Effective Sanitation in Developing Regions

Effective sanitation in developing regions requires a solution that fits the local context.

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Abstract

Lack of suitable sanitation infrastructure is having a significant impact on environmental, human health and economic measures. Many different individuals and organisations have tried to respond to this need by implementing different sanitation approaches. Previous attempts to implement large scale centralised infrastructure with little local consultation or consideration of the local conditions has now been largely discarded due to a lack of long term effectiveness.

Practitioners and researchers working in the constructed wetlands field have often identified constructed wetlands and ecotechnologies as appropriate for developing regions due to the fact that they lend themselves to the utilisation of local materials, they have low capital and ongoing costs and can be relatively simple to operate. While these benefits as well as others may exist, it is important that wetland practitioners do not follow the previous model unsuccessful model of implementing technologies without considering the requirements of the local context. A number of different skills sets and experiences were identified by practitioners as requirements for the industry to improve the sustainability of sanitation systems in developing regions.

Introduction

It is commonly accepted that the approach of applying large scale centralised sanitation systems into low income and developing regions is not meeting the needs of the region. Instead the focus of individuals and groups working in these regions is to find approaches that meet the local social, economic and environmental context and can continue to perform appropriately over extended periods of time.

Constructed wetlands have been suggested as an appropriate technology for remote, developing and low cost regions due to perceived benefits around operating simplicity, capital and ongoing costs and energy and chemical demands (e.g. Kivaisi, 2001; Whitney et al., 2003; Zhang et al, 2012).

While these advantages may be offered by constructed wetlands it is important that as designers and practitioners we do not revert to the previous model of delivering solutions based on pre-conceived ideas. We must retain flexibility in our responses and access or develop skills in a number of different areas in order to maximise the sustainability of sanitation systems in developing regions.

Current background / status

Individuals and organisations working in the sanitation sector in developing regions come from a number of different backgrounds. These differing backgrounds can tend to lead to design bias based on previous experiences and beliefs. This may also be the case for practitioners working in the constructed wetland field. As a result it is important to identify and find ways to acquire the missing skills required for the identification and implementation of appropriate sanitation responses in developing regions.

An initial assessment of the potential skills sets and considerations required for the implementation of sanitation systems in developing regions. The skills and items requiring consideration have been divided into 5 different groups (Figure 1): Environment, Social, Institutional, Technical and Economic/Financial.

Main outcomes of the session:

- The difficulty of providing sustainable sanitation solutions in developing, low income and remote areas was identified; and
- There was strong recognition of the need to include a number of different skill sets from social, economic, technical and environmental backgrounds. It was also noted that it is very difficult to access these skill sets on small short term projects.

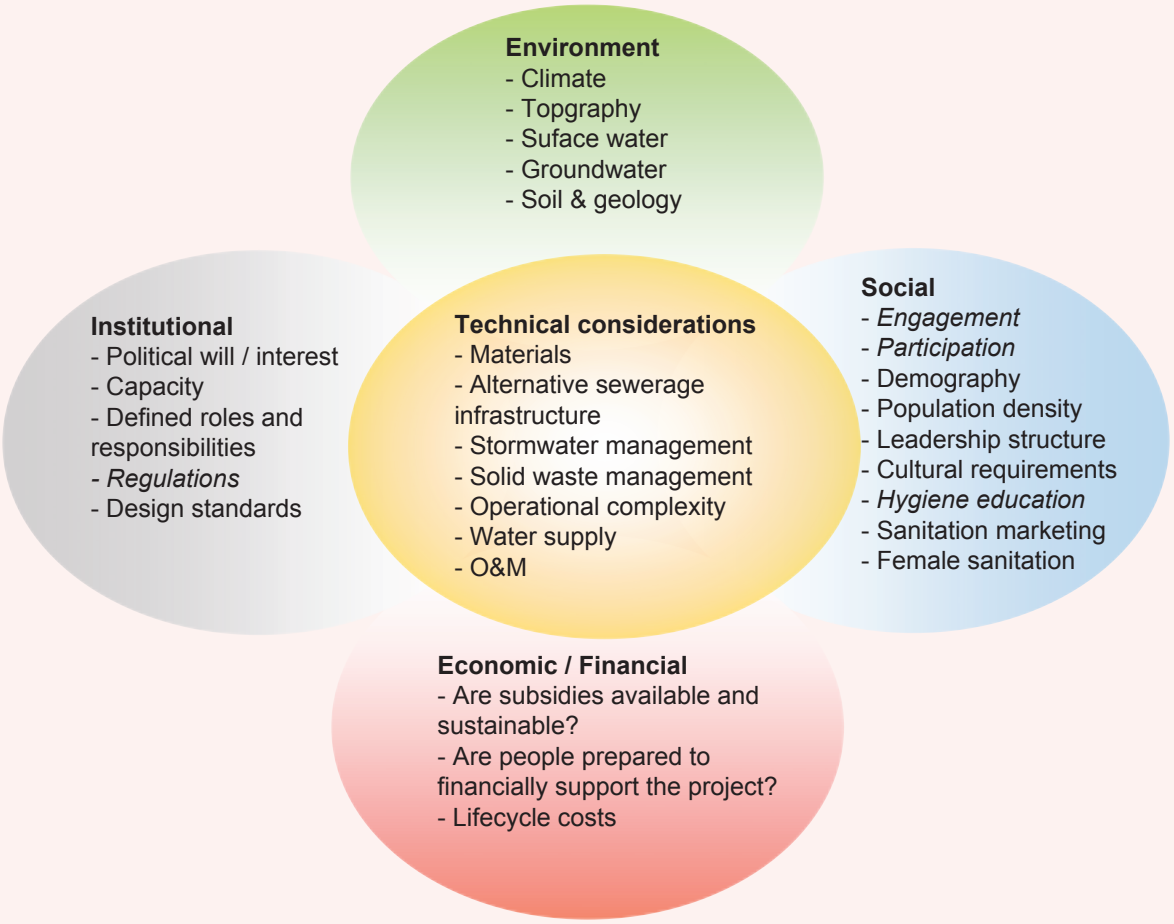

Figure 1 Potential considerations for the implementation of sanitation systems in developing regions Challenges / opportunities

Results

During the session participants were asked to identify the challenges, opportunities and major considerations for effective implementation of sanitation approaches in developing regions. This information is presented below as presented by the 6 Groups.

Group 1

Participation and communication with end users
Awareness of environmental and health risks
Legislation and sanitation planning
Cultural factors
Costs (investment and running costs)

Group 2

Lack of sufficient background data for design and implementation
Understanding local needs, conditions and the historical perspective
Do local regulations exist and are they appropriate?
Operation and maintenance
- Who is responsible
- Who will pay?
- Training
- Local political framework

How to make systems financially self sustainable?
- Financing models
- Incentives via reuse of effluent

Group 3

<u>Technical</u>
Infrastructure – Distances and lack of materials
- Different conditions – Topography and climate
- Maintenance
- Missing data

<u>Social / Cultural</u>
- Communication
- Lack of scientific knowledge
- Bad reputation of wetland systems
- Corruption
- Political situation
- Over expectation of the system

<u>Economic</u>
- Lack of incentives
- Sustainability
- Cost

Group 4

How to build local capacity?
What are the 'columns' for implementation?
- Technology
- Economy
- Capacity development

How cheap can technologies be without loosing treatment efficiency?
How to get the big investment / regional scale projects.

Group 5

Pre-consultation with local community – do you have an additional budget? Who pays?
Long term operation, who is paying?

Group 6

What systems are acceptable to the local community? Build consensus.
What materials are available? What can be used?
Operation and maintenance
Who is doing the work? Who is paying for it?
Knowledge transfer and capacity building.

Conclusion

The discussion associated with Session 3 identified a number of different questions, issues and challenges. Social and economic sustainability were sighted by several different groups as significant issues associated with the implementation of sanitation systems. The need to engage with the community early in the process to ensure that solutions will meet the needs of the local context was identified. This includes meeting local regulations as well as gaining an understanding of environmental and social conditions.

Participants also identified the need to utilise local materials in the construction of appropriate technologies. Questions around the financing of ongoing costs were also raised on several occasions along with concerns over the local government and non government organisations capacity to maintain and support treatment approaches over the long term.

As practitioners working in remote, low income and developing regions it is important that these skills are recognised in project development and involved as soon as possible in project design.

As a group the requirement for a number of different skills was identified and one of the major challenges presenting the industry is finding a way to access and integrate these skills into our projects.

References

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