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FOR ALL IN A FAST CHANGING WORLD

Exploring funding for sustainable sanitation in Mongolia: perceptions from stakeholders and communities

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One of the major challenges for scaling up sustainable sanitation (SuSan) technologies and services is the sources of finances. Perceptions of stakeholders and communities may trigger them to overcome this challenge by exploring viable financing mechanisms and sources for widespread replication of SuSan technologies and services from the local to the global scale. This approach was studied through household surveys combined with semi-structured key informant interviews among various SuSan users and institutional stakeholders in the peri-urban Ger areas of Ulaanbaatar, Mongolia. The results showed that the existing technologies and services are highly subsidized and still partly shared by the households. Micro-finance organizations (including banks), government subsidies, private companies and community fundraising through building social capital may be considered as potential sources of finance for SuSan projects in Mongolia. A re-invented idea of 'Corporate Responsibility' is an interesting direction in which to explore possible financial sources and an effective mechanism for sustainability in the water, sanitation and hygiene (WASH) sector.

Introduction

In Mongolia, particularly in the peri-urban "Ger" areas of Ulaanbaatar, most residents face a range of challenges in the water, sanitation and hygiene (WASH) sector. They still use pit latrines and soak pits in unhygienic conditions and have unsafe water supply systems (ACF Mongolia, 2009; Uddin et al., 2013a; Uddin et al., 2013b). As a result, hepatitis A and diarrheal diseases are still prevalent (Davaalkhan et al., 2009) and 3.5% of the annual deaths in Mongolia are WASH-related (Caldieron and Miller, 2010; UN WATER, 2013).

One of the key strategies for overcoming these public health challenges is to develop safe water supply and improved sanitation systems. This are especially crucial in a peri-urban context where the risks of contamination of water resources are high due to the density of the population, the global hydromorphic status of the area, limited access to water, especially in winter, and the nature and practices of the resident community (new residents, nomadic culture, poverty, limited hygiene education and practices) (Caldieron, 2013; Uddin et al., 2013a; World Bank, 2006).

In addition to socio-cultural and geographical factors, one of the major challenges for scaling up sustainable sanitation (SuSan) technologies (e.g. urine-diverting dry toilets that reduce environmental pollution and health hazards and also help in resource recovery) and services (e.g. emptying, collection, transportation, treatment) in low and middle-income regions around the world is sourcing finance to build new infrastructures and to maintain the existing ones. Other common obstacles to widespread replication of SuSan technologies and services in many parts of the world include high construction costs, dependency on external funding, lack of political willingness to carry out large-scale investment and lack of proper cost-benefit analysis (Uddin et al., 2014; Uddin et al., 2012; World Bank, 2009). Perceptions of institutional stakeholders and communities may trigger them to overcome these challenges by exploring viable financing mechanisms and sources for widespread replication of SuSan technologies and services from the local to the global scale.

This study was carried out between June and November in 2013 under an ongoing PhD research project jointly implemented by Action Contre la Faim (ACF) Mongolia and the University of Science and Technology Beijing (Uddin et al., 2013c). It was supported by various international and national universities such as the Mongolian University of Science and Technology, the Mongolian State University of Agriculture, the Technical University of Berlin, and the Martin Luther Universitat Halle-Wittenberg, and funded by ACF France. Its purpose was to find out the perceptions of peri-urban nomadic communities and institutional stakeholders related to exploring sources of finances for scaling up SuSan technologies and services in the study area, which could be considered for replicating in other parts of the world.

Materials and methods

The main research method was to conduct interviews with community members (clients), institutional stakeholders and key informants (the key persons from the institutional stakeholders and communities who were interviewed informally). In addition, secondary data were collected from the wider literature related to this study.

Questionnaire survey

A household survey, with structured questionnaire, was conducted between June and November in 2013 in the peri-urban (Ger) areas of Songinokhaikhan and Bayanzurkh Districts of Ulaanbaatar, Mongolia, among the users, non-users and service receivers of SuSan technologies (i.e. eco-toilets) and services (i.e. emptying services). The survey assessed community perceptions on financing sustainable sanitation, income generation, willingness to pay for the technologies and services and their benefits. Seventy two out of 120 users of eco-toilets were interviewed and equal number of non-users was also included in the questionnaire survey.

Semi-structured key informant interview

In addition, to ensure triangulation of the household survey result, a total of 10 institutional stakeholders and 10 key informants from government and non-government organizations, healthcare institutions/hospitals, insurance and banks, service and business providers, and companies were interviewed using a semi-structured questionnaire throughout the year of 2013, to assess views/perceptions on financial sources, future financing in the sector and willingness to provide finances and business opportunities.

Results and discussions

Benefits and costs of eco-toilets and services

The results of the household survey confirmed that eco-toilets generate strong benefits at household level, even though these cannot be systematically quantified in monetary terms. Comfort and cleanliness especially were stated by a 48% of eco-toilet users as great advantages compared to their old latrines. Other advantages, such as absence of odor and flies, presence of a toilet seat, good design, an emptying service and health benefits, were stated by the remaining respondents (52%).

The costs of eco-toilets are divided between infrastructure and services. An eco-toilet costs ten times as much to build as a pit latrine in this area (about 272,000 MNT/ 155 USD compared with 30,000 MNT/17 USD), due to its specific technology (urine diversion, double pit, separate container for excreta). The average household monthly income in the area is 600,000 MNT/341 USD, therefore willingness to pay for eco-toilets is still low in the communities. Only 12 % stated they would pay 200,000 MNT/114 USD and 3 % would pay 300,000 MNT/170 USD, which drastically challenges replication and coverage.

In relation to services, the survey result showed that a negligible number of respondents would agree to pay 10,000MNT/6 USD per emptying. Other maintenance costs such as yearly supply of sawdust for the eco-toilet range from 0 MNT to 200,000 MNT/113 USD.

Exploring a set of options to promote scaling up ecosanitation

Since buying an eco-toilet involves high up-front costs, which pose a barrier to low-income households, several options are explored in order to facilitate covering this high initial investment.

Micro financing

The results from the interviews among the institutional stakeholders, particularly banks, revealed that micro-credits and loan systems are still new for Mongolia and for the Ger residents of Ulaanbaatar, who have migrated from the countryside. Lending schemes like micro-credit have only been available, especially to low-income families, for the last 20 years. However, the financial sector has been growing and spreading fast in recent years and there is now a variety of microfinance institutions and a lot of activities in Mongolia.

In the Ger areas of Ulaanbaatar, the national bank "XacBank" is involved in traditional microfinance in different ways such as providing conventional small loans to local residents, partnered with an international microfinance-lending organisation. The focus of the loans is mainly on small businesses, green lending (e.g. for insulation, energy efficiency) and the newest one, which started in 2012, is for water and sanitation. During the interviews with residents, a first question was about knowledge of the micro-credit loans for eco-toilets offered by XacBank (up to 7,000,000 MNT, at a monthly interest rate of 1.8-2.2 %) and willingness to pay if receiving such a loan. A second question was more precisely about willingness to pay by monthly installments during one year. In this context it has to be noted that both questions were not easy for respondents to answer since knowledge about micro-credits for eco-toilets is still not widespread in Mongolia. Only 30 % of respondents answered that they knew about this loan opportunity.

Making SuSan self-financing for infrastructures and service

There are possible business opportunities for organic fertilizer production in Mongolia (ACF, 2012). However, to establish the actual benefits and to quantify them in monetary terms from the companies involved remains a challenge. The results from the stakeholder interviews also showed that government and other stakeholders had shown keen interest in improving the situation of the Ger areas in terms of water, sanitation and hygiene, but very limited interest in the SuSan concept. On the other hand, several private companies showed business interest in managing the emptying services, installing eco-toilets and treatment of human feces through composting. These types of business possibilities should catalyze and trigger the process for self-financing mechanisms in the study area and in other parts of the country.

Towards corporate WASH responsibility

The idea of corporate social responsibility (CSR) is not new and many theories, definitions and characteristics of CSR are well documented in a range of business and management literature (see for instance, Aguilera et al., 2007; Dahlsrud, 2006; Smith, 2003; Lindgreen and Swaen, 2010). In addition, the concept of 'corporate environmental responsibility' (CER) has evolved from CSR in recent decades for improving the environmental impact of companies and other stakeholders (Kovacs, 2008; Zondorak, 1991). However, only very recently has it been addressed as a potential driver to solve global sanitary problems (Abeysuriya et al., 2007) and create finances for improving global water, sanitation and hygiene (WASH) conditions significantly. The results from the key informant interviews and stakeholder interviews showed that CSR is absent from the field of WASH in Mongolia. A department of corporate environmental responsibility at the Trade and Development Bank has just started recently to deal with the mining industry and making loans to companies dependent on an environmental assessment. Following the same logic, 'corporate WASH responsibility' can be considered as one of the important components of CSR in banking and non-banking sectors to raise awareness among institutions and communities for improving both the local and the global WASH situation.

Towards government subsidies

Qualitative interviews among the stakeholders revealed that there is in principle a budget allocation by companies (e.g. mining companies) for local residents in Mongolia which could be used for wider sanitary improvement and to replicate SuSan technologies and services. Improved sanitation and water in low-income countries yields an average of about 9 USD for every one dollar spent. This could encourage the Mongolian government, as any other, to reduce health-care costs and increase the population's productive days effectively (WSSCC, 2010). In Mongolia, the coverage of improved sanitation is 26.6% and of improved water supply is 39.2%. Progress during the last two decades has been very slow, so the country may not be able to meet the MDG target for water and sanitation by 2015 (UNDP, 2010). Although progress of improved water supply is a bit faster than improved sanitation coverage, water quality is still not ensured (Uddin et al., 2013c). However, the results from stakeholder interviews revealed that the Mongolian government recently showed great interest in actively supporting the sanitation sector in Ger areas. The Ulaanbaatar city municipality is working with UNICEF and the Mongolian Red Cross on ways to identify

sanitation gaps and improved sanitation (and latrines in particular) in Mongolia. This kind of outreach and public support is a good indicator. The government has shown in the past that it is very supportive of environmental programmes especially in the Ger districts because it recognizes that they are a disaster in terms of infrastructure and public health. And if the problems of sanitation remain unaddressed then the consequences will get even worse. This could motivate the government to raise funds and provide subsidies for deploying SuSan technologies and services in the study area and other parts of the country.

Social capital towards generation of funds

Key informant interviews showed that social capital (bonding-bridging-linking such as neighborhood relationships), as described by (Pelling & High, 2005; Elgar et al., 2011; Franklin, 2005, is lacking in the peri-urban settlements of the Ger areas due to the historical nomadic life of the people. This may be one of the challenges to generating community funding mechanisms that should be applied to pay for SuSan technologies and services. This challenge can be overcome by using community-based activities and programs executed by various governmental and non-governmental organizations.

Improvement of the wellbeing of urban dwellers by enforcing environmental laws

In Mongolia, a series of environmental-protection laws has been recently adopted to provide a healthy environment and protect the lives of current and future generations. The Mongolian government introduced the principle of 'polluter pays' under the 'Law of Mongolia on Environmental Protection' to improve environmental conditions and reduce the possible health hazards caused by man-made environmental pollution. The water law states that 'a citizen, entity or organization that pollutes water shall be subject to water pollution compensation fees' (Aldrich and Melville, 2012; Sigel 2012; World Bank, 2013). However, still there is lack of implementation of these laws and the enforcement of regulations is unclear (UNDP, 2010). Environmental laws can also be applicable to residents who are polluting the environment through unimproved sanitation technologies (e.g. pit latrines or soak pits) and unhygienic practices (e.g. unplanned discharge of high-concentration greywater into the environment) (Uddin et al., 2013a). These laws may lead to cost reduction of decontaminating water and treating diseases caused that promote ecological sanitation approaches such as the SuSan concept, either through financial incentives or by taxing people and companies that still pollute the environment. Ultimately, a legal framework oriented towards protecting the urban environment, consolidated with a package of financial support to eco-friendly technologies and taxes on polluters, may be one the most powerful tools to scale up SuSan approaches.

Conclusions and recommendations

This study researches various options/perceptions for exploring funding sources at both community and institutional levels to scale up SuSan technologies in the study area and other parts of the country. Although there are potential benefits found from eco-toilets, the affordability to buy and willingness to pay is much lower than for installing a pit-latrine. There are micro-credit loans available for installing eco-toilets, but communities have negligible awareness and understanding of them.

It is recommended to further assess different potential options to overcome constraints connected with high initial up-front costs as well as with the running and maintenance costs. Additionally, the option of payment by installments could be explored. An assessment of healthcare costs and other hidden/opportunity costs would encourage advocating government agencies to provide subsidies for scaling up SuSan countrywide. Even though Mongolian health insurance covers basic treatment, water-borne diseases lead to financial costs for households in addition to personal constraints and discomfort. Micro-finance organizations, government subsidies and mining industries in Mongolia may be considered as potential sources of funding for replicating SuSan technologies and services. Building social capital among the Ger residents may also have added value to generate community funds for monitoring and maintaining the technologies and services at scale. A re-invented idea of 'Corporate WASH Responsibility' is highly recommended to explore in future studies. Enforcement of environmental laws and other related laws may also help reduce the costs associated with unsanitary/insufficient WASH facilities in the study area and other parts of the low and middle-income regions.

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References

ACF 2012 *Knowledge, attitude and practice survey on water, sanitation and hygiene of Ger areas in Ulaanbaatar, Mongolia,* Report of Comparison Results of KAP Surveys in 2009 and 2011, Action Contre la Faim, Ulaanbaatar: Mongolia.

ACF 2012 *Compost marketing study: Customer survey for soil amendments, Ulaanbaatar, Mongolia*, Action Contre la Faim, Ulaanbaatar, Mongolia.

AGUILERA, R. V., RUPP, D. E., WILLIAMS, C. A. and GANAPATHI, J. 2007 *Putting the S back in corporate social responsibility: A multilevel theory of social change in organizations*. Academy of Management Review Vol. 32, No 3, 836-863.

ABEYSURIA, K., MITCHEL, C. and WHITE, S. 2007 *Can corporate social responsibility resolve the sanitation question in developing Asia countries.* Ecological Economics Vol. 62, pp. 139-147.

ALDRICH, M. and MELVILLE, C. 2012 *Revision of environmental laws in Mongolia and its impact on the mining sector*. Hogan Lovells. Ulaanbaatar, Mongolia. Website: http://www.hoganlovells.com/files/Uploads/Documents/Mongolia_newsflash_-_Revision_of_environment_law_-_October_2012_1003877.pdf (accessed March 2014).

CALDIERON, J. and MILLER, R. 2010 *Residential satisfaction in the informal neighborhoods of Ulaanbaatar, Mongolia.* ARCC Journal, Vol. 7 No 1, pp. 12-18.

CALDIERON, J. M. 2013 *Ger districts in Ulaanbaatar, Mongolia: Housing and living condition surveys*, International Journal of Innovation and Applied Studies. Vol. 4, No 2, pp. 465-476.

ELGAR, E.J., DAVIS, C.G., WOHL, M.J., TRITES, S.J., ZELENSKI, J.M. and MARTIN, M.S. 2011 *Social capital, health and life satisfaction in 50 countries.* Health & Place Vol. 17, pp. 1044-1053.

FRANKLIN, J. 2005 *Women and social capital.* Families & Social Capital ESRC Research Group, London South Bank University: London, UK.

KOVACS, G. 2008 *Corporate environmental responsibility in the supply chain*, Journal of Cleaner Production Vol. 16, No 15, pp. 1571-1578.

DAHLSRUD, A. 2006 How corporate social responsibility is defined: an analysis of 37 definitions, *Corp. Soc. Responsib. Environ. Mgmt., Vol. 15, No 1, pp. 1-13.*

DAVAALKHAM, D., ENKHOYUN, T., TAKAHASHI, M., NAKAMURA, Y. and OKAMOTO, H. 2009 *Hepatitis A and E virus infections among children in Mongolia*, The American Journal of Tropical Medicine and Hygiene Vol. 8, No 2, pp. 248-51.

LINDGREEN, A. and SWAEN, V. 2010 *Corporate social responsibility,* International Journal of Management Review Vol. 12, No 1, pp. 1-7.

PELLING, M. and HIGH, C. 2005 *Understanding adaptation: what can social capital offer assessments of adaptive capacity?* Global Environmental Change Vol. 15, pp. 308-319.

SIGEL, K. 2012 *Urban water supply and sanitation in Mongolia: A description of the political, legal, and institutional framework*. UFZ Discussion Paper, Leipzig, Germany.

SMITH, N. C. 2003 *Corporate social responsibility: not whether, but how?* London Business School, London: UK.

UDDIN, S.M.N., MUHANDIKI, SAKAI, A., MAMUN, A. A. and HRIDI, S. M. 2014 *Socio-cultural acceptance of appropriate technology: identifying and prioritizing barriers for widespread use of the Urine Diversion Toilets in Rural Muslim Communities of Bangladesh*, Technology in Society Vol. 38C, pp. 32-39.

UDDIN, S.M.N., MUHANDIKI, V.S., FUKUDA, J., NAKAMURA, M. and SAKAI, A. 2012 *Assessment of Social Acceptance and Scope of Scaling Up Urine Diversion Dehydration Toilets in Kenya.* Journal of Water, Sanitation and Hygiene for Development Vol. 2, No 3, pp. 182-189.

UDDIN, S.M.N., LI, Z., MANG, HP., ULBRICH, T., SCHUBLER, A., RHEINSTEIN, E., and HUBA, E.M. 2013a Opportunities and challenges of greywater treatment and reuse in peri-urban Ger areas of Ulaanbaatar, Mongolia. *Proceedings of 11th IWA Conference on Small Water & Wastewater Systems and Sludge Management, 28-30 October, 2013.* Harbin, China.

UDDIN, S.M.N., LI, Z., MANG, H. HUBA, E.M. and LAPEGUE, J. 2013b A holistic approach to integrate safe water supply and sustainable sanitation system: a SWOT analysis. *International Conference on Water Research, 20-23 January 2013.* Singapore.

UDDIN, S.M.N., LI, Z., MANG, H. HUBA, E.M., LAPEGUE, J. and EYRARD, J. 2013c Sustainable sanitation for vulnerable peri-urban population in Mongolia: An introduction of a multi-lateral

cooperation project. *Proceedings of 12th JADE Conference, Japan Association of Drainage and Environment, 9 November 2013*. Tokyo, Japan.
UNDP 2010 *Governance, advocacy and leadership for water, sanitation and hygiene: Mongolia*.
Country Sector Assessments, UNDP GoAL WaSH Program, Volume 2, New York, USA.
UN WATER 2013 Mongolia: UN-Water Country Brief. Website: http://www.unwater.org/downloads/WCB/finalpdf/MNG_pagebypage.pdf (accessed March 2013)
World Bank 2006 *Hygiene and sanitation situation report for Ger areas, Mongolia,* The World Bank, Ulaanbaatar, Mongolia.
World Bank 2009 *Study for financial and economic analysis of ecological sanitation in Sub-Saharan Africa.* Water and Sanitation Program-Africa, The World Bank, Nairobi: Kenya.
World Bank 2013 Environment in East Asia and Pacific: Mongolia environment. The World Bank, Website: http://go.worldbank.org/WS1HSEF2S0 (accessed March 2014).
WSSCC 2010 Sanitation financing. Website: http://www.wsscc.org/topics/sanitation/sanitation-financing (accessed March 2014).
ZONDORAK, V. A. 1991 *A new face in corporate environmental responsibility: the Valdez principles*. In 18 B. C. Envtl. Aff. L. Rev. 457.

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