

**4th International Dry Toilet Conference**

**Bringing The Ecological Back to Sanitation  
– The Need for Changes in  
Attitudes, Practices And Policies**

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*Abstract: The world has seen sanitation developing from bushes to pits, and onwards to water closets. The next generation could be ecological sanitation; recycling nutrients back to soil and allowing a sustainable option for both developing and industrialised countries. This paper aims to determine how this development could take place and what is required in order for sustainable sanitation practices to become popular.*

*The World Polity Theory examines the domestication of trends on a global level. According to the theory, the same norms can be found in use all over the world despite the cultural differences. One of the key actors in bringing on a new norm to the global society are the international NGOs, which see the reality both on the field as well as on government level.*

*Ecological sanitation can in fact become a mainstream option, if attitudes, practices and policies change. Once a common direction is found, a global change is possible but awareness raising and research is required in order to change the current norms.*

**Keywords:** *Ecological sanitation, nutrient recycling, wastewater management, world polity theory, world society*

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**Introduction**

Ecological sanitation (ecosan), involving proper treatment of wastewater and nutrient recycling, returning the nutrients back to nature and balance between community development and environment, is socially, economically and ecologically sustainable option, thus covering all three pillars of sustainability (Brundtland Commission 1987). It is also an ancient method, as “humanure” has been considered fertiliser as long as agriculture has been practiced. Yet, with the development of waterborne sanitation, the practice has been deemed unhygienic and thus forgotten, even banned in some countries. But what determines the development of a practice becoming a norm or a trend? Why did the attitudes regarding ecosan change and could they change back, bringing the ecological back to sanitation? This paper will discuss these questions in the light of World Polity Theory, and will reflect on case studies from developing and industrialised countries.

Human being, just like any other animal, eats food which is then digested and used as energy. The part that cannot be consumed is excreted, and the leftover nutrients are

returned back to the natural cycle. Animals do their business in the wild on soil, and so their excreta return the valuable nutrients to enrich the soil. However, humans in many countries mix their waste with water and allow it to eutrophicate and pollute the water used for washing and drinking, which may easily lead to epidemics. The development of waterborne sanitation and inadequate treatment of wastewater makes contaminated water a serious public health problem in both developing and industrialised countries.

Development can be brought on by several factors. It can be the need for improvement or the ability to innovate – or simply the want for a change. In the case of sanitation, several aspects have taken us from bushes and pit toilets to where we are today. Yet, the norms and the common cognitive models are brought on by - what? It can be argued that waterborne sanitation has become a norm because it is considered as such in industrialised countries, but there are alternatives to it.

### **Methods**

This paper will examine the reasons behind the development chain of sanitation both in the developing as well as industrialised countries. It can be noted, based on the World Polity Theory (also known as World Society Theory) (Alasuutari 2011; Schoefer *et al.* 2010), that the driving force behind any societal change can be narrowed down to IGOs and NGOs forming a “world society”, thus conveying a model on how to operate. The theory goes on suggesting that associations, affecting on global norms, will eventually bring on new trends and policies, such as can be seen in several examples on global environmentalism. Through this common global culture, new practices are allowed to emerge and become normative.

The theory does not give direct answers to how global trends find their way to a particular country, but the findings are based on statistical comparison of variables that might affect the development (Alasuutari 2011). It is possible to identify key issues, however, by concentrating on case studies: where do the said trends come from, which actors are promoting them, who mould the new practices suitable for the particular society, and how?

Concentrating on the framework of domestication, as Alasuutari suggests (2011), is beneficial especially in qualitative research. Case studies from Finland and Zambia (O’Neill 2011) are used as examples to determine the status of ecological sanitation and its history - in order to predict the future trends in the field.

### **Results and Discussion**

In order to understand the development of ecosan, it is necessary to review the current development of sanitation. Already in very early stage of cultural evolution of humans, detest towards foul smelling, tasting and looking water was established, and people tended to avoid contaminated water sources. However, as people adopted an agrarian way of life and started to build permanent settlements, the health risk of contaminated water grew considerably. (Vuorinen *et al.* 2007.)

Still today the urban settlements face a problem with their wastewaters. Up to 10 000 people, mostly children and elderly, die daily due to various diarrhoeal diseases which could be prevented by adequate sanitation. (WHO 2011.) The problems have not changed in

thousands of years, nor have the realities: proper sanitation facilities decrease the risk of public health and environmental problems.

Naturally people in many parts of the world enjoy the convenience of a water closet. Since the early 20<sup>th</sup> century, the water closet has been a generally accepted cultural necessity in the Western countries (Vuorinen *et al.* 2007) - and by today it has become the general standard across the globe. The water closet is considered to be more hygienic and safer than other latrines despite the fact that the wastewater can end up practically anywhere.

Nevertheless, already the developer of the modern water closet, John Snow, understood the connection of waterborne sanitation and increase in cholera cases near public water wells (Vuorinen 2007). Yet, the method was considered clean and effortless – and it is still considered as the norm for sanitation facilities, even in countries where fresh water resources are scarce. The idea of water and cleanliness go hand in hand, and the idea of water as a medium for bacteria is not as widely acknowledged. Yet, what started as the luxury for the rich has become a generally desired outcome for all - the white porcelain seat that transports the waste away in a single flush has the sense of beauty, purity, and wealth.

The somewhat recent success of the water closet helps us understand what issues are meaningful in sanitation. *Cleanliness*, including health and environmental aspects, is a clear variable for development of sanitation. The main reason behind the first toilets and sewage systems was to ensure clean water for drinking and washing, and to remove the contaminating waste (Vuorinen *et al.* 2007). Another aspect is *financial*: water closet was - and still is - a symbol of wealth. From a society point of view, clean city is also more productive; an individual considers toilet an investment for health - and for social appearances. Therefore, the third aspect is *social value*. It turns out that the three main points to influence the development of sanitation methods are the three pillars of sustainability mentioned in the first paragraph of this paper: environmental, economic and social.

In the light of the World Polity Theory it can then be assumed that the domestication process of the water closet has been successful, despite its shortcomings. As the new technology became available, the old practices started to change and people's attitudes towards the water closet became more positive. Eventually the authorities started to promote waterborne sanitation and it found its way to legislation. Today waterborne sewage system is a norm in most countries (see e.g. Water Services Act 119/2001 for Finnish practices and Water Supply and Sanitation Act for the Zambian point of view).

But the idea of this article is to determine how ecological sanitation could reach the same popularity as waterborne sanitation. This can be estimated based on the history of the latter. The World Polity Theory suggests that domestication process becomes successful when the new norm can be harmonised with international norms and local practices (Alasuutari 2011). Also, even though cultural issues are important when bringing out a new idea, the main arguments stopping or advancing a new norm are interests and incentives - both on state level as well as for individuals (Schofer *et al.* 2010).

As ecological sanitation is very close to the ancient practices, where human excreta was used together with animal manure as fertiliser (ecosan simply includes the hygiene aspect), it is not as much a question of new technology being brought to people but rather about an old

practice made new - and getting the people to realise this. When proposing ideas different from the mainstream concepts, the messenger has an important role. The World Polity Theory emphasises the role of (international) NGOs (Schofer *et al.* 2010), and their role has so far proven to be crucial.

In developing countries, where sanitation is not necessarily a norm (2,5 billion people live without adequate sanitation), it is vital to find some way of constructing safe, affordable latrines. In several development cooperation projects across the world, ecological sanitation has been introduced and thereafter implemented successfully (e.g. Global Dry Toilet Association of Finland 2012). These are often countries where going to the toilet is a taboo, one cannot even mention the word, let alone suggest that one should grow food in the human waste - composted or not. Yet, success stories have emerged and sustainable sanitation is spoken of more than ever. In Zambia, for instance, people have used sewage sludge as fertiliser in secret. They are ashamed to admit it but know the benefit - the only problem is the risk of contamination. With safely treated fertiliser, even the poor can continue farming - it has occurred that the contents of a dry toilet have been stolen during the night. The voices of ecosan in Zambia have so far been NGOs, who balance between the local government and the grassroot level; NGOs spread the word on best practices amongst themselves and make noise until the governments become interested.

Obviously, the role of (I)NGOs cannot be found in the development of waterborne sanitation, as the civil society had not formed to what it is today. Yet, the path is clear. Starting from grassroot experiences to word-of-mouth, the practices change towards the desired end. Ecological sanitation is now at a point, where experiences are shared but official guidelines are still lacking. In developing countries, such as Zambia, it is challenging to suggest methods other than those favoured in industrialised countries - as it was with the water closet, the poor want what the rich have. It would, thus, be ideal to promote ecological sanitation also in industrialised countries.

The Finnish Environment Institute (2010) has slowly started to promote the option of dry toilet and recycling of nutrients. The option is still one of many and recommended in rural areas only but the option has already found its way to the official guidelines. Yet, ecological sanitation and reuse of human excreta are not discussed in legislation, and interpretation of the legislation varies from person to person. Attitudes are set deep, but the awareness is being raised by NGOs. Research is required to support the benefits of ecological sanitation and NGOs play an important role in spreading the new information to the people as well as to the authorities.

Based on case studies of Zambia and Finland, it can be deduced that practices are formed slowly: once the good experiences of the few pioneers come out, others are more willing to try the new option outside the norm. However, in order for a large scale change in practices to occur, new policies are required to support these practices. It is often found that legislative changes have an effect on practices. (Alasuutari 2011.) Still, the policymakers are only human and their attitudes can affect the policies brought onwards.

It is challenging enough to bring forth the change in one state, let alone globally, but according to the World Polity Theory this can be done. The theory suggests that models that support collective goods and have international organisational carriers will quite likely

diffuse into a new global norm. (Schofer *et al.* 2011.) Ecological sanitation has already the support of several international (and local) NGOs and best practices are speaking for themselves. Ecological sanitation is a twist on old traditions and still provides an acceptable solution for both dry and poor developing countries as well as modern industrialised states. It would also be beneficially to bring trade along to the equation, as economic interests, as stated earlier, are one key reason for adopting a new trend.

Economic interests alone cannot, however, be the only reason for a change to take place, but the overall change comes from attitudes, policies and practices. For this to happen, awareness must be raised, and this is where NGOs should be the key actor. NGOs have the benefit of acting between the government and the grassroots level; they see the practices and understand the policies (and politics) behind them. They can also be in touch with the private sector as well as the academia, and thus incorporate the three pillars of sustainability together: environmental, economic and social.

### **Conclusions**

Examining societies, an attitude towards ecological sanitation can be detected. Taboos come in many forms: somewhere toilets cannot be spoken of or nutrient recycling is a strange concept. Others swear in the name of water closet and perceive water as a cleansing instrument rather than a medium for spreading disease. These attitudes vary from country to country but they do have much in common - as if they were shaped by the same cognitive models.

Yet, decisions are needed in order to turn sanitation practices into more ecological direction. Alternatives to mining phosphorus and proper management of wastewater are required globally, not to mention breaking the vicious cycle of disease and death in 3rd world countries. In theory, a globally change could occur - and in this change the role of civil society is to be highlighted.

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