

*Catalysing self-sustaining sanitation chains in  
informal settlements  
(3K-SAN )*

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# **1. Full Proposal Application Form**

## B. SPECIFIC PROJECT INFORMATION

### B.1. Project abstract

The 3K-SAN project will develop and evaluate strategies for catalysing self-sustaining sanitation chains in low-income informal settlements in Kisumu (Kenya), Kampala (Uganda) and Kigali (Rwanda). Identification of commonalities and differences between these areas will be used to develop broader best-practice guidelines for comparable interventions in similar settlements throughout sub-Saharan Africa. This will be achieved through: **(1)** mapping and analysis of sanitation-related financial flows, stakeholder roles, regulatory frameworks and communication pathways; **(2)** engaging stakeholders to address social and economic barriers to sanitation provision; **(3)** building capacity for research in sanitation in East Africa and for poverty reduction through facilitated sanitation development in low-income and vulnerable communities; and **(4)** production and dissemination of appropriate guidance packages.

The **activities** to achieve these objectives will include: Rapid Participatory Appraisal (RPA) in communities and with vulnerable members, to identify their needs, options and problems; deliberative forums (DFs) with users, technology providers, and financiers to provide a means to facilitate affordable sanitation provision; interviews with stakeholders from civil society (Community-based Organisations (CBOs), non-governmental organisation (NGOs), faith groups, etc.) to government (local to national) to identify perceived and real barriers; and work as a multi-disciplinary group to bring together the results and ensure their introduction into the communities using a range of communication strategies. The major **outputs** from the project will be compiled into best practice guidance targeted principally at African stakeholders, but also at a wider international audience. Capacity building at African partner institutions will include training of three PhD students. Dissemination to communities and stakeholders will be via television, local radio, newspapers, posters, workshops and interviews.

The successful completion of the project will have measurable **impact** on the selected communities through the identification of barriers to self-sustaining sanitation service chains and the provision of tools to overcome the barriers. On a broader scale the project will contribute directly towards achieving target 7c of the Millennium Development Goals (MDGs) and indirectly to the other goals. 3K-SAN will create a dialogue between communities, service providers and the local administration, clarifying the financial and legal framework for improved sanitation.

### B.2. Aims and Objectives of the Project, and Relevance to the Context of the SPLASH Call

3K-SAN is designed in response to the call's main aim of improving understanding and implementation, at scale, of sustainable sanitation service chains in low income urban areas in sub-Saharan Africa. The project will specifically consider informal settlements, given the particular challenges in these communities. It meets the key requirements of the call by its over-arching goal to enable sanitation chains that are both effective in terms of public health and environmental quality and socio-economically self-sustaining.

**Aim:** To identify and evaluate strategies for catalysing self-sustaining sanitation chains in low-income informal settlements in African cities.

Self-sustaining sanitation chains are defined here as socio-technological systems that provide continued health and environmental improvement, as required to meet the MDGs, without continued external intervention. A multidisciplinary team from Africa and Europe will focus on four key areas (communication, regulation, finance, and facilitation), with the principal objectives outlined in Table 1.

These objectives will be delivered by the experienced team of researchers, led by the University of Surrey. Capacity and network development will be enhanced by the use of three PhD researchers (assisted by research assistants) to support data collection. PhD researchers will be from appropriate and different disciplinary backgrounds and will be trained jointly by the African universities and the University of Surrey. A strong interdisciplinary approach will allow identification of linkages between social, economic and regulatory barriers to self-sustaining sanitation chains, and ways of working with local stakeholders to overcome them.

| <b>Table 1. Objectives of 3K-SAN, summarised by category</b> |   |
|--|---|
| <b>Category</b>  | <b>Objective</b>  |
| Explanatory objective  | <b>(a)</b> to identify commonalities and differences between case-study areas as the basis for development of broader best-practice guidelines, targeted at stakeholders, including SPLASH participant donors, on how to catalyse self-sustaining sanitation chains in low-income informal settlements throughout sub-Saharan Africa.   |
| Descriptive objective  | <b>(b)</b> to map and analyse sanitation-related financial flows, stakeholder roles, regulatory frameworks and communication pathways in low-income settlements in the case-study cities, in order to identify factors constraining and facilitating sustainable sanitation, with particular reference to vulnerable groups and to tenure issues;   |
| Capacity building  | <b>(c)</b> to facilitate engagement between stakeholders to address social and economic barriers to sanitation provision; <b>(d)</b> to build capacity for research in sanitation in East Africa through development of relationships between project partners and stakeholders, and through development of researcher skills and qualifications; <b>(e)</b> to build the capacity of low-income communities to work with civil society groups, sanitation providers and government towards improving sanitation that leads to poverty reduction and improvement in lives of slum dwellers. |
| Dissemination  | <b>(f)</b> to create marketing and communication strategies to stimulate demand for sanitation; <b>(g)</b> to disseminate the results and data on catalysing self-sustaining sanitation chains for improvement in sanitation and more broadly on poverty reduction to low-income communities, stakeholders, and the broader international development and research sector through a combination of targeted initiatives in interactive media, face-to-face meetings, workshops, and best practice guidance.   |
| Policy-related objectives                                    | <b>(h)</b> to produce and disseminate guidance packages specifically targeted at relevant stakeholder groups.   |

3K-SAN integrates work in three key areas: **Demand stimulation** will address the complexity of the householder's decision-making process; **Market adaptation** will assess the sanitation labour and materials supply markets and finance options, and **Governance** will cover policies, regulation and enforcement, as well as the role of socio-cultural norms in sanitation. Primary research will be done in three **cities of the Great Lakes region: Kisumu (Kenya), Kampala (Uganda) and Kigali (Rwanda)**; each with large populations living in low-income settlements with very poor sanitation; each with differing levels of research investment and development histories. The three cities provide a valuable comparison of service chains, with different mechanisms for sludge removal, workforce availability, and local manufacturing resources. These settlements will provide a basis for identification of common catalysts and barriers to sanitation provision, allowing broader inferences to support the implementation of appropriate interventions at scale.

**Local service providers** will be engaged through participatory methods. Barriers to uptake of sanitation will be explored at the community level. Service providers for solid waste management and water supply will be engaged for comparison. The service chain under consideration will include service providers active in toilet construction and waste collection, transport, treatment and disposal, in finance for sanitation and those involved in demand stimulation.

The 3K-SAN team is an integrated multi-disciplinary group of experienced researchers, many of who have worked together before, with strong links to the local communities. The project will address the needs and aspirations of vulnerable groups including people who are, or have the potential to be, socially, economically or physically disadvantaged, such as women, the elderly, the disabled, children and orphans (including HIV orphans). We will engage these groups as part of the whole community using participatory community-based research methods, and through CBOs and civil society groups working to address their needs.

A primary goal is to develop and disseminate regulatory frameworks and best-practice guidelines targeted at different stakeholder groups, ranging from local community groups to international donors. Gender equality will be a key focus of the project and the project management. Women will be strongly encouraged to apply for the PhD positions. The project objectives, design and research methods have been developed collaboratively by the 3K-SAN consortium partners, based on their

skills and experiences, and refined in a workshop held July 20-22 in Kisumu, Kenya. This project will not include any technology development, but will facilitate it in service providers as required.

### B.3. Degree of Innovation and Progress beyond Current State-of-the-art

#### What is the current state-of-the-art?

Water and sanitation services for the majority of people in Kenya, Uganda and Rwanda are poor. All three countries face major challenges in providing sustainable access to safe water and basic sanitation for their rapidly expanding populations. Rapid urbanisation is leading to a growing number of densely populated and impoverished settlements. More than half of the urban population live in these settlements. Living conditions for these people are deplorable due to poor sanitary conditions. Old (or no) infrastructure, inadequate management and maintenance of public services, unsustainable water and sanitation systems, inadequate investments, and informal service provision operating outside a framework of basic standards and regulation have all contributed to create these conditions [1]. The poor living in these settlements are particularly disadvantaged due to their legal status limiting investment in the area and lack of space, access and funding to install and maintain services.

Sanitation progress is slow due to inadequate funding and fragmented responsibilities. As a result MDG 7c will not be met in many countries. Some of the issues identified in the case-study cities are summarised in Table 2.

**Table 2.** Situational Analyses: sanitation for urban poor (SACCOs = Savings And Credit Cooperative Societies)

|                      | <b>Kisumu</b>  | <b>Kampala</b>   | <b>Kigali</b>  |
|----------------------|--|--|--|
| <b>Communities</b>   | 350,000 people; 60 % living in informal settlements, which are no longer illegal; high rate of tenancy.  | 1.5 million people; > 60% living in informal/illegal settlements; population doubles during the day due to business.   | 1 million people; rapid urbanisation rate; significant work to improve slums in recent years; up to 85% estimated to live in slums [2].  |
| <b>Sanitation</b>    | 10 % served by sewerage system. Informal settlements rely on overused and poorly maintained pit latrines (67.4%) [3]. Soak pits and septic tanks common. | <7 % served by sewerage system; 6.2 % without own toilets; 69 % use latrines (majority in informal settlements); latrines elevated which restricts access; flying toilets used.      | No sewage treatment plant. Environmental degradation from poor disposal of waste. 80% of the urban population is estimated to use a pit latrine. <10% in urban areas have access to improved sanitation. |
| <b>Opportunities</b> | Subsidies available; small scale enterprises in solid waste and water; CBOs provide public toilets.  | Sanitation loans, SACCOs and microfinance options are available; flower farmers use sludge as fertiliser.  | Compulsory community work programmes; 25% rely on subsistence agriculture.   |
| <b>Challenges</b>    | Poor enforcement of policies; pit emptying is by manual labour only; high levels of poverty and food poverty in city.                                    | Poor enforcement of policies; absentee landlords; lack of space; poor attitudes of residents and inadequate municipal services; legal status of residents; illegal dumping of waste. | Lack of artisans/ technicians; lack of implementation of policies; lack of centralised wastewater management systems to accept pump-out waste; limited access to finance                                 |

**Kisumu.** Kenyan water sector reform (Water Act, 2002) has focused on how to provide efficient and economical water and sanitation (watsan) services (Water Services Boards; WSBs); how to finance pro-poor investments (Water Services Trust Fund; WSTF); and how to utilize acceptable business principles in their operations (Water Services Providers; WSPs). The continuing focus on waterborne sewage often excludes informal settlements (National Water Services Strategy 2007-2015 (NWSS)) [1]. MWI, through the NWSS, is working to overcome the problem of fragmented responsibilities in sanitation through: enhanced cooperation; increased integration of sanitation in water programmes; guidelines for minimum sanitation standards; defined roles for the private sector; enhancing local capacity; and subsidising sanitation for the poor. Access to sanitation is not recognised as a right in the new constitution.

**Kampala.** Responsibilities are split between Kampala City Council and the National Water and Sewerage Corporation (NWSC), which have limited capacity to provide and maintain appropriate services [4]. It is government policy that capital costs of household sanitation facilities are wholly met by individual households, hence pit latrines are likely to remain the preferred option in peri-urban areas for the foreseeable future [5]. As part of the Kampala Sanitation Program (2008-2012) two treatment plants are being constructed to receive faecal sludge from latrines and hygiene education is being undertaken in informal settlements. Pit technology is also a limited focus of the NWSC pro-poor watsan policy. Successful marketing of toilets in Kampala's informal settlements will require different development partners to harmonize their sanitation promotion approaches.

**Kigali.** Resettlement programmes and upgrades have improved the informal settlements in Kiyovu and Nyamirambo. There are officially no 'informal' settlements, yet slums or irregular settlements still exist. We will compare recently formalised settlements and irregular settlements. Sanitation responsibilities are shared between the Ministry for Infrastructure (MININFRA) and Kigali City Council. There is no single central facility that can treat sewage, with latrines emptied to waterways. A sewage treatment plant is currently being planned (2010-2011 performance contract). Access in Rwanda to latrines is high (80%) but to improved sanitation is low (8%) [6]. Access to finance by the poor is limited [7]. There are very low levels of borrowing, especially among the poor. Loans to the poor are generally short term (6 months) with very high interest rates. The recent introduction of Umerenge SACCOS will begin lending in the next few years, but loan amounts will be limited. Lack of trust is a barrier to lending as is fear of loss of collateral. There is no pro-poor strategy for watsan [8].

**Demand.** Creating demand for sanitation is complex. Decision-making can be split into three stages: preference to improve sanitation, intent and choice to change. Catalysts and barriers vary between stages: permanent barriers (e.g. tenancy, space) are more significant for deciding preference; temporary barriers (e.g. high costs, no one to build) are more significant for effecting choice [9]. Decision-making will vary for vulnerable groups with differences in competing preferences, experience with sanitation systems, access to sanitation markets and financing. Understanding this decision-making process is necessary to develop appropriate tools for stimulating increased demand.

Social marketing and community participation techniques are commonly used to stimulate sanitation demand; cultural differences and a lack of technical support and ongoing involvement often limit the sustainability of solutions [10]. Social marketing, hygiene promotion and community empowerment have been used in Kampala's peri-urban settlements by local NGOs (e.g., SSWARS, CIDI) with funding from development partners (e.g., GTZ, Water Aid etc). These approaches have been used to stimulate demand and correct use, with a strong emphasis on health issues [11]; the latter has been used to encourage the urban poor and marginalised to demand improved access. A public-private partnership (PPP) approach has been used with communities working with manufacturers of watsan products and financial institutions to put in place affordable sanitary facilities; this approach can create demand for sanitation in the peri-urban settlements [12].

**Markets.** Kigali has important differences in its approach to provision of watsan for the urban poor compared to Kampala and Nairobi (Kisumu was not included in the study) [8]: only Kigali has a flexible billing system and connection fees able to be paid by instalments; but it lacks a specific pro-poor strategy, time-bound targets for extending services to unserved areas, a baseline survey to identify and stratify user needs, and subsidies for connections or for consumption. Microfinance has been used successfully internationally to provide funding for sanitation but has had limited success in East Africa. SACCOS are available in each country with varying degrees of success. Pro-poor policies do not always meet the needs of the poorest; in Kenya [13] and Rwanda [7], microfinance systems have largely bypassed the poorest e.g. by providing loans proportional to the number of shares held or by limiting sanitation support to corporate responsibility activities while many poor people subscribe to their wealth creation businesses.

**Regulation.** Regulation is defined broadly as a system of rules and sanctions, designed to control the behaviour of individuals involved in a defined activity, which could be formulated and implemented by governments or NGOs; systems of financial, organizational or technical support having impact on the behaviour of individuals would be considered to the extent that they are funded and administered by governmental organizations. The UN General Assembly resolution (GA/10967 - 28 July 2010) advances the debate about a separate and defined human right for

adequate sanitation. Its importance here is that the driver for improved sanitation is not normally the lack of water or technical solutions but the lack of will at governmental level and finance. The establishment of a right to sanitation requires states to address this issue. Some argue that a right to sanitation is contained within the broad definition of 'adequate standard of living' [14]. It is also found in most other thematic human rights treaties, e.g. the Convention for the Elimination of Discrimination Against Women; the Convention on the Rights of the Child; and the Convention on the Rights of Persons with Disabilities. Establishing the basic right to sanitation (and distinguishing it from the right to water) is a prerequisite for more sustainable solutions [15].

The regulatory environments in the case-study cities vary: Kampala is characterised by illegal settlements and no enforcement, Kigali by resettlement activities undertaken to remove slums and a major land reform programme at work [16], and Kisumu where informal settlements in peri-urban areas have been legalised. Less is known about how the regulatory frameworks will support or discourage the service chains and investigatory research methods will be deployed here [17]. The Consortium's own work in Kisumu and Addis Ababa has shown that existing regulatory frameworks and pricing systems often tend to discourage positive behaviours [18,19].

#### **How will this project go beyond the state-of-the-art?**

This project will go beyond the state-of-the-art by integrating established approaches to research methods, service provision, finance and stakeholder interaction. The key components of demand, service provision and governance will be researched concurrently in the three cities. The use of the same rigorous methods in these cities provides an opportunity to draw out comparisons that will be more widely applicable to other countries and cultures. For example, key lessons will be drawn from comparison of the existing service chains: from Rwanda's poorly developed service chains and underdeveloped labour market to Kampala's well-developed service chains, and comparing the situation in Kisumu where sanitation service chains are limited but service chains for solid waste and water supply are active. Analysis of regulation will provide key points for comparison as informal settlements have different status in the different countries.

**RPA to engage whole community.** Rapid Participatory Assessment (RPA) enables collection of in-depth qualitative data through integration in the community with the use of a range of tools (e.g. observation, interviews, surveys, focus groups, mapping, etc). It will enable development of pro-poor policies and access to all groups within the community. RPA will provide detailed information on community attitudes to sanitation, identifying the differences in preference, intent and choice, and how demand can be increased through overcoming the barriers at the different stages of decision-making, and provide important market research for service chain actors. It enables researchers to understand the aspirations and experiences of residents, including vulnerable populations, and aids in capacity building at the community level. RPA will be undertaken for a minimum of five days, with repeat visits to communities for in-depth study and monitoring changes in demand.

**Communication between stakeholders.** Deliberative forums provide a novel way of developing constructive dialogue between stakeholders in the sanitation sector. Members of communities and CBOs will be brought together with service providers (including in microfinance, construction, manufacturing and maintenance) in deliberative forums to negotiate appropriate solutions on demand and supply. Stakeholders from the community, government and service providers will interact in workshops to provide understanding of perceived and actual barriers to sanitation provision and to work together to develop jointly improved ways to catalyse self-sustaining sanitation service chains.

**Mass media.** Radio, TV and newspapers will be used to engage and disseminate results to the communities which, combined with the work in communities, will increase capacity development [20].

**Right to sanitation.** A rights-based approach to sanitation will be used, leading to an important analysis previously not undertaken in the human rights' discourse. This will enable identification of gaps in provision and management of sanitation services. The growing importance of NGOs in setting up systems of social control will be considered and, within this project the likelihood of community associations forming to promote development. Lessons learned in our previous study on regulatory frameworks for independent water suppliers will be applied to the frameworks for sanitation provision. The rights-based approach will be in tandem with a human development approach to empower people to exercise their rights.

The outputs of this project will contribute significantly to increasing the proportion of the urban poor population with access to sanitation and the delivery of the MDGs (see B.11. and B.13).

### B.4. Project Description

The aim of this project is to identify and evaluate strategies for catalysing self-sustaining sanitation chains in low-income settlements in African cities. This will be achieved through an integrated review at community level, as well as with stakeholders, of the roles of demand stimulation, finance and market forces, and regulation and social norms in the sanitation chains. The project centres on case studies of in a minimum of three low-income settlements in three cities (9 settlements in total). The workpackages (WP) (Figures 1 & 2) have been adapted from the concept note to include a sixth WP focusing on integration of the WP research outputs to ensure joint analysis and a synthesis of results is produced.

A research toolbox will be developed with methods including: (a) RPA at community level using, but not limited to participant observation, interviews (semi-structured), focus groups, mapping of sanitation facilities including use and preference (hand drawn maps for qualitative as well as as well as the use of a Geographic Information System (GIS) for quantitative analysis), decision trees, walks, and willingness-to-pay assessments; (b) Semi-structured interviews with different levels of stakeholders; (c) Focus groups with civil society stakeholders; and (d) Deliberative forums with the service providers and community will also be employed.

Each of the African partners (P2-4) will employ a PhD researcher and three Research Assistants (RAs). The PhD researchers will be from an appropriate discipline for their respective WP. The RAs will work with the PhD researchers providing appropriate skills to draft research tools, support and undertake data collection and to compile data sets.

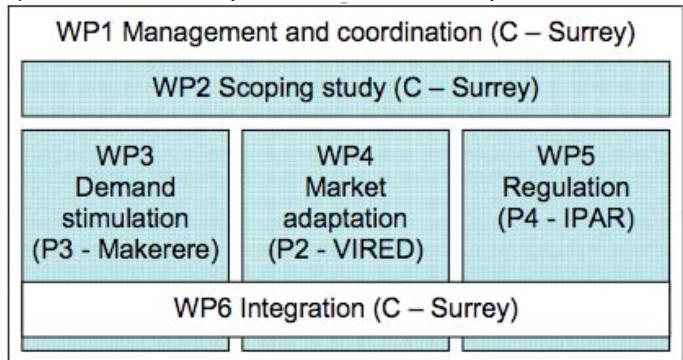


Figure 1. Overview of how the work packages fit together

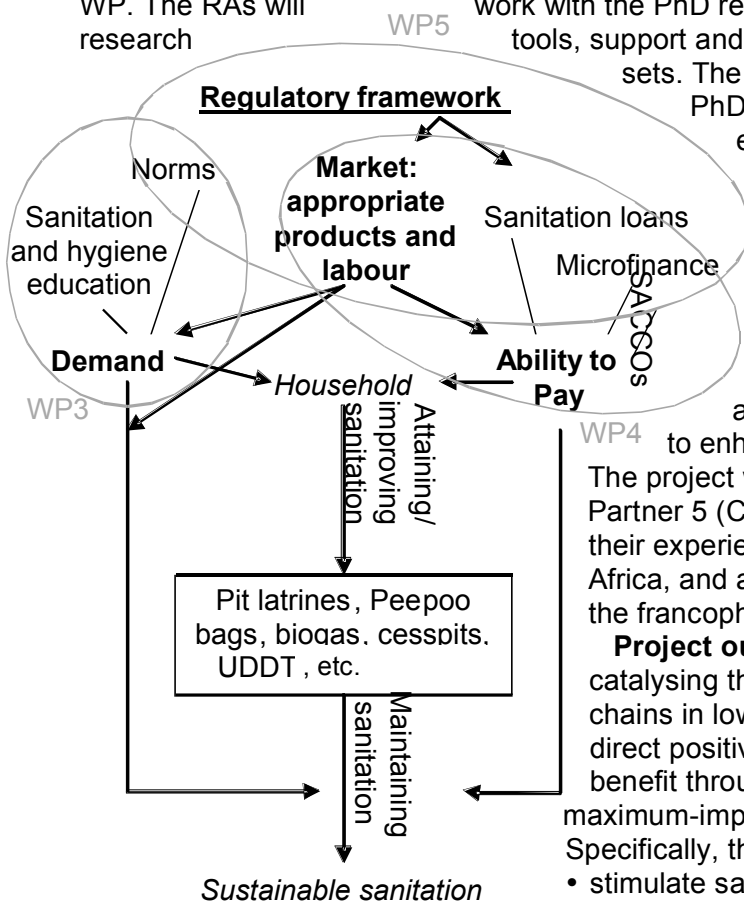


Figure 2. Diagrammatic representation of sanitation service chain mapping, indicating relevant workpackages (WP)

The PhD researchers will be responsible for their PhD submissions. As part of recruitment, we will ensure that the PhD researchers and RAs have appropriate language skills (English, and the local language spoken in urban low-income communities). The budget includes travel and subsistence costs for the PhD students to spend significant periods of time with each African partner to enable them to undertake research in their discipline and appropriate interviews in each country and to enhance their opportunities to work collaboratively. The project will be overseen by the research coordinator. Partner 5 (CREPAO) will act in an advisory role, drawing on their experience in related microeconomic studies in East Africa, and also assisting with dissemination of outputs to the francophone world.

**Project outputs** will include best-practice guidance on catalysing the development of self-sustaining sanitation chains in low-income urban communities. They will have direct positive benefit for the case-study districts, and wider benefit throughout Africa, notably identification of maximum-impact targets and strategies for donor funding. Specifically, the project will:

- stimulate sanitation markets through increasing demand, and facilitating communication between householders and the service chain;

- draw on the empirical findings from the 3 cities to inform best-practice recommendations for low-income urban communities in sub-Saharan Africa targeted at and appropriate for specific stakeholder groups. Guidelines for municipal institutions will pay special attention to the challenge of integrating unplanned settlements into city-wide water and sanitation planning processes; and
- train multidisciplinary experts in sanitation able to undertake further work in this field in their countries.

WPs are as follows (coordinating partner in parentheses):

**WP1: Management & Coordination (Research Coordinator - Surrey).** Also see Sections B7-B9.

**Objective:** To provide a management and administrative framework that will facilitate the timely delivery of the project outputs and milestones through integrated and coordinated project management, leading to the successful conclusion of the project.

**Methods:** The management framework for the project will be set out in the Consortium Agreement (CA; see B.8.). A Project Management Board (PMB) will be formed from representatives of the partners. The PMB will appoint an Advisory Group (AG) from key stakeholders to provide strategic direction to the project. The PMB will review and implement the recommendations of the AG. It will be responsible for monitoring the progress of the project against the delivery of outputs and the achievement of milestones (B.5.). The Coordinator of 3K-SAN will be responsible for communication between the consortium and SPLASH. Reports to SPLASH, the delivery of outputs and reporting on milestones will require the approval of the PMB before release. The Coordinator will also be responsible for registering the PhD students, and for monitoring and managing their progress towards completing their PhD studies in line with University of Surrey regulations. The PMB will ensure the successful delivery of the project outputs. Three project meetings will be held: 3K-SAN Consortium kick-off meeting (Jan 2011, Kigali, ms2; milestones see B.5.); a mid-way review meeting to discuss the results of the scoping study and preliminary field results (June 2012, Kampala, ms5); and final meeting to analyse results and disseminate information (Oct 2013, Kisumu, ms8) (budget €2,000 each, plus transport costs. Each meeting will consist of two days of project discussions among the partners, and at least one day of stakeholder workshops.

**Outputs:** SPLASH biannual progress reports; Staff recruitment; PhD registration; Progress reports; SPLASH meetings; Ethics statements; Newsletter; Website (English & French).

| Del. No. | Deliverable Name  | Date          | Lead |
|----------|---|---------------|------|
| 1        | Consortium agreement, including framework of responsibilities | 1/2011        | C    |
| 2        | Financial audits  | 12/2011-12-13 | C    |

**WP2: Scoping Study (Research Coordinator - Surrey).**

**Objective:** to define the current state-of-the-art for sanitation and sanitation service chains in low-income urban settlements

**Method:** A diagnostic report will be prepared using local knowledge, archive data, official reports, and a literature review to define state-of-the-art knowledge and the local situation in all three cities. The history of donor, government and private investments in local sanitation will be documented, as well as their current activity. Policy analysis will define the existing framework for sanitation provision in the case study areas. A project analysis will determine activities that are ongoing in the areas will be used to identify gaps and overlaps that can be addressed to maximise the impact of 3K-SAN. Local and international stakeholders will be actively engaged throughout the project. The diagnostic report will be workshopped with local stakeholders and at networking workshops with stakeholders. The report will identify appropriate communities and sites at which to undertake the research.

A preliminary stakeholder analysis was undertaken at our stakeholder meeting in Kisumu in July 2010. Stakeholders categories and roles are identified in Table 3. Examples of specific Kenyan stakeholders are listed, similar lists for Ugandan and Rwandan stakeholders have been developed, but are not included here. A stakeholder engagement and communication strategy was drafted. Initial stakeholder workshops will refine the delivery of the project and define stakeholder roles. Identification and engagement of stakeholders will be undertaken throughout the project, including through stakeholder workshops and stakeholder analysis using problem/impact matrices. Communication will be undertaken through the engagement process and at workshops. We will develop a database of stakeholders who will be kept updated with short (1 page) policy briefs and

project updates using appropriate means of communication. The project website will hold these documents for international stakeholders, and an email list will be set up to keep them informed. Interviews will also provide an important communication mechanism.

**Outputs:** Stakeholder workshops in each city. Diagnostic report with 2 page summary and city specific reports disseminated through report circulation, website, and publication if

| Del. No. | Deliverable Name                            | Date   | Lead |
|----------|---|--------|------|
| 2-1      | Diagnostic report, including 2-page summary | 7/2011 | C    |
| 2-2      | Stakeholder analysis                        | 7/2011 | C    |

appropriate. Stakeholder analysis (including engagement strategy and cooperation strategy) with city specific and combined analyses. Workshop results to be disseminated via report, website, and a publication comparing stakeholders in each country. Project information sheets targeted at different communities and stakeholders to aid in dissemination of work during research. Project Plan based on Logical Framework (B.13.).

**Table 3.** Stakeholder categories and roles, with key stakeholders identified for Kenya. Regional and international stakeholders would also be included but are not identified here. All stakeholders will be targeted for assistance in data gathering through interviews and participation in workshops.

| Categories                                      | Case study: Kenya  | Role in the project   |
|---|--|---|
| Civil societies (NGOs, CBOs, faith groups, etc) | Sustainable Aid in Africa (SANA); Kisumu Well Owners Association; Kenya Water for Health Organisation (KWAHO); Community Health Committees (CHCs); Common interest groups for youth, women, elderly, etc.; | RPA; deliberative forums; identifying and engaging vulnerable groups; implementation of findings;   |
| Private sectors                                 | Kisumu Water and Sewerage Company (KIWASCO); Kenya Association of Manufacturers Western region; Kenya National Chamber of Commerce and Industry; Juakali-Artisans  | Financing for householders; identifying service chain barriers; deliberative forums; implementation of findings;                                      |
| Academic/ Research organizations                | Moi University; Maseno University  | Collaborative research; literature; students for attached MSc research; workshops; conferences; learning alliance;                                    |
| Development partners                            | Water Resource Trust Fund; DfID; SIDA; ,UN Habitat   | Funding opportunities; implementation of findings   |
| Government                                      | MWI; WSBs; WSPs; WSTF; Ministry of Public Health and Sanitation; Kisumu Municipal Council; Local Authority Transfer Fund;  | Policy guidelines; Data acquisition; Community mobilisation, Awareness creation; Implementation; Workshops, seminars, conferences, learning alliance; |

### WP3: Demand Stimulation (P3 Makerere).

Objectives:

- (a) to identify the barriers and catalysts for demand for improving sanitation;
- (b) to explore the role of communication in catalysing self-sustaining SCs, and in stimulating demand.

Improving sanitation for low-income and vulnerable groups includes new sanitation, increased availability and more hygienic sanitation that is sustainable in terms of environmental quality, appropriate, affordable, and accessible.

**Methods: [1]** Participatory methods. The research toolbox will provide appropriate methods for RPA, interviews and focus groups with stakeholders. RPA will include mapping of sanitation facilities, determining use and preference. It will provide an observation checklist, and tools to aid assessment of understanding, existing demand and willingness-to-pay. RPA will be used to identify gender roles in building and maintenance of latrines, issues of land ownership, barriers to and catalysts of demand including motivations (e.g. what key messages are used to promote sanitation? How are they used?). Communication pathways and trusted sources of information will be identified. Focus Group Discussions (FGDs) will be held with community leaders, NGOs and CBOs. An FGD guide will be developed and used to obtain community experiences of hygiene education, sanitation promotion and planned activities for simulating demand. **[2]** Mapping.

Communication pathways and stakeholders active in stimulating demand will be mapped at local scales and overall to aid in identification of barriers and catalysts, and compared with what has worked or failed in local and international demand stimulation programmes. Frameworks for integrating the processes of demand stimulation for sanitation with improved hygiene awareness programmes will be considered. **[3]** Best-practice guidance will be developed on social and educational approaches that have a stimulatory impact on demand for adequate sanitation in informal settlements.

**Target groups:** Low-income communities; CBOs e.g. interest groups for women and youth in Kisumu; local women’s representatives, youth and council leaders in Kampala, and village executive committees in Kigali; landlords; NGOs (e.g. Sustainable Sanitation and Water Renewal Systems - SSWARS), CHCs, utility agencies, municipal authorities, Ministry of Health officials and health educators working in each of the cities and within the selected low-income settlements, including agencies providing hygiene and sanitation education.

**Outputs:** (Internal) Method development, including translation tools; Best practice guidelines, with 2 page policy

| Del. No. | Deliverable Name              | Date    | Lead |
|----------|-------------------------------|---------|------|
| 3-1      | Report on Demand Stimulation  | 11/2013 | P3   |
| 3-2      | Map of communication pathways | 11/2013 | P3   |

briefs, for consideration at the project level, and to be stakeholder specific; Field reports; Data collection and analysis. (External) Report on demand stimulation to be disseminated via emails and the website. PhD thesis in demand stimulation. Local and international journal articles. Stakeholder workshops. Dynamic maps of communication routes, updated throughout project.

#### WP4: Market Adaptation (P4 - IPAR).

Objectives:

- (a) to identify financial flows and economic barriers to and catalysts of self-sustaining SCs;
- (b) to develop strategies to overcome the gaps between willingness-to-pay and costs of construction and maintenance of improved sanitation.

**Methods:** **[1]** Data gathering. Methods will include RPA, interviews, deliberative forums and focus groups. Willingness-to-pay and ability-to-pay will be assessed in the community. Finance options such as community savings (SACCOs), low cost loans and microfinance will be explored in each city. Public understanding of the costs and services available will be gauged in communities, with awareness raising undertaken about potential for job creation and household enterprises to support sanitation SCs. **[2]** Mapping. The costs throughout the service chain will be identified and mapped using economic value chain mapping. Available service providers will be mapped for each city to highlight where there are skills or materials shortages. **[3]** Deliberative forums. Workshops will be held (informed by the information collected for [1] and [2]) with selected members of the sampled communities to provide them with information on SCs and what is available and the costs. Deliberative forums would be used to bring members of communities together with service providers (construction, manufacturing, finance, etc) to discuss the issues and develop recommendations on possible strategies to reduce the gap between willingness-to-pay and cost of provision. Each forum would have around 15 participants led by an experienced chair person. **[4]** Best-practice recommendations will be developed that focus on how private-sector actors can be co-opted to produce and promote products (technical and financial) that are *genuinely* attractive and affordable to low-income clients. By facilitating communication between clients and suppliers, we will strive to close the gap between willingness-to-pay, ability-to-pay and cost of provision.

**Target groups:** Service providers including manufacturers, distributors and installers of sanitation hardware, and public toilet entrepreneurs and operators. Groups providing finance schemes such as community savings (e.g. SACCOs), low cost loans and microfinance. Low-income urban communities and CBOs.

**Outputs:** (Internal) Method development, including translation tools; Best practice guidelines with 2 page policy briefs, for consideration

| Del. No. | Deliverable Name            | Date    | Lead |
|----------|-----------------------------|---------|------|
| 4-1      | Report on Market Adaptation | 11/2013 | P4   |
| 4-2      | Map of financial flows      | 11/2013 | P4   |

at the project level, and to be stakeholder specific; Field reports; Data collection and analysis. (External) Report on market adaptation to be disseminated via emails and the website. One PhD thesis in market adaptation. Local and international journal articles. Stakeholder workshops. Dynamic maps of financial flows and service providers, updated throughout project.

## WP5: Regulation (P3 - VIRED).

Objectives:

- (a) to review the regulatory, policy and cultural institutional frameworks for sanitation and sanitation service providers;
- (b) to analyse and identify barriers and drivers in socio-cultural norms and local and national government regulations to self-sustaining SC.

**Methods:** A review will be undertaken of the relevant regulatory and policy frameworks in the case study countries concerning sanitation systems to ensure that the law and policy relating to the ownership of systems, the legal relationships in the service supply chain, and the duty to make provision, are all understood before recommendations can be made. This will involve a desk review and visits to government offices and libraries to access legislation and policy documents which may not be held online. This review will identify any existing legislation and policy in the following areas: (a) Facilities and social controls: Building regulations; Planning regulations; Design requirements (technical requirements for the design of latrines and other facilities for the disposal/use of human waste); Duties on government for the provision and control of sanitation systems; Legal controls over the disposal of sewage; Legal controls over uses of sewage e.g. use of sewage sludge in agriculture. (b) Rights review: Human rights at international level including UN resolutions; Constitutional rights - within each case study country – to life, health, water, sanitation, etc. (c) Environmental Protection Laws: Regulation of environment: e.g. from spillage, escapes, unregulated disposal under general or specific environmental protection offences. (d) Tenurial and business relationship laws (to work closely with researcher on WP 4): Ownership of land; Ownership of sanitation systems; Identification of supply chains; Legal relationships between service providers and customers; Controls over pricing (mainly to customer of facility but also up supply chain).

The enforcement structure for controls will be reviewed through interviews with stakeholders specifically civil servants at central and local government level working in the water, sanitation and health fields; enforcement bodies; and, service providers across the whole supply chain. The extent to which the legislation and policy is enforced and the effectiveness of those enforcement systems will be identified. The socio-cultural and institutional framework will be assessed through RPA. Organisational weaknesses will be identified in the context of official statements on the need to provide better sanitation services for citizens. The trend notable across sub-Saharan Africa towards the liberalisation of the sector and the use of PPP will be analysed.

From these reviews and WPs 3 & 4 data will be analysed to identify gaps in legislation and to assess the effectiveness and enforceability of any identified controls, and how the laws and norms are perceived, enforced, and affect behaviour in communities. Best practice guidance will be developed, providing recommendations for change which, in particular, focus on the identification of legislative requirements for financing and cost-recovery mechanisms which are pro-poor; the establishment of regulatory standards; and which include a duty for the state to educate and promote pro-hygiene understanding. These will involve development of regulatory (and/or policy) framework for the supply and maintenance of self-sustaining sanitation chains which encourage rather than stifle private initiative. Initial conclusions and draft recommendations will be workshopped with stakeholders, with final guidelines circulated to stakeholders for review.

**Target groups:** Service-chain actors and institutional stakeholders including the municipal authorities; civil servants at central and local government level working in the water, sanitation and health fields; enforcement bodies; and, service providers across the whole supply chain

**Outputs:** (Internal) Method development, including translation tools; Best practice guidelines with 2 page policy briefs, for consideration at the project level, and to be stakeholder specific; Field reports; Data collection and analysis. (External) Report on regulatory and cultural institution frameworks, and propose regulatory frameworks for optimisation of private-sector sludge emptying activity in each city to be disseminated via emails and the website. PhD thesis in regulation. Local and international journal articles. Stakeholder workshops.

| Del. No. | Deliverable Name   | Date    | Lead |
|----------|--|---------|------|
| 5-1      | Report on regulatory and cultural institution frameworks, with identification of barriers to and catalysts of sustainable sanitation | 11/2013 | P5   |

## WP6: Research integration (Research Coordinator - Surrey)

Objective: to facilitate cohesive interaction of partners on research methods and analysis to aid in delivery of the project goal.

**Methods:** The key to the success of 3K-SAN and delivery of tools suitable for up-scaling is the integration of the disciplines and case-studies. This WP will involve all partners, in consultation with each other and stakeholders, to ensure multi-disciplinary reviews of methods and data are undertaken to achieve maximum insight. A uniform analysis of case study sites will be delivered by different centres of excellence in each city providing different inputs to the project. It will deliver the combined outputs which identify commonalities between settlements and research areas to provide a synthesis of the research undertaken throughout the project. Research design, implementation, data collection and data analysis will be carried out at each centre using collaboratively developed, agreed methods. Training in research methods and data analysis for the PhD researchers and RAs will be coordinated and delivered by the appropriate partner using published training manuals.

Research tools, manuals and project outputs will be developed using a consultative process between partners, and also with stakeholders, using a combination of meetings, teleconferences, emails and workshops. These will include development of (with lead partner indicated in parentheses): (a) the project design, based on the Logical Framework Approach (LFA) (B.13.) (Surrey); (b) a research methods toolbox and analysis tools (IPAR/MU); (c) training and training manuals for PhD researchers and RAs, e.g. research methods training with IPAR, sanitation systems training with MU, regulatory frameworks and social norms training with VIRED (IPAR/MU); (d) synthesis Best Practice Guidance (VIRED); (e) synthesis project report and maps (Surrey); and (f) community feedback tools (VIRED).

**Target groups:** Partners and stakeholders.

**Outputs:** A project design report. A research methods toolbox and analysis tools, including translation tools. Training and training manuals. Stakeholder-specific Best Practice Guidance consisting of 2-page summaries to target policy makers, educators, service providers, CBOs, community health workers, to be disseminated via stakeholders. Project report to be disseminated via SPLASH, the project website, email and publication. Maps of financial flows, stakeholder roles, regulatory frameworks and communication pathways in low-income urban settlements to be disseminated as technical as well as user-friendly designs to appropriate stakeholders to illustrate the barriers and catalysts to sustainable sanitation. Community feedback tools using interactive mass media through local radio programmes in local languages to share information with the communities, and broader campaigns via TV, radio and press releases to reach the local and international stakeholders and public.

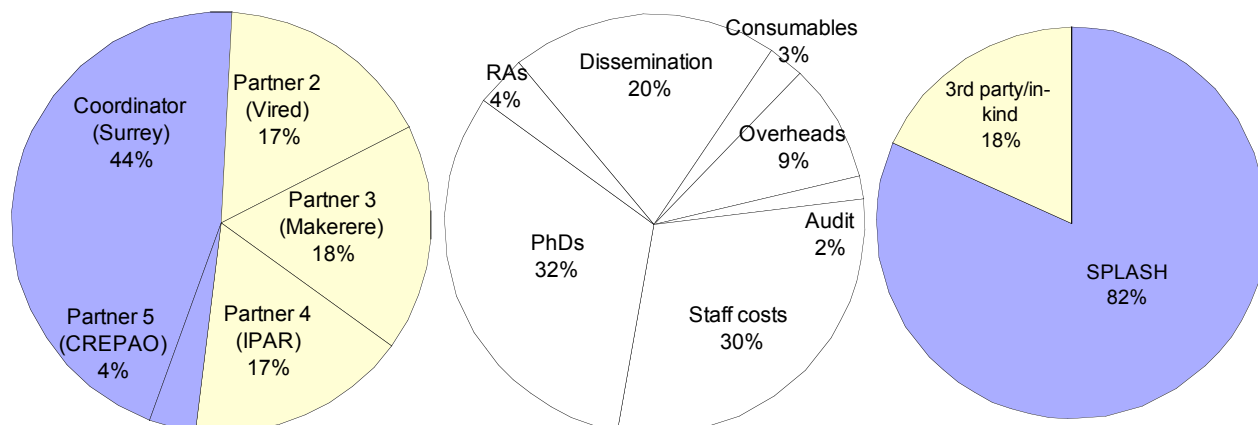
| Del. No. | Deliverable Name  | Date    | Lead |
|----------|---|---------|------|
| 6-1      | Project report combining the outputs from each city and WP to highlight barriers to and catalysts of sustainable sanitation in low-income urban settlements in East Africa and including protocols for ongoing evaluation | 12/2013 | C    |
| 6-2      | Maps of financial flows, stakeholder roles, regulatory frameworks and communication pathways in low-income urban settlements combining the results from each city and WP  | 12/2013 | C    |
| 6-3      | Best Practice Guidance (various publications targeted to different stakeholders)  | 12/2013 | C    |

### **Budget**

Figure 3 highlights the cost effectiveness of this project. The registration (Surrey) and stipend (host African partner) of the three PhD students represent a third of the requested budget.

Dissemination costs total 16% of the requested budget to cover three project meetings and three additional local stakeholder workshops (total = 9) to be held by each African partner, as well as TV and radio broadcasting and translation of project materials and outputs. An additional 4% (for total 20% dissemination indicated on the figure below) is for PhD students to travel to the UK for training and dissemination to UK stakeholders. The University of Surrey are making a significant contribution to the project by reducing costs for key researchers by 50% and by cutting overheads by 50%. Supervision costs at Surrey for PhD students are covered by the PhD registration fees;

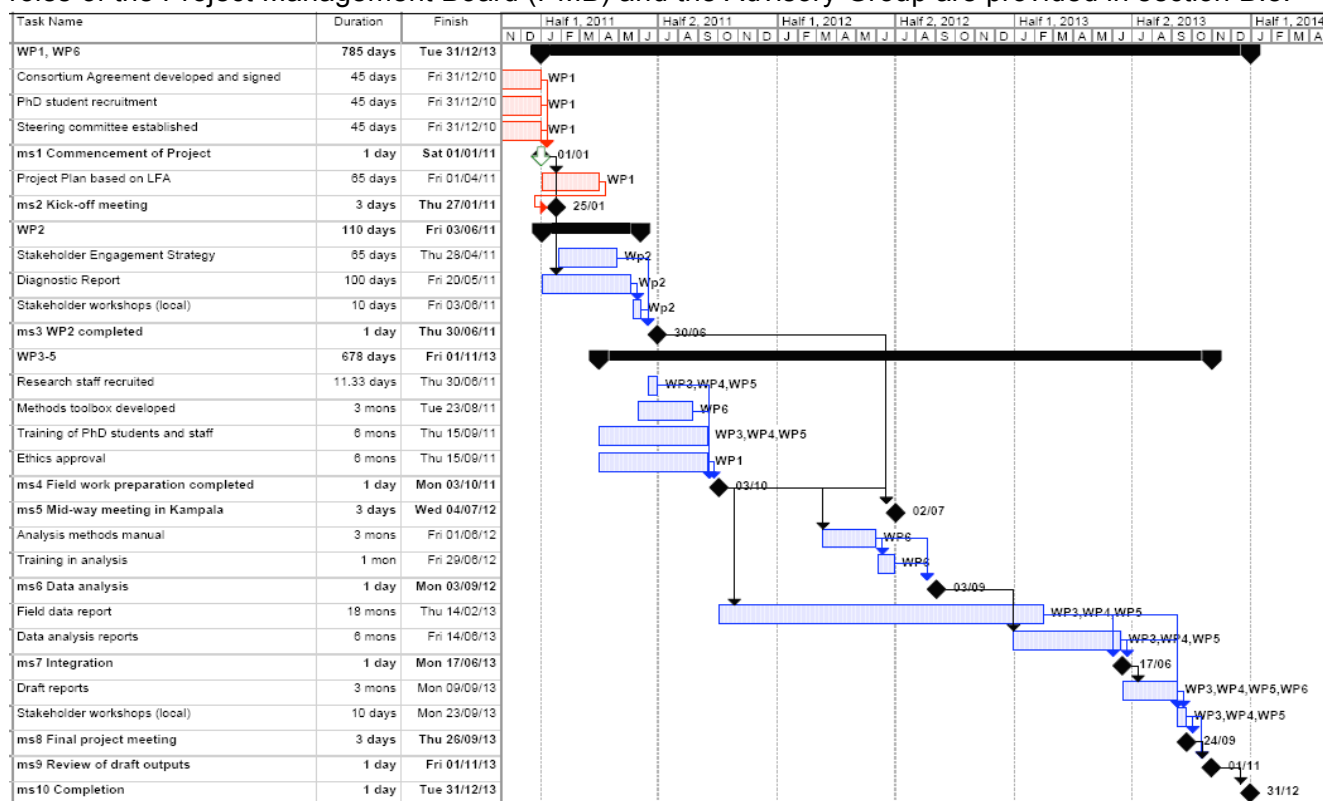
the project will cover supervision costs for African partners. The % time for each researcher is included in B.9. Other in-kind contributions are listed in the attached letters of support.



**Figure 3.** Summary of expenditure (a) by partner highlighting the proportion allocated to African partners; (b) by category highlighting the proportions allocated to dissemination, PhDs, RAs and other staff costs. (Consumables include equipment; dissemination includes travel); (c) by funding source highlighting contribution from third-party and in-kind sources.

### B.5. Work Schedule

The work schedule is highlighted in the Gantt chart below, and the list of milestones below. The roles of the Project Management Board (PMB) and the Advisory Group are provided in section B.8.



| No. | Milestone                       | WP  | Date    | Verification  |
|-----|---------------------------------|-----|---------|---|
| ms1 | Commencement of project         | 1   | 1/2011  | Consortium Agreement; PhDs recruited; Advisory Group; PMB minutes.        |
| ms2 | Kick-off meeting in Kigali      | 1   | 1/2011  | Meeting report; PMB & Advisory Group minutes.                             |
| ms3 | WP2 completed                   | 2   | 7/2011  | Diagnostic report; Stakeholder analysis report; workshops; PMB minutes.   |
| ms4 | Field work preparation complete | 3-6 | 10/2011 | Training; Methods toolbox; staff recruited; Ethics approval; PMB minutes. |
| ms5 | Project meeting in              | 1   | 7/2012  | Meeting report; PMB & Advisory Group minutes.                             |

|      |                         |     |         |  |
|------|-------------------------|-----|---------|--|
|      | Kampala                 |     |         |  |
| ms6  | Data analysis           | 3-6 | 9/2012  | Analysis Methods manual; Training; methods; PMB minutes.           |
| ms7  | Integration             | 6   | 6/2013  | WP3-5 field reports and data analysis; PMB minutes.                |
| ms8  | Final project meeting   | 1   | 9/2013  | WP3-6 draft reports; Meeting report; PMB & Advisory Group minutes. |
| ms9  | Review of draft outputs | 3-6 | 11/2013 | Workshops; PMB minutes.  |
| ms10 | Completion              | 1,6 | 12/2013 | Report; map; community dissemination; PMB minutes; Audits.         |

### B.6. Monitoring Plan

Progress will be monitored to ensure the successful and timely delivery of project outcomes using the milestones and verification tools identified in B.5. Further monitoring will include:

**Management.** Timely delivery of project milestones will be achieved by a combination of financial means and project management. Annual audits will be undertaken by the Coordinator. Progress reports will be written for each WP at 6-monthly intervals and provided to SPLASH. Appropriate reports will be produced at milestones (see B.5. milestone verification). Progress will be monitored by the PMB against the milestones with specific interim targets identified by partners in the project plan to aid in monitoring and evaluation. Financial and administrative management will be conducted by a part-time professional Project Officer from the Project management Team in Research and Enterprise Support Department of the University of Surrey (also see B.8.), and will provide reports to the Coordinator on progress against budget forecasts.

**Research.** Research progress will be monitored by the PMB and the Advisory Group against agreed milestones, deliverables and outputs specified here, and in the project plan and consortium agreement. PMB meetings at project meetings and via phone conference will be held at milestones and at appropriate intervals in between. Regular communication will be maintained via emails. **PhD student** progress will be monitored collaboratively by UK and African supervisors in accordance with University of Surrey procedures, including formal reviews at 6-monthly intervals and records kept of all meetings. Regular contact will be maintained between supervisors and students with a combination of meetings, phone conferences and email. Supervisors of all PhD students will undertake regular meetings with each other to compare individual student progress and progress towards delivery of the project data. **Stakeholder** engagement and cooperation strategies will be developed with specific measurement and evaluation targets for monitoring website hits; newsletter sign-up/distribution list; participation in interviews, workshops and other activities; and reports/BPG distributed. **Dissemination** will additionally be monitored by recording production of outputs against the project outputs; publication and dissemination; and metrics of application such as citations, downloads, copies distributed, etc.

### B.7. Management of Risks and Assumptions

The 3K-SAN Project Consortium Agreement will be carefully prepared to regulate the delivery of milestone outputs and partner responsibilities.

| Risk/assumption                         | Management   |
|---|--|
| Non-delivery of research by partner     | Payments from the project funds will be managed by experienced financial administrators at the University of Surrey, and will be structured to ensure timely delivery of the project goals. The Coordinator, PMB and finance administrator will regularly monitor progress against project milestones, deliverables and budgets.   |
| Budget insufficient                     | The budget has been carefully reviewed and refined with partners at the project meeting (Kisumu, July 2010) as the project description was refined.  |
| PhD students unable to deliver the work | PhD students are responsible for two separate but interlinked deliverables: data collection and their PhD. Partners are responsible reports and other deliverables. PhD student monitoring will be undertaken throughout (see B.6.)  |
| Poor quality data collection            | The project will be closely supervised by the African and European members of the 3K-SAN Consortium to avoid problems related to the relative inexperience of the PhD students and RAs used for primary data collection; experienced researchers have been allocated significant time, so that they will be able to make substantive contributions to training students, project implementation, monitoring and reporting. |

|   |   |
|---|---|
| PhD students leave before degree completion | If students leave, they will be replaced with one of the RAs. RA and PhD recruitment will be such as to ensure we have appropriately skilled candidates. Pay is appropriate for good quality PhD candidates. PhD students will finish their degrees after the project is completed. Funds are included to enable the PhD students to travel to the UK on three separate occasions throughout their PhDs to undertake training, for supervisions and to undertake vivas. |
| Poor engagement of stakeholders             | Stakeholder strategies will provide key outcomes that are required from stakeholder engagement. The PMB will ensure delivery of those outcomes. If engagement of communities is poor, research in WP3 will refocus on this.   |
| Political instability                       | Research able to be re-focused on the other study countries.  |

### B.8. Project Coordination and Management

The Research Coordinator at the University of Surrey has extensive experience in the management of large transnational projects, including African projects and coordination of a similarly structured and very successful recent project involving two PhD researchers from Kenya and Ethiopia (“The establishment of legal frameworks for independent water providers”, Leverhulme Trust, 2006-2009). The University of Surrey has extensive experience of managing FP6, FP7 and other international projects (more than 200 projects in the last 10 years). The project will be allocated a part-time financial manager (based with Research and Enterprise Support), and project management will adhere strictly to the Consortium Agreement signed at the start of the project.

Stakeholder engagement and cooperation strategies will be developed to guide partner interactions with external parties, and ensure early and active roles for end-users of the research. Timely achievement of project targets and milestones will be ensured by due application of rigorous project management procedures. All partners have played, and will continue to play, a central role in research design at all stages.

The **Consortium Agreement (CA)** will include, but not be limited to, the following: a shared code of conduct; define the responsibilities of each of the partners for the management of work packages and activities; the delivery of outputs; establishing the PMB and an advisory group; specifying roles and responsibilities as well as confirming locations and times for project meetings; and communication within the consortium and outside. The CA will also define the financial, legal and administrative principles for managing the operation of the consortium.

**Project Management Board (PMB):** the PMB will be established from within the membership of the 3K-SAN consortium (at least one representative from each partner). The PMB will agree terms of reference for its responsibilities and activities. It will appoint the project Advisory Group, and then be responsible for reviewing and implementing the recommendations. The PMB will also be responsible for monitoring the progress of the project against the delivery of outputs and the achievement of milestones. Meetings of the Advisory Group and the PMB will be arranged to coincide with the project workshops. Intervening PMB meetings will take place by telephone or video conferencing.

**Advisory Group.** An East African advisory group will be used to provide guidance for the project. It will consist of 10 individuals, 3 from each partner country and a chair. The advisory group will meet three times, at times and locations to coincide with the project meetings. Communication in between these meetings will primarily be by email and the website, with phone conferences as necessary. The gender equality of the advisory group will be considered in setting it up. Members will represent key stakeholder areas of interest of policy/government, the private sector, finance, education and demand stimulation, communities, vulnerable groups and undertaking multidisciplinary research in East Africa. **Recruitment.** PhD recruitment will be undertaken cooperatively between Surrey and the relevant African partner. Each African partner will recruit their own RAs with a minimum of a Masters level degree.

**Project Meetings.** Three project meetings will be held (see B.5.). Organisation will be led by the host country, with support from the partners. Meetings will be a minimum of three days, including a day devoted to stakeholder workshops.

**Funding.** A deliverable-based payment plan has been agreed by the partners, after an upfront payment of at least 10% has been made available to each East African partner. Suitable deliverables to be further reviewed during development of consortium agreement that are appropriate for the financial management of projects by all partners. Recruitment of PhD students

will be undertaken by targeted communication with relevant stakeholders and universities; there will be additional costs for advertising and interviewing which will be met by the project, and provided upfront by the University of Surrey.

**Communication.** Communication to monitor progress has been outlined in B.6. Regular communication between project partners will be maintained by emails and phone conferences, as well as using internet-based project management systems (for example, Project Place). External communication will include a project website (English and French) and regular (provisionally quarterly) newsletters. For project meetings, the host partner will coordinate organisation of and communication for their meeting.

**Ethics.** Ethical approval for the research will be sought through the research ethics procedures of the University of Surrey and of each African partner. All informants will be asked to give verbal informed consent and where considered necessary for vulnerable informants (e.g. children) a responsible adult (normally the parent) asked to give informed consent. Respondents will not be named in published reports and nor will settlements (anonymity). Data will be stored to ensure confidentiality with names of informants (where they are retained) stored separately from records (e.g. interview transcripts) with the ability to link data restricted to the core members of the research team.

### **B.9. Description of the Consortium**

The 3K-SAN Consortium partners have very strong records of sanitation-related social research. The lead researchers at each institution are fully qualified to take on high-level scientific management roles (see attached CVs). The 3 PhD researchers will be co-supervised by experienced researchers at the University of Surrey and at the respective African partner institutions. All partners have played, and will continue to play a central role in research design at all stages. The consortium has been developed from a mix of existing and new collaborations developed on a basis of equitable power sharing.

The **University of Surrey** (Coordinator) provides expertise in sanitation, public health, social sciences, and law, with an experienced team who have previously worked successfully together on important projects relating to the current project, including EU-funded SWITCH, Gates-funded AQUATEST, USAID-funded research on groundwater quality in Kenya, and the Leverhulme-funded project mentioned above. It is a WHO Collaborating Centre for the Protection of Water Quality and Human Health. The University of Surrey's role will be as coordinator for administration and finance, as well as for research, with key staff providing expertise on sanitation service chains, regulation and communication. Surrey will also provide training of PhD researchers in general research methods and social research methods to support the other training provided by African partners. Key staff include: Dr Steve Pedley (10% fulltime equivalent (FTE) on project) has 30 years of experience in water, sanitation and environmental transport of pathogens in Africa and internationally. Prof Rosalind Malcolm (10% FTE) has extensive experience in international environmental and environmental health law both as a researcher and as a barrister and consultant. She has worked with environmental health professionals training them to improve their capacity and expertise in identifying environmental pollution incidents, collating evidence and seeking resolutions to disputes and mechanisms for the remediation of harm. Dr Katrina Charles (10% FTE) provides experience in sanitation and environmental transport of pathogens, media communications and facilitation. Dr. Jonathan Chenoweth (5% FTE) is a specialist on the social, institutional and policy dimensions of water and environmental management. Francesco Sindico (5% FTE) is a specialist in environmental law including climate change law and policy & international water law and policy, international trade law, and security studies including human security & climate change and security.

The **Victoria Institute for Research on Environment and Development** (VIRED; Partner 2), based in Kisumu (Kenya), has a history of collaboration with the University of Surrey, with the team being led by Dr Lorna Okotto, a former Surrey PhD student. The role of VIRED will be to coordinate and lead research related to regulation (WP5), and to lead activities being undertaken in Kenya. VIRED will provide training for PhD researchers on regulatory frameworks. Dr Okotto (25% FTE) has previously undertaken social and socio-legal research in informal settlements in Kisumu, working with households, the service chain for water supply from independent water providers, government, and other stakeholders to advise on appropriate regulatory frameworks for stimulating, and appropriately regulating, this water service chain. Other key staff include Prof JB Okeyo-Owuor, the director general of VIRED and Professor of Environmental Biology and Health

at Moi University, Kenya. He has wide experience in environmental and health research including supervising numerous M.Sc. and Ph.D. scholars working in and around Kisumu city in the same fields. He has over 20 years experience research and implementation of water, health and sanitation projects at community level in different countries.

**Makerere University** (Partner 3), in Kampala (Uganda), likewise has a history of collaboration with Surrey, and offers a high level of expertise in appropriate sanitation intervention. The role of Makerere University will be to coordinate and lead research related to demand stimulation (WP3), to lead activities in Uganda, and to provide training for PhD researchers in sanitation technology and use in low-income urban areas. Key staff include Robinah Kulabako (25% FTE), whose PhD research has given her extensive experience dealing with poor communities in peri-urban Kampala.

The **Institute of Policy Analysis and Research** (IPAR; Partner 4), based in Kigali, Rwanda, is a new collaboration, providing key additional expertise in economics and community-led service delivery research. IPAR's role will be to coordinate and lead research related to market adaptation (WP4), to lead activities in Rwanda, and to provide training for PhD researchers in social research methods identified for inclusion in the project research toolbox. Key staff include Prof Pamela Abbott (25% FTE), whose experience in RPA and other research methods will ensure high quality research is undertaken.

Finally, the **Centre de Recherche et d'Etudes sur les Pays d'Afrique Orientale** (CREPAO), University of Pau (Partner 5) has extensive experience in sanitation-related social research in the region, and will play an advisory role with particular reference to dissemination of outputs to francophone Africa. Dr Mathieu Merino (10% FTE) has experience in regulatory frameworks for solid-waste management which complements previous work undertaken by Surrey and VIRED on the Leverhulme project. The network will be developed further throughout the project via the stakeholder engagement and cooperation strategies. Each PhD student and the RAs will be required to be proficient in the local language to facilitate communication with the communities.

#### **B.10. Interdisciplinarity and Transdisciplinarity**

This project has been developed by specialists in public health, water and sanitation engineering, law, sociology, ecology and economics. Primary data collection will be undertaken by researchers in the areas of microeconomics, regulatory affairs and social science. The African partners at the core of the project have strong backgrounds in economics, governance and citizen-led service delivery (IPAR), community-level environmental sanitation management (VIRED), and appropriate sanitation engineering (Makerere). Surrey provides a multidisciplinary team, including specialists in low-cost sanitation in the African context, law, engineering, communication and microbiology. The PhD students will add to the interdisciplinarity and transdisciplinarity of the consortium, with their different backgrounds in demand/social science (WP3), economics (WP4) and regulation (WP5). The interactions and communication between the participant researchers, including the PhD students, will be key to delivery of the project objectives. The added value that these collaborations provide include: facilitating engagement between different stakeholders, including communities, technology providers and financiers; using RPA techniques to gather information on finance and regulatory issues, as well as demand; and experience with different communication techniques for diverse and targeted dissemination of results. The researchers also offer a breadth of experience in water, sanitation, solid waste management, hygiene and health which is relevant for understanding competing priorities and synergies between different sectors. The overlap within and between the expertise required is highlighted in Figure 1 (B.4.).

#### **B.11. Potential Impact, Potential for Large-Scale Application of the Results**

3K-SAN will develop and validate a series of tools for identifying barriers to sustainable sanitation provision. It will test creative methods for brokering collaboration between users and providers at all levels that will deliver the long-term solution to self-sustaining sanitation service chains. The methods will be translated into guidance documents that will allow the process to be replicated throughout Sub-Saharan Africa. The project will generate tools and guidance specific to overcoming the barriers within vulnerable groups - including women, the elderly and disabled, children and orphans - to sanitation provision and stimulate demand for sustainable and adequate sanitation solutions.

**Outcomes.** The outcome of this research, via the widespread adoption of these tools, will be to increase access to sustainable sanitation in the poor urban areas in Kisumu, Kampala and Kigali,

as well as internationally. It will improve the health and wellbeing of the most disadvantaged groups through accelerating progress towards MDG target 7c and contributing to achieving many of the other MDGs as shown in Table 4. The tools developed will be focused on developing self-sustaining sanitation chains, i.e. that they include consideration of maintenance, improvements and the sustainability of the service chain. Additional outcomes will include increased capacity of East African researchers to undertake sanitation research, of communities to develop sanitation and participate in the sanitation service chain, and of stakeholders to collaborate locally and regionally.

The use of deliberative forums, a novel way to develop agreement between stakeholders to overcome barriers to sanitation, will ensure the approaches identified will have maximum impact with stakeholders. While participants in deliberative forums will change their minds afterwards, they are less likely to return to their original view point.

The use of mass media for dissemination, combined with community interaction through RPA, will help provide greater impact through increased awareness about sanitation issues and finance options and greater understanding of opportunities for household sanitation business start up. Mass media will be used to raise awareness in communities more broadly in Kenya, Uganda and Rwanda.

The three case studies, and the differences between them highlighted in B.3. will provide the framework for up-scaling of results to different countries, with appropriate consideration of cultural differences.

This project will assess the potential impact of, and the role for, permanent 'sanitation advocates' in these communities, based on the regulatory frameworks, stakeholders and interest from the sanitation markets. Sanitation advocates would undertake a role similar to community health workers, working in communities using techniques involved in RPA over long time scales to overcome the barriers to demand: providing information on sanitation options for different needs, finance sources, local artisans for construction/maintenance, local business for hardware and helping people interested in entering the market to get appropriate training. This would provide a single, recognisable source of information on sanitation (and water and solid waste) that people could easily approach, that would build on the detailed research undertaken for 3K-SAN.

These impacts will be assured through early and active roles for end-users of the research, and through targeted outputs for different stakeholder roles and interests: (Outputs for target groups are summarised in the dissemination strategy in B.12.)

| <b>Table 4. Potential contribution of 3K-SAN towards delivery of the MDGs, beyond the benefits of improving sanitation.</b> |  |
|---|--|
| <b>MDG</b>  | <b>How will 3K-SAN's activities help deliver it</b>  |
| Goal 1: Eradicate extreme poverty and hunger  | Promote development of small sanitation businesses. Improve access to appropriate finance.   |
| Goal 2: Achieve universal primary education   | Assess competing preferences for investment, including schooling, that might pose a barrier to sanitation.   |
| Goal 3: Promote gender equality and empower women   | Actively engage women in the communities through RPA and in deliberative forums with service chain actors. Help women access appropriate finance and employment in the sanitation sector.  |
| Goal 4: Reduce child mortality  | Inclusion of children's voices in RPA. Work with service chain to identify appropriate, accessible latrines for children to increase access and reduce accidents.  |
| Goal 5: Improve maternal health   | Include mothers' opinions in RPA to assess their needs.  |
| Goal 6: Combat HIV/AIDS, etc.   | Work with vulnerable groups and target BPG and other outputs at CBOs/NGOs who work with them. Improve dialogue between the community, government and the service chain that can be used to provide solutions to other community needs. |
| Goal 7: Ensure environmental sustainability   | Assess competing preferences in environmental sanitation. Improve access to artisans for construction of various community and individual environmental projects.  |
| Goal 8: Develop a Global Partnership for Development  | Highlight the fundamental role basic sanitation plays in economic and social development.  |

**Kisumu.** We will work with WSPs to ensure they benefit from this research on demand stimulation and market adaptation. This research will add a significant dimension to the sanitation sector in Kenya. We will work with NWSS to deliver their aims of: involvement of PPPs in improvement of sanitation; for sanitation systems to be managed by commercially oriented WSPs; and for WSBs and WSPs to work at subsidising sewer development to the urban poor. In an environment of ongoing water and sanitation sector reforms it is envisaged that this project, its research, related activities and outcomes will contribute greatly to these efforts and help in promoting and institutionalizing self-sustaining sanitation chains.

**Kampala.** This proposed project is of great significance in providing long lasting solutions to the problem of sanitation in the city's urban poor areas. The research will inform the on-going and planned interventions in Kampala peri-urban settlements on the most appropriate way of up scaling self-sustaining sanitation chains in these areas and hence contribute to solutions aimed at overcoming the challenges that hinder the country's efforts in meeting the MDGs. We will work with Kampala City Council, NWSC, SSWARS and other NGOs to identify and address gaps and overlaps in sanitation promotion and management.

**Kigali.** We will work with Kigali City Council and MININFRA to identify how existing latrines can be upgraded to achieve hygienic standards, focusing particularly on enabling the poor to identify and access appropriate finance through consideration of what is available and using deliberative forums to bring together communities with finance businesses.

**Outcome indicators** include: level of access to sanitation in urban areas in national and UN/WHO statistics; uptake of Best Practice Guidance (BPG) in national/local policy; number of sanitation service providers, especially from poor communities; publications and citations thereof for African researchers; website hits; sign up to newsletter mailing list will be analysed to ensure local and international coverage; and stakeholder participation in the project.

#### **B.12. Dissemination Strategy and Exploitation of Project Output**

Dissemination will be undertaken throughout the project via engagement with communities and stakeholders. The key routes for dissemination and exploitation of outputs are summarised in Table 5. Effective uptake of research outcomes at all levels is a key goal, which will be achieved by: **(1)** Encouragement of interest in research outcomes at the community level, through genuine community involvement via RPA in WP3-5; **(2)** Targeting of dissemination at specific stakeholder groups (community groups; private-sector actors; utilities; municipal institutions; locally active NGOs; national institutions; SPLASH participants; and the wider research and development community) and on different themes, such as meeting the needs of vulnerable groups, stimulating demand and overcoming barriers; **(3)** Differentiation between outputs aimed specifically at the three case-study cities, and outputs reporting broader best-practice guidelines applicable throughout sub-Saharan Africa. All major general outputs will be produced in English and in French; **(4)** A bilingual English-French project website will be created and publicised to potentially interested parties worldwide; **(5)** Written outputs of all types (including community-level materials, bi-annual project newsletter, working papers, scientific journal publications, and final reports) will be publicly downloadable from the project website; **(6)** Dissemination progress will be continuously monitored using appropriate metrics (including number of participants in community-level dissemination meetings, number of downloads of web-published outputs, etc), and findings will be included in the bi-annual activity reports.

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**Table 5.** Key routes of dissemination to stakeholders, and indicators of efficacy (S/h =stakeholders; BPG = Best Practice Guidelines; RPA = Rapid Participatory Appraisal)

| Level                | Stakeholder                 | Dissemination routes  | Key Indicators  |
|----------------------|-----------------------------|---|---|
| Civil society        | Communities                 | Community meetings, deliberative forums, radio show, posters/leaflets, RPA  | Attendance; radio audience; people engaged in RPA; posters/leaflets distributed   |
|                      | Public                      | Radio, TV, press releases   | TV audience; news articles  |
|                      | CBOs, NGOs                  | S/h workshops, deliberative forums, targeted BPG for vulnerable groups and special interest groups, website, newsletter | Attendance; distribution numbers for BPG by target category; website hits; newsletter subscription/downloads  |
| Private sector       | Service & Finance providers | S/h workshops, deliberative forums, interviews/meetings, targeted BPG, website, newsletter                              | Attendance; interviews/meetings for dissemination; newsletter circulation; BPG distribution/download  |
| Academia/ research   | Local                       | Local journals, conferences (e.g. WEDC), S/h workshops, PhDs, website, newsletter, reports                              | Journal papers; conference papers; Attendance; PhD completion; report distribution and downloads; newsletter circulation; website hits;                   |
|                      | International               | Conferences, international journals, website, PhDs, reports   |   |
| Development partners | SPLASH and others           | S/h workshops, reports, BPG, interviews/meetings, SPLASH meetings, six-monthly reports to SPLASH                        | Attendance at workshops; report distribution and downloads; BPG distribution and downloads by target category; no. interviews/meetings for dissemination; |
| Government           | Municipal                   | S/h workshops, website, reports, interviews/meetings, BPG   | Attendance; report and BPG distribution/downloads;  |
|                      | National                    |   |   |

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### B.13. Logical framework

| Objective hierarchy  | Performance indicators  | Monitoring mechanisms / Means of verification   | Assumptions and risks   |
|--|---|---|---|
| <p><b>Goal</b><br/>To increase the proportion of people in sub-Saharan Africa with access to sustainable sanitation, at least in line with the MDG targets</p> | <p>Proportion of people that have access to sustainable sanitation in each country</p>  | <p>JMP (Joint Monitoring Programme statistics on access. MDG reports. WHO GLAAS (Global Annual Assessment of Sanitation and Drinking-Water) report.</p> | <p>Sustainable sanitation is a priority for government and for poor people. The private sector is able and willing to provide affordable systems. Microfinance is available. Number living in poverty does not increase. Urban focus translates to improvements in rural areas.</p>   |
| <p><b>Purpose (project development objective)</b><br/>Increase access to sustainable sanitation in the poor urban areas in Kisumu, Kampala and Kigali</p>      | <p>Increased % of households in case-study settlements/cities with access to sustainable sanitation</p>   | <p>Integrated Households Surveys in Kenya, Uganda, and Rwanda</p>   | <p>The poor want sanitation. Demand for sanitation will be more than for competing preferences. The poor will maintain sanitation. The private sector will provide appropriate labour/ materials for construction and maintenance. Appropriate finance will be available. Communities will work together to gain finance. Local authorities will engage in the process.</p> |
| <p><b>Outputs (results)</b><br/>1. Private sector able to provide sustainable sanitation that is appropriate and affordable.</p>                               | <p>Range and cost of sanitation systems available on local markets</p>  | <p>Deliberative forums.</p>   | <p>Private sector willing to develop and market such systems. Poor will find them acceptable. Sanitation markets are sustainable.</p>   |
| <p>2. Appropriately trained artisans to build and maintain sustainable sanitation systems.</p>   | <p>Artisans available in communities</p>  | <p>RPA. Stakeholder engagement.</p>   | <p>Labour is available and willing. Training is available and affordable.</p>   |
| <p>3. Poor able to identify and access finance.</p>  | <p>Finance options available for urban poor. Pro-poor finance options.</p>  | <p>RPA. Deliberative forums.</p>  | <p>Poor want sanitation. Private or public sector will provide pro-poor finance.</p>  |
| <p>4. Increased demand for sustainable sanitation in poor, urban communities.</p>  | <p>Increase of stated demand for sanitation. Improved maintenance of sanitation facilities. Increased sales of systems to poor communities.</p> | <p>RPA. Stakeholder engagement. Deliberative forums.</p>  | <p>Appropriate systems are not available. Demand will be enhanced by RPA, use of mass media to engage communities and other project activities. The project will be able to overcome the barriers to sanitation.</p>  |