

taking into account the productive use of water, and fostering direct relationships between the service provider and the user.

At least according to plans and expressed intentions, after a decade, many of these obstacles have been overcome and rope pump adoption is really taking off. The production of rope pumps has started in several countries supported by national governments or by NGOs; this is sometimes still informal and without political support, but luckily even the international NGOs and multilaterals are getting more involved, as mentioned earlier.

The Millennium Development Goal to halve by 2015 the proportion of

people without sustainable access to safe water is within reach. Let this be the last article on how it could be done: the next should describe how it has been done.

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software review

SANEX: Sanitation planning decision support software

\$100, available from www.decisionscape.com.au

SANEX is a computer-based decision-support software for the assessment of sanitation technologies. Its purpose is to assist identification of critical constraints affecting the suitability of sanitation systems during the early stages of sanitation planning. The software is based upon multi-criterion decision-analysis techniques and involves three main stages: screening, evaluation and finally a comparison of various technologies on the basis of their physical, social and economic feasibility. This second version of the software includes a number of important modifications since the first release in 1999, based upon practical experience and feedback from a core team of sanitation experts.

One of the inherent strengths of the software is its ability to carry out a rapid evaluation of various options under different circumstances. Provided the user is proficient in using the software, the information can be used to assist in interactive, participatory planning exercises by demonstrating how the local situation and the preferences of local stakeholders affect potential technologies, as well as the construction and recurrent costs of these options.

Amongst its many applications, the software has been used to assist in a planning process with community members for a sanitation system in Indonesia and in a workshop focusing on ecological sanitation in Nepal.

A useful feature is the ability to define different sections within the community, to account for the fact that communities are never homogeneous and there is often a need to assess these different requirements independently. Once suitable sanitation systems are identified for each section, they need to be combined to form an integrated solution for the whole community. However, this task is outside the scope of SANEX, and will require the assistance of an experienced engineer.

Another interesting feature of SANEX is the ability to include comments, which allows users to keep a record of their rationale for making specific choices during the decision-making process.

The software will run on virtually all PCs with Windows operating systems and is relatively easy to use, but users should be computer literate and will need to spend some time to familiarize themselves with the software. Users should also have a basic knowledge of sanitation technologies and planning issues, or be supervised by someone

who has greater familiarity with these issues. However, to assist the user, SANEX includes a complementary compendium containing comprehensive information describing sanitation technologies; including brief descriptions, as well as schematic diagrams and details in relation to hygiene and convenience, construction, operation and maintenance for each technology.

Due to the complexities of sanitation-related problems, SANEX has its limitations, but it makes no pretences – it neither was designed to replace the human expert, nor to identify a single 'correct' solution. Although the software does not, and cannot, provide all the answers, it encourages engineers and planners to consider a wider range of potentially viable solutions. Experienced practitioners may not totally agree with all aspect of the software, but without doubt the potential uses of SANEX are many, and one of its main attributes is that it encourages users to 'think outside of the box'. SANEX may be particularly useful as a training tool, and academic institutions may be able to use the software for teaching purposes.

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