

# Inputs of Guy Hutton to MUS experts meeting

**Draft of 1 February, 2010**

## **1. Conceptualization of Multiple-Use water Services (MUS) from the (health) economic perspective**

As a relative outsider, the arguments on the advantages of MUS are attractive and some of these – probably – easily provable too.

The economics of the intervention need to be proven in field settings (see the ‘devils advocate’ comment below). Interesting economic questions to answer include:

- What are the real cost savings and efficiency gains of MUS compared with delivering domestic and irrigation services separately? (i.e. do economies of ‘scope’ exist?)
  - When existing domestic systems do not provide enough water (e.g. shallow well, rainwater harvesting), then in domestic+ is there a need to completely replace the existing source? (hence adding to cost)
- What are the health savings – and the economic value of those savings – due to MUS services? Is there a direct health effect of domestic+ (i.e. fecal-oral disease)? What evidence exists for the impact on nutritional outcomes of domestic+?
- For irrigation+ how does the cost of point-of-use treatment (for drinking water purposes) compare with the cost savings of not having to treat the entire domestic supply (as is the case with single use water supply systems)?
  - How well are POU treatment and water storage practiced and is there any ensuing health risk?
- What is the value of time savings from less collection time from distant water sources? To what extent is this time used in (new or former) productive activities? What is the value of gained non-productive time (e.g. leisure)?
- How affordable is the initial investment in MUS compared with single use, under different proportions of cost recovery from communities?
- When the water delivery system exists and there is also water scarcity (seasonally or all-year), what are appropriate rationing mechanisms?
  - How does charging, metering and collection work for MUS in (isolated) rural communities?

The ‘demand-led’ concept raises the question of “how diverse are household needs?” and hence the scope of needs that must be addressed. Is there usually agreement within a single community on the type and level of service required?

- Where needs vary, what conditions exist for the successful cross-subsidization of services so that everyone can benefit from a higher level of service?

Without wishing to overload MUS, could we think of MUS plus? In other words, piggy-backing other related interventions onto MUS to enhance their impact:

- Sanitation services – a private latrine, and even biogas for households planning to invest in more livestock.
- Hygiene education
- Nutrition education
- Agricultural outreach

The risk of MUS+ is that the project management is overstretched, as well as the willingness of households and communities to participate, not to mention the additional funds it would require. Possibly some of these should be reserved for a phase 2.

## **2. Operationalization or specification of that conceptualization in terms of Cost-Benefit Analysis and performance, and related scientific methodologies**

Study design:

- For health impact assessment, randomized controlled studies are unlikely to make sense in the context of MUS research. However, if health effects are a potential argument of MUS then some proof is needed that MUS does not harm health, or that it improves health.
- Important to clearly define all variables for the CBA calculations before design of data collection tools. Algorithms developed under ideal data availability assumptions may need to be adapted depending on what primary and secondary evidence can be collected.

Referring to the document of Winrock International, is there scope for assessing other benefits?

- Intangibles – preferences that are hard to quantify, but often important.
- Water quality issues – when water is available at the homestead for livestock consumption, animals are not taken to water holes and thus there is less pollution

of open water source. This is most relevant when populations still rely on surface and unprotected water sources.

- Under irrigation+ there may be more pre-treatment of water sources, which may have benefits for users.

### **3. Evidence and/or hypotheses of the superior performance of MUS compared to single-use approaches with related performance indicators (or be the devil's advocate on any lack of proof and hypothesized disadvantages)**

I have not reviewed evidence on MUS outside the studies provided, so instead I will play Devil's advocate:

- The Winrock International modeling exercise is interesting, and as the authors recognize, it is a model with data inputs from a variety of sources, with several assumptions. The analysis may be optimistic in the sense that it does not take into account program inefficiencies and lower-than-expected impacts.
- The field level CBA case studies that are conducted following this current MUS workshop may also deliver overly optimistic results:
  - Case studies are likely to be held in locations and communities where there is a high capacity to benefit as well as willingness to participate.
  - A pilot study would no doubt deliver positive results, due to the amount of resources that go into such studies. By the time governments are implementing MUS through their programmes and with less resources, and in more average locations, the real return may be somewhat different.
- For MUS, what are the cost implications when homesteads and productive activities (e.g. agricultural land) are not physically proximate? What is the cost of additional infrastructure (e.g. piping) to provide water for both uses?
- When MUS is successful, does the need for *more* household labour in productive activities reverse other areas of social progress (e.g. school enrolment and completion)?
- Increased water consumption and ensuing water scarcity may lead to community conflict. MUS appears to give equal importance to domestic and agricultural uses, and overuse of scarce water supplies for irrigation threatens domestic uses (safe drinking water). In the first instance, sustainability analyses such as the watershed development method are necessary (taking into account variability and the future effects of climate change). Also, resolution mechanisms are needed.
- Which is the most potential for MUS: is it irrigation+, domestic+ or full MUS? The problem of international agencies working in water supply is that they are different camps operating in silos – the drinking water camp and the agricultural

camp – each with their own targets. It could benefit them both to work together, but it might also take a lot more evidence, advocacy efforts and time before you get their buy-in for a combined approach.

**4. Three most promising next steps to tap the untapped opportunities of MUS for practical change in design and implementation**

- Further develop and refine the (economic) arguments for MUS, with supporting evidence, and approach influential players to incorporate MUS into programme design. While academic papers are useful and necessary in this process, other forms of dissemination and dialogue are more influential in getting buy-in. Perhaps initiate a link between donors supporting both drinking water and agricultural projects to get a common (joint) programme which tests MUS at scale.
- Specifically, apply economic methods that are broad in scope (account for multiple and long-term impacts), applicable in different settings and acceptable to policy makers.
- Additionally, refer to page 1 which poses relevant economic questions for MUS.

**5. Related to d, priority research topics and methodologies that corroborate advocacy to promote MUS (or challenge the expected superiority of MUS).**

CBA and its alternative methodologies will be discussed at the workshop.