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The toilet tripod: Understanding successful sanitation in rural India

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ABSTRACT

Building toilets and getting people to use them is critical for public health. We deployed a political ecology approach specifically to identify the multi-scalar political, economic, and environmental factors influencing toilet adoption in rural India. The research used ethnographic and technical methods in rural villages of West Bengal and Himachal Pradesh over the period September 2012 to May 2013. The elements of successful sanitation adoption depended on three factors (i.e., *toilet tripod*): (1) multi-scalar political will on the part of both government and NGOs over the long term; (2) proximate social pressure, i.e., person-to-person contact between rural inhabitants and toilets; (3) political ecology, i.e., assured access to water, compatible soil type, and changing land use. This research contributes to studies of sustainable development and global public health by developing a theory and framework for successful sanitation.

1. Introduction

As part of a global health and development agenda, the Millennium Development Goals (MDGs) to halve the proportion of people without sustainable access to sanitation by 2015 is falling far short of its goal. Most of the deficit is in sub-Saharan Africa and South Asia (World Health Organization, 2013). Practitioners, policy makers and academics have been grappling with the challenge that sanitation presents and most do not agree that there is a single right approach. Many now agree that supply driven interventions – large scale interventions and subsidies that focus on subsidized latrine construction – have not helped with MDG targets. Critics have highlighted that they are captured by the more wealthy, do not reach the poor, are poorly designed and constructed, or are not culturally appropriate (Jenkins and Scott, 2007; Mara et al., 2010; Jenkins and Sugden, 2006).

Therefore, the focus of policy and research has shifted to the creation of demand for sanitation because low demand at the household level has been blamed for the failure of sanitation initiatives (Evans, 2005; Jenkins and Sugden, 2006). Demand-side approaches focus on health education, social marketing, community action, supporting household behavior change and enabling small scale entrepreneurial initiatives with state as facilitator. Public investment is focused on changing institutional approaches to sanitation and supporting these demand-creating approaches—investing in software rather than hardware (Evans, 2005; Jenkins and Scott, 2007; Jenkins and Curtis, 2005; Jenkins and Sugden, 2006; Peal et al., 2010). The focus on creating demand has led to important findings that individual and households' motivations to build and use toilets has more to do with comfort, convenience, status, privacy, and dignity than with perceived public health benefits (Evans, 2005; Jenkins and Scott, 2007; Jenkins and Curtis, 2005; Jenkins and Sugden, 2006; Peal et al., 2010). We take a broader view and argue that successful sanitation hinges on the interaction of demand, supply, scale and political ecology while paying attention to how poverty, inequality and access to resources act as constraints to sanitation. Our research also highlights that most research on sanitation fails to adequately address the politics of access to environmental resources (in other words, political ecology) that are critical to sustainable sanitation adoption.

The current paper complements previous research on motivations to build, adopt, and sustain latrine usage over time (Devine, 2009; Jenkins and Scott, 2007; Rheinländer et al., 2010) by applying a political ecology framework to the problem of sanitation adoption. A political ecology approach examines human–environment relationships at the intersection of economics, social norms, and unequal social relations of power (e.g., gender and caste). As King (2010) proposes, political ecology approaches offer new insights into studies of disease, health discourses, and how health is shaped by relationships between humans and humans, and humans and their environments. Halvorson et al. (2011) apply a political ecology approach to great effect in their study of the social-ecological aspects of diarrhea and water quality by mothers in Mali, finding that seasonality not only impacts perceptions of water quality, but also the ability to use toilets. In their study of the anomaly of dengue fever in a planned Malaysian city, Mulligan et al. (2012) use a political ecology approach to bring together

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(1) an understanding of 'the city' as a material manifestation of social relations and (2) how the environment surrounding the body may infect it. They found that planning a modern, global city took precedence over creating a healthy environment for its denizens. We deploy a political ecology approach specifically to identify the multi-scalar, political and environmental factors influencing toilet adoption in rural India. Sanitation interventions seek to modify human patterns of open defecation, but seldom deeply consider the socio-spatial dynamics and environmental factors that support the development and sustainability of toilet usage (Jewitt, 2011). These projects often ignore how family political relations (e.g., women's lack of decision-making power) and variable access to resources (e.g., periodic water scarcity) impact toilet usage by all family members (O'Reilly, 2010).

Many sanitation practitioners and researchers acknowledge that toilet interventions must move beyond building toilets, and instead focus on engaging the social and economic factors that will lead to toilet adoption. Scholars have highlighted that toilet adoption comes from providing the right kinds of toilet designs (Devine, 2009), community involvement (Kar and Chambers, 2008), involvement of the state (Black and Fawcett, 2008), finding locally specific solutions (Waterkeyn and Cairncross, 2005) and understanding people's ideas and values around sanitation (Rheinländer et al., 2010; Drangert and Bahadar, 2011). For Drangert and Bahadar (2011), the critical starting point was to understand perceptions of impurity (*najas*) of different types of human waste and forms of excretion. Rheinländer et al. (2010) underscored the importance of understanding what sanitation means for the targeted populations, so that interventions may be crafted that are culturally acceptable and positively reinforcing. The work of Robinson (2006) and Joshi et al. (2011) indicated that communities, even poor communities, know already about good hygiene behaviors but lack the means and incentives to build or use facilities.

The research used mixed-methods for data collection about toilet adoption, and was conducted in rural villages of West Bengal and Himachal Pradesh over the period September 2012 to May 2013. We relied on Passive Latrine Use Monitors (PLUMs) to gather daily data on households' toilet use. PLUMs verified that toilets were in use as families reported, triangulating interviews (Clasen et al., 2012). We also used ethnographic methods to gain an in-depth understanding of social practices and specific cultural contexts, because hygiene values are embodied in hygiene practices (Rheinländer et al., 2010). Ethnography does what quantitative research cannot: deepen our understanding of the motivations of rural dwellers to change their sanitation behaviors, and the shifting constraints and opportunities they face in making those changes.

The data show that successful toilet adoption, i.e., when members of a household use toilets habitually, depends on three factors: (1) *multi-scalar political will* on the part of *both* governmental and nongovernmental organizations (NGOs); (2) *proximate social pressure*, i.e., person-to-person contact between rural inhabitants with their neighbors, and with toilets; and (3) *political ecology*, specifically, changing land use, assured access to water, and compatible soil type. Each of these three analytical categories forms one leg of the *toilet tripod of successful toilet adoption*. We use the *toilet tripod* metaphor to illustrate that toilet adoption is a complex, long-term process dependent on local environmental contexts, and also state, national, and international support Fig. 1.

Our intention to add complexity to sustainable sanitation debates complements recent work by global health scholars concerned with inequalities in health across people and places (Brown and Moon, 2012). As argued by Dorling et al. (2007) disparities in health are much more complicated than simple dichotomies, e.g., rich/poor. Instead, others argue that inequalities

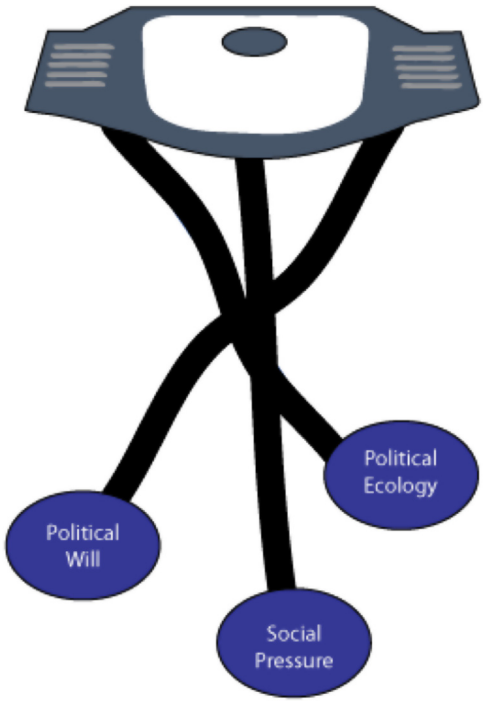

Fig. 1. The toilet tripod.

in health may occur through multiple, combining factors (Curtis and Riva, 2009). Brown and Moon (2012, p. 14) argue that health inequities are related to "inequitable access to a myriad of environmental, economic, political and social resources"—key concerns of political ecologists generally, and political ecologies of health specifically (Kalipeni and Oppong, 1998; King, 2010). We emphasize that toilet adoption is a product of social relationships and their spatiality at multiple scales (O'Reilly, 2010). We sought to understand how toilet adoption occurs within the multi-scalar dynamics of knowledge and power that affect local actors' relationships to their environments (Bryant and Bailey, 1997; Watts and Peet, 2004). Conversely, we analyzed how local environments are impacted by both distant and proximate decisions in ways that may encourage toilet adoption. The toilet tripod suggests a synthetic approach to understanding toilet adoption that we expect will assist toward the Millennium Development Goal for sanitation, thereby improving inequalities in global public health.

2. Theorizing sanitation uptake

Much research on sanitation adoption investigates marketing approaches, demand creation and/or community-led approaches in an attempt to find ways to boost toilet adoption without subsidies. Jenkins and Curtis (2005) found in rural Benin that the lack of desire for a toilet, not constraints alone, was the primary reason people chose not to build. If one or more of eleven toilet-acquiring drives were present, individuals became toilet adopters. These drives related to: (1) prestige; (2) well-being; and (3) restrictions on mobility (e.g., illness); and (4) desire to increase rental income. Gender, life stage, education, occupation, experience of travel, wealth, and physical and social geography of the village environment were recognized as important influences on/conditions for underlying drives. Cost, lack of available credit, design, soil type, and family problems were found as constraints. In a later paper, Jenkins and Scott (2007) put forward a behavior decision model based on preference–intention–choice stages of an individual's decision to build a toilet in Ghana. They used given social