

# Speakers' and Poster Abstracts

Please note that delegates will not be given a personal copy of abstracts on arrival at the conference. You need to download and print your own hard copy if needed. An electronic version will be available for you to copy to your own USB stick (conference organisers cannot provide them) or there will be limited hard copies for delegates to review in the delegates lounge but not take away. This is



## ADHIKARI, Prakash

Nepal Engineering College

Session: Poster

### **SUCCESSFUL COMMUNITY WATER SUPPLY SCHEME: A CASE STUDY OF KAPAN JORDHARA KHANIPANI SAMRAKCHHYAN**

Water scarcity in Kathmandu valley is well known. To fulfill the demand for drinking water local community has developed different adaptive strategies to overcome the situation. Kapan Jordhara Khanipani Samrakchhyan Sansthan (KJKSS) is one of the successful communities managed water supply scheme developed in order to conquest the thirst of the residents of Kapan. The failure of Nepal Water Supply Corporation (NWSC) in meeting the growing urban and peri-urban demand of water has led to emergence of numerous community based initiatives for the development and management of small water supply schemes. KJKSS supply water to more than 15,000 population of Kapan. The paper presents how the collective action of local people can develop a scheme which supplies safe drinking water equally without any discrimination to all users. Uplift system, pressure filter and point distribution system are the unique features of this system. This paper also presents the historical context of the emergence of this scheme. There are also few issues regarding excessive extraction of ground water and no program for recharge, need for planning to recharge and cutting down the extraction time is suggested.

## ALI, Mohammad

Oxfam GB

Session: Poster

### **LOCAL GOVERNMENT LEAD AND COMMUNITY BASED DISASTER FRIENDLY WATSAN: AN EFFECTIVE APPROACH**

Natural disaster like flood, storm and tidal surge are regular phenomena in Bangladesh. Most of the sanitary latrines are flooded/damaged, surface water reservoirs are polluted and Hand Tube Wells are gone under water and contaminated or become out of order. Diarrhoea and other water borne diseases are transmitted rapidly due to collapse of sanitary condition especially in the rural areas. Dhaka Ahsania Mission (DAM) and Concern Universal-Bangladesh (CUB) successfully completed two projects where an effective approach of Local Government lead and community based disaster friendly hardware installation as pilot basis was facilitate construction or re-installation of Water and Sanitation facilities in flood/cyclone prone area. Disaster Friendly Water and Sanitation concept has been designed to provide water and sanitation facilities which can resist to disaster by allowing people to have access to sanitation facilities during and after disasters. It also contributes to limit the spread of diseases by contaminated water during disasters.

## APUNYO Robert change

Public Affairs and Parliamentary Support Trust (PAPST)

Session: A4D Alternatives to Public Sector Financing

### **COMMERCIALIZATION OF PUBLIC TOILETS IN BULAWAYO CITY, ZIMBABWE**

Bulawayo City in Zimbabwe with a human population of approximately two million has since 2007 piloted an alternative approach to finance management of its public toilets in the busiest informal business areas of the City. This innovation combines both the demand driven and supply led approaches. The City has created a commercial venture to manage some public toilets while the others remain freely accessible to people who may not have money to pay for toilet services. For the public pay toilets, users are charged approximately US\$ 0.25 per use. These funds are used to maintain both the free access and pay toilets. This model is credited for improving sanitation in the formerly filthy environments, created employment, and protects toilet facilities against vandals. This paper will examine this noble approach and suggest ways to maximize its benefits to Bulawayo City and promote replication across Zimbabwe.

## BAJIMAYA Shreya, AMATYA Prakash

Nepal Engineering College

Session: A4C Factors affecting sustainability of hygiene behaviour in communities and schools

### **A SANITISED TRADITIONAL TOWN - SIDHIPUR**

This is a case study of the traditional town, Siddhipur of Kathmandu valley, whose residents were devoid of basic sanitation facilities. Open defecation was the major problem prevailing in Siddhipur. There were four communal toilets which were simply open spaces demarcated by walls and were very unhygienic. Even the people having access to sanitation facilities at their households practiced unsanitary behavior due to poor functioning of their toilets. To stop open defecation completely, Community Led Total Sanitation (CLTS) was implemented with local participation. Sanitation and Hygiene Education (SHE) team was formed for women mobilization and children were also actively involved in the campaign. Around 1000 toilets have been constructed to date which includes 100 ECOSAN toilets, 300 ring chamber toilets and 600 pit latrines. The major problem encountered was the lack of sanitation and hygiene awareness among the locals and their immense resistance to change. Nevertheless, the CLTS initiatives taken were highly effective in strengthening the status and role of women and in improving the sanitation coverage substantially. The declaration of Siddhipur as an open defecation free area was the profound achievement. The ECOSAN toilets have become a boon for this agriculture dependent community. Also, this has resulted in significant decrease in water borne epidemics and increased the agricultural productivity. Keywords: Siddhipur, CLTS, SHE, ECOSAN



## BAJIMAYA, Shreya

Nepal Engineering College

Session: Poster

### COMMUNITY LED WASTE AND WATERWATER MANAGEMENT

This is a case study of Khokana village in Kathmandu valley in which the inhabitants have been successful in developing an integrated approach which confers an alternative for the pit-latrines and sewer system. Prior to the initiation of the program, the pit latrines in the households used to get filled up rendering them unusable due to high groundwater table. The people were therefore forced to practice the unsanitary method of open defecation. The people realized the need of an economical and sustainable solution to waste and wastewater management and proposed the development of an integrated biogas plant and reed bed treatment system (RBTS) to be able to utilize both waste and wastewater from opposite sources in an efficacious manner. The system digests the human sludge, animal dung and household organic waste to produce biogas while the grey water from kitchen and the excess wastewater diverted from the biogas plant is treated in RBTS. The biogas generated in the plant is utilized to meet daily energy demand while digested slurry is available for use as manure by the households in the village. The treated wastewater is available for irrigation. The system has improved the livelihood of people

## BAJRACHARYA, Dinesh

WaterAID

Session: Poster

### THE BOUNDARY RIDER HOW BIENNIAL SUPPORT VISITS CAN IMPROVE THE SUSTAINABILITY OF COMMUNITY WATER SUPPLY IN TIMOR-LESTE

Sustainability of rural water systems is a serious problem in Timor-Leste, failure rates are incredibly high. Surveys carried out in 2009 in a range of districts found that up to two-thirds of new systems are failing within two years. In Timor-Leste, communities are mandated to operate and maintain their system through the formation of a grupu manage facilidade (gmf). Service providers train gmfs on technical and management skills during project implementation phases. However, for most communities, this is their first experience of this kind of system management. Moreover, a single training session is not enough to acquire required skill. To address this problem, WaterAID in Timor-Leste have been providing a regular support to communities through a boundary rider to strengthen institutional capacities of gmfs. Every 6 months for the 2 years following project completion, the boundary rider visits gmf and discusses their management and maintenance issues. He provides training to the gmf members on maintenance fund collection and maintenance skill and facilitates linkages with local government and district line agencies to access long term support. Data collected since 2008 suggest that the boundary rider has contributed to sustainability of WaterAID projects and institutional linkages with local government and line agencies have improved.

## BARBER, Rowan

Carbon Counters

Session: Poster

### ASSET MAINTENANCE IN DEVELOPING COMMUNITIES

Historically, international development in the WASH sector has focused on building infrastructure. In some cases the infrastructure is culturally inappropriate. Furthermore, for some infrastructure projects, the benefits do not continue after major assistance from a donor ceases. When an education component is included in a WASH development programme the focus seems to be on hygiene education. An important factor that is often missing, but essential for the success of WASH programmes, is effective training in sustainable asset maintenance. The proposed training is based upon the presenters personal experience, coupled with a knowledge of current standard practice in asset maintenance in the developed world. The key objective of this training course is to familiarise participants with appropriate, sustainable practices and technologies for asset maintenance and cleaning of toilets, which are relevant for application in WASH programmes in developing communities. The ultimate goal of this training is to contribute toward raising the status, professionalism, standard of training and qualifications for toilet cleaners around the world. This training will be of benefit to project managers, volunteers, field workers and educators associated with programmes in the WASH sector in developing communities around the globe.

## BARTER Dustin, Gaetano ROMANO and Golam MORSHED

Oxfam Australia

Session: B2C Gender and social inclusion – supports to sustainability in WASH

### GENDER IN WASH: COMMUNICATION AND SUSTAINABILITY

In Cambodia, adult and adolescent women are normally burdened with the management and provision of water and sanitation services. Thus, a successful WASH project must be designed from womens perspectives. Women benefit from gender sensitive WASH approaches, and from the opportunities for empowerment intrinsic in these approaches. The focus of gender justice, through ensuring WASH meets the needs of women, is essential for Oxfams multi-faceted approach to achieving WASH sustainability in Cambodia. For communities in rural Cambodia, WASH sustainability is challenging, due to limited resources and skills. In response, Oxfam works closely with communities and government actors to enhance local skills to maintain and spread the benefits of WASH activities, while ongoing local WASH needs are integrated into government planning. For beneficiaries



with limited education, WASH is more sustainable when framed in simple and practical terms. In addition, specifically targeting children to learn about WASH improves the reach of activities, while enhancing the sustainability of programs in future generations. Capturing the process of WASH from the communities perspective in rural Cambodia, this film offers a unique insight into the challenges of creating sustainable WASH projects. This perspective encourages reflection on the meanings of WASH and the processes for successful implementation.

### **BLACKETT Isabel, SARASDYANI Wendy**

Water and Sanitation Program

*Session: B3C Hygiene Promotion at Scale and Private Sector Marketing*

#### **HYGIENE PROMOTION AT SCALE AND WORKING WITH THE PRIVATE SECTOR TO DELIVER SUSTAINABLE BEHAVIOUR CHANGE**

While the benefits of handwashing with soap are widely known, actual practice remains low. In 2007, a Public-Private Partnership (PPP) for Handwashing with Soap was established in Indonesia with support at the ministerial level. The partnership aims to achieve continuing promotion of handwashing with soap by strengthening roles of stakeholders, in particular the private sector. The handwashing programme is led by a core group from government, donors, community-based organizations and the private sector. The donors are bringing handwashing promotion into their water and sanitation programs. The businesses are willing to contribute solid marketing techniques, promotion vehicles and customer contact; and the community-based organizations reach out to communities around the nation. In 2008 the Government put in place a five pillar strategy for Community-Based Total Sanitation. By focusing on holistic behaviour change, the strategy includes handwashing with soap promotion as the second pillar. The promotion of handwashing with soap is now being integrated with achieving open defecation-free communities, malnutrition prevention, education, and Islamic affairs - from national to community level. It is being promoted through many channels including private hospitals, food producers, oil and gas companies, insurance companies and banks.

### **BLACKETT Isabel, WEITZ Almud**

Water and Sanitation Program

*Session: B2B Rural and Urban Sanitation*

#### **SANITATION OPTIONS FOR CHALLENGING ENVIRONMENTS**

In urban areas of the developing world, some of the poorest communities live in established settlements on marginal land or over water bodies. Due to the impacts of climate change, adverse geographic and climatic conditions and low technology resilience, neither conventional nor the well known alternative sanitation options are feasible at affordable prices for poor communities or poor governments. For these reasons and the non-formal tenure of such communities, there has been a consistent failure of formal service providers to address sanitation services for these communities. A recent study in South East Asia covering 5 countries identified over 15 million people living in such settlements. The study proposes a typology of challenging environments as a means to assess the scale and priority of the challenges; understand the issues involved; identify, recommend or improve sanitation technologies to cope with the different environments; and disseminate the results in the study countries, regionally and beyond. The objective of this side event is to outline a process for addressing sanitation in difficult environments by: scoping the scale and nature of the challenges; priority setting based on people affected and severity of impact; assessment and adaptation of existing tested knowledge or development of new options based on what has been applied in similar typologies; and embedding key findings into government processes.

### **BOWLING, Tari**

International WaterCentre

*Session: Poster*

#### **CHALLENGES IN SETTING APPROPRIATE WATER QUALITY STANDARDS FOR POINT SOURCE WATER | IN RURAL COMMUNITIES IN THE LAO PDR**

Providing improved water and sanitation in rural areas is a common goal of development programmes. An important facet in improving health outcomes is ensuring the quality of water supplied. In this case study, 'safe water' is one of the conditions of the concession agreement for resettled communities due to a large hydropower project. It examines the available standards for drinking water in the Lao PDR and the problems encountered trying to achieve compliance for thermotolerant coliform levels despite significant investment. The presentation discusses the difficulties in balancing the requirements of donors with the need to protect communities utilising the water, and how the drive for 'perfect' water quality could ultimately result in negative health impacts. The cost effectiveness of investment in new technologies to achieve set thermotolerant coliform levels is arguably limited when compared to investing in education on sanitation, hygiene and storage. The study looks at the risks associated with diverting resources away from these areas to water treatment technologies that may not be technically sustainable in rural areas, nor necessary to protect human health. The presentation describes collaboration by THPC and the International WaterCentre exploring the best options for measuring the quality of domestic water without compromising community health.



## **BRIKKÉ, Francois**

UNICEF

*Session: Poster*

### **SANITATION MARKETING IN INDONESIA - TOWARDS SUSTAINABILITY AND SCALING UP**

Indonesia's economic growth is of 6.1% per year, however, a recent study done by WSP shows that it loses 2.1% of its GDP due to poor sanitation. Today, there are still 65 million people defecating in the open in Indonesia that has decided to face the sanitation challenge in its National Plan, with notably no more open defecation by 2014.

Many strategies have been tried since the 80's among which: the Clean Friday Movement, providing subsidies to poor families, establishing production centers, introducing the Community Led Total Sanitation (CLTS). Experiences in 25 districts show that CLTS does indeed generate an increased demand, but needs to be completed with an additional approach in order to reach sustainability and scaling-up.

Sanitation marketing is this approach. It consists in creating a network of businesses around the production of latrines, coupled with other businesses such the production of rain water tanks. It proposes to stimulate the local market of artisans at the same time that CLTS activities are carried out. This approach has been introduced in 6 Provinces of Indonesia and this presentation intends to describe its main components and results at policy and community levels

## **BRIKKE François**

UNICEF

*Session: A3A Regional Institutions – Challenges of decentralization for WASH service provision*

### **REGIONAL INSTITUTIONS: CHALLENGES OF DECENTRALIZATION FOR WASH SERVICE PROVISION IN INDONESIA**

It has been now more than 10 years that Indonesia has started a process of decentralization to Provincial, District and Community levels, while redefining at the same time the role of the Central Government. The challenge of decentralization in Indonesia is enormous, not only because of its 33 Provinces, 405 Regencies and 240 million inhabitants, but also because of its geographical and cultural disparity with largely unequal levels of development and access to resources. The process, that has a definite impact on WASH service delivery, is based on a twofold strategy: a) a community based management approach for rural services; b) a participatory planning approach that helps to define the development and budget needs that will be the responsibility of the Regency, monitored by the Province. At Community level, the approach has made good progress, but the WASH budgets that are defined at Regency level are giving a large priority to water supply infrastructure components, and little or none to behavior, sustainability and sanitation issues. The WASH team in UNICEF - Indonesia has been working in 7 provinces and 30 Regencies during the past 3 years, and has developed a strategy to reinforce this decentralization process that will be shared in this presentation.

## **CARRARD Naomi<sup>1</sup>, WILLETS Juliet<sup>1</sup>, PADDON Michael<sup>1</sup>, GIANG NAM Nguyen Dinh<sup>2</sup>, NGUYEN HIEU Nguyen Hieu<sup>2</sup>**

Institute for Sustainable Futures<sup>1</sup>, UTS<sup>2</sup>

*Session: B2B Rural and Urban Sanitation*

### **TOWARDS SUSTAINABILITY FOR URBAN SANITATION - SELECTING FIT-FOR-PURPOSE SYSTEMS IN CAN THO, VIETNAM**

Ensuring the on-going functionality and environmental sustainability of sanitation systems in towns and cities is highly dependent on the initial choice of system type and scale. For instance investment in options with high on-going operation, maintenance and replacement costs (that is, high life-cycle costs) is a risk to on-going functionality. Equally, investment in options that have high energy usage or don't consider resource re-use potential will limit environmental sustainability over the long-term. During 2009-10, a team from the Institute for Sustainable Futures at the University of Technology Sydney collaborated with Can Tho University and Can Tho Water Supply and Sewerage Company to assess the cost effectiveness and sustainability of range of sanitation infrastructure options for an area in Can Tho City in southern Vietnam. The study compared infrastructure at a range of scales and configurations, including large scale centralised treatment, distributed systems for clusters of 500 households and one option involving capture of urine for reuse as fertiliser in nearby agricultural areas. Capital and operating costs were modelled to determine the most cost effective option, and a participatory stakeholder sustainability assessment process considered cost alongside a broader suite of criteria including social and environmental aspects. There has been significant interest in the study in Vietnam and across Southeast Asia as little information is available to help decision makers determine the sanitation system that is most likely to produce a sustainable outcome. Keywords: urban sanitation, Vietnam, cost-effectiveness, sustainability

## **CARTER Richard**

WaterAid

*Session: A3B Optimising Community Management of Rural WASH*

### **OPTIMISING COMMUNITY MANAGEMENT OF RURAL WASH**

At one level, sustainability of water and sanitation services is simple. Capital investment is made and the appropriate management arrangements are put in place in response to demand from potential users. Performance of the service (and in the



case of water, the resource) is monitored. Full service costs (often known as life cycle costs) are covered. The service continues to work over time, to be used, and to benefit its users. Sustainability is achieved. The reality of course is often very different, and the devil – the reasons for failure - is in the detail. Four steps are needed in order to make progress on sustainable WASH services in low-income countries. First, a solid conceptual framework is needed. In the presentation we set out such a framework, which links demand, the design and implementation of interventions, the achievement of sound local management and recurrent financing arrangements, and the external support needed to ensure that those arrangements work over time. Second, a set of principles and commitments is needed, which all service providers adhere to, in order to provide a harmonised and coordinated approach. We set out such guidance. Third, a great deal of research and innovation is needed to address the detailed requirements for sustainability – understanding the management and financing challenges and the environmental issues experienced by the users, by the local institutions involved, and at higher levels of national Government. In the paper we propose some key areas for such research and innovation. Finally, concepts, principles and detail must all translate into delivery on the ground. New ways of working, new roles and responsibilities must all be defined, in order to see real change in sustainable service, and the corresponding benefits in terms of health, livelihoods and well-being.

## **CHIKUSA Chim, DIARRA Samuel, NORMAN Ray**

World Vision

*Session: B2C Gender and social inclusion – supports to sustainability in WASH*

### **DEVELOPMENT OF SUSTAINABLE WASH SOLUTIONS FOR RURAL PEOPLE WITH DISABILITIES – WAWI MALI STUDY**

Prior to 2007, the World Vision West Africa Water Initiative (WAWI) in Mali, Niger and Ghana, observed that the traditional designs for accessing potable water and sanitation facilities gave problems to many people with disabilities, many of whom did not have proper mobility to the facilities. By 2009, since the beginning of WAWI and WAWI's predecessor projects, some 1,600 village wells (boreholes), and 28,000 household latrines had been installed. In an attempt to find solutions to this problem, World Vision partnered with the USA based Messiah College to explore appropriate technology options for sustainable easing of access to potable water and sanitation facilities for the people with disabilities in Mali. The strategy was to involve the concerned communities members in developing socially acceptable facility options, using locally found and /or affordable raw materials (DVD: [http://www.messiah.edu/collaboratory/media\\_press/Mali\\_video.html](http://www.messiah.edu/collaboratory/media_press/Mali_video.html)). This was through a three-year Study (2007-2009), supported by the Conrad N. Hilton Foundation, where the Messiah College provided conceptual leadership, conducted laboratory work at its campus facilities in the U.S., and sent faculty and student research teams to West Africa twice each year. World Vision supported the Study with in-country (Mali) logistics, community access and year-around field staff. The Study also partnered with local organizations such as Handicap International, WaterAid, and the Sisters of the Annunciation in Mandiakuy, Mali

## **CLARK Keryn<sup>1</sup>, MORAN Heather<sup>2</sup>, GUTTERRES Ivo<sup>3</sup>**

BESIK<sup>1</sup>, RWSSP<sup>2</sup>, Timor Leste Department of Environmental Health<sup>3</sup>

*Session: B3C Hygiene Promotion at Scale and Private Sector Marketing*

### **VOLUNTEERING FOR WATER, SANITATION & HYGIENE IMPROVEMENTS IN TIMOR-LESTE**

This case study describes key efforts by the Ministry of Health in Timor-Leste in promoting the improvement of WASH behaviours throughout Timor-Leste. Diarrhoeal disease continues to be the second highest killer of children under five in Timor-Leste. To decrease rates of diarrhoeal disease, the Timor-Leste Ministry of Health is now developing initiatives to link water infrastructure and sanitation (latrine construction) programmes with healthy WASH behaviours. With technical support and funding from the AusAID funded Rural Water Supply and Sanitation Programme (BESIK), the Ministry of Healths Department of Health Promotion and Education works with a cadre of volunteers to negotiate the adoption of key WASH behaviours through household visits and community health services. In the past year, significant attention has been committed to increasing volunteer capacity to communicate effectively and in providing practical opportunities to communities to practice the promoted behaviours. This will ensure health benefits and significantly reduce diarrhoeal disease in Timor Leste.

## **COUSINEAU, Diane**

International WaterCentre

*Session: A2C Planing for sustainable behaviour change*

### **USING F.O.A.M.S. A LOOK AT HYGIENE PROGRAMMING IN THE PACIFIC**

The FOAM framework, developed by Coombes & Devine (2009), describes the four key elements of hygiene promotion programs that need to be considered to achieve sustained behaviour change Focus, Opportunity, Ability and Motivation. This framework was adapted for use in the publication *Sharing experiences: Effective hygiene promotion in South-East Asia and the Pacific* (WaterAid Australia, International WaterCentre & IRC, 2010), where FOAM became FOAMS, the addition of and highlighting the importance of sustaining behaviour change. Workshops in Fiji (attended by the private sector, government representatives and NGOs) and the Solomon Islands (INGO working in WASH with practitioners from Solomon Islands, Vanuatu, PNG) where attendees used the FOAMS framework to analyse their hygiene work indicated that there is a critical need for improvement in the WASH. The presentation will outline the key findings of these workshops, discuss how these findings relate to global sanitation and hygiene promotion approaches, and explore possible ways forward. In particular, the need for WASH practitioners to design programs with a budget and resources dedicated to hygiene and to understand what really drives



hygiene behaviour change at an individual and collective level (the motivation is rarely health!) are essential for sustainable hygiene interventions

## CURTIS, Dr Val

London School of Hygiene and Tropical Medicine

Session: Plenary Tuesday morning

The idea that behaviour needs to change to maximize WASH benefits has recently caught on. Behaviour change is the new term on everyone's lips. However, there is no discipline of behaviour change, little agreement as to what it is, and scarce evidence that it works. Further, like the blind men and the elephant, we all see different parts, but not a whole. In this talk I will try to sketch out the shape of the whole beast and discuss how WASH practitioners can get it marching forwards towards better health and quality of life for all.

## DAVIDSON Cameron

International WaterCentre

Session: B2C Gender and social inclusion – supports to sustainability in WASH

### **WATER AND GENDER: A DYNAMIC RELATIONSHIP IN BEDOUIN COMMUNITIES OF ISRAEL, JORDAN AND THE WEST BANK**

In Israel, Jordan and the West Bank, formerly nomadic Bedouin communities are frequently marginalised and face difficulties in water and sanitation access, supply and management. This study focused on Bedouin women, who often lack engagement in WASH initiatives, to gain an understanding of genders role in water management of Bedouin communities in Israel Jordan and the West Bank. Through interviews, site visits and collaborating with NGOs, the study analysed how issues involving water and sanitation are embedded within the regions social, political, economic and environmental context, through a focus on womens perspectives. This study aimed to identify potential similarities and differences among selected communities and develop a greater understanding of the ways that Bedouin women perceive and are impacted by the past, present and future water situation of their communities. There are many lessons to be learnt about the dynamic relationship between water and gender and the way the two interact with and impact one another in Bedouin communities. By focusing on the role of women as water managers, the study identified recommendations for future research and projects in Israel, Jordan and the West Bank, which can enable more sustainable outcomes in Bedouin communities of this region.

## DIARRA Samuel

World Vision

Session: A3B Optimising Community Management of Rural WASH

### **COMMUNITY BASED SUSTAINABLE WASH FACILITIES**

Over the past 20 years World Vision has been implementing an integrated WASH program in West Africa through a program known as West Africa Water Initiative (WAWI). This program has been funded largely through the Conrad N Hilton Foundation and has progressively developed a replicable and sustainable model. WAWI projects focus on how to implement sustainable water and sanitation interventions in remote rural communities. To address the issue of sustainability, WAWI developed a comprehensive approach to community participation and ownership through the development of gendered WASH committees leading the WASH activities in each beneficiary community and the capacity building of community members to collect revenue, maintain, replicate and repair facilities constructed by World vision in partnership with them. This presentation explains the steps adopted in the WAWI program to create community based sustainability of WASH facilities, through awareness raising of community members, community organization, participation, training and equipment. Approaches to sustainable behavior change, particularly in relation to sanitation and hygiene are also discussed. The paper shares also some results of surveys and assessment conducted in some of World vision operating area showing the particular impact of facilities sustainability when the process is owned and lead by users themselves. The best example of this sustainability is the low failure rate for Ghana Rural Water Project after being running for several years in communities by World Vision Ghana. The 492 water points surveyed after 7 years of full operation produced only 42 failed hand pumps, making 8.5% Handpump failure rate (Reference: people centered approaches to water and environmental sanitation. P.A. Harvey, UK).

## DONNELLY John

RMIT University

Session: A2B What is the problem?

### **IN SEARCH OF SUSTAINABILITY: LOOKING FOR SUSTAINABILITY THROUGH EX POST EVALUATION OF COMMUNITY LEVEL WATSAN/WASH PROJECTS.**

This presentation highlights the findings from ex post evaluations (35 years post project completion) in relation to the sustainability of watsan/WASH projects implemented by NGOs in rural areas of Melanesia (Papua New Guinea, Solomon Islands, Vanuatu). The findings are derived from the perspective of the community members (beneficiaries) themselves in relation to the benefit they received from the project and the ongoing benefit (if any) and or problems resulting from the original project. In this way sustainability is assessed from behavioural change and social sustainability (e.g. ownership, knowledge/cause and effect, dependency, leadership/governance, gender) as well as a functional and environmental sustainability perspectives (e.g. appropriate technology/location, knowledge, maintenance, gender). The presentation also (time permitting) questions the use



of the word sustainability in the local community context. Is there a more appropriate term to describe what can be attributed to a project, years after the project has ended? In this context the presentation highlights the difficulty in making judgements in relation to sustainability and the problems faced in conducting ex post evaluations of small scale projects. Key words: Community, ownership, knowledge/cause and effect, dependency, leadership/governance, gender

## **DONNELLY, John**

RMIT University

*Session: Poster*

### **THE DEVELOPMENT OF THE BLACK MAMBA - A ROBUST SELF CLOSING TAP**

From observations made over many years in Melanesia countries of the problems associated with taps used in rural water systems the development of the black mamba self-closing water tap by 4th year engineering students at the university of Canterbury, Christchurch, New Zealand is an advance toward solving many of these problems, such as: faulty taps/taps left open: causing pooling of water and mosquito breeding sites leading to increased health problems such as malaria empty rainwater tanks soon after rainfall low/zero water flows from spring-fed gravity systems during dry season appropriate technologies and maintenance: simple single action operation to open; closes by water pressure and/or gravity long life (anticipated minimum of 15 years), robust construction nil maintenance easy installation to standard pipe fittings relatively low cost the black mamba tap is simple to install and operate, requires nil maintenance under normal operating conditions (even in developing country situations) and | could be manufactured in-country. This tap could be the answer to the most common functional sustainability problems faced by rural water supply systems in Melanesia and other developing regions of the world.

## **FAWCETT, Ben**

IWC/ Independent Lecturer

*Session: Poster*

### **THE IMPORTANCE OF SANITATION: WHAT MUST WE DO?**

This presentation will remind the audience of the wide range of appalling health and social impacts on those living with inadequate sanitation: morbidity and mortality amongst hundreds of millions of children due to diarrhoea; transmissible blindness caused by trachoma; widespread debilitation resulting from bilharzia; asthma, malnutrition and stunted development caused by roundworms; 200 million Indian women having to wait until nightfall to relieve themselves; girls withdrawn from education because their school has inadequate toilets; girls and women with no private facilities for managing menstrual hygiene; and millions of outcast people obliged to handle others excreta. The result is death, debilitation and indignity. As a conclusion, four important points will be emphasised, in the struggle for improved sanitation: - we, working in the sector, need to emphasise excreta-related much more than water-related disease. Excreta contaminate water, food, people's fingers and the human environment. Domestic water is only one such route of disease. We need to convincingly demonstrate the cost-effectiveness of improved sanitation to politicians, both in the developing world and amongst donors, in order to persuade them to support local campaigns. We need to emphasise work in poor urban areas. We must find high-profile champions of sanitation.

## **FONSECU Catarina**

IRC International Water and Sanitation Centre

*Session: A2D Big Picture: What will it take to achieve Sustainable Financing?*

### **SHIFTING TO LIFE-CYCLE COSTING**

WASH cost project partners have developed a methodology for costing sustainable water, sanitation and hygiene (WASH) services by assessing life-cycle costs and comparing them against levels of service provided. The approach has been tested in Burkina Faso, Ghana, Andhra Pradesh (India) and Mozambique. The aim of the life-cycle costs approach is to catalyse learning to improve the quality, targeting and cost effectiveness of service delivery. The life-cycle costs approach estimates the cost of all elements of service provision from initial construction through repairs, replacements and expansion. Using the life-cycle costs approach can reveal surprising results. For instance, much more expensive technologies often provide only a moderate increase in quality of service. In practice, the level of service provided by a stand pipe is often not very different to that provided by a borehole with a handpump. Too often, both provide poor service due to inadequate maintenance. One preliminary suggestion from analysis of life-cycle costs in Burkina Faso, Ghana, Andhra Pradesh (India) and Mozambique is that increasing expenditure on capital maintenance and direct support, typically "forgotten" costs, can decrease the overall costs of service delivery in some cases. For example it is clearly more cost effective to replace a US\$ 500 handpump every five to ten years, than to wait for it to fail and then develop a new US\$ 10,000 borehole. Yet around the world, failed handpumps are systematically replaced by entirely new boreholes. In other words, by increasing expenditure on capital maintenance and direct support costs the overall costs may decrease, especially when inefficiencies and neglect for post-construction support are causing the overall collapse of the infrastructure much earlier than expected. These and other project findings on life-cycle costs and assessing service levels will be presented both for water and sanitation in rural and peri-urban areas.



## GILLANI Naseer

Planning Commission Group

*Session: B3D Moving to Financially Sound Utility and Local Government Financing Abstracts*

### **WATER SUPPLY AND FINANCIAL SUSTAINABILITY IN ISLAMABAD**

The presentation is based on case study of a public water supply utility. The performance factor costs are public funds as capital investment, government direct subsidy and hidden support. The opportunity cost loss and non optimal cost recover result in poor O&M. The financial flows are negative but covered from other sectors resulting in reduced potential of government and utility both to invest in other geographical areas. A major impact is on MDGs as people not having access to safe water continue to suffer at the cost of rich but reluctant to pay. The cost controls are not applied as whole system is not based on financial transparency, on revenue water issues and no recovery of bills are more significant even than tariff. Water metering to get actual consumers to pay also has advantage of demand management, lesser water demand also help in less volume of waste waters and less cost to treat and dispose that. Solution proposed is to have joint set up of utility consumers and to be consumers who are waiting water supply. Paper calls policy shift to achieve MDGs targets by proper taxation to encourage private investments and private public partnerships.

## GOLDBERG Jeffrey

WaterSHED Asia

*Session: A4D Alternatives to Public Sector Financing*

### **PARTNERSHIPS TO FACILITATE IMPROVED FINANCING FOR WATER AND SANITATION: CAMBODIAN CASE STUDY**

This presentation introduces an innovative pilot project of the WaterSHED (Water, Sanitation, Hygiene and Enterprise Development) Asia program in rural Cambodia, detailing specific contexts where microfinance may be used to improve the scalability of water and sanitation (WASH) products at the household level. The WaterSHED program is a public-private partnership supported by the US Agency for International Development and managed by the University of North Carolina at Chapel Hill. To improve latrine access, WaterSHED has established partnerships with three local microfinance institutions (MFIs), through which working capital loans are being offered to latrine producers, and Savings for Latrines accounts have been made available to rural households. This innovative pilot project provides key lessons for practitioners and the development community about new and effective financing approaches to secure pro-poor WASH solutions. Based on the initial implementation of this program, the following presentation examines the key criteria required to facilitate effective partnerships between MFIs, WASH service providers, and target communities. Likewise, the presentation evaluates the benefits and challenges (financial, operational and health-related, among others) associated with such partnerships, along with key recommendations and lessons-learned to promote their replication elsewhere. Keywords: Wash finance, micro-finance, partnerships

## HAGAN Judy<sup>1</sup>, SMITH Jady<sup>2</sup>, BROWN Michael<sup>1</sup>, HUGHES Rob<sup>1</sup>, BUNTHAN Keat<sup>2</sup>, SODANEATH Hong<sup>2</sup>, VANNA Som<sup>3</sup>, HO Jonathan<sup>1</sup>

Engineers without Borders Australia<sup>1</sup>, Live & Learn Environmental Education<sup>2</sup>, Resource Development International<sup>3</sup>

*Session: A4B Climate Change, Water Resources and Eco-sanitation*

### **DESIGNING FOR A SUSTAINABLE SANITATION – FLOATING TOILET CASE STUDY**

Many of the worlds poorest communities living on water or marginal land, cannot be reached by CLTS or other mobilisation processes to achieve total sanitation coverage due to a lack of appropriate technologies. In Cambodia alone, 1.5 million people live in challenging environments, many on the Tonle Sap Lake. Traditional designs requiring waste burial or piping, or expensive alternatives to these are not usable in these environments. In response to this Live & Learn Environmental Education and Engineers Without Borders Australia (EWB) have partnered to develop, trial and implement appropriate technology and practices that provide an incentive for the community to take up sanitation. The team has developed and trialed a floating Urine Diversion Desiccation Toilet (UDDT) and a Floating Community Waste Management Station. This presentation will focus on initial design and community consultation processes that gave rise to the toilet design. The projects commitment to key principles of low-cost, local production, and use of locally available materials, as well as its in-depth design focus on cultural practices and preferences, were fundamental to the success of this initial design. It is women, men, boy, and girl appropriate, and is suitable for on-going community led uptake and sustainable futures for communities.

## HARVEY Erik

WaterAid

*Session: A3A Regional Institutions – Challenges of decentralisation for WASH service provision*

### **NEW APPROACHES REQUIRED FOR SUSTAINABLE WASH SERVICES IN EMERGING SMALL TOWNS**

In our increasingly urbanising world, the rapid emergence and mushrooming of small towns in the developing world is predicted to far outstrip urban growth in large urban centres. Small towns are predicted to quadruple in both size and number over the next thirty years. A vast majority of these towns have little or no formal WASH services nor are there sufficient conditions, resources and capacity to do so in the short term. Failure by the WASH sector to act will only result in these towns evolving into large towns or cities with massive slums and no services. Based on the findings from a six country study this presentation will propose new institutional support, planning, financing and technical approaches to this growing problem. It will refer to examples



across the six countries to illustrate the problems with current approaches, key issues being missed by the WASH sector and how this points us towards these potential solutions and new approaches.

## HASAN, Tasleem

SpC-Sopac

Session: Poster

### **TECHNICAL BACKSTOP FOR SUSTAINABILITY - NATIONAL WATER TESTING LABORATORY IN THE REPUBLIC OF MARSHALL ISLANDS**

There are numerous water supply, sanitation and hygiene projects being delivered globally through development partners and donor agencies. Most of these projects have a span of three to four years to demonstrate tangible benefits. Considerable effort is also placed towards sustainability of project outcomes. But is sustainability ensured through this approach? This presentation uses a case study from the Republic of the Marshall Islands (RMI) to demonstrate how providing technical backstop after the project life of three years is contributing towards sustainability. Improved capacity for the water laboratory of RMI Environmental Protection Agency (EPA) to produce reliable and accurate results for informed decision making has been supported by SPC-SOPAC and WHO since 2006. In March 2008, the United States EPA certified both the laboratory and the staff for bacterial testing. Nevertheless, the SPC-SOPAC and WHO team have remained in contact with the laboratory staff and management to provide technical backstop including advice on testing protocols, guidance on in-house training and mock audits. The technical backstop and long-term engagement (five years so far and continuing) with the RMI counterparts is gradually building sustainability. Development partners and donor agencies should be encouraged to invest in long-term engagement solutions for sustainability.

## HAWKER, Keryn

Alluvium Consulting

Session: Poster

### **DIALOGUES ON COUNTRY – WATER AND CULTURE**

Cultural Flows have been defined by Murray Lower Darling Rivers Indigenous Nations (MLDRIN) as water entitlements that are legally and beneficially owned by the Indigenous Nations of a sufficient and adequate quantity and quality to improve the spiritual, cultural, environmental, social and economic conditions of those Indigenous Nations. The Australian Indigenous context is generally not part of the traditional agenda of a WASH development practitioner. Nonetheless, the interconnectedness between culture and water for all people in the developing and developed world is one that needs to be considered by anyone working in the sector - it is one that is often either neglected or misunderstood. Water and the environment (Country) form a key part of culture and survival for many people and this is particularly evident in Aboriginal and Torres Strait Islander Australia. The Engineers Without Borders Dialogues on Country (DOC) Initiative took a team of engineers on a study tour of the Murray Darling Basin from Remote Queensland to the mouth of the Murray River in South Australia, meeting with Aboriginal people to learn about connection to land, water and culture. The presentation will share stories from community members' on their connection to country and water, and stories from participants on their journey and how their changed understanding on water and culture can be incorporated in their role as WASH practitioners and creating change in the sector.

## HEARNE, Declan

HELP Davao

Session: Poster

### **CUSTOMARY BEHAVIOURAL SYSTEMS, POLICY AND SELF-SUFFICIENT APPROACHES TO SANITATION IN DISASTER PRONE REGIONS IN THE PHILIPPINES AND INDONESIA**

This review is focused on water and health and explores the customary behavioral systems, policy and self-sufficient approaches to sanitation in disaster prone regions in the Philippines and Indonesia. The research sites have been selected in areas where low (less than 30%) usage of latrines prevails. We will first look at the customary arrangements for water and sanitation in the Philippines and question if these systems can be adapted, or require substantial overhaul to mitigate health risk and enable more healthy and resilient communities. Here we will highlight the need for co-existence of a multi-layered system and the need for pluralism in policy and management of hygiene and sanitation in culturally diverse societies typical of South East Asia. The review will then identify appropriate pathways to achieve healthy and resilient communities and ecosystems. Lessons learnt from the Western Sumatra Islands, Indonesia where communities are leading the eradication of open defecation through an approach known as Community Led Total Sanitation (CLTS) will be explored to suggest appropriate scale up steps for the Philippine context. Finally the paper will look at the apparent increasing frequency and intensity of disasters witnessed in the Philippines and Indonesia and present adaptations in these approaches that can enable communities to increase resilience and to better self manage sanitation in the event of natural disasters.



**HENGLY Aun<sup>1</sup>, PEDI Danielle<sup>2</sup>, MCLENNAN Lyn<sup>3</sup>, REVELL Geoff<sup>1</sup>, JENKINS Marion<sup>1,5</sup>**

WaterSHED<sup>1</sup>, Consultant<sup>2</sup>, Lien AID<sup>3</sup>, UC Davis<sup>4</sup>

*Session: B3A Supporting entrepreneurship and public/private collaboration*

### **SELLING SANITATION IN CAMBODIA: HOW A 'HANDS-OFF' APPROACH TO MARKET DEVELOPMENT IS INCREASING RURAL SANITATION ACCESS**

Sanitation marketing is a relatively new approach for increasing access to sanitation at scale. Its consumer focus generates high adoption rates because suppliers offer sanitation products that households actually want and can afford. This presentation describes a further refinement of sanitation marketing: the “Hands-off” approach. The “Hands-Off” model deployed in Cambodia used in-depth market research to develop targeted interventions for improving demand, supply and the enabling environment for local sanitation markets. Commission-based sales agents market low-cost latrines directly to consumers. Purchased units are delivered to homes and installed by local latrine manufacturers. Financing (consumer and working capital loans) is offered to buyers and sellers. Government officials at multiple levels play a strong enabling role, and social marketing campaigns- soon to be adopted nationally- appeal to emotion rather than reason to encourage latrine adoption. Early results indicate exponential growth in latrine sales. After an initial pilot sales period, project-supported enterprises are on track to achieve a collective sales target of 11,000 latrines in the first 12 months of marketing activities. The “Hands-Off” model was pioneered by the WASH Marketing Project, a collaboration between Lien Aid and USAID’s Water, Sanitation and Hygiene Enterprise Development (WaterSHED) Program, with support from World Toilet Organization

**HUSSAIN Faruq<sup>1</sup>, UNICOMB Leanne<sup>1</sup>, WINCH Peter<sup>2</sup>, LEONTSINI Elli<sup>2</sup>, LUBY Stephen<sup>1</sup>**

International Centre for Diarrhoeal Disease Research (ICDDR)<sup>1</sup>, Johns Hopkins Bloomberg School of Public Health<sup>2</sup>

*Session: A4C Factors affecting sustainability of hygiene behaviour change in communities and schools*

### **LOW COST APPROACHES TO DISPOSAL OF CHILD AND ANIMAL FECES IN RURAL BANGLADESH**

In low income countries effective separation of child and animal faeces from the environment remains challenging. There is a lack of acceptable and feasible sanitary hardware to promote sustainable behavior change. **Methods:** During June and July 2010, we used the trial of improved practices (TIPs) approach in 37 households with at least one child <3 to explore challenges and perceived benefits of selected hardware. An initial courtyard meeting introduced three available, inexpensive models of a child potty, and the sani-scoop, a hoe-like instrument to collect animal faeces. We conducted 5 follow-up visits that included semi-structured interviews, group discussions and observations over a 30 day period. **Findings:** The caregivers selected one child potty model that children liked and accepted that enabled easy and appropriate child faeces disposal. The easy to maintain and clean sani-scoop allowed caregivers to conveniently dispose of animal faeces. Caregivers reported that both tools saved time, reduced work load, increased personal hygiene, and improved the environment. Barriers included potty training challenges and removing cow dung from yard. **Conclusion:** Caregivers found sanitary hardware acceptable, feasible and beneficial for children and the household. The described non-health benefits related to the hardware can be used to promote sustainable behavior. **Keywords:** sanitary hardware, child and animal faeces, sustainable behavior

**INMAN Matthew<sup>1</sup>, MEHARG Seona<sup>2</sup>, KIRONO DEWI, NGUYEN Minh<sup>3</sup>**

CSIRO Ecosystem Sciences<sup>1</sup>, CSIRO Marine & Atmospheric Research<sup>2</sup>, CSIRO Land & Water<sup>3</sup>

*Session:*

### **CLIMATE ADAPTATION THROUGH SUSTAINABLE URBAN DEVELOPMENT: A CASE STUDY ON INTEGRATED URBAN WATER SYSTEMS IN CAN THO, VIETNAM**

A case study on Integrated Urban Water Systems in Can Tho city, Vietnam for climate adaptation and sustainable urban development is presented. This work is a subset of a larger research initiative supported by CSIRO and AusAID, aiming at improving support for investment and decision making related to urban water and sanitation projects through analysis of climate change risks and adaptation strategies. Through engagement with local policy makers, urban managers and scientists, the initiative is conducted with two case studies of urban water systems, one in Can Tho, the regional urban centre of the Mekong delta in Viet Nam; and one in Makassar, a coastal city in Indonesia. For the Can Tho case study, the purpose is to support decision making for water and sanitation infrastructure investment that responds to a number of challenges to the city future, including the anticipated impacts of climate change and other key drivers such as high rates of urbanisation and population increase. The research started in July 2010, with the following objectives: (1) To assess the impacts of climate change on the sustainability of fresh water supplies and the urban water services, (2) To establish future scenarios and alternatives for management of an integrated urban water system for the city, (3) To build capacity for the in-country partners in developing climate adaptation strategies for sustaining clean water supply and sanitation as well as managing the unavoidable impacts of urban and delta flooding. The research applies the concept of integrated urban water management (IUWM) to assist the strategic planning and development of urban water systems that are suitable and sustainable for the specific conditions of Can Tho city. The aim of IUWM is to plan, design and manage overall water cycle in a coordinated manner to minimise their impact on the natural environment, to maximise their contribution to economic development and to engender overall community wellbeing and improvement. Sustainable water service solutions are investigated, taking into account the nexus of the urban water system and energy uses, technologies, stakeholder’s needs, environmental impacts, and climate change implications. The case study is laying a foundation for implementation of integrated planning and management concept for sustainable urban development, which is critical for climate adaptation in developing countries. This includes new urban



knowledge and lessons learnt from the application of IUWM in Can Tho, and the introduction of the concept into building the research and development capabilities of local partners and stakeholders.

## **ISLAM Khairul, JAHAN Hasin, RAHMAN Imamur**

WaterAid in Bangladesh

*Session: B2A Institutions and communities*

### **PART TIME JOB OR VOLUNTEER? DILEMMA IN SUSTAINABILITY**

WaterAid and its partner NGOs organize the slum dwellers of Bangladesh to form community based organizations (CBO) and enable them to get piped water connection from the public utility. Clusters of households fetch water from one storage-cum-distribution points. The cost of connection from the main pipeline to the water collection and storage point is borne by the clients. NGOs subsidize the connection costs around 90% and rest is being collected from the users by the CBOs. There are 226 CBOs active in the WaterAid urban program areas covering 351,131 urban poor and the program is supported by AusAID. NGOs allow CBOs to keep the collected amount for regular maintenance of the WASH facilities. However, the collection of household contributions for the maintenance fund becomes a part-time job for the CBO leaders. Recently, component sharing instead of maintenance fund has been piloted where community contributed for one time capital investment. While this has eased up life of the CBO leaders its yet to be seen how WASH facilities will be sustained when the needs for maintenance will emerge. An institutional mechanism within the public utilities should be established for sustainability of the WASH facilities for the urban poor.

## **ISLAM, Khairul**

WaterAID in Bangladesh

*Session: Poster*

### **PUBLIC TOILET SYSTEM IN DHAKA BANGLADESH**

In the absence of focus on public toilets, urinating and defecating in the open are common in the cities of Bangladesh. Dhaka has the highest population growth in the world with nearly half a million migrants flowing into Dhaka each year. While an estimated 5.5 million people per day require public toilet facilities there are only 47 public toilets in operations with open access. Public toilets in Dhaka are leased out to for-profit private sector by Dhaka City Corporation. The leaseholders of public toilet achieve sizeable profit by charging fees 2-10 times higher than the lease rate, defaulting on electricity /water bills and offering other services beyond the lease agreement (i.e. car washing). The quality of services was generally poor and the provision of facilities for females and disabled were almost absent; and there was no provision of public toilets for the large gatherings. The study recommended for marked improvements in governance and participation of the important stakeholders; special drive to overcome the hurdles of policy pitfalls, unavailability of land for new public toilet, lack of innovation and resource constraints. The present modality of leasing out to for-profit private sector needs to be replaced by not-for-profit entities to set standards.

## **ISUNJU John Bosco<sup>1</sup>, SCHWARTZ Klaas<sup>1</sup>, ATEKYEREZA Peter<sup>2</sup>, DDUMBU SSENTAMU John<sup>2</sup>, VAN DIJK Meine Pieter<sup>1</sup>**

UNESCO-IHE

*Session: B2A Institutions and communities*

### **INSTITUTIONAL ASPECTS OF SLUM SANITATION: IMPLICATION OF MULTIPLE ACTORS**

Whereas as the lack of suitable institutional frameworks and policies, and subsequent increase in housing density underlie the pitiable sanitation situation in slums, the implications of poorly coordinated multiple actors has been largely ignored. Investments in on-site sanitation facilities, emptying etc. are often viewed as a private responsibility, whilst administrative and regulatory tasks are attributed to the public domain. These tasks in the public domain are highly fragmented with various responsibilities divided over multiple actors, leaving sanitation marginalized, poorly coordinated and unregulated. Each of the different actors (e.g. landlords, tenants, micro creditors, city councils, Ministries, NGOs, donors, etc.) have specific interests and objectives that they aim to achieve. These interests are likely to conflict and, as such, achieving each one's interests is subject to contestation. As the different actors pursue their, possibly conflicting interests, the provision of sanitation services becomes an inherently political process with slow progress. The dynamics of the process underlying the provision of sanitation services, within a slum setting, has largely been ignored by research in the past decade. Using the case of Bwaise slum in Kampala, we critically analyse the process of improving sanitation services and the implications of multiple actors on achieving desired improvements. Keywords: Sanitation, Slums, Multiple actors, Institutional framework



## JACKS Cordell, BAKER Tamara

International Development Enterprises (IDE) Cambodia

Session: B3A Supporting entrepreneurship and public/private collaboration

### IGNITING SANITATION MARKETS: THINKING LIKE A BUSINESS, NOT AN NGO

Based on 7+ years of Sanitation Marketing experience in 3 countries of Asia (Vietnam, Cambodia and Timor Leste), the session seeks to share some tried, tested and true 'Do and Don'ts on how to create sustainable sanitation markets in regard to creating businesses, value chains, working with government and enabling environment, and leveraging demand creation.

## JAMES Larry, BUTLER Rhett

Skyjuice Foundation Inc

Session: A4D Alternatives to Public Sector Financing

### LOOKING BEYOND CENTRALISED DELIVERY PARADIGMS BY UTILISING INNOVATIVE FINANCE STRATEGIES TO ACHIEVE ENHANCED U.N. MDG OUTCOMES FOR POTABLE WATER

Traditional development assistance has largely focussed on centralised donor funded treatment schemes. For various reasons decentralised solutions have been viewed as "inappropriate" and relatively costly. They have not been viewed as a viable option for low cost sustainable potable water supplies and/or sanitation solutions. Recent developments have seen various informal financing mechanisms to achieve community based outcomes. These micro-finance or soft funding water kiosks are linked to recent advancements and innovations in finance/technology mix. Based on biominicity principles there is a plethora of "new" treatment systems in the developing world. Cost implications are promising. Safe affordable potable water at realistic volumes is now feasible. The emergence of legitimate Water Kiosks and Small Water Enterprises (SWE's) based on "decentralised" solutions are challenging our established views of how to solve the global potable water and sanitation issue. The issues are complex and the finance/technology mix is not a "magic bullet" solution.

## JARAVAZA Muchanyara, ZVEGONA Tavonga

GRM International

Session: A3C Assessing Hygiene Behaviour Change

### THE USE OF HYGIENE INDEX IN MEASURING HYGIENE BEHAVIOUR CHANGE IN ZIMBABWE

Hygiene promotion has subsequently featured in most water and sanitation programmes to control diarrhoeal disease throughout the developing world, but convincing evidence for its effectiveness remains scarce. In this paper we present findings from a new hygiene education and promotion outcome and impact evaluation approach, based on a Hygiene Index that is being piloted under the Protracted Relief Programme (PRP) in Zimbabwe. The Hygiene Index is a participatory community based impact monitoring and evaluation tool, that uses community based health clubs to evaluate the impact of the participatory health and hygiene education (PHHE) training in the community. The index is a proxy means formula, and survey weighted responses are summed to provide a score. This paper reviews evidence from the field on the use of the index and outlines how this evidence shapes future programming, under the PRP. The hygiene index has enabled communities to effectively measure changes on hygiene behaviour practices, and are empowered to identify areas that require improvement. Data analysis shows that there are correlations between level of hygiene and factors such as gender and education. The index has enabled planners, implementers and communities in designing strategies that provide the greatest health benefits, which may differ among communities. Keywords: behaviour change, hygiene index, hygiene promotion, PHHE

## KABIR M. Enamul, AHSAN Shaikh Mahmudul

HYSAWA Fund and AusAID, Dhaka

Session: B3D Moving to Financially Sound Utility and Local Government Financing

**FINANCING LOCAL GOVERNANCE FOR SUSTAINABLE HYGIENE, SANITATION AND WATER SUPPLY DELIVERY: HYSAWA MODEL**  
HYSAWA (*Hygiene, Sanitation and Water Supply*) project has been testing a model of financing and strengthening local governance for sustainable delivery of Hygiene and WatSan services through local government institutions (LGI). HYSAWA is the first instance of Public – Private Partnership in the sector in Bangladesh. The government of Bangladesh, Denmark and Australia collaborate in supporting HYSAWA. The project strategies include LGIs' capacity building in the areas of sub-project preparation, procurement and financial management. Over the period since 2008, there have been gradual improvements in hygienic practices, sanitation and water supply coverage among the communities in 700 LGIs. The demand responsive support and user pay principle results in community ownership and sustainability of WatSan infrastructure. Also it has been leaving behind innumerable trained mechanics and local volunteers who could in essence support local communities when the project would cease to exist. Historically, LGIs have been weak institutions in Bangladesh. HYSAWA has made a dent for the first time devolving both administrative and financial power to LGIs to plan, implement and manage WatSan interventions of their own communities. HYSAWA is envisioned as a replicable decentralization and PPP model for development initiatives in Bangladesh and other developing countries. While the immediate objectives of HYSAWA project vis-à-vis decentralized WatSan service delivery by local government institutions is being achieved but, for financial sustainability, it is important that they focus their attention on identifying and generating their own resources. This may be possible through increasing local tax collection, and if necessary imposing hypothecated tax (tax related to a specific purpose) for services that people value most and, at the same time, show efficiency in the use of resources. Increasing resource mobilization should be possible by gaining trust of the people



and attracting development partners and central government through building trust and confidence in them by demonstrating effective leadership, building visions, transparent and participatory decision making, and ensuring accountability. The central government, on the other hand, should also materialize their political and constitutional obligations through decentralization and empowerment of LGs for managing development programs and, in parallel, continue to building management capacities and increasing resource allocation for development projects along with supportive supervision. Individual projects can not function well when the core administrative functions are still centralized.

## **KAREMERA Pascal**

World Vision Rwanda

*Session: A2A National Institutions*

### **COMMUNITY BASED ENVIRONMENTAL HEALTH PROMOTION PROGRAMME (CBEHPP)**

The paper outlines Rwandan experience of a sustainable approach to achieve WASH calls and aspirations. The approach is Community-Based Environmental Health Promotion Programme (CBEHPP). The approach is sustainable because it fosters community participation and ownership of WASH related activities. World Vision is working in partnership with the Government of Rwanda to implement CBEHPP in many of its project areas. Globally, almost 90% of diarrhoeal disease is attributable to inadequate water, sanitation and hygiene. With diarrhoeal diseases being a second leading cause of U5 mortality, WASH interventions are an essential component of Rwanda's strategy for reducing the debilitating national disease burden and contributing significantly to poverty reduction outcomes. The WASH approach within CBEHPP tries to reach out to all communities and empower them to identify their personal and domestic hygiene and environmental health related problems (including safe drinking water and improved sanitation), thereafter, to actively participate in the problem solving process. Looking at the effects of poor hygiene in contributing to diarrhea and other diseases, CBEHPP is adopting the Community Health Clubs approach that is well proven to empower communities especially women, to take up the responsibility at the village level in operation, maintenance and management, for rural water facilities like hand-pumps, protected springs and piped supplies, thus enabling their long-term sustainability. CBEHPP approach provides a participatory monitoring done by community members including Community Health Workers (CHW), Community WASH Clubs, and Environmental Health Officers (EHO). Partnership is key pillar of CBEHPP approach and makes it more sustainable, because the model brings together many government ministries (health, infrastructure, social affairs, environment, and water institutions), NGOs, and other WASH partners. World Vision is currently scaling up its WASH interventions in Rwanda in consultation with the Government and in a manner consistent with CBEHPP. WVR operates in 21 out of 30 districts of Rwanda and has integrated WASH using CLTS and PHAST methodology to roll out WASH behavior change as imbedded in CBEHPP. WVR has been strongly supporting child friendly school concept where WASH interventions includes but not limited to hand washing activity in all the schools within its catchments area. WVR is going to scale up with two major WASH projects, one with Global Water for Sustainability (GLOWS) and another large WASH programme that will cover all Area Development Programmes (ADPs) and further provide support to Government to implement and scale up CBEHPP.

## **KHAN, Rasheed**

World Vision Pakistan

*Session: Poster*

### **EXPERIENCING CLTS IN EMERGENCY**

During the July – August 2010 Pakistan Flood response, World Vision Pakistan (WVP) used the Community Led Total Sanitation (CLTS) approach to stimulate flood affected communities into safely disposing of their feces. The approach was piloted within 10 rural communities in the district of Muzaffar Garh, Punjab province. After each disaster communities become more susceptible to change and build up courage to fight back and unite for a common cause. With this, WVP added the 'shame' factor which proved to be successful in eliminating open defecation (OD) and converted relief supplies into self-reliance in the very early stages of the response. After the flood and prior to the intervention, 97% of rural communities were practicing OD, as 60% of households did not have a latrine whilst the remaining latrines were clogged by floodwater and debris, with no immediate plan for restoration. Of the 10203 community members, more than 80% reported having diarrhea in the past month. To reduce diarrhea rates WVP had to motivate the communities to safely dispose of their feces, WVP immediately started triggering activities and within three months the community was able to succeed in constructing latrines and organizing clean-up campaigns on a self help basis. The children and women played a vital role in eliminating OD behavior by encouraging their men to use latrines and monitoring OD on a daily basis. To date each of the ten communities have reached open defecation free (ODF) status. As a part of its early recovery strategy, WVP plans to work with these communities to improve WASH infrastructure, scaled up the program to other interested communities and incorporate CLTS as strategy in future emergency responses.



## **KHATRI, Kamal**

World Health Organisation

Session: Poster

### **BUILDING INSTITUTIONAL CAPACITY OF WASH SERVICES IN THE PACIFIC THROUGH DRINKING | WATER SAFETY PLANNING APPROACH**

Safe drinking water quality is a basic human need and in 2010 the United Nations declared access to clean water a basic human right. What does this translate to? The benefits are yet to be seen as scaling up efforts towards better provision of safe, clean, accessible and affordable drinking water and sanitation for all in the Pacific region is far from reality. The Pacific island countries lag behind the rest of the world in relation to access by their populace to safe drinking water and basic sanitation. Only 50% of the Pacific population have access to improved drinking water sources while 39% have improved sanitation facilities (WHO/UNICEF 2010). The World Health Organization (WHO) promotes the use of drinking water safety planning (DWSP) as a process which helps to assess and manage the risks associated with drinking water from the catchment to consumer. Trials in the Pacific island countries together with regional partners such as Applied Science and Technology Division of the Secretariat of the Pacific Community (SPC) have seen development of institutional capacities being developed in the area of water services. The drinking water safety planning is a holistic approach which takes into consideration several factors that may not have been considered traditionally such as inclusion of relevant stakeholders, consistent and good quality water supply, ongoing operation and maintenance, customer satisfaction and so on. The advocacy on development of drinking water quality standards attached to existing legislative frameworks allows reinforcement of sustainability for safe drinking water.

## **KOME Antoinette**

SNV Netherlands Development Organisation

Session: A2C Planning for sustainable behaviour change

### **ANCHORING INNOVATIVE BEHAVIOUR CHANGE FOR HYGIENE IN LOCAL ORGANISATIONS AND LOCAL CONTEXT**

Sustainable hygiene behaviour change involves more than changing the practice of open defecation. Other messages are needed such as hygienic use of toilets, use by all, safe disposal of infant excreta, hand washing with soap etc. Whatever is the priority behaviour depends on the local situation, progress and such priorities will change over time. Therefore, more important than conducting any particular hygiene promotion campaign, is to build the capacity in local line agencies or other appropriate organisations to develop, test and implement hygiene behavioural change communication (BCC). Anchoring innovative BCC for hygiene in local organisations and local context is the essence of the BCC component of Sustainable Sanitation and Hygiene for all programme. This involves a paradigm shift because most of the time and focus in hygiene promotion is on IEC materials, rather than on understanding behaviour. In the programme we are testing a number of steps to engage local line agencies, media and other actors in rethinking hygiene promotion for rural areas, especially for post-ODF. Among other things, these steps include a reflection on behavioural change, the review of IEC materials, and a simplified form of formative research based on FOAM. It also involves linking of BCC work to a broader local sanitation strategy and the development of a localised BCC "strategy".

## **DORJI Thinley, KOME Antoinette<sup>1</sup>, WANGDI Kencho, HALCROW Gabrielle, NOUN Dara, DORJI Thinley<sup>2</sup>, SIJBESMA Christine, KRUKKERT Ingeborg**

SNV<sup>1</sup>, LNW Consulting/SNV Bhutan<sup>2</sup>

Session: B3A Supporting Entrepreneurship and public/private collaboration

### **SANITATION SUPPLY CHAIN DEVELOPMENT - THE MISSING LINK IN RURAL SANITATION AND HYGIENE**

Almost without exception, rural sanitation markets are poorly developed and outreach is limited. Development of market-based solutions for supply is essential, without it, practical barriers for long term ODF and for households moving up the sanitation ladder are simply too high. Challenges are how to do this in practice, public and private roles in sanitation business development and how to ensure an inclusive market is developing attending more than just the needs of better-off households. SNV, IRC and local partners are working on this in the Sustainable Sanitation and Hygiene for ALL programme in Nepal, Bhutan, Laos, Vietnam and Cambodia. Based on experience in other sectors SNV works in and best practices from other organisations, sanitation supply chains analysis has been carried out in the different countries, and together with local government partners and local private sector we are looking for market-based solutions. Experiences ranging from rural Bhutan to Vietnam show a number of commonalities, e.g. that consumer aspirations of rural households are not necessarily low-end toilets, that sanitation is only attractive for certain local enterprises. Also, engagement of the local chamber of commerce in rural Nepal, shows how local private sector becomes a champion in promoting sustainable ODF communities.

## **LEWTHWAITE Paul, LOGAN Tamara, YOUNG Karen**

Live & Learn Environmental Education

Session: A4C Factors affecting sustainability of hygiene behaviour change in communities and schools

### **IMPROVED SANITATION BEHAVIOUR THROUGH SANITATION BUSINESSES IN PACIFIC**

Community uptake of improved sanitation has been limited by the lack of ownership and motivation in Western Pacific countries. There is little evidence of self-generated expansion of programs aimed at improving sanitation and hygiene standards.



Open defecation remains the choice for many communities despite increased knowledge through health education about the advantages of improved sanitation. Live & Learn's Water, Sanitation and Hygiene (WASH) programs in Western Pacific countries have shifted away from full or part subsidized infrastructure projects to demand driven sanitation at the community level. The establishment of community-led sanitation businesses ensures that sanitation products (such as latrines/toilets) are designed to meet the needs of the community, and provides a vehicle to promote the adoption of good hygiene behavior such as handwashing with soap. Additionally, this innovative approach addresses key development goals such as poverty reduction, income generation, improved health standards and increased capacity of community members, particularly women and youth.

## LOCKWOOD Harold

Aguaconsult

*Session: A2B What is the problem?*

### **BROKEN PUMPS AND PIPES – WHY THE RURAL WATER SECTOR HAS FAILED TO DELIVER TRULY SUSTAINABLE SERVICES AND HOW TO FIX IT**

The last three decades have seen substantial sums invested in rural water services in low-income countries. As a consequence, nearly 730m rural people in developing countries gained access to improved water supply services between 1990 and 2008. However, a similar number remain unserved, and a significant proportion of those who are currently counted as served experience faults and failings in their services in reality. Much progress has been made in building new systems and there are many islands of success, but huge challenges remain with the sustainability of rural water supply. The rural water sector in low-income countries has tended to be dominated by the building of infrastructure without consideration for long-term financing requirements and the commensurate support for the development of national WASH sector institutions and capacities. Rural water sectors also tend to be dominated by external donor thinking and investment, which is not always well coordinated or supportive of government policy. This presentation will unpack the root causes of these failures and suggest that a paradigm shift is needed to focus not only on increasing the numbers of people enjoying improved services, but also to ensure that such water supplies provide a permanent service to all.

## LOCKWOOD Harold

Aguaconsult

*Session: B3B Sustainability Monitoring*

### **CHANGING THE MONITORING NARRATIVE FOR RURAL WATER SERVICES**

Current approaches to monitoring rural water supplies tend to focus primarily on coverage, measured in terms of systems built and nominal numbers of people served. Such approaches do not normally take into account the actual service delivered, which in many cases is far from the design standard, with the result that actual 'coverage' rates are much lower than estimated. To deal with this problem, a different type of monitoring is required; one that focuses on the service delivered over time, rather than on the number of systems built and new indicators are needed to enable this to be done. But an even further shift is required to monitor the performance of service providers in order to identify problems before they happen and, crucially, monitoring needs to lead to remedial or preferably anticipatory action through improved management. This presentation examines some good practice in monitoring of rural water services and service providers, both of which are required for good governance and improved service delivery. The findings are based on the results of a multi-country study carried out by the Triple-S - Water Services that Last initiative and a review of broader sector examples from countries including Honduras, Nicaragua, Bolivia, Uganda and Ghana.

## LOCKWOOD Harold

Aguaconsult

*Session: A3A Regional Institutions – Challenges of decentralisation for WASH service provision*

### **DECENTRALISATION OF RURAL WATER PROVISION: MOVING TOWARDS THE SOLUTION OR OUT-SOURCING THE PROBLEM?**

Decentralisation is actively promoted as a way of improving service delivery for rural water and increasing accountability and in many countries far greater responsibility has been transferred to local or district government. But what evidence is there that lower levels of government can guarantee improved services? Experience varies from those countries where local government lacks the capacity and experience to effectively support services and where many of these functions are still geared towards the capital intensive part of the life-cycle. The other end of the spectrum shows examples of more effective support for the delivery of true water services. These cases are typified by planning that covers the implementation of projects, as well as long-term post-construction support to existing systems. There are also examples of 're-centralisation' of certain functions through the creation of groupings of local government, or through business support units, which can provide specialised technical inputs to reach greater economies of scale. A number of countries, including Ghana and Uganda, are making efforts to provide institutionalised support to local government. In almost all cases, the fulfilment of service authority functions is hampered by lack of adequate financing and technically qualified staff at the local or district level.



## MCINTOSH Brian<sup>1</sup>, MACALLISTER Donald<sup>2</sup>, HARVEY Erik<sup>3</sup>

International WaterCentre, Cranfield University UK, WaterAid, London UK

Session: A3B Optimising Community Management of Rural WASH

### AN ANALYSIS OF SCALE AND TECHNOLOGY IN ROPE-PUMP PISTON MANUFACTURE AND SUPPLY IN SUB-SAHARAN AFRICA

The rope-pump has potential to be a suitable technology option in WaterAids rural water supply programmes in Sub-Saharan Africa. However manufacture and supply of the water lifting component, the pistons, is a bottleneck in the sustainability of the rope-pump. Manufacturing processes are often inefficient or expensive and there is little incentive to produce spare parts. This study investigated the most appropriate technology for manufacturing pistons finding that manual injection moulding with electrical heating produces good quality pistons at a rate high enough to meet current demand. If production significantly increases then higher capacity technologies should be employed. Break-even costs and production volumes depend on the inputs and complexity of technology. Manual machines used in non-pilot production have low break-even outputs; in Ghana for example production breaks-even at 96 pistons per month, costing a total of \$54. The main constraint on the economic viability of piston production is geographic rope-pump density. There are not enough rope-pumps, in seven out of eight countries, for economically viable manufacture. Spare piston sales and pump density must be increased. A full set of pistons should be replaced as regularly as the rope to generate higher revenue. Developing irrigation and self-supply rope-pump models should increase pump density.

## MCMILLAN Andrew, JACKSON Darryl<sup>3</sup>

Engineers Without Borders

Session: A4B Climate Change, Water Resources and Eco-sanitation

### TOOLS AND TIPS FROM A NEPAL PILOT PROJECT INFORM EFFECTIVE ROLL-OUT OF RURAL COMMUNITY WATER SAFETY PLANNING

A pilot Water Safety Plan (WSP) was developed for a rural Terai (plain) community of Chitwan District, Nepal, where drinking water is sourced from hand-dug wells or bore wells. Many families in this community also use a household biosand filter. The WSP was developed through a partnership between Nepal Water for Health (NEWAH) and Engineers Without Borders Australia (EWB). The pilot aimed to identify WSP methods acceptable to the community and local NGO. It included hazard assessments, improvement plans and monitoring plans to be implemented by the village water committee with local level capacity building. WSP tools piloted included community hazard mapping around wells and a household WSP household checklist for local self-monitoring of control measures. The WSP approach was designed for ongoing community implementation and management, and will be utilised in future water supply projects by the local NGO, NEWAH. After a short follow-up period the pilot has demonstrated lessons for WSP implementation in village communities that could be applied to other WSP projects for sustainable drinking water supplies. Keywords: Water Safety Planning; Rural water supply

## MD. FIROJ Alam

Unicef

Session: B2C Gender and social inclusion – supports to sustainability in WASH

### EQUITY IN WATER SANITATION AND HYGIENE: OVERCOMING EXCLUSION DISCRIMINATION IN SOUTH ASIA

This report presents findings from a study into Equity in School Water and Sanitation, conducted in three districts of Bangladesh. The objectives of the study were: to examine the relationship between water and sanitation related issues and the ways in which they affect, for both practical and psychological reasons, both the inclusion and the opportunities of children who belong to a group that is perceived as being unclean, such as menstruating girls and the children affected by communicable diseases; to identify and record instances of good and inclusive practices; and to explore the possibility of good practices in schools having a transformative role in altering traditional discriminatory practices within the community. The research aimed to produce sufficient evidence to raise awareness at both government and practitioner levels of the part that issues related to water and sanitation play in children's exclusion from and discrimination within education, and to suggest actions which need to be taken at the levels of policy and practice.

## MEHTA, Prof Meera

Professor Emeritus, CEPT University

Session: A4D Financial Sustainability

### ALTERNATIVES TO PUBLIC SECTOR FINANCING – LEVERAGING RESOURCES TO INCREASE SUSTAINABILITY

The importance of leveraging resources for financing beyond the public sector funding for water supply and sanitation services has been recognized in several recent reports and workshops. The different sources of such finance range from microfinance to commercial finance through equity as well as mobilization of commercial debt by public utilities. Microfinance is explored for its potential in meeting the financing needs of the low income groups in improving their access and quality of water and sanitation services. This may be through household borrowers or funding of small projects by conventional microfinance providers on a commercial basis. Commercial funding can also be tapped by water utilities through private sector involvement or debt mobilization by public utilities. Such commercial funding also brings market rigour to the sector and can enhance investment sustainability. While use of such funding is common in the developed world, particularly for equity and debt, there is only limited experience from the developing world in the use of commercial alternatives to public funding. Based on the actual



on-the-ground experience with such alternative funding in the sector from India, Kenya and Peru, key lessons and a number of critical measures are identified to sustainably increase use of non-public resources.

### **MILLS Freya, SHRESTHA Yasoda, KANSAKAR Luna**

Enpho

*Session: B2B Rural and Urban Sanitation*

#### **ONGOING PERFORMANCE AND BEST PRACTICES OF DECENTRALISED WASTEWATER TREATMENT SYSTEMS IN KATHMANDU**

With only one operational centralised treatment system in Kathmandu and with improved household sanitation facilities, particularly flush toilets, the demand for sustainable wastewater treatment systems is high. Decentralised Wastewater Treatment Systems (DEWATS) have been installed in Nepal since 1997 as an alternative to conventional systems, however due to limited available performance information, there is uncertainty about their long term sustainability and hesitation to promote further. To determine the viability of DEWATS forming a larger part of Kathmandu's wastewater treatment strategy and to establish best practices for sustainable operation, ENPHO investigated the performance of ten existing systems in Nepal. Of these, eight were operating well and achieving significant improvements in wastewater quality, many have operated for more than 5 years and two have independently expanded their systems to meet growth. The study highlighted the challenges and need for a reliable management and funding structure which can enable required operation and maintenance to occur. This was achieved well in institutions, private organisations and when a by-products, such as biogas, produced income. ENPHO is disseminating these findings to increase awareness and confidence in DEWATS as an immediate and sustainable solution to the current wastewater challenge in Kathmandu. Keywords: Wastewater treatment; DEWATS; constructed wetlands

### **MURIMA, Boiketho**

Oxfam GB

*Session: Poster*

#### **BEHAVIOUR CHANGE EXPERIENCES ON ONE OF THE WORLDS LARGEST CHOLERA EPIDEMICS IN RECENT HISTOR: THE 2008 - 2009 CHOLERA OUTBREAK IN ZIMBABWE**

The Cholera epidemic in Zimbabwe resulted in 98,581 reported cases and 4,282 deaths. Severity was heightened by limited preparedness, contingencies and capacity shortages evident in the public and private sector along the entire value chain. The response included provision of clean and emergency water supplies for households and institutions, appropriate sanitation, hygiene promotion and hygiene non-food item kits. WASH cluster evaluations of the response showed that severity of the outbreak was heightened by the breakdown of the water and sanitation services in many large and small urban areas. Once the outbreak reached a critical mass it was very difficult to control the spread of cholera through public health interventions. The movement of people from heavily affected urban areas to other locations spread the disease throughout most of the country. Households in urban areas had limited water storage facilities and use of disinfection was low. Funerals and other social gatherings appear to have played a significant role in resurgent outbreaks. Quality of interventions needs to be monitored for effectiveness in reducing transmission. Inter-personal contact proved most effective form of communication affecting behaviour change. Vulnerable groups included religious objectors, children, prison inmates, illegal gold panners, cross-border travellers, and people living with HIV/AIDS.

### **MURIMA, Boiketho**

Oxfam GB

*Session: Poster*

#### **MEETING WASH HUMANITARIAN CHALLENGES IN URBAN AREAS: LESSONS FROM CHOLERA OUTBREAKS IN URBAN HAITI AND ZIMBABWE**

The cholera epidemic in Zimbabwe resulted in 98,581 reported cases and 4,282 deaths by June 2009. More than 78.4% of cases from urban areas. The outbreak in Haiti as at 24 January 2011 had seen 209,034 cases and 4,030 deaths. Humanitarian wash response was implemented. Overall case fatality rate nationwide is twice the fatality rate of 0.8% in the Port-Au-Prince metropolitan area. Severity in both cases was heightened by capacity shortages. Based on agreed priorities of the inter-agency standing committee task force on meeting humanitarian challenges in urban areas, both Haiti and Zimbabwe's wash response developed operational strategies early on that ensured multi-stakeholder partnerships for enhanced coordination, impact and effectiveness. Communities were at the core of the integrated response urban expertise and surge capacities were inadequate among first responders. Promotion of protection of vulnerable urban populations was observed. Preparedness planning and understanding/analysis of vulnerability, community resilience and beneficiary targeting were not conceived before the outbreaks. Significant investments were made in the restoration of livelihoods and economic opportunities as a priority. Subsequent to these lessons, current planning and response is building preparedness into humanitarian assistance policies for more effective emergency responses and in order to save more lives in urban areas.



## MURTA Janina

International Water Centre

*Session: B2A Institutions and communities*

### **THE CHALLENGE OF SUSTAINABLE RURAL WATER SUPPLY: A CASE STUDY IN EAST TIMOR**

Over the past three decades community management has been promoted as the answer to sustainability issues of the water supply sector. Following international trends, the government of East Timor adopted this model for the management of rural water supply systems. Despite this, sustainability of water development projects remains an issue. This study investigates sustainability issues behind community management of a multi-village water supply system in East Timor. Study findings identified the participatory approaches used to implement the system and the lack of clarity of responsibility over management functions, as key elements affecting the systems sustainability. The study also describes a number of aspects which are relevant for the development of the countrys rural water supply sector in general. It is argued that if the government of East Timor is to adopt the community management model for rural water supply successfully, there needs to be more clarity on what exactly community management means in terms of the functions it involves and responsibility over these. If community management is to contribute to sustainable rural water supplies, it has to go beyond handing operation and maintenance functions to include control over decision making on how the system should be managed. Key words: community water management, institutional sustainability, rural water supply

## NGUYEN, Huy

WaterAID

*Session: Poster*

### **INCLUDING PEOPLE WITH DISABILITIES IN WASH**

## NGUYEN Minh Chau

EMW

*Session: A4D Alternatives to Public Sector Financing*

### **CASH ON DELIVERY—INNOVATIVE FINANCING TO ACHIEVE SUSTAINABILITY IN THE WASH SECTOR**

East Meets West Foundation (EMW) is one of the largest international NGOs in Vietnam. Its mission is to transform lives of disadvantaged people in Southeast Asia by providing them with access to quality and sustainable basic services in education, health, clean water and sanitation, and social infrastructure. EMW has implemented the cash on delivery (COD) approach in its WASH program for the last three years with the support from the Global Partnership for Output-based Aid (GPOBA), a multidonor facility administered by the World Bank. Under this financing mechanism, EMW takes all the performance risk and is reimbursed only after a third party independent verification of results. The reimbursement is based on a pre-determined amount and output defined and agreed between GPOBA and EMW. With AusAID support, EMW uses the same approach to motivate private entrepreneurs to take risk and invest in the WASH sector. As of March 31, 2011, EMW and private entrepreneurs have provided sustainable clean water services to some 30,000 households, and some 5,500 households in sanitation. The presentation will analyze how this innovate approach contributes to the sustainability of services through project and design selection, risk sharing, community and private ownership, cost efficiency and third-party independent verification.

## NOTT Trevor

RWSSP

*Session: A3B Optimising Community Management of Rural WASH*

### **PROMOTING SUSTAINABLE WASH PROJECTS IN PAPUA NEW GUINEA**

PNG has a population of about 5.5 million, 85% of whom live in rural areas. Government statistics state that 32% of the rural population has access to improved drinking sources and 41% access to improved sanitation though our field work disputes this figure. For the majority of rural communities water is collected off thatched roofs, rivers (some of which are polluted with mine tailings), open wells and lakes. Open defecation is the norm, and where pit latrines exist they are usually mud floors and not vented. The Rural Water Supply and Sanitation Programme (RWSSP) aims to improve rural health by implementing WASH projects across PNG. The programme funds NGOs to implement projects whilst the RWSSP Programme Management Unit provides technical backstopping, project monitoring and networking support. Many such projects around the world are characterised by poor sustainability, with water supplies falling into disrepair and little take up of improved hygiene and sanitation practises. Very often this has little to do with the technologies adopted but with aspects of community management. RWSSP promotes a service delivery approach to its projects, This requires a project process that promotes sustainably develops the capacity of communities rather than providing resources with a bit of training. In all stages, RWSSP has identified activities and processes that they promote to the NGOs in order to help achieve this and has produced a community development checklist, outlining key milestones that should be met during project implementation. Key Words: Community Ownership, management, sustainable behaviour change

## PANDEY Umesh, TIWARI Ashutosh

Nepal Water for Health



Session: B3B Sustainability Monitoring

## LONG TERM SUSTAINABILITY MONITORING IN NEPAL

Nepal Water for Health (NEWAH) is an NGO working in the field of water, sanitation and hygiene in Nepal since 1992. Over 19 years of working together with communities having diverse social, economic and cultural background, NEWAH has enriched a substantial knowledge. GESI- Most of the communities in Nepal are heterogeneous that are divided by gender, caste, ethnicity, well-being and other form of discrimination. GESI is a rigorous social mobilization process with specific strategies that ensures an analysis of the society from all dimensions and makes positive interventions to overcome them. This approach has been a key towards sustainability by creating harmony, trust and confidence. FEDWASUN- The amalgamation of WASH users to form their federation to undertake social auditing role in ensuring the rights of the users towards WASH has led WASH programs to become more equitable and sustainable. LTSS- NEWAH had also conducted a looking back study of its old projects as a part of its accountability and monitoring the sustainability of WASH. Several learning that have emerged from this exercise such as the need to link O&M funds with continuing economic activities such as saving and credit schemes have been remarkable achievements.

## PEREZ Eduardo

Water and Sanitation Program (WSP)

Session: B2D Financing Sanitation

### WHAT FINANCING MECHANISMS WORK IN LARGE SCALE SANITATION PROGRAMS?

Sanitation solutions are not cheap for the poor, who make up the vast majority of those without sanitation. However, the large number of poor households without sanitation makes it difficult for strained government budgets to contribute a large fraction of the cost. The challenges of finance – the practical decisions about who pays how much for what, when, and how – thus lie at the heart of the world's efforts to promote health, dignity, and a cleaner environment through sanitation. This presentation will report on a WSP and World Bank global study to improve understanding of the finance of on-site household sanitation through careful analysis of practical field experience in a wide range of projects in six countries. The lessons from this study offer guidance to sector professionals developing on-site sanitation projects and programs. Examples of key findings include: households are key investors in on-site sanitation but partial public funding for both hardware and software costs can trigger significantly increased access to household sanitation; the different financing strategies adopted had a profound influence on equity, scale, sustainability, levels of service, and costs and; the provision of hardware subsidies on an output basis can be effective at stimulating demand and leveraging private investment.

## PSUTKA Rebecca<sup>1,2,3</sup>, PELETZ Rachel<sup>2,3</sup>, MICHELO Sandford<sup>4</sup>, KELLY Paul<sup>3</sup>, CLASEN Thomas<sup>2</sup>

University of Otago<sup>1</sup>, London School of Hygiene and Tropical Medicine<sup>2</sup>, Tropical Gastroenterology Research Group<sup>3</sup>, Environmental Health Team N'gombe Health Clinic<sup>4</sup>

Session: A3C Assessing Hygiene Behaviour Change

### BOILING DRINKING WATER IN PERI-URBAN ZAMBIA: A COSTLY AND INEFFECTIVE APPROACH TO MICROBIOLOGICAL QUALITY

Expecting improved attitudes towards WASH initiatives without evidence of their effectiveness is problematic. Boiling, the most common method of disinfecting water in households, is both widely promoted and a benchmark against which other point-of-use water treatment strategies are compared. In a five-week study in peri-urban Zambia, we assessed the microbiological effectiveness and cost of boiling among 49 households that reported always or almost always boiling their water. Paired water samples (source and household drinking) were collected weekly and analyzed for thermotolerant coliforms (TTC) World Health Organization (WHO) indicator of faecal contamination. The microbiological quality of drinking water samples (geometric mean 7.2 TTC/100ml, 95%CI 5.4-9.7) was no better than that of source water (geometric mean 4.0 TTC/100ml, 95%CI 3.1-5.1) ( $p < 0.001$ ), even among drinking water samples claimed to have been boiled that day. Evidence suggests that water quality deteriorated after boiling due to lack of residual protection and unsafe storage and handling. Boiling was an expensive household water treatment option, estimated to cost householders 10-12% of their income, depending on fuel source. In this setting, safe storage practices that minimize recontamination may be more effective in managing the risk of disease from drinking water at a fraction of the cost of boiling.

## PURVIS Stephen

Centre for Appropriate Technology (CAT)

Session: B2A Institutions and communities

### WORKING WITH BUCKETS OF MONEY: WATER INFRASTRUCTURE AND APPROPRIATE TECHNOLOGY IN REMOTE INDIGENOUS AUSTRALIA

In many remote Indigenous communities, there is a history of large capital expenditure on water systems for supply and sanitation. The large expenditure has historically been possible through grants from various state, territory and federal agencies for the purposes of installing, replacing or repairing water infrastructure. The availability of large amounts of money for capital expenditure, combined with maintenance programmes run by people in positions characterised by high turnover rates has contributed to a technology-focussed response without due consideration of the underlying factors of alternatives. The outcome of the increasing technological sophistication implemented has been that small, remote and economically isolated communities have had an increasing dependency on external agents; not only for the maintenance of the systems, but for the finances



associated with that maintenance and the inevitable retirement and replacement of the system. This paper will provide some case studies of where technological 'solutions' have sought to address poorly understood local predicaments. It will consider the role of local management and accountability that is possible with different technologies and governance structures. Conclusions will be drawn on effective strategies and approaches that have been successfully used.

## **RAND Emily Christensen<sup>1</sup>, WILSON Crispin<sup>2</sup>**

Oxfam<sup>1</sup>, Sumatra Konservasi Alam<sup>2</sup>

*Session: B3B Sustainability Monitoring*

### **USING GEO-CODED IMAGES TO INCREASE TRANSPARENCY AND SUSTAINABILITY IN WASH PROGRAMS**

Given limited time, transportation options and budgeting constraints, visits to remote field sites are often not as frequent as required. Many stakeholders, such as busy government officials and project donors, are unable to visit all remote water and sanitation construction sites or hygiene promotion activities. The relatively recent availability of low-cost digital cameras that take geo-coded pictures offers the opportunity for project staff to easily improve the documentation of field projects. Staff in remote locations can take pictures in the field and when they return to a field office with internet, they can upload the images into web-based maps so they may be shared with others throughout the world. Oxfam staff members in Timor-Leste are using this simple innovative technology to increase national staff reporting capacity, improve communication between district field and national offices, augment coordination with other NGOs, improve local government participation, raise accountability to beneficiaries and advance transparency to donors. Keywords: Monitoring, Reporting, Accountability, Transparency, Technology, Innovation

## **RAND, Emily**

Oxfam

*Session: Poster*

### **SUSTAINABILITY AND THE SANITATION SUBSIDY SHIFT**

Worldwide, 2.6 billion people lack access to adequate sanitation. In order to meet sanitation related Millennium Development Goals, many governments and non-governmental organizations are changing their approach. Instead of giving subsidies for household latrine construction, organizations and governments are now trying an alternative approach; to motivate community members to build their own toilets. Programs like Community-led Total Sanitation and Sanitation Marketing are the most common of these new strategies. Other behaviour change methodologies, such as house-to-house visits with hygiene promoter negotiations are also being reviewed and modified to encourage those who open defecate to change their behaviour. Encouraging community members to build their own sanitation facilities has several advantages including broader participation, reduced costs and greater involvement of community members in sanitation activities. However, there are questions about the long-term behaviour change and little evidence of disease reduction as a result of these new strategies. This presentation will explore the sanitation subsidy shift and make recommendations on how communities can be motivated towards more sustainable behaviour change.

## **RAND, Emily**

Oxfam

*Session: Poster*

### **ENVIRONMENTAL HEALTH IN POST TSUNAMI VILLAGES VERSUS RELOCATION SHELTERS**

Over two years after the tsunami, many individuals were still living in relocation sites or temporary shelters in their villages. There were many opinions among tsunami survivors, government officials and aid workers, about which group was better off. Some speculated that those remaining in their pre-tsunami villages were forgotten by government and aid agencies and had not yet received access to public health services, while others felt that the over-crowding and lack of well established governance structures to ensure maintenance and good use made those in the relocation barracks worse off. This study looked at both population groups and found that in some areas there was no difference between the two groups. The majority of the drinking water samples for both groups had coliforms and there were other factors which had more influence on hygiene knowledge and practice than location. However, in other key areas, villagers were found to be slightly better off. For example, individuals still in their pre-tsunami village were more likely to: know about public health governance structures in their locations, have clean and usable sanitation facilities, have access to a greater quantity of water, and be free of dengue, malaria and diarrhoea.

## **RASHEED Hifza, TAHIR Muhammad Aslam, IMRAN Saiga**

Pakistan Council of Research in Water Resources

*Session: A4A Capacity Building*

### **DRINKING WATER CONTAMINATION IN RURAL AREAS & CAPACITY BUILDING APPROACH IN PAKISTAN**

The global impact of contaminated drinking water is staggering as 80% of illnesses in developing countries are due to water-borne diseases, resulting in an estimated 2.5 billion illnesses and 5 million deaths each year. It is estimated that water related diseases cause annual national income loss of approximately 0.6-1.44 percent of GDP in Pakistan. The findings of the National Water Quality Programme (2001-2006) implemented by Pakistan Council of Research in Water Resources in urban areas of



Pakistan demanded to extend and undertake similar water quality monitoring in rural areas of Pakistan. Thus from rural areas of 24 selected districts of the country, 14,000 sites were monitored. It was found that 82% of the sites were found to be unsafe and only 18% were supplying water within PSQCA permissible safe limits. The outcome has led to the realization about inadequate technical capacity of the professionals working in water supply agencies. A significant training effort was required for the further sustainable development of the skills and knowledge of the staff. To combat this situation, a nation wide capacity building effort is initiated in the year 2008. The objective of this capacity building programme is to help public water utility managers, policy and decision makers to acquire further expertise in implementing institute and policy reforms; strengthening institute governance and accountability; formulating capacity building plans for the public utilities; and developing & administering partnerships among water operators, water quality surveillance and optimization of water supply network.

### **SAYWELL Darren**

International Water Association (IWA)

*Session: A4A Capacity Building*

#### **MIND THE GAP!: COUNTRY-WIDE CAPACITY ASSESSMENTS AND THEIR IMPLICATION**

In 2006, the WHO World Health Report estimated that **4.3 million** additional health workers were needed worldwide to achieve the health related Millennium Development Goals. Subsequently in 2010, UNESCO estimated that **10.3 million** new teachers were needed to meet the MDG of achieving universal primary education. In the water and sanitation sector, the human resource requirement to meet the MDG targets is relatively unknown and therefore there is a need to assess the effectiveness of service providers to meet the MDGs and to sustain services in relation to the numbers of staff, qualifications and their practical experience. The paper will report on assessments from phase 1 of a project, supported by the UK Department for International Development (DFID), to assess human resource requirements for reaching the MDG targets related to water supply and sanitation in five countries: Bangladesh, Timor Leste, Mali, South Africa and Zambia. The study focussed on identifying gaps where public sector institutions, non-governmental organisations and private companies involved in service provision lack sufficient staff and/or expertise in core disciplines considered necessary to attain these targets. The assessment is a step in the process of determining the global human resource gap in the drinking-water and sanitation sector.

### **SHAKYA, Sunam K.**

Environment and Public Health Organisation

*Session: Poster*

#### **RECOVERING, RENDERING AND RECYCLING OF HUMAN EXCRETA**

We witness the degrading condition of our once clean ritual importance rivers. Today these rivers are nothing more than big open sewers. We are polluting our surface water and ground water. A great volume of drinking water is spent only to flush our toilets that in turn add up the waste volume. This is mainly due to conventional human sanitation systems. We are generating much more wastewater than we can manage and not treating our wastewater before its disposal at the safest level. The result: ill human environment and water crisis. Ecological sanitation is an ecosystem approach to excreta disposal that can be defined as a system, which prevents diseases, protects the environment, conserves waste, recovers and recycles nutrients and organic matter. After the series of research and pilot program the few households in peri-urban areas of Nepal have been practicing ecosan toilets. Till date more than 600 ecosan toilets are constructed in Nepal. It has an attempt made to improve the sanitary condition of the community and acknowledge the inhabitants to follow sound sanitation practices. The source based sanitation facility minimized the cost for construction and operation. It cut offs the use of water to flush toilets as it is for conventional system. This paper argues that Nepal is historical acceptance of ecological sanitation, and its recent experience in using the approach-set out in the evidence presented here-mean that ecological sanitation could be very valuable. It could contort these problems and provide potential added value to the livelihood link through agricultural production and water and environment conservation. This paper highlights acceptance and use related issues, lessons learned and challenges experienced for scaling up.

### **SIJBESMA Christine**

IRC International Water and Sanitation Centre

*Session: A2C Planning for sustainable behaviour change*

#### **PLANNING AND EVALUATING SUSTAINABLE BEHAVIOUR CHANGE: INSIGHTS AND CHALLENGES**

Most WASH programs have the improvement of public health as their ultimate objective. Besides consistent access to and use of a *sustainably* functioning water and sanitation service by at least 75%, but from a social/equity perspective 100% of the population, this requires also sustained good hygiene behaviour by a critical mass of women, children and men. This presentation will summarize current insights on which and whose hygiene behaviours are most crucial for improving health and how these behaviours are promoted effectively and sustainably. The great challenges are to apply insights in current and new sanitation and hygiene promotion programmes and make these programmes evidence-based. This is illustrated by the impact evaluation of the AusAid supported Water Supply and Sanitation Low Income Communities (WSLIC-2) project in Indonesia. The project covered some 2500 villages and the study used a double difference design (baseline and post study in project and control villages) to measure the significance of change for selected conditions and practices in a representative sample of these villages



## SIJBESMA Christine

IRC International Water and Sanitation Centre

Session: A3C Assessing Hygiene Behaviour Change

### QUANTITATIVE MONITORING OF QUALITATIVE DATA: EMPOWERING COMMUNITIES AND INFORMING INSTITUTIONS

Much monitoring of progress on MDG 7 is quantitative. Actual use and hygiene are not measured. Also not included is how access, use and hygiene are achieved. Most such processes are qualitative: community participation, equity on gender and for the poor, governance. If results and processes are monitored it is through social surveys. However, such surveys do not inform and empower the actors on the ground: local government and community organizations which sustain the services and sanitation promotion and hygiene and the women, men and children who use and support the facilities and practice hygiene. The QIS (quantification of qualitative information systems) methodology combines the use of PRA tools with scales to measure qualitative performance together with community stakeholders. Through visualised scores, they get a direct overview of their performance. The facilitators then help them to discuss action to climb the ladder. Thus monitoring becomes a mechanism for empowerment and management of change. With all scores in simple spread sheets staff can compare progress across communities, indicators and time and manage progress. QIS scales are programme-specific and developed as part of training, so the Sustained Sanitation and Hygiene for All (SSH4A) project in five Asian countries is used as example

## SUTHARSAN, S.C. 'Clarence'

World Vision Lanka

Session: Poster

### BUILDING AND STRENGTHENING WASH SERVICES IN A POST CONFLICT CONTEXT

In Sri Lanka's Eastern Province after 2 decades of conflict and the 2004 Tsunami, 70% of people continue to get their drinking water from unprotected open wells and health issues such as children's diarrhoea is rampant which serious effects on health and poverty.

While given the authority to provide WASH services, local governments faced three challenges:

- Lack of capacity to respond to WASH service demands
- Lack of a implementation model for national WASH policies
- Ongoing distrust by the community after the conflict

The Rural Integrated Water, Sanitation and Hygiene Project (RIWASH) focused on supporting authorities to implement the Government's own WASH policies and improve their capacity to facilitate, support and deliver sustainable, community based, responsive and transparent WASH services. The project resulted in the design of a sustainable institutional model, developed required capacities for effective WASH service delivery and "connected" antagonistic communities with Government services to jointing manage sustainable delivery of WASH services, reduce conflict and encourage peace building. The project evaluation noted RIWASH was an effective strengthening Governance model and 'best practice' for INGOs seeking to support Governmental policies in WASH as integrated a reduction of fragility in post-conflict settings.

## TANDUKAR Bimal<sup>1</sup>, DEUTSCH Robert<sup>2</sup>, PHAM QUANG Nam<sup>3</sup>, WANGI Kencho<sup>4</sup>, SUON Vanny<sup>5</sup>

SNV

Session: A3A Regional Institutions – Challenges of decentralisation for WASH service provision

### PRACTICAL ENTRY POINTS FOR IMPROVING GOVERNANCE FOR RURAL SANITATION AND HYGIENE OUTCOMES

Engagement of local authorities in rural sanitation is primarily focussed on the implementation of projects or signing off on projects. Despite ongoing decentralisation to local governments in many sectors, local planning and resource allocation rarely integrate sanitation and hygiene. Rural sanitation and hygiene programmes and projects, in turn, often run in relative isolation of local governance processes. In some countries, there are multiple WASH players working concurrently with different approaches in the same geographical area. Practical entry points for improving WASH governance are needed. SNV has been working on multi-stakeholder processes for improved local governance since the 1990s; facilitating joint reflection, local decision making and working together on incremental improvements. This experience is now being applied to WASH governance in 17 districts in Nepal, Bhutan, Laos, Vietnam and Cambodia. Within each countrys specific government context, we have seen how multi-stakeholder collaboration around practical sanitation and hygiene goals can create a movement for change. Reflecting upon these different cases, we want to share why and how we believe that WASH governance is essential for sustainable sanitation and hygiene at scale. Key processes are District Sanitation Plans, Local ODF campaigns and dialogue for sanitation around sanitation business development and pro-poor support mechanisms.

## TRAN, Thi Kieu Hanh

ChildFund in Vietnam

Session: Poster

### COMMUNITY HEALTHY ENVIRONMENT IN ETHNIC MINORITY COMMUNITY IN NAM PHONG COMMUNE VIETNAM

The Community Healthy Environment initiative was developed in 2008 by ChildFund to improve hygiene and sanitation practices in the community. ChildFund used a specialised participatory approach, designed to work with the ethnic minority group in a culturally sensitive manner and enabling the community to set up the criteria for the model. Each village also selected a monitoring team to promote the hygiene practice in the community. Awareness raising activities included events such as



competitions and hand washing training for school children. In addition to the increased awareness and understanding of a range of hygiene and sanitation issues the commune has been supported to construct a water supply system, latrines, bathrooms and rubbish bins to apply their new behaviours. It's unhygienic and time-consuming to go into the hill for discharging. Children now are getting used to living in better conditions therefore they are afraid of living in dirty environment one village elder said. The initiative has contributed to positive change in the community – health officials have noted a significant decrease in the cases of diarrhoea and skin infections since the project was implemented. The success of the initiative has meant that Community Healthy Environment has been expanded to nine more communes.

## TRAN, Thi Kieu Hanh

ChildFund in Vietnam

Session: Poster

### PHU CHAU VILLAGES ACCESS TO IMPROVED WATER

The water system helped us free from worrying about health problems related to water as it has been improved. The Phu Chau gravity water system was built in 2008 and supplies water to 46 households. It has resulted in a decrease in health problems and contributed to positive changes to household productivity. Phu Chau community members were involved in the entire project, beginning with the needs assessment, water supply model selection, construction and monitoring of the process. The community members also contributed labour during the construction period and are now responsible for the operation of the system. ChildFund facilitated a budget planning process where a fee schedule and regulations were developed for the management and use of the system. To ensure sustainability the water usage fee has been regulated and is collected by the community. 70% of the fees are used to pay for the regular maintenance of the system and 30% is saved for any bigger repairs. Since the establishment of the system there have been no problems with non-payment of fees. In 2010 there was a small broken pipe and it was repaired using the funds budgeted for maintenance and repair.

## TWESIGYE R Peter

National Water and Sewerage Corporation

Session: B3D Moving to Financially Sound Utility and Local Government Financing

### FINANCING MECHANISMS TO MITIGATE WATER, SANITATION AND HYGIENE CHALLENGES: THE CASE OF NWSC UGANDA

The financing gap has been noted world wide as one of the major bottlenecks to sustainability in ensuring adequate water, sanitation and hygiene services. The African Development Bank (AFDB) estimates a financing gap of some US\$45 - 60 billion annually to meet Africa's water infrastructure requirements, of which drinking water supply and sanitation represents some US\$4-6 billion per annum. This challenge is further complicated by the nature of institutional mechanisms through which adequate finances can be sought to bridge this gap. Traditional sources of finance are waning due to the fact that Governments are increasingly faced with competing needs for the scarce tax resources, and direct transfers from donors is dwindling. It is therefore imperative that since the benefits of the provision of water and sanitation services are unquestionable, service providers have no choice but to be pragmatic and harness available resources internally and externally so as to maximize outputs. This presentation/ paper therefore, gives an experience of NWSC in tackling the financing gap while outlining the various options undertaken and the results of each.

## WANDERA Jackson

SNV

Session: A2B What is the problem?

### A PERSISTENT CHALLENGE: FUNCTIONAL RURAL WATER SUPPLY SERVICES

The premature failure of improved water supply schemes in rural Asia and Africa hinders access for large parts of the rural population to safe and reliable water supply. It also dramatically reduces returns on investment and obscures actual progress towards MDG targets. The challenge of delivering functional water supply services goes far beyond achieving coverage at a given point in time. It is about maintaining service levels, adequate asset management and professionalisation of rural water supply. For decades, community management has been the dominant model. However, achieving functionality is less about introducing a new service model and more about strengthening capacity at all levels and bringing about gradual, incremental improvements. SNV advisors have brought together experiences of capacity development from different countries to show entry points for change. These experiences include the set up of post-construction support mechanisms in Nepal and Uganda, the development of innovative management models and strengthening the capacity of operators in Vietnam, improving information and accountability through water point mapping in Tanzania and Ethiopia, and benchmarking performance of implementers in Laos. The example from Nepal also shows how constructing a national agenda around functionality helps to provide space for change.



## WEITZ Almud

WSP

*Session: A2D Big Picture: What will it take to achieve Sustainable Financing?*

### **ECONOMICS OF SANITATION INITIATIVE (ESI) FOR INFORMED SANITATION DECISION MAKING**

More funds and better selected and managed programs are needed to meet the sanitation MDG target, whose achievement brings a range of health, environmental, economic and social benefits. Economic evidence plays a key role in advocating for sanitation investments and enabling decision makers to make informed choices on sanitation options and approaches. The Economics of Sanitation Initiative (ESI), led by the Water and Sanitation Program (WSP) provides socio-economic evidence to inform decisions on the costs of not investing in sanitation (Phase 1), and the costs and benefits of a range of sanitation improvement options (Phase 2). Originating in the East Asia and Pacific region, ESI is not been applied in the South Asia and Africa regions. Findings of the Phase 1 study showed that inadequate sanitation has a major toll on developing economies (from 1% to 7% equivalent of GDP). This session will summarize the findings of Phase 1 and present preliminary results from Phase 2 from five countries of the South East Asian where 20 rural and 18 urban field sites were evaluated for cost-benefit and health impact cost-effectiveness. The results show that all sanitation options delivered in both rural and urban environments have favourable economic returns, when compared with open defecation. A gap has been identified between ideal and actual programme performance, indicating that the delivery approach is crucial in achieving actual value-for-money. Interpretations of the findings are presented, drawing on the methodological issues raised in conducting economic assessments of sanitation and also referring to the contexts in which sanitation decisions are made.

## WHITE, Stuart

Institute for Sustainable Futures, University of Technology, Sydney

*Session: A4B Climate Change, Water Resources and Eco-Sanitation*

### **DEVELOPMENT AND URBAN INFRASTRUCTURE: A SUSTAINABILITY PERSPECTIVE**

The path followed in the developed world for urban infrastructure development, including not only water and sanitation but also energy, materials handling and transport, has provided massive gains in health and welfare for urban dwellers. At the same time, it has come at a cost, including an economic, environmental and social cost, and in some cases a deterioration of urban amenity. It has also contributed to global issues such as greenhouse gas emissions and depletion of non-renewable resources. Many developing country cities and towns are following, or are poised to follow a similar development path for infrastructure, and indeed some of the millennium development goals and financing arrangements encourage this path. This presentation will question whether different development paths are possible, employing options that reduce costs at the same time as improving resource efficiency, and which use a different approach including: a systems perspective; appropriate determination of the costs and benefits; and distributed infrastructure services. Appropriate governance, pricing and resourcing arrangements are also crucial to the goal of more sustainable pathways for urban infrastructure.

## WILLETTS Juliet<sup>1</sup>, CARRARD Naomi<sup>1</sup>, HALCROW Gabrielle<sup>2</sup>, ROWLAND Claire<sup>2</sup>, CRAWFORD Jo<sup>2</sup>

Institute for Sustainable Futures<sup>1</sup>, UTS<sup>2</sup>

*Session: B2C Gender and social inclusion – supports to sustainability in WASH*

### **WORKING EFFECTIVELY WITH WOMEN AND MEN TO IMPROVE THE SUSTAINABILITY OF WATER, SANITATION AND HYGIENE PROGRAMS**

Women and their roles lie at the centre of issues of water use, sanitation, and hygiene (WASH) and thus the effectiveness and sustainability of WASH programs are inextricably linked to gender dynamics and how women and men participate in these programs. Despite this, WASH projects and programs are known to give variable attention to gender concerns. Recent research conducted through a partnership between Institute for Sustainable Futures, UTS, International Women's Development Agency (IWDA), Live and Learn Environmental and World Vision Vanuatu, investigated and articulated the gender outcomes achieved by two WASH approaches undertaken by the latter two NGOs in Fiji and Vanuatu respectively. This research subsequently led to the development of guidance materials that lay out guiding principles and practical approaches to work more effectively with both women and men within WASH programs. This presentation will provide insight into tools that can support the incorporation of gender concerns into WASH programs, and explain the links between advancing gender equality in recipient communities and achieving sustainable WASH outcomes.

