# Sanitary Sewer Overflows: An Underlying Challenge for Urban Environments

November 8, 2024

Sanitary Sewer Overflows (SSOs) might not be a commonly discussed issue, but they are a critical aspect of urban sanitation that can significantly impact public health and the environment. Cities around the globe grapple with the challenge of keeping untreated sewage from spilling over into our streets and waterways. To understand the scope of this issue, it's essential to delve into what SSOs are, what causes them, and how prevalent they are.

## Understanding the Scale of the Problem

The U.S. Environmental Protection Agency (EPA) estimates that annually, at least 23,000 to 75,000 SSO events occur across the United States. These figures are alarming, considering each event represents a significant potential for environmental contamination and health risks. It's also a somewhat murky statistic, as the total volume of untreated sewage discharged is less than 0.01 percent of all treated sewage, but in terms of volume, it still amounts to several billion gallons per annum.

## What Causes SSOs?

SSOs can result from various issues within a city's sewage infrastructure. Some of the prominent causes include:

- **Blockages:** These are often caused by debris, grease, or tree roots that obstruct the flow within sewer lines. Astonishingly, about half of the SSOs in the United States are attributed to blockages.
- **Infiltration/Inflow:** Heavy rainfall can lead to excessive stormwater infiltration into sewer lines, exacerbating the overflow issue, particularly in older cities with aging infrastructure.
- **Infrastructure Failures:** Malfunctions such as broken sewer lines or power outages impacting pumping stations are also significant contributors to SSO events.

## Health and Environmental Impacts

The repercussions of SSOs go far beyond unsightly sewage on the streets. Human health impacts can be dire, with gastrointestinal illnesses stemming from waterborne diseases. Environmentally, SSOs can lead to beach closures, affect the safety of fish and shellfish consumption, and cause harm to aquatic life due to increased turbidity and decreased oxygen levels in water bodies.

## Addressing the Overflow Challenge

The sobering reality is that solving the SSO problem is a costly affair. The EPA estimated in 2004 that upgrading municipal treatment and collection systems to reduce the frequency of SSOs to no more than once every five years would cost about $88 billion. This figure is over and above an already invested $10 billion.

## A Global Perspective

The United States is not alone in facing this challenge. Developed countries across Europe and Asia share similar struggles, attempting to manage and mitigate SSOs effectively. The problem takes on a different scale in developing countries, where a significant portion of wastewater is discharged untreated, exacerbating public health issues and environmental degradation.

## Initiatives and Technology to Combat SSOs

There are measures being implemented to manage and ultimately reduce the frequency of SSOs. For instance, some U.S. municipalities require restaurants to use grease interceptors to prevent blockages caused by fats and oils. In the UK, some companies have deployed monitoring equipment to detect high levels within sewers and report back in real-time, helping to reduce pollution events dramatically.

## A Call to Action

The issue of SSOs is complex and multifaceted, affecting cities' resilience, public health, and the environment. It requires concerted efforts from local government agencies, urban planners, and citizens. There is a pressing need for not just awareness, but actionable solutions that address infrastructure shortfalls, promote regular maintenance, and invest in advanced technology to prevent and manage SSOs effectively.

While SSOs present a significant problem for urban environments, continued efforts in infrastructure investment, technological innovation, and community engagement can pave the way for a future with fewer sanitary sewer overflows. As stewards of the environment and public health, it is incumbent upon us all to acknowledge the gravity of SSOs and work collaboratively towards sustainable solutions.