

Small modifications made, regarding water sampling, since v. 2.0, shown by green shading.

The purpose of this survey is to provide additional hydrogeological data points (springs, karezes, dug wells, tube wells) in areas where the existing DACAAR database has little information. **Particular attention should be paid to recording natural springs and karezes, as these are especially informative as regards overall hydrogeology.**

The survey should thus aim to find springs and karezes and wells that DACAAR has no records of. The purpose should *not* be to revisit wells that DACAAR has existing knowledge of. Possible prioritised areas:

- The four northern districts around Andkhoi plus northern Dowlatabad
- Kohistan (especially karstic springs)
- Bilchiragh (especially springs)
- Qaysar (especially springs)
- Almar

We should aim to use two teams to add 200 additional features to the database (i.e. 100 features per team), paying particular attention to large natural springs. The team should visit the District Governor and/or the representative of PRRD, at the start of the survey to ask permission to commence survey and to gather local knowledge about the existence of wells, springs and karezes.

At each site, record:

- GPS location (digital latitude and longitude), and mark manually on map
- Well or spring name, if any
- Village and district name
- Use of water feature (private supply, not used, public supply, institutional supply, irrigation etc.)
- If karez or spring, estimate flow rate
- Type of pump
- Diameter of well/borehole and casing material.
- Height of well top (flange) above ground level
- Date of construction
- Who was responsible for construction (driller, implementing partner, donor), if known
- Functionality (any problems?)
- Is there a functioning user association?
- Note appearance, taste or smell of water
- In the case of wells and boreholes, pump well for minimum 5 minutes (or empty using bucket), *to ensure that “fresh” groundwater is being sampled.*
- Then record: temperature, pH, EC, (oxygen or Eh).
- After pumping for 5 minutes: take water sample at one-third of features (see below).
- If feasible: remove hand pump rods and valve assembly:

- (i) Dip static water level below well top (flange) – (make sure water level has “recovered” from pumping / pump removal)
- (ii) Plumb total depth of well (if possible)

Water sampling

At one feature in every three (i.e. c. 67 localities)

- take a 500 mL (unfiltered) water sample for analysis at DACAAR (67 samples) . Mark this sample with the suffix “U”.
- 1 x 60 mL plastic flask of filtered water for chemical analysis at BGS England (using syringe and disposable filter capsule, according to protocol ***Water samples for chemical analysis at BGS (England)*** in the document *Water sampling methodologies.doc*). Mark this sample with the suffix “F”.

At six of these 67 localities, a duplicate 60 mL filtered sample should be taken for “blind” duplicate analysis at BGS

Of these 67 sampled localities, at one in every three (around 22 localities), additional samples will be collected for isotope analysis at BGS (England):

- 1 x 15 mL plastic flask of filtered water for isotopic analysis at BGS England (according to protocol ***Water samples for isotopic analysis at BGS (England)*** in the document *Water sampling methodologies.doc*). Mark this sample with the suffix “FIs”.

Labelling

Note: all water samples should have a unique number, which should be recorded in waterproof pen on the bottle and recorded on the field sheet. For example:

NOR-GW-01 F

(NOR = NORPLAN, GW = Gurziwan district, 01 = sequential number)

This should be followed by one of the following suffixes


U = unfiltered

F = filtered

UIs = unfiltered, for isotope analysis

FIs = filtered, for isotope analysis

LOCATION RECORDING SHEET

NORPLAN 		RAPID FIELD ASSESSMENT 2013	
		FARYAB PROVINCE	
Type of feature: Spring <input type="checkbox"/> Dug well <input type="checkbox"/> Drilled well <input type="checkbox"/> Karez <input type="checkbox"/>			
District:		Village:	Well or spring name:
Latitude/longitude (decimal):			
Approx. Elevation (m asl)		m above sea level (from GPS)	
<i>(If karez, give reference of karez mouth and mark course of karez on sketch map)</i>			
Use:		Public supply <input type="checkbox"/> Private supply <input type="checkbox"/> Institution (e.g. school or clinic) <input type="checkbox"/> Irrigation <input type="checkbox"/> Other: <input type="checkbox"/>	
Type of pump:		Hand pump <input type="checkbox"/> Electric submersible <input type="checkbox"/> Bucket <input type="checkbox"/> Other: <input type="checkbox"/>	
If karez or spring, estimated flow rate			L/s
Diameter of well:			mm
Height of well top (flange) above ground level			cm above / below ground level
Casing material:			
Date of construction:			
Driller:			
NGO / implementing partner:			
Donor:			
Water appearance of water			
Visual:		Taste:	Odour
Field analysis (after 5 minutes pumping)			
pH	EC	Temperature	DO or Eh
	µS/cm	°C	mg/L or mV
Water sample no.			
500 mL unfiltered for analysis at DACAAR <input type="checkbox"/>		60 ml filtered sample for chemical analysis in England <input type="checkbox"/>	15 ml filtered for isotope analysis in England <input type="checkbox"/>
Static water level		m below well top	
Total depth		m below well top	
Is the well working as intended? Yes <input type="checkbox"/> No <input type="checkbox"/>			
If No, describe problem			
Is there a community association managing the well: Yes <input type="checkbox"/> No <input type="checkbox"/>			
If Yes, provide details			
Recorded by:		Date:	Time:
Name:			