



Wipes And Wastewater Infrastructure Around The World

Sometimes it's hard to keep in mind that the water falling over our heads was recently halfway across the world. Or that for all of our differences as people on this planet, we all rely equally on that precious resource. Problems that plague one water system can be felt thousands of miles away. The same goes for wastewater.

To get a sense of the world's wastewater systems, we spoke with [KSB Inc.'s](#) vice president of business development, Horst Sturm. Sturm talked to us about where things stand in global wastewater and about how we might come together to solve a persistent universal challenge.

How would you describe the state of the world's sewer systems?

The state of the world's sewer systems is very different depending on the region and the historical, political, and economical situation. In some regions, even the water supply is missing. The sewer and wastewater systems will follow after the water system is installed.

In some industrial countries, the stormwater has to be collected and treated before it goes to the river. For example, in Europe it is mandatory to collect rainwater in stormwater retention tanks to send it to the treatment plants after the storm is over. In case of overflow, the municipality



Example of a pump loaded with wipes

has to pay for the overflow amount, which is monitored.

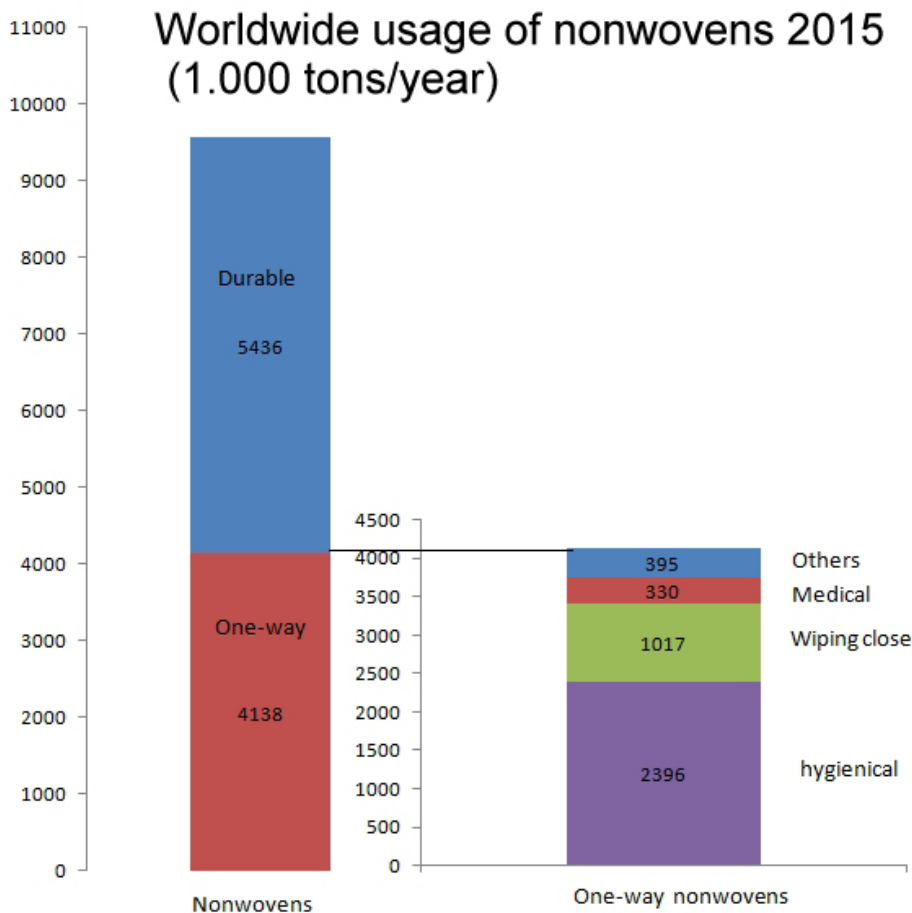
In many industrial countries, the water prices were rising. That caused many different water-saving activities. That means that the water needed to flush and transport solids and other loads is less than before. There is less velocity now in the same pipe diameter, often not enough to overcome the settling velocity. All in all, sewer systems that were working sufficiently for many years are now at risk of collapsing;

but already many municipalities have to pay a high extra fee to keep them working.

In the United States, because many systems have been functioning and working for many years, there is a need to refurbish them, and the U.S. EPA has made an investigation revealing a huge need for investment.

What are the primary wastewater challenges felt around the globe?

Different challenges are coming up



Source: "The future of NW to 2015"

around the globe, but some may be easily managed.

To be able to supply water to all regions and all continents is a task for all of humankind. Following this, a sewer and wastewater system, including treatment, will be needed. Stormwater management and treatment is an increasingly challenging requirement for keeping rivers and the environment clean. These require efforts and investments in construction engineering but are not extraordinarily challenging. The increase of storm events and flooding all over the world will also challenge the engineers and the municipalities to control the risks, especially if wastewater is merged with the flooding stormwater. The behavior of the citizens and companies responsible for discharging the sewer will ultimately influence the challenge.

What emerging trends in water use and sewage composition are affecting these systems the most?

Many of the available systems that were working well have now been pushed to their limits of usefulness, especially with regard to handling and transporting nonwoven wipes. This is a situation where content is brought into the systems for which they were not designed or built. It is not possible to improve the whole sewer and treatment systems worldwide to accommodate the disposal of nonwovens. The trend toward disposing of wipes in the sewer is still increasing. It is simple to say, "Non-woven wipes should not be thrown into the toilet or sewer." It's also important to educate people about why that is. They should understand that wipes do not dissolve like toilet paper.

What are some of the direct costs associated with the use of "flushable" wipes?

It can be said that the extended use of convenient wipes and disposal through the toilet and sewer costs the citizen a lot of extra money.

New York City, for example, spent more than \$18 million from 2010 to 2014 for wipe-related problems in the system.¹

The increasing use of convenient wipes may influence the middle- and long-term health of our environment if we do not handle it properly.

If the idea of help for pump stations is only to hack, chop, or squeeze the things that get stuck, including the plastics and other non-biologic content, the treatments will not be able to get them out.

There is no process afterwards for this kind of content if it is arriving in biological treatment. The already heavily loaded ocean will be used more and more for disposal.

The increasing use of wipes may go ahead, but it's not the usage of wipes that is causing the problem. Flushing them into the toilet and sewer which are not built to handle them, and where the wipes cannot be dissolved, is the problem.

How much wastewater infrastructure investment is needed around the globe, and what should it go towards?

Significant investment is needed to build up the normal infrastructure in developing countries and to refurbish it in developed countries. In the past, investment for wastewater was postponed because of other priorities.

The U.S. EPA recently conducted a survey that revealed a \$271 billion need for maintaining and improving the nation's infrastructure. There may be a much larger need in the non-developed countries all over the globe. Unfortunately, the convenience of wipes, and their disposal into sewers, is exploding everywhere sewers are used, in countries that are developed and developing.

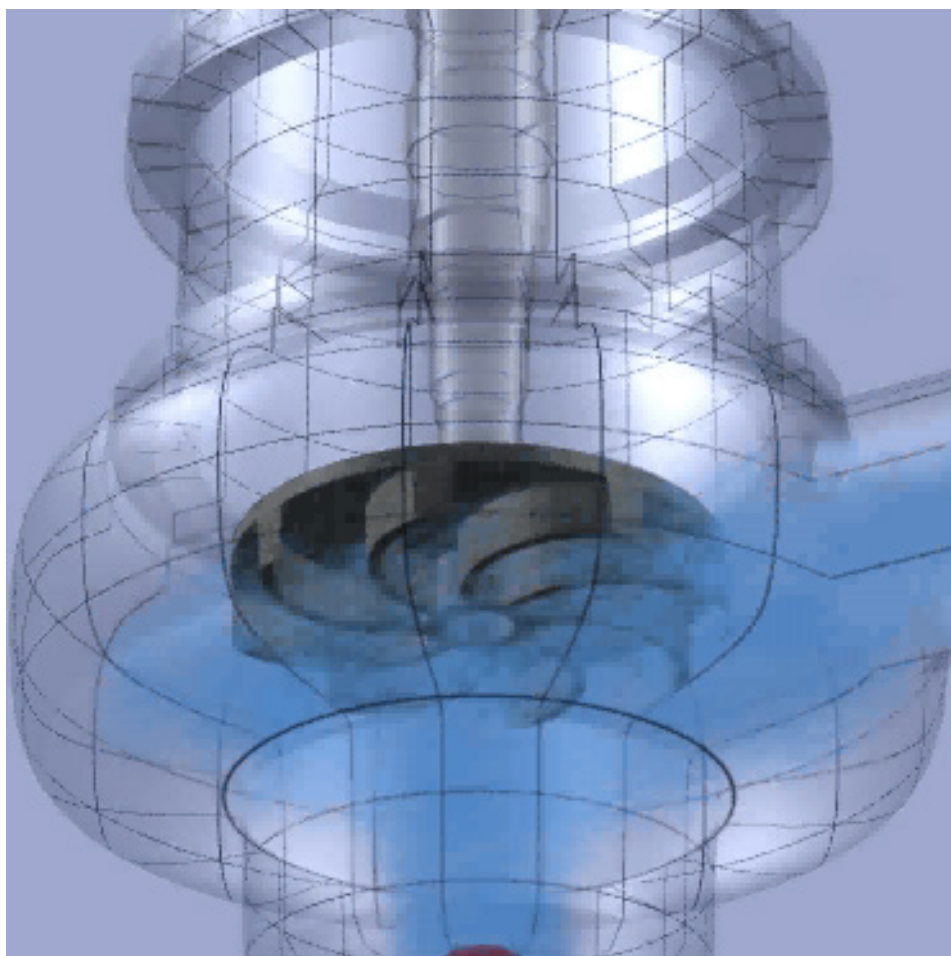
How might we solve the global wipes issue?

To solve the issue, it is most important to educate the people about the consequences and guide them to proper disposal into the trash, but also to use technical solutions for pump stations which are in accordance with the existing process arrangement. This means pumping the wipes and the content — without chopping — up to the screen of the treatment plant, where they can be taken out and disposed of in a landfill.

Pump manufacturers are working on different solutions, and some are already in place. Just one example to show here would be the special Vortex F impeller. This impeller is designed especially for the easy handling of wipes without hacking or cutting. It is easy for the coming wipes to go through immediately and not remain inside of the hydraulic.

For smaller stations, particularly those in the field, it is the most suggested solution. Although the stations don't usually run continuously, it's important that they run reliably when they're needed. A break in function costs a lot of effort and money, especially for the operators and/or maintenance.

Many different activities around the globe are carried out to stop the issues with non-dissolving wipes. Cities are informing and educating inhabitants not to throw the wipes into the toilets and sewers. The nonwoven industry is researching and developing a new generation of wipes, which have a similar structure, behave as toilet paper, and can be easily handled by our existing wastewater systems. Regulators are working on new methods for tests to make sure the wipe products for bathrooms are really flushable and dissolvable. Pump



The special Vortex F impeller

manufacturers are developing particular hydraulics to handle the changing raw sewage. Engineers are designing better pump station intakes to avoid the effect of settling wipes, which are later flushed suddenly because of higher flows.

All in all, the activities will not be able to stop the trend immediately. The issue will keep arising. All partners around the globe have to work in their fields, and together, when necessary, to save the environment, including the ocean, for the future. ■

¹Source: Matt Flegenheimer, The New York Times, March 13 2015