social mobilization, and advocacy) (IHBP, 2013).

The most commonly used behavior change theories in SBCC programs and their classification on the basis of intervention level according to the socio-ecological approach are given in Figure 2.

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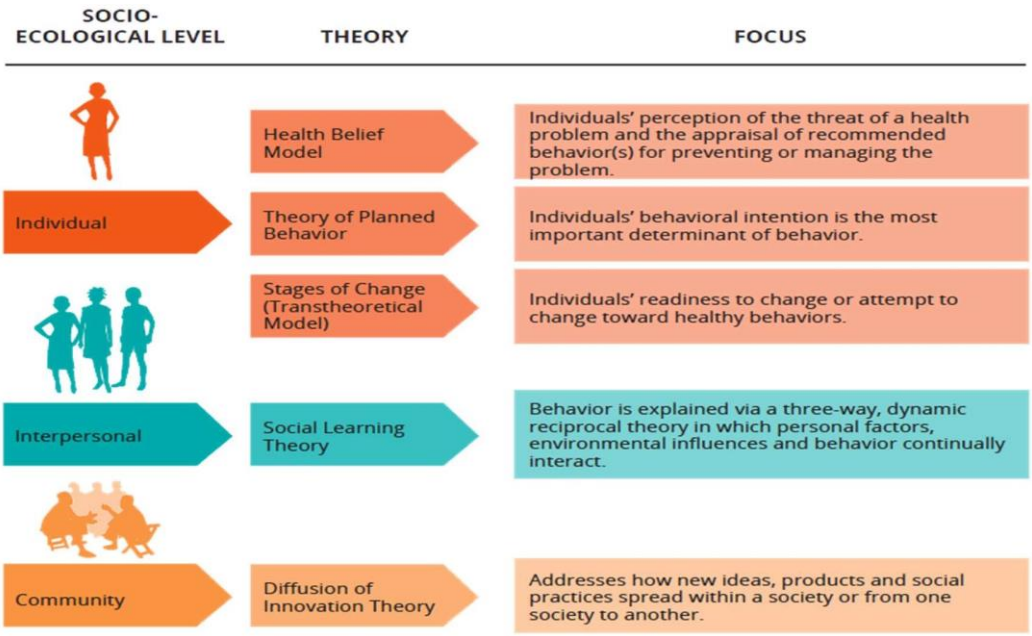

Figure 2: SBCC Theories (Bertram et al., 2016)

Behavior change theories provide insight into the motivations behind human behavior and the factors that drive behavior change. These theories can inform the design of SBCC programs by guiding the focus on the key drivers of behavior, whether it is the individual, their intention to change their behavior, or their surroundings. Understanding the underlying principles of these theories can help practitioners tailor their interventions to effectively address the specific factors affecting behavior in their target populations.

NUDGE THEORY

The concept of "Nudge" was popularized by Thaler & Sunstein (2008) in their book "Nudge: Improving Decisions about Health, Wealth, and Happiness." Nudging is a way to influence people's behavior in a positive direction by changing the environment in which decisions are made. It does this by creating a system of gentle encouragement that leverages the understanding of the decision-making process to steer people towards particular actions. Nudging does not limit people's options or significantly change their economic incentives, but rather provides a subtle push toward a preferred outcome (Thaler & Sunstein, 2008). This approach has been applied in a variety of fields, including public policy, marketing, and health, to encourage positive behavior change and improve decision-making.

EXAMPLES OF SUCCESSFUL BEHAVIOR CHANGE APPROACHES

One of the most famous non-coercive interventions that show how a small change in the environment can lead to significant behavior change is related to the men's toilets in Amsterdam's Schiphol Airport. The airport found that the area around the urinals in the men's toilets was often dirty and unsanitary as a result of poor focus and aim from the users (World of Work Project, 2019). To address this issue, the "Fly in the Urinal" nudge was born which involves placing a sticker of a housefly in the urinal. The idea behind this was that the fly would serve as a target for men using the urinals, directing their aim towards the center and away from the surrounding floor area. The result was a significant reduction in the amount of spillage by 80 percent in the toilet (Thaler & Sunstein, 2008).

Similarly, the use of colorful deodorizing beads is another example of a nudge placed in urinals to reduce spillage and mask unpleasant odors and create a more pleasant environment, which can encourage users to keep them clean. Additionally, the use of religious imagery such as the pictures ofgods and goddesses in Nepal in place of coercive signboards has served as a nudge to create a sense of social obligation and increase the likelihood that people will engage in better waste management practices.

According to Wang (2020), in June 2000, the Ministry of Housing and Urban-Rural Development of China introduced a waste segregation program in 8 pilot cities. The program was later expanded to 26 cities in 2015 after its success in increasing household waste sorting activities. A study conducted on 11,193 households in 28 provinces of China found that households in cities with the waste sorting program showed a 0.243-point increase in the frequency of waste sorting, even 13 years after the program's introduction. The study found that social interaction and waste-related knowledge were thetwo key variables that contributed to this effect.

The Open Defecation Free (ODF) campaign in Nepal is also an example of SBCC intervention aimed at promoting proper sanitation and hygiene practices, particularly the use of toilets, in rural areas. TheODF campaign used a variety of communication and persuasion strategies as shown in Figure 3, including mass media, community mobilization, and behavior change interventions, to change the attitudes and behaviors of individuals and communities toward the use of toilets (National Sanitation and Hygiene Coordination Committee, 2020).

In Figure 3 (a), the picture illustrates the various benefits of having a toilet while the second picture employs religious figures to encourage individuals to construct toilets in their homes. The ODF campaign has been successful in creating awareness and promoting the adoption of improved sanitation practices in many rural areas in Nepal, contributing to improved health and sanitation conditions. The transition in public behavior from open defecation to the use of toilets and recognitionof the importance of sanitary public toilets in Nepal can be attributed to the efforts made through this approach, creating awareness and addressing various factors regarding the change of attitudes towards sanitation and hygiene practices.

RESEARCH GAPS AND WAY FORWARD

Effective SWM and sanitation are crucial for the health and well-being of communities and the environment. Despite the widespread recognition of the crucial role that promoting sustainable behaviors plays in addressing waste management and sanitation issues, there still exists a significant challenge in devising effective strategies that can encourage such behaviors across diverse social, cultural, and economic contexts. To overcome this challenge, there is a growing need to integrate evidence-based social and behavior change instruments into relevant programs and policies, to develop and test strategies as well as to understand their effectiveness in different cultural and social contexts. Particularly, there is a need for extensive research and implementation of non-coercive instruments such as SBCC programs and nudge interventions in low- and middle-income countries, where the solidwaste management and sanitation challenges are often the most acute.

(a) (b)

Figure 3: SBCC intervention for the ODF Campaign in Nepal

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