



Eastern DRC. Photo: Eleanor Farmer

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## Introducing the SWIFT tool for environmental assessment and risk screening for rural water supply

**Achieving long-term increases in rural water-supply coverage depends on many factors. A new tool developed for the SWIFT Consortium supports environmental assessment and risk screening activities for rural water supplies in low-income contexts. When conducting a detailed hydrogeological survey is not an option, the SWIFT tool provides simple guidance to help identify and mitigate environmental risks to long-term water availability and quality.**

The SWIFT Consortium aims to deliver sustainable access to safe water and sanitation and encourage the adoption of basic hygiene practices in the Democratic Republic of Congo and Kenya. Led by Oxfam, the consortium includes Tearfund and ODI as Global Members, and Water and Sanitation for the Urban Poor (WSUP) as Global Associate, along with many implementing partners in the two focus countries. The SWIFT programme is carried out in collaboration with the governments of DRC and Kenya, and with a number of water service providers.

The SWIFT programme's objective is to provide Water, Sanitation and Hygiene (WASH) services (at least two of the three) to nearly 850,000 people by December 2015, and build capacity until March 2018 to ensure interventions are sustainable, helping to bridge the gap between humanitarian and development programmes.

The SWIFT Consortium is funded with UK aid from the British people under a 'Payment by Results' contract. Instead of a grant, payment is tied to outputs and outcomes: non-delivery will result in non-payment, and non-sustainability will result in reduced payment.

## Promoting rural water supply in terms of water resource availability

Achieving long-term increases in rural water supply coverage depends on many factors, including sound financing; community engagement in the design and implementation of schemes; and the training of village mechanics, local government and entrepreneurs in system upkeep and repair. For a scheme to be sustainable, planning also needs to consider the water resources that are available – whether there is enough water, of suitable quality, to meet demand across seasons and between good and bad years. Water supplies that depend on shallow groundwater are generally more vulnerable to changes in rainfall (and therefore groundwater recharge) and demand than those exploiting deeper and/or bigger groundwater storage. These can include hand-dug wells, shallow boreholes, and protected springs. Risks to water systems posed by flooding, land degradation and other environmental hazards also need to be considered and mitigated where possible, especially as climate change accelerates. For existing schemes, understanding patterns of seasonal recharge and demand, as well as the likely impact of environmental hazards, can help implementers develop more sustainable management approaches.

### Why develop a tool?

In Sub-Saharan Africa and elsewhere, funds and expertise are not always available to conduct detailed hydrogeological surveys for new systems that are dependent on shallow groundwater. In their absence, simple guidance is needed to help identify and mitigate environmental risks to long-term water availability and quality.

### Who is the tool for?

We originally developed many of the approaches included in the tool to support local government staff implementing water projects in rural Ethiopia,<sup>1</sup> and adapted and extended the tool for SWIFT field teams in DRC and Kenya. The tool is designed to be used by teams with engineering expertise and experience of working with community-based water supply, primarily in countries in Sub-Saharan Africa. We stress that a tool of this kind will be much less reliable than an assessment by a professional hydrogeologist, so it should only be used when that is not an option.

<sup>1</sup> The tool draws heavily on work carried out by Roger Calow, Eva Ludi, Seifu Kebede and Andrew McKenzie on similar issues in Ethiopia commissioned by DFID-Ethiopia and supported by the Government of Finland

## What does the tool involve?

The tool helps answer three key questions for new and existing shallow groundwater sources:

- **Is there enough water of suitable quality to meet demand across seasons for the long term?**
- **What are the main environmental risks to ensuring a sustainable supply of safe water?**
- **How can these risks be mitigated?**

The tool sets out four steps to do this:

- 1. Understand how much water is available by tapping local knowledge.**
- 2. Determine how much groundwater is needed to meet demand, and how big the catchment (recharge) area of a well will need to be to provide this water.**
- 3. Protect the sites and sources by identifying environmental hazards that could result in site degradation and water supply contamination.**
- 4. Maintain records of the assessment, design and implementation of groundwater projects, so as to inform similar, future projects.**

## How should the tool be used?

We recommend that field teams work through the four steps in detail, as set out in the full version of the tool, which is available at <http://oxf.am/ZPgD>.

The flow chart we include below summarises the main steps and the inputs (data) needed. We recognise that to run the tool in full can be time and resource-intensive. Field teams may therefore need to select certain inputs/outputs from the tool – as has been done by SWIFT staff in Kenya and DRC. We would welcome feedback on which elements of the tool are most useful. The guidance can also be viewed as a contribution to work promoted by Oxfam and others around community-oriented monitoring and management of water resources.<sup>2</sup>

The activities proposed in this tool are most useful where water points are developed that access shallow groundwater, such as hand-dug wells, shallow boreholes equipped with hand pumps and springs. The tool does **not** cover all aspects of providing community WASH services and should therefore be used alongside existing guidance and tools, such as water safety plans, and more formal environmental impact assessments where they are mandated by national regulations, or where resources are available.

<sup>2</sup> See: <http://policy-practice.oxfam.org.uk/publications/managing-water-locally-an-essential-dimension-of-community-water-development-165794>

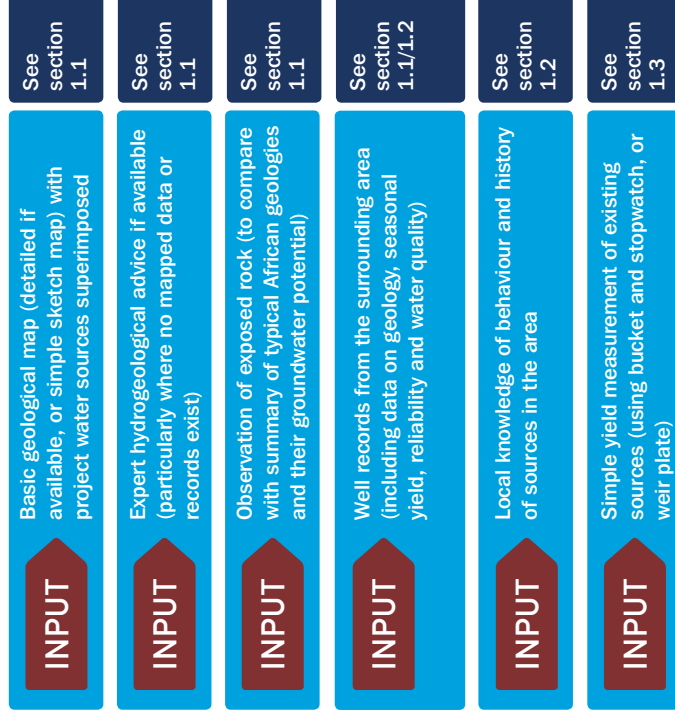
## Flow diagram of key inputs and expected outputs of the SWIFT/ODI/Tearfund tool on environmental assessment and risk screening for rural water supplies

This tool is meant to address the following questions regarding shallow groundwater sources (i.e. protected springs, hand-dug wells and shallow boreholes):

1. Is there enough water of suitable quality to meet demand across seasons for the long term?
2. What are the main environmental risks to ensuring a sustainable supply of safe water?
3. How can these risks be mitigated?

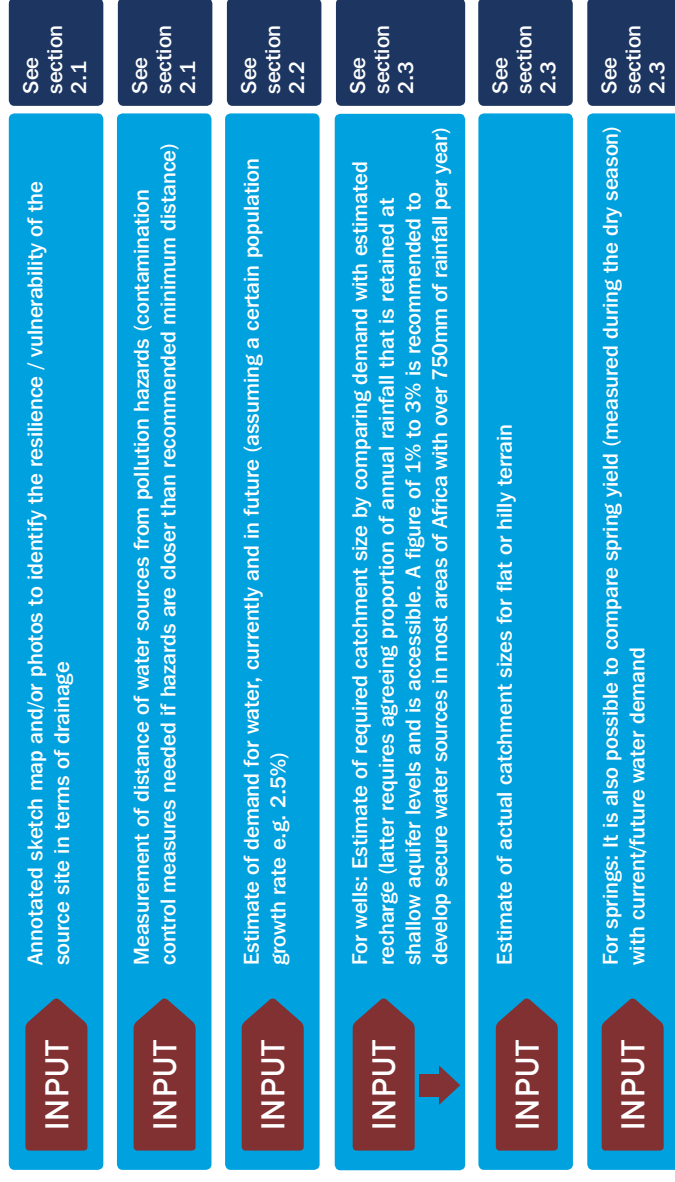
You can use this tool by itself or use components of other tools already familiar to you to obtain similar outputs

### STEP 1: Understand how much water is available by tapping local knowledge



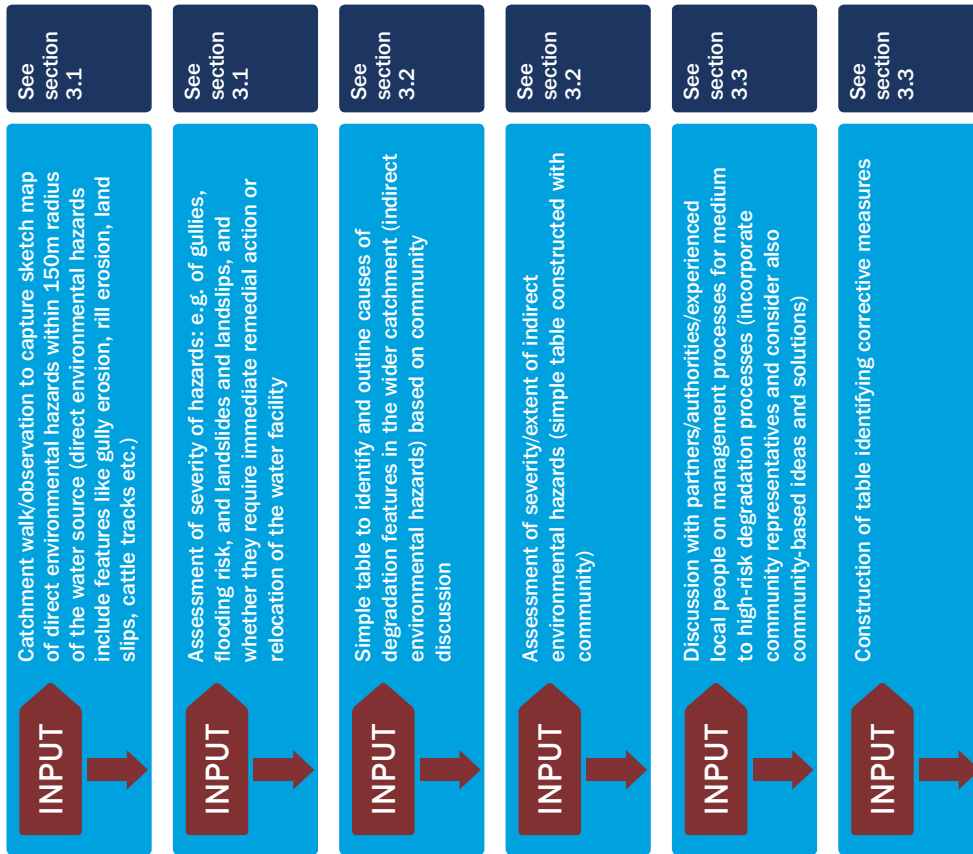
- a) Groundwater potential and average yield estimates based on geology (See Annex, Table A1)
- b) Actual yield measurements of sources in the area
- c) Short narrative/tabular information on seasonal and long-term reliability of the source, including water quality

### STEP 2: Determine how much groundwater is needed to meet demand, and how big the catchment (recharge) area of a well will need to be to provide this water



- d) Traffic-light assessment of adequacy of catchment size for rainfall and water-demand scenario

**STEP 3 Protect the sites and sources by identifying environmental hazards of, and mitigating measures for, site degradation and water supply contamination**



**OUTPUT**

e) Remedial measures for direct hazards e.g. to protect against flooding  
 f) Catchment and water-point protection plan with corrective measures and assigned responsibilities, drawn up/agreed with community

**STEP 4 Maintain records of the assessment, design and implementation of groundwater projects, so as to inform similar, future projects**



**OUTPUT**

g) Data records, to be kept at local level and made available to local government WASH/hydrology department, members of national WASH cluster, and key networks that seek to build national databases