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**Water, Sanitation and Hygiene (WASH)  
Vulnerability in Afghanistan**

12 December 2012

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# ABBREVIATIONS

CDC	Community Development Council
CSO	Central Statistical Office
EU	European Union
FGD	Focus Group Discussion
GOIRA	Government of the Islamic Republic of Afghanistan
GOIRA	Government of the Islamic Republic of Afghanistan
IDPs	Internally displaced persons
JMP	Joint Monitoring Programme
KPI	Key person interviews
MPA	Methodology for Participatory Assessments
MRRD	Ministry of Reconstruction and Rural Development
NGO	Non-Governmental Organization
NRVA	National Risk and Vulnerability Assessment
O&M	Operation and Maintenance
PRA	Participatory Rural Appraisal
QPA	Quantified Participatory Assessment
SSDA	Society for Sustainable Development of Afghanistan
WASH	Water, sanitation and hygiene
WB	World Bank
WHO	World Health Organization
WSP	Water and Sanitation Program

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We enjoyed the intellectual challenge of doing this study, in the face of many methodological and practical difficulties and feel confident that UNICEF and the Government of Afghanistan will find this report useful in all its future work to reduce the WASH-related vulnerabilities of rural Afghanistan.

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# SUMMARY

## CONTEXT

The existing national-level analysis of WASH issues in Afghanistan, including the National Risk and Vulnerability Assessment (NRVA) surveys, share five features: (1) they are based on unreliable and incomparable official government databases; (2) they produced national-level aggregates based on these data without province-level details; (3) they used the definition of water supply and sanitation coverage in the Joint Monitoring Programme (JMP) of Unicef and WHO, which are based on ‘access to infrastructure’ without looking at the nature of services actually delivered by this infrastructure; (4) they did not examine the concept of WASH vulnerability in detail and neither did they measure this and (5) they did not look at factors that might compound WASH risks and vulnerability.

## ANALYTICAL FRAMEWORK

**Participatory assessment using service delivery:** This Unicef supported assessment uses a participatory approach based on local perceptions to assess WASH vulnerability status at district- and settlement-levels, based on the idea of service delivery (instead of access to infrastructure).

**Vulnerability:** It also distinguishes between two separate but critical aspects of WASH risk and vulnerability: (1) populations at risk from WASH related morbidity and mortality and (2) WASH infrastructure at risk from climate-related and other natural factors.

**WASH-related and compounding vulnerability factors:** Using the concept of service delivery ladders, it sought to address both aspects by defining a set of indicators to assess *WASH-related factors* (including water resources, infrastructure, awareness and entitlement, sanitation awareness, infrastructure and use, and hygiene awareness and practice) and *compounding factors*, i.e., factors that compound WASH risk and vulnerability, (including whether the settlement is disaster-prone and the nature of government response to restore water supply and sanitation services after a disaster; its accessibility – in terms of roads, weather, landmines and security situation; the health facilities available – hospitals and health centres and the mortality and morbidity reported; and, governance).

## APPROACH AND METHODOLOGY

**Quantified Participatory Assessment:** Although WASH Vulnerability can be assessed in many ways, including a national household census, a national household sample survey and a participatory survey of a sample of communities, the assessment preferred to do a district and settlement-level participatory assessment using a methodology called the Quantified Participatory Assessment (QPA). Developed from the Methodology for Participatory Assessment (MPA), the QPA uses participatory

methods to elicit community responses to a particular question and then to convert these responses into numbers using an ordinal scale. More importantly, however, the QPA is a flexible methodology that allows investigators to design their own questions and hence QPA questions were devised to measure the 20 indicators of WASH vulnerability defined for this assessment. The QPA-based participatory WASH vulnerability analysis was carried out at two levels: (1) *District-level* for all settlements in one district in each of the 33 provinces (excluding Kabul); and (2) *Settlement-level*, for two settlements in each district. The

**Sample:** total sample for the district-level assessment was thus 2771 settlements, which were 100% of settlements in 1 district in each of 33 provinces, covered by Key Person Interviews of persons at district-level familiar with those settlements; while 66 settlements were visited by the team and covered in-depth. In addition, FGDs were held with key informants (government officials and field-level staff) at district-level.

**Limitations:** The main strength of the study is also its limitation, i.e., it is based on the subjective perceptions of key persons at district-level regarding a particular settlement within that district. The fact that most of these were male could lead to a perception bias regarding WASH and compounding factors in the settlement. However, this is presumed not to affect programming decisions since the study was basically to identify most vulnerable districts. Also, though all settlements are interpreted as being vulnerable to some degree on the various indicators, using only ‘Very High’ vulnerability scores helped ensure that only the most vulnerable settlements were identified.

## STUDY FINDINGS

### District-Level Findings

**QPA findings:** Although all settlements are vulnerable in one aspect or another, it is possible to classify them based on vulnerabilities due to poor WASH and due to compounding factors, which helps to prioritize programming. Based on the analysis described earlier, the WASH vulnerability of all settlements in one district of each of 33 provinces, was assessed and classified, and list of 7 most vulnerable districts was drawn up (see Table below):

**Table: Most vulnerable provinces based on poor WASH and Compounding Factors**

List of Most vulnerable provinces based on			
Poor WASH	Compounding factors	Common factors	
Badghis			
Baghlan	Baghlan	1	Baghlan
Balkh			
Faryab	Faryab	2	Faryab
Hilmand	Hilmand	3	Hilmand
Kandahar	Kandahar	4	Kandahar
	Khost		
Kunar	Kunar	5	Kunar
Laghman	Laghman	6	Laghman
Logar	Logar	7	Logar
Nimroz			
	Maidan Wardak		
	Panjsher		

Such an assessment can not only help to prioritize between WASH-related and compounding factors but also identify and prioritize settlements where specific components of WASH (water, sanitation or health) are a problem. Detailed findings for all settlements in the 33 districts are in Annexe 4.

**Perceptions of District-Officials:** Based on personal experience with local conditions, district officials discussed the following:

- Actions to promote WASH: While a few districts (e.g., in Badakhshan, Oruzgan, Paktika) reported good progress in addressing WASH issues, major problems were reported in others (e.g., in Paktia, Panjsher and Takhar), with security affecting WASH implementation in some (e.g., in Zabul, Khost, and Bamyan) and little WASH work being done due to the poor economic condition of the people in some districts (e.g., in Nimroz, Faryab and Baghlan).
- Challenges, risks and problems for WASH at district level: (1) Lack of infrastructure (e.g., piped schemes, dug wells or toilets, because of which people had to go far to collect water or were forced to defecate in the open); (2) lack of awareness about WASH among the public and a lack of capacity to spread this awareness – e.g., why it was important to drink clean water, why open defecation is a problem, and why they have to wash hands at critical times, (3) A lack of budgetary and other resources, to create infrastructure or improve awareness and capacity; (4) External factors such as droughts and floods, that exacerbated the WASH problems and (5) lack of access, especially to interior and distant villages because of poor roads or security considerations. A special issue was programmatic focus in the ‘centre’ of the district (or province) and poor coverage in peripheral regions.
- Suggestions for improved WASH in the district: Increased budgetary resources for WASH promotion, a priority for WASH in the next Annual Planning exercise by government, and making WASH a priority in planning by NGOs working in the district. A special suggestion was to make WASH awareness raising a joint exercise involving the local government (the *shura*), the religious leaders (*mullahs* and *imams*) and the media.

## Settlement-Level Findings

The analysis of information from the 66 settlements where detailed assessments were carried out show several interesting trends.

- **Seasonal variations in water supply:** Some users who had water during the 8 non-summer months no longer do so in the 4 summer months. What is perhaps unexpected here is the fact that there are nearly one-third of settlements that report at least adequate water for all regular users (total of all scores above 50 in the figure above: 14% + 2% + 11% + 5% = 32%). In the four dry months (April – July), the situation worsens with 38% of users having to go outside looking for water, compared to 32% during the eight non-summer months.
- **Water quality problems are perceived:** Even if water is available in taps or hand pumps, user perception (and not based on water tests) revealed problems: more than 50% of users complain of water quality problems.
- **Poor protection of water sources – due to lack of awareness:** Water sources are not protected, largely because users are unaware of the need to do so – or the consequences of lack of protection.



- **No social barriers to access:** There are, however, no social or other barriers to accessing water supply sources.
- **There are problems of service delivery from water points:** Users reported problems with both dug wells and hand pumps – but while the majority of users complained of over-crowding at dug wells, the major problem with hand pumps was that they ran dry.
- **Hand pumps are under repair most frequently in September:** And also in June.
- **Time taken to repair hand pumps:** While 26% said that it took 1 to 2 weeks to repair hand pumps, a significant proportion (23%) said that it took more than 4 weeks, although 14% said that it took less than 3 days to get them fixed.
- **Users organize repairs themselves:** In the case of major (and minor) repairs to dug wells, users said that they either organized the payment, labour & material themselves (most common) or the shura or mosque did (less common).

## STUDY OUTPUTS

**Database:** The main product of the study is a Microsoft EXCEL database, with information on WASH vulnerability for 2771 settlements. This not only contains scores on 20 sub-indicators, but also detailed reasons for these scores, that improve understanding of ground reality and assists in planning interventions better.

The database is replicable in the sense that repeating the assessment will provide another set of scores (and reasons for score) to see whether the situation has changed between one assessment and another. This could be particularly useful when assessing the impact of interventions that have been planned and carried out on the basis of a first assessment. Such an assessment could also be extended to other districts, either in an entire zone or in a larger sample of districts.

There is also detailed information on WASH service delivery within 66 settlements, including information on specific water points and public toilets (e.g., in schools and health centres).

**Maps:** A set of maps have been prepared to depict WASH vulnerability and its constituents.

- **District maps:** There are two sets of district-level maps. The first set is that of maps showing the Vulnerability status (i.e., Very High, High, Medium, Low and Very Low) for each settlement for WASH-related factors (water, sanitation, hygiene) and compounding factors (disasters, accessibility, health and governance). A second set of district-level maps shows the Vulnerability Status of each settlement due to (1) WASH-related factors, (2) compounding factors and (3) both WASH and compounding factors.
- **National maps:** These maps show the % of settlements (in each district) that are highly vulnerable (i.e., with Very High or High Vulnerability scores) due to the WASH-related and compounding factors. There are also maps showing the % of highly vulnerable settlements based on (1) WASH-related factors, (2) compounding factors and (3) both, WASH-related and compounding factors.

All maps can also be updated with fresh information, either when Vulnerability assessments are conducted for additional districts or when these assessments are repeated over time.

## RECOMMENDATIONS

Key recommendations from this study on WASH risk and vulnerability are the following:

- **Focus on service delivery rather than access to infrastructure:** Given that service delivery is a more important indicator than mere ‘access to infrastructure’, and also given that a service delivery framework is now available, service delivery should now become the basis for assessments and interventions in WASH.
- **Prioritizing is vital but sustainability is critical:** Move out of first priority areas for WASH interventions only after ensuring that the interventions in these settlements and districts are sustainable. Using a service delivery approach to check sustained services – and the factors underlying sustainability – would be thus a vital part of the intervention itself.
- **Provide localized hubs of trained personnel and spare parts for WASH infrastructure:** Create local ‘hubs’, above the CDCs and below districts, servicing all settlements within a given radius, with trained resource persons and spare parts, perhaps attached to health centres or family health workers’ office - given that sustaining water supply and sanitation services through public taps and public toilets in settlements, in schools and in health centres have local causes – and a lack of access to spare parts and repair services, either due to distance, poor roads, bad weather or landmines compounds normal maintenance problems.
- **Promote a coordinated and integrated approach:** Coordinate WASH interventions not only across relevant government departments and NGOs but also with local media and mullah imams (e.g., to provide hygiene messages) - since WASH issues are more than just providing infrastructure and also include vital ‘software’ tasks such as hygiene promotion and capacity building.
- **Some areas require priority attention based on their vulnerability:** Most vulnerable districts were in the provinces of Baghlan, Faryab, Hilmand, Kandahar, Kunar, Laghman and Logar. The nature of vulnerability in these districts varies, (as has been detailed in the assessment) and thus, within these districts, attention needs to be focused on different issues, ranging from the WASH issues of water, sanitation and hygiene to the compounding factors of disaster management, health facilities, accessibility and governance.

Finally, a database on WASH vulnerability, with supporting maps, is a useful and helpful tool in planning interventions, advocacy and policies, but it requires a dedicated set of users who not only know how it can be used, but can also oversee its future development and keep it updated to ensure its functionality.

# 1. INTRODUCTION

The National Risk and Vulnerability Assessment (NRVA) surveys in Afghanistan (CSO, 2007; EU 2009) are the most comprehensive analysis on poverty and vulnerability in the country, the latest survey of 2007-08 having collected data on a sample of 20,576 households in 2,572 communities from all 34 provinces of Afghanistan over a period of a year. These surveys showed widespread poverty, a high dependency ratio because of an exceptionally high proportion of children under 15 (nearly 50% of the overall population) and that around a third of the population is unable to meet their basic needs.

The surveys also showed that almost half the population uses an improved source of water supply, but that such access to improved water supply infrastructure varied from 58% in urban areas to 20% in rural areas and 16% for the nomadic *kuchi* population. An estimated 68% of the population in Afghanistan has no access to safe water and sanitation facilities, while access to water, sanitation and hygiene (WASH) is particularly critical for special groups such as women, children, internally displaced persons (IDPs), returnees and the *kuchis*. And the access is made considerably worse by the violent conflict, extreme weather, natural disasters like floods and droughts, as well as other hazards that are endemic to Afghanistan, such as epidemics and pandemics, avalanches, rockslides.

Given the conflict, the natural and socio-economic hazards, UNICEF in partnership with the Government of the Islamic Republic of Afghanistan (GOIRA), considers it particularly important that the needs of the most vulnerable people are met. UNICEF also considers it vital that policy, programming and advocacy to ensure that the needs of the most vulnerable are met, must be informed by an impartial, comprehensive and analytical process of understanding the WASH vulnerabilities that cross-sections of the Afghan populations face. The NRVAs provide a country-level perspective on the issue, but does not provide province or district-level information on populations at risk in general and those at risk from WASH related issues, in particular. Nor does this data provide a disaggregated look at water, sanitation and hygiene issues, and different aspects of these sub-sectors of the WASH sector, including water supply source and access, sanitation infrastructure and use and hygiene awareness and hand-washing practice.

UNICEF therefore commissioned a study to understand the extent to which different sections of rural Afghan society are at risk from specific WASH problems, and factors including geographic location and socio-economic status that compound such risk and make particular community groups more vulnerable to WASH problems. This paper presents the findings of a field survey carried out in 33 districts and 66 villages spread over 33 provinces.<sup>1</sup>

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<sup>1</sup> The survey was carried out by the Society for Sustainable Development of Afghanistan (SSDA) for UNICEF between October 2011 and June 2012.

## 2. ANALYTICAL FRAMEWORK

The literature survey showed that all the existing national-level analysis of WASH issues had five features in common: (1) they were based on unreliable and incomparable official government databases; (2) they produced national-level aggregates based on these data without province-level details; (3) they used the definition of water supply and sanitation coverage in the Joint Monitoring Programme (JMP) of Unicef and WHO, which are based on 'access to infrastructure' without looking at the nature of services actually delivered by this infrastructure; (4) they did not examine the concept of WASH vulnerability in detail and neither did they measure this and (5) they did not look at factors that might compound WASH risks and vulnerability.<sup>2</sup>

The task of carrying out a national-level assessment to identify and rank the most vulnerable districts based on WASH risks therefore required a different analytical framework. After a lot of discussion, it was decided to use a participatory approach to assess WASH Vulnerability status at district- and settlement-levels, based on the concept of WASH service delivery. The framework detailed in this section therefore covers three key issues: (1) types of WASH risks and vulnerabilities; (2) Service delivery and (3) WASH Vulnerability Status.

### 2.1 TYPES OF WASH RISK AND VULNERABILITY

Two separate but critical aspects of WASH risk and vulnerability are distinguished: (1) populations at risk from WASH related morbidity and mortality and (2) WASH infrastructure at risk from climate-related and other natural factors.

#### **Populations at risk from WASH-related morbidity and mortality**

This risk could be because of lack of access to adequate quantities of water for domestic uses, sanitation or hygiene, or because of lack of access to safe ('good quality') drinking water or because of poor hygiene, despite access to adequate good-quality water and safe sanitation facilities. All three factors can result in morbidity or even mortality. Each of these factors is, however, informed by other underlying reasons:

- a. Populations without access to adequate quantities of water for domestic uses (drinking, washing, cooking), sanitation (flushing toilets) and hygiene (hand washing) – who fall ill regularly (e.g., during monsoons or winter) as a result, or have chronic illnesses, or are weakened and become susceptible to other illnesses. This lack of access is generally due to three main reasons:
  - *Lack of improved water facilities:* Either the absence of or insufficient numbers of safe domestic water supply sources (e.g., community open wells, hand pumps or piped water supplies), forcing communities to use unsafe traditional (unimproved) sources of water (e.g., springs, ponds, streams), at

<sup>2</sup> See Annexure 2 for a list of documents consulted.

least to supplement the existing but inadequate safe sources. Not enough community wells, for instance, causing over-crowding at existing wells, imposing social costs also on the community (e.g., time lost in queuing, longer distances to walk to alternative sources), besides causing some households to use more convenient but unsafe (unimproved) water sources. This lack of adequate improved water facilities could be because of

- Difficulty in accessing the community: Geographic remoteness, or lack of access roads and transport to bring materials
  - Lack of trained manpower: to supervise digging the wells or installing hand pumps or piped water systems
  - Lack of budgets: to provide improved water supply to all villages in the province or district
- *Breakdown of supply existing improved water facilities:* Even if improved water facilities exist (e.g., hand pumps or piped water supplies) a breakdown would force communities to turn to traditional but unsafe (unimproved) sources of water. The breakdown in service could be due to a range of reasons, such as:
  - No water in the source: Unsustainable source – either because it was badly selected in the first place (i.e., inadequate yield) or because of competitive digging of new groundwater sources for irrigation
  - Infrastructure breakdown: Minor or major breakdowns – due to a lack of preventive maintenance or due to lack of money, tools, spare parts or trained manpower to carry out the repairs (even for government staff to respond to complaints)
- b. Populations without access to safe domestic water because of contamination (arsenic, fluoride, iron, etc.), either of the unimproved or improved source, which can again lead to either morbidity or mortality. There could be several aspects of this problem:
  - *Source contamination* – the source being contaminated from the start due to naturally-occurring chemicals such as fluoride or arsenic.
  - *Contamination due to over-withdrawal of groundwater* – the source being fine to start with, but getting more contaminated over time, as more water is withdrawn from it (and hence not enough water to dilute the existing contamination to less-than-dangerous levels.
  - *Continued exposure because of a lack of information about contamination* – Either the sources are not tested regularly, or if tested, the results are not shared widely and action is not taken to either treat the water to provide alternative sources or label the contaminated sources clearly (e.g., painting contaminated hand pumps with red or black paint).
  - *Contamination due to poor sanitation* – because of seepage from badly constructed septic tanks, from leach pits that are constructed too close to water sources, and due to open defecation or unsafe disposal of faeces from single vault latrines (used by 50% of the rural community in Afghanistan).

- c. Populations without safe hygiene practices – especially hand washing at critical times, food hygiene and water hygiene, all of which can result in acute or chronic WASH-related morbidity and even mortality (especially children under 5). The lack of hand washing practice at critical times (before eating, after defecation, before cooking and feeding babies) could be because of a number of reasons, including the following:
- *Lack of awareness*: About the link between hand-washing and falling ill. And this could be because of a lack of
    - A well-designed targeted hygiene awareness programme, for different members of each household (e.g., old men, old women, young men, young women, adolescent boys, adolescent girls, children), with appropriate messaging and on a campaign mode
    - A lack of budgets to implement such a targeted programme
    - A lack of trained and committed manpower to carry out this programme
  - *Resistance to change, despite awareness*: Refusal to change behaviour despite the targeted hygiene awareness programme, especially among older community members and males.

#### **WASH infrastructure at risk from climate-related and other factors**

The risk to WASH infrastructure from floods, earthquakes and other Acts of God is different from the risk of breakdowns from poor operation and maintenance (O&M) of existing (improved) water supply infrastructure. There are, however, certain similarities. Thus, for instance, preventive maintenance by trained community workers can reduce the risk of breakdowns from poor O&M, and a few precautions in construction (e.g., raising the platform of hand pumps and open dug wells and the floor of the pump house in piped water supply systems, so that they are accessible even during floods) may reduce the damage and keep the infrastructure functioning during floods. However, no real protection or prevention is possible if the intensity of the natural calamity (e.g., flood, earthquake, mudslide, or landslide) is high. In such instances, apart from the difficulty in finding some water to drink, there is the health risk of that water being unsafe and possibly contaminated (e.g., in floods, by sewage that seeps into wells).

In such situations, the extent of risk – or vulnerability - is actually the time taken to rush emergency water supplies to the affected communities or making sanitation facilities available to them and efforts made to educate the affected communities on hygiene. Thus, for instance, communities in areas where the government machinery will find it more difficult to provide potable drinking water within say 12 hours of the natural calamity may be said to be vulnerable – with the degree of vulnerability increasing as this response time increases (e.g., due to inaccessible terrain, non-availability of planes and helicopters to reach these emergency supplies to the affected communities, inadequate budget to pay for such emergency relief, lack of coordination between agencies responsible for distributing international and national aid that is made available, etc.).

This kind of vulnerability is best assessed in terms of analyzing government response systems during natural and other calamities – both on paper (in terms of plans, strategies



and manuals) but also on the ground (e.g., by checking district-level preparedness for providing WASH facilities within disaster management responses).

## 2.2 SERVICE DELIVERY

The Joint Monitoring Program (JMP) of the WHO/UNICEF defines access to water supply and sanitation services in terms of ‘ladders’ (Table 1). These ladders categorize users on the basis of their ‘access to infrastructure’ and do not specify the nature of the received service from the infrastructure. In the case of water, the JMP acknowledges that while the MDG is defined in terms of ‘sustainable access to safe water supply’, the current JMP approach only measures the proxy indicator ‘use of improved sources of drinking water’ – which does not provide information on ‘the quality of the water used, the reliability of water services, or whether people’s sustained access to them is hampered for economic, financial, social or environmental reasons’ (WHO/UNICEF, 2011, p. 57).

**Table 1: JMP definitions of access to water supply and sanitation**

Sanitation		Water Supply	
Unimproved	<b>Open defecation:</b> when human faeces are disposed of in fields, forests, bushes, open bodies of water or other open spaces or disposed of with solid waste	Unimproved	<b>Unimproved sources:</b> unprotected dug well; unprotected spring, cart with small tank/drum, surface water (river, dam, lake, pond, stream, canal, irrigation channels) and bottled water
	<b>Unimproved facilities:</b> do not ensure hygienic separation of human excreta from human contact; include pit latrines without a slab or platform, hanging latrines and bucket latrines	Improved	<b>Other improved sources:</b> Public taps or stand pipes, tube wells or bore holes, protected dug wells, protected springs or rainwater collection
	<b>Shared sanitation facilities:</b> Sanitation facilities of an otherwise acceptable type shared between two or more households. Only facilities that are not shared or are not public are considered improved		<b>Piped on premises:</b> Piped household water connection located inside the user’s dwelling, plot or yard
Improved	<b>Improved sanitation facilities:</b> These ensure hygienic separation of human excreta from human contact. Improved sanitation facilities are the following: (1) flush/pour flush to piped sewer system or septic tank or pit latrine; (2) ventilated improved pit latrine; (3) pit latrine with slab; and (4) composting toilet		

On the other hand, the basic idea behind ‘service delivery’ is that what matters most is the quality of service delivered by the infrastructure and not the infrastructure of provision itself. The term ‘service’ refers to ‘provision of a public benefit through a continuous and permanent flow of activities and resources; a concept applied in many other services, both in the developing and developed worlds, such as health, education, electricity, telephone and urban water supplies’ (Lockwood and Smits, 2011, pp. 18-19). A water supply service thus consists of ‘access to a flow of water with certain characteristics (such as quantity, quality and continuity)’ (*ibid*, p. 19).

‘Service levels’ describes and differentiates between different *qualities* of a service. In the case of water supply, common indicators against which the quality of water services can be distinguished include the quantity of water (measured as litres per capita per day), the quality of water (comprising both chemical and biological quality), distance to the water

source, the number of users using that source (e.g., a public stand post or hand pump) and even the reliability of the service (the proportion of time it works as designed) (Moriarty et al., 2011, p. 3). Service levels are of course not new and one of the early uses of service levels to measure access to water services used five levels: coverage, continuity, quantity, cost and quality (*ibid*). Service levels can also be specified with indicators that can be measured and arranged in the form of a 'service delivery ladder' (Table 2).

**Table 2: IRC Suggested service delivery ladder for water supply\***

Service level	Quantity	Quality	Accessibility	Reliability	Status (JMP)
	Litres/person/day	Qualitative	Minutes/person/day	Qualitative	
High	>=60	Good	<10	Very reliable	Improved
Intermediate	>40	Acceptable	<30	Reliable/secure	
Basic	>20	Acceptable	<30	Reliable/secure	
Sub-standard	>5	Problematic	<60	Problematic	Unimproved
No service	<5	Unacceptable	>60	Unreliable/insecure	

\* IRC International Water and Sanitation Centre, The Hague, Netherlands

Source: Moriarty et al., 2011, p. 12

Each service level in a service delivery ladder can also be described more fully (Table 3).

**Table 3: Descriptions of the IRC Service delivery ladder for water supply**

Service level	Description	Refers usually to
High	People access a minimum of 60 lpcd of high quality water on demand	A modern utility service involving taps in the homestead
Intermediate	People access a minimum of 40 lpcd of acceptable quality water from an improved source, spending no more than 30 minutes per day	A mix of basic and high levels of service, typically from small piped networks in small towns and peri-urban areas
Basic	People access a minimum of 20 lpcd of acceptable quality water from an improved source, spending no more than 30 minutes per day	Most rural water supply schemes, some informal schemes in peri-urban areas, and emergency situations – often provided by point sources such as bore holes, wells and springs
Sub-standard	People access a service that is an improvement on having no service at all, but that fails to meet the basic standard on one or more criteria	Services suffering endemic problems or context-specific issues, which makes it impossible to meet all service delivery parameters
No service	People access water from insecure or unimproved sources that are too distant, too time-consuming or are of poor quality	Less than 5 lpcd of water from an unimproved source, or water of unacceptable quality or where it takes more than 1 hour per day to collect

Source: Moriarty et al., 2011, p. 14.

A service ladder thus depicts 'incremental progression between service levels of different quality, starting at the bottom rung and climbing to the top' (Moriarty et al., 2011, p. 6). Similar service delivery ladders have also been described for sanitation, and the most recent is again from the WASH Cost Project (Table 4).

**Table 4: WASH Cost Sanitation Service Delivery Ladder**

Service level	Accessibility	Use	Reliability (O&M)	Environmental protection (pollution & density)
Improved	Each family dwelling has one or more toilets in the compound	Facilities used by all members of the household	Regular or routine O&M (inc. Pit emptying) requiring minimal user effort	Non problematic environmental impact disposal and re-use of safe by-products
Basic	Latrine with impermeable slab (individual household or shared) at national	Facilities used by some members of the household	Unreliable O&M (including pit emptying) and requiring high user	Non problematic environmental impact and safe disposal



Service level	Accessibility	Use	Reliability (O&M)	Environmental protection (pollution & density)
	norm distance from household		effort	
<b>Limited service</b>	Platform without (impermeable) slab separated faeces from Users	No use/Insufficient use	No O&M (pit emptying) taking place and the presence of extremely dirty toilets	Significant environmental pollution, heightening with increased population density
<b>No service</b>	No separation between user and faeces, e.g. open defecation	No use/Insufficient use	No O&M (pit emptying) taking place and the presence of extremely dirty toilets	Significant environmental pollution, heightening with increased population density

Source: Potter et al., (2011)

The concept of service delivery, thus, broadens the criteria beyond mere access to physical infrastructure to the quality of services delivered by that infrastructure – which they bring into focus the factors underlying no service or poor service, which in turn cause populations to become vulnerable to WASH-related health risks (as described earlier).

## 2.3 WASH VULNERABILITY STATUS

The concept of WASH vulnerability status is based on both the type of vulnerability (as discussed above) and the concept of service delivery. Thus, the WASH vulnerability status for a settlement is comprised of two parts:

- **WASH-related factors** – which include water resources, infrastructure, awareness and entitlement, sanitation awareness, infrastructure and use, and hygiene awareness and practice; and
- **Compounding factors** - factors that compound WASH risk and vulnerability, including whether the settlement is disaster-prone and the nature of government response to restore water supply and sanitation services after a disaster; its accessibility – in terms of roads, weather, landmines and security situation; the health facilities available – hospitals and health centres and the mortality and morbidity reported; and finally, governance – including the budget available for WASH.

Thus the WASH vulnerability status can be captured in terms of a set of indicators and sub-indicators (Table 5).<sup>3</sup> Note that these indicators address populations at risk from WASH-related problems (WASH-related indicators) as well as WASH infrastructure at risk from natural disasters (part of the compounding factors).

Table 5:

<sup>3</sup> The manner in which each indicator is used in the analysis is described in the next section.

Table 5: WASH Vulnerability Indicators

WASH Vulnerability Indicators			
Indicators		Sub-indicators	
WASH-RELATED FACTORS			
I	Water Supply	1	Water Resources
		2	Infrastructure
		3	Awareness
		4	Entitlement
II	Sanitation	5	Awareness
		6	Infrastructure
		7	Use
III	Hygiene (Hand washing)	8	Awareness
		9	Practice
COMPOUNDING FACTORS			
IV	Disasters & Disaster response	10	Whether disaster-prone
		11	Actual response to disasters: water supply
		12	Actual response to disasters: Sanitation
V	Accessibility	13	Security situation
		14	Land mines
		15	Roads and weather
VI	Health facilities	16	Hospitals and health centres
		17	Morbidity due to water-borne diseases
		18	Mortality due to water-borne diseases
VII	Governance	19	Responsiveness to WASH problems
		20	Adequacy of budget
VULNERABILITY STATUS			

Information on these indicators can be quantitative or qualitative, the latter being more appropriate when quantitative information is difficult to collect or unreliable.

## 3. APPROACH AND METHODOLOGY

### 3.1 CHOICE OF APPROACH

WASH Vulnerability can be assessed in many ways, including a national household census, a national household sample survey and a participatory survey of a sample of communities.

- **National Census:** A clear understanding of the total population vulnerable to each of these two broad types of WASH related factors is best obtained from a Census of all villages and towns in the country. If incorporated, for instance, into planning for the National Census in 2012, this data could be invaluable in identifying priority intervention areas for government and other national and international agencies in the country. However, while this is a comprehensive strategy, it is long-term in the sense that getting the questions into the Census format, collecting and analyzing the results of the Census could take at least 3-4 years from now.
- **National Household Sample Survey:** An alternative method is to carry out a statistically-representative household sample survey in the country and generalize the findings to the entire population. This was done, for instance, by the National Risk and Vulnerability Assessments carried out in 2003 and 2005 – and most recently by the EU in 2008. This household-based survey used a sampling methodology based on the sampling frame developed for the Census (e.g., Primary and Secondary Sampling Units) and covered around 24,000 households over an entire year. This is an expensive and time-consuming exercise and can well be integrated into the National Census for the future. Also, for the purposes of this study, it may not be appropriate because, although national-level generalizations would be possible, it would not give province or district-level data to plan interventions.
- **Participatory Community-based Analysis:** A third option is to try and obtain this information on WASH Risks and Vulnerabilities in Afghanistan from a much smaller community-based survey using participatory methodologies. This will not, of course, be statistically-representative since even a 1% sample of the 330,000 villages in the country would mean a sample size of 3,300 villages, with attendant costs. But it could highlight the nature of vulnerability in specific geographical areas and provide indications of possible interventions.

The study opted to do a participatory analysis to assess WASH Risk and Vulnerability.

## 3.2 QUANTIFIED PARTICIPATORY ASSESSMENT

Participatory assessments essentially collect qualitative and quantitative information using a range of participatory techniques including focus group discussions (FGDs), key person interviews (KPIs) and tools such as matrix scoring, pocket voting, Venn diagrams (also called the *chapatti* diagram) and force fields, the basic idea is to collect information from participants through more ‘inclusive’ processes involving dialogue and discussion – as opposed to the extractive process of a household interview. However, the use of these methods in large samples makes analysis and comparison difficult, a problem that is addressed by carefully-designed quantification of qualitative information.

One of many methods that allow the quantification of qualitative information in large-sample assessment is the Quantified Participatory Assessments (QPAs), which has developed from the Methodology for Participatory Assessments (MPA).<sup>4</sup> The method basically consists of using participatory methods to elicit community responses to a particular question and then to convert these responses into numbers using an ordinal scale. Responses are assumed to range from the worst case (score of 0) to the ideal (score of 100), with an optional ‘benchmark’ score of 50. The distinctive feature of the QPA versus other scoring systems is that each score has a description attached to it, which makes it more ‘robust’ than other scoring systems like Likert scales (see the Note on the QPA in Annex 1 for more details; and Annex 2 for an example from James et al. (2012) of the use of the QPA in assessing water supply service delivery in India).

One of the advantages of the QPA is that it is a flexible methodology that allows investigators to design their own questions. In the present case, QPA questions were devised to measure the 20 indicators of WASH vulnerability presented earlier.

## 3.3 VULNERABILITY ANALYSIS

The participatory WASH vulnerability analysis was carried out at two levels: (1) District-level for all settlements in the district (2) Settlement-level, for 2 settlements in each district.

### District-level Vulnerability Mapping

This consisted of collecting available secondary information and holding FGDs with key informants (government officials and field-level staff) at district-level to collect information on the 20 indicators for each settlement in the district. The QPA questions designed especially for this analysis are in Annex 3. Two steps were followed:

- **Step 1: Scoring:** Key informants and field teams gave scores from 0 to 100 for each of the 20 sub-indicators, along with reasons for these scores, interpreted as follows:

<sup>4</sup> Quantified Participatory Assessment (QPA) developed organically from the Methodology for Participatory Assessment (MPA), which was developed by Christine van Wijk (van Wijk, 2003) for the Participatory Learning and Action (PLA) project of the Water and Sanitation Program (WSP), that was a multi-disciplinary and multi-country assessment exercise looking at the factors underlying the sustainability of water supply and sanitation projects (Dayal et al., 1999, Gross et al., 2001). The QPA was developed by AJ James who did the statistical analysis of the MPA data for the initial PLA study coordinated by Rekha Dayal of the Water and Sanitation Program. See also, James (2002, 2003b, 2003c, 2003d), James and Kaushik (2002), James et al., (2002), James and Snehalata (2002a and 2002b). For more details, see the Note on the QPA in Annex 1

- *Very High Vulnerability* Score of 0
- *High Vulnerability:* Score between 1 and 49
- *Medium Vulnerability:* Score between 50 and 74
- *Low Vulnerability:* Score between 75 and 99
- *Very Low Vulnerability:* Score of 100

Note that, in the context of the QPA which defines the benchmark at 50, this Vulnerability Index still classifies settlements with above benchmark scores of 50-74 as being 'medium vulnerability', and even high above-benchmark scores of 75-99 as 'low vulnerability'. Also, settlements with a score of 0 denote the worst situation regarding that particular indicator.

#### Example: Scoring of sub-indicators

Sub-indicators	Step 1: Scoring	
	QPA Score	Vulnerability
1.1 Water: Drinking Water source?	75	Low
1.2 Water: Infrastructure?	75	Low
1.3 Water: Awareness campaigns?	40	High
1.4. Water: Access barriers?	75	Low
2.1 Sanitation: Awareness campaigns?	40	High
2.2. Sanitation: Access to infrastructure?	50	Medium
2.3: Sanitation: Open defecation?	50	Medium
3.1: Hygiene: Awareness campaigns?	40	High
3.2. Hygiene: Washing hands?	50	Medium
4.1: Disasters: Disaster prone?	40	High
4.2: Disasters: Water supply restored?	0	Very High
4.3: Disasters: Sanitation restored?	0	Very High
5.1: Accessibility: Security Situation?	75	Low
5.2: Accessibility: Land mines?	75	Low
5.3: Accessibility: Roads & weather?	15	High
6.1: Health: Hospitals & Health Centres?	20	High
6.2: Health: Morbidity due to water?	25	High
6.3: Health: Mortality due to sanitation?	40	High
7.1: Governance: Responsiveness?	50	Medium
7.2: Governance: Budget adequacy?	10	High

- **Step 2: Aggregating indicator scores:** Very High, High, Medium, Low or Very Low Vulnerability scores for all the 20 sub-indicators and 7 indicators (3 WASH and 4 compounding factors) were aggregated for each district (see full results in Annexe 4). The proportion of Very High scores for WASH-related factors was calculated, for instance, by simply adding up the number of 'Very High' scores given for the 9 WASH indicator questions and dividing this sum by the number of settlements x 9.

Thus, if there were 100 settlements with 45 Very High Vulnerability scores across the 9 WASH-related indicators, the proportion of Very High scores would be calculated as  $45 / 100 \times 9 = 45 / 900$  or  $1 / 20 = 5\%$ . A similar method was used to calculate the proportion of High, Medium, Low and Very Low WASH Vulnerability within each district, as stated below:

- *% Very High Vulnerability settlements in the district* = number of 'Very High' scores for WASH sub-indicators across all settlements in the district / (number of settlements x number of WASH sub-indicators)

- *% High Vulnerability settlements in the district* = number of 'High' scores for WASH sub-indicators across all settlements in the district / (number of settlements x number of WASH sub-indicators)
- *% Medium Vulnerability settlements in the district* = number of 'Medium' scores for WASH sub-indicators across all settlements in the district / (number of settlements x number of WASH sub-indicators)
- *% Low Vulnerability settlements in the district* = number of 'Low' scores for WASH sub-indicators across all settlements in the district / (number of settlements x number of WASH sub-indicators)
- *% Very Low Vulnerability settlements in the district* = number of 'Very Low' scores for WASH sub-indicators across all settlements in the district / (number of settlements x number of WASH sub-indicators)

**Example:** Aggregation of WASH and Compounding Factor scores for 10 settlements.

	Settlement scores for vulnerability due to WASH factors									Settlement WASH Vulnerability Status				
	Water			Sanitation			Hygiene			Very High	High	Med	Low	Very Low
	Source	Infrast	Awareness	1.4	1.5	1.6	1.7	1.8	1.9					
1	Low	Low	High	Low	High	Medium	Medium	High	Medium	18 / (10*9) = 20%	48 / (10*9) = 53%	8 / (10*9) = 9%	13 / (10*9) = 14%	3 / 10*9 = 3%
2	High	High	High	Low	High	V.High	V.High	V.High	High					
3	High	High	Low	V.High	High	V.High	V.High	Medium	Medium					
4	High	High	High	Low	High	High	Low	High	High					
5	Low	Low	High	V.Low	High	Medium	High	High	High					
6	Low	Low	High	V.Low	High	High	High	High	High					
7	V.High	V.High	High	V.Low	High	High	High	High	High					
8	V.High	V.High	V.High	High	V.High	High	High	V.High	High					
9	High	High	Medium	V.High	High	V.High	V.High	Medium	Low					
10	High	High	High	Low	High	V.High	V.High	High	High					

This analysis was carried out for all 2771 settlements in the 33 selected districts.

**Settlement-level analysis:** This district-level analysis was substantiated by village-level assessments in a smaller number of settlements (66 at the rate of 2 per district). However, the settlement-level surveys only confirmed and added representative detail to the district-level analysis and were not the basis for the Vulnerability Mapping. The village-level analysis comprised the following:

1. Community data inventory: to list the village population and ethnicity, and distances to nearest towns and shops (e.g., for spare parts)
2. Social mapping: to map available WASH infrastructure, including household toilets
3. Water Point Survey: to physically verify conditions of all public water points (hand pumps, community wells and piped water supplies) and also to collect user perceptions on adequacy, reliability and quality of the water supplied.
4. FGDs at Schools and Health Clinics: to understand the WASH facilities provided and the hygiene behaviour taught at schools and disseminated at health clinics, if any

This analysis provided more detailed information on village-level vulnerability already identified at district level, especially in terms of the interventions to be carried out at village level. But this is still only indicative and is in addition to interventions at district and provincial levels, such as budgets, vehicles and manpower for the provision and maintenance of WASH facilities, campaigns for behaviour change for different groups (e.g., school children, adults, and the elderly) and response capabilities in case of repairs and natural calamities.

### 3.4 SAMPLING

From the total number of 34 provinces of the country, the survey was conducted in 33 provinces (i.e., all except Kabul). From each province one district was selected using a combination of available secondary information and local perceptions (Table 6).

**Table 6: The sample of districts selected for the survey**

	Province	District
1	Badakhshan	Tagab
2	Badghis	Ab Kamari
3	Baghlan	Burka
4	Balkh	Zari
5	Bamyan	Panjab
6	Daikondi	Khedir
7	Farah	Qalal Khan
8	Faryab	Balchiragh
9	Ghazni	Nawur
10	Ghor	Saghar
11	Hilmand	Sangeen
12	Hirathaaf	Khushk-e-kuhna
13	Jowzjan	Quseh Tepa
14	Kandahar	Arghistan
15	Kapisa	Nijrab
16	Khost	Tanai
17	Kunar	Chaapa Dara
18	Kunduz	Khanabad
19	Laghman	Dawlat Shah
20	Logar	Kharwar
21	Maidan Wardak	Jalrez
22	Nangarhar	Hisarak
23	Nimroz	Chahar Burjak
24	Nooristan	Waygal
25	Oruzgan	Shahidi-Hissas
26	Paktia	Shwak
27	Paktika	Jani Khel
28	Panjsher	Darah
29	Parwan	Shekh Ali
30	Samangan	Daray Suf-i-bala
31	Saripul	Sayyad
32	Takhar	Rustaq
33	Zabul	Qalat

In all 33 selected districts, two settlements were chosen randomly for a detailed assessment.

### 3.5 LIMITATIONS

The main limitation of this study is that it is based on perceptions of key persons at district-level regarding a particular settlement within that district. The fact that most of these were male could lead to a perception bias regarding WASH and compounding factors in the settlement. However, this is presumed not to affect programming decisions since the study was basically to identify most vulnerable districts. Although all settlements are interpreted as being vulnerable to some degree on the various indicators, using only 'Very High' vulnerability scores helped ensure that only the most vulnerable settlements were identified.



## 4. STUDY FINDINGS

### 4.1 DISTRICT-LEVEL FINDINGS

#### QPA assessments

Although all settlements are vulnerable in one aspect or another, it is possible to classify them into first order and second order, in order to prioritize programming. Also, the distinction between WASH vulnerabilities and compounding factors is a useful one, since it indicates where governance issues need to be tackled.

**WASH Vulnerability:** Based on the analysis described earlier, the WASH Vulnerability of each of the 2771 settlements in the 33 selected districts in the 33 provinces was assessed. Annexe 4 gives the proportion of settlements in each of the selected districts in the 33 provinces that were identified as being vulnerable to different extents (i.e., Very High, High, Medium, Low and Very Low) on different aspects of WASH vulnerability (water, sanitation and hygiene) and vulnerability due to compounding factors (disasters, accessibility, health facilities and governance). From this database of settlements, the number of Very High WASH Vulnerability scores across the nine WASH sub-indicators was calculated for all settlements in the district, and expressed as a percentage of the total settlements in the district (Table 7). The Table also shows as shaded cells districts where 50% or more of settlements score 'Very High' on any of the nine WASH Vulnerability sub-indicators. The main findings, therefore, regarding the settlements in the selected districts are the following:

- Water source and infrastructure are perceived to be the main problems
- Access to sanitation facilities is a major problem in many districts
- Awareness regarding WASH issues is not perceived to be a problem
- Hand washing as a practice is perceived to be widespread – and not a problem. This has perhaps to do with the emphasis on personal hygiene in Islam.

**Compounding Factors:** The role of compounding factors was assessed in these 2771 settlements and the number of settlements with Very High vulnerability on these eleven sub-indicators of compounding factors calculated as a percentage of the total settlements in the district (Table 8). This Table also shows as shaded cells, the districts where 50% or more of settlements score 'Very High' on any of the eleven sub-indicators. The main findings are:

- Budgets and the lack of hospitals and health centres are perceived as key problems.
- Accessibility problems – roads, weather, landmines and security issues - are perceived to be serious only in a minority of settlements in the selected districts



**Table 7: Settlements with Very High WASH Vulnerability in Selected Districts**

Province		District	Number of Settlements	Vulnerability due to poor WASH								
				Poor water supply				Poor sanitation			Poor hygiene	
				Source	Infrastructure	Awareness	Accessibility	Awareness	Accessibility	Use/Open Defecation	Awareness	Practice
1	Badakhshan	Tagab	40	13%	13%	5%	13%	23%	38%	43%	20%	25%
2	Badghis	Ab Kamari	105	48%	57%	35%	1%	32%	42%	21%	15%	3%
3	Baghlan	Burka	60	55%	52%	40%	2%	43%	60%	47%	27%	3%
4	Balkh	Zari	99	20%	19%	17%	9%	11%	22%	11%	13%	4%
5	Bamyan	Panjab	95	55%	66%	15%	2%	13%	13%	12%	8%	1%
6	Daikondi	Khedir	70	17%	21%	3%	9%	6%	49%	43%	0%	6%
7	Farah	Qalal Khan	80	50%	45%	11%	3%	14%	26%	14%	8%	3%
8	Faryab	Balchiragh	63	35%	41%	37%	6%	35%	59%	59%	24%	2%
9	Ghazni	Nawur	227	24%	30%	4%	6%	7%	50%	44%	4%	7%
10	Ghor	Saghar	97	44%	52%	24%	1%	30%	41%	15%	8%	4%
11	Hilmand	Sangeen	55	33%	53%	9%	7%	11%	58%	58%	11%	11%
12	Hirathaaf	Khushk-e-kuhna	96	18%	31%	2%	4%	4%	35%	34%	3%	4%
13	Jowzjan	Quseh Tepa	52	8%	10%	0%	2%	10%	19%	25%	4%	17%
14	Kandahar	Arghistan	65	54%	54%	63%	8%	46%	31%	18%	42%	3%
15	Kapisa	Nijrab	246	53%	59%	28%	4%	27%	29%	10%	14%	4%
16	Khost	Tanai	109	52%	55%	34%	5%	36%	45%	29%	25%	3%
17	Kunar	Chaapa Dara	35	71%	66%	3%	3%	9%	66%	43%	0%	9%
18	Kunduz	Khanabad	116	35%	29%	27%	9%	33%	52%	27%	18%	4%
19	Laghman	Dawlat Shah	79	52%	43%	15%	33%	16%	30%	30%	11%	3%
20	Logar	Kharwar	56	46%	45%	30%	2%	30%	64%	46%	36%	2%
21	Maidan Wardak	Jalrez	86	31%	31%	26%	7%	27%	21%	15%	17%	2%
22	Nangarhar	Hisarak	136	17%	15%	15%	1%	31%	33%	27%	7%	1%
23	Nimroz	Chahar Burjak	54	65%	57%	6%	4%	6%	65%	56%	7%	0%
24	Nooristan	Waygal	37	22%	27%	0%	3%	0%	24%	5%	0%	0%
25	Oruzgan	Shahidi-Hissas	79	19%	19%	1%	1%	1%	32%	29%	1%	1%
26	Paktia	Shwak	20	50%	45%	25%	0%	25%	65%	60%	20%	5%
27	Paktika	Jani Khel	65	11%	14%	8%	8%	11%	11%	2%	2%	3%
28	Panjsher	Darah	30	7%	7%	0%	7%	0%	27%	10%	3%	0%
29	Parwan	Shekh Ali	53	28%	26%	15%	0%	19%	23%	8%	0%	4%
30	Samangan	Daray Suf-i-bala	53	6%	11%	13%	1%	23%	58%	56%	10%	3%
31	Saripul	Sayyad	52	8%	12%	4%	2%	13%	23%	23%	4%	15%
32	Takhar	Rustaq	52	51%	50%	1%	1%	4%	59%	52%	1%	1%
33	Zabul	Qalat	94	27%	28%	17%	6%	14%	17%	17%	11%	3%

**Table 8: Settlements with Very High Vulnerability due to Compounding Factors in Selected Districts**

Province		District	Settle-ments	Vulnerability due to Compounding Factors										
				Disasters			Accessibility			Health Facilities			Governance	
				Prone-ness	Water response	Sanitation response	Insecurity	Land mines	Roads/ Climate	Hospitals & Health Centres	Morbidity: water-borne diseases	Mortality water-borne diseases	Response to disasters	Budgets for response
1	Badakhshan	Tagab	40	10%	8%	25%	5%	3%	8%	20%	15%	15%	15%	58%
2	Badghis	Ab Kamari	105	22%	21%	29%	1%	1%	1%	34%	15%	35%	35%	43%
3	Baghlan	Burka	60	22%	30%	40%	0%	3%	20%	30%	12%	40%	40%	70%
4	Balkh	Zari	99	8%	10%	16%	0%	0%	17%	13%	5%	22%	22%	49%
5	Bamyan	Panjab	95	9%	14%	14%	0%	1%	7%	61%	8%	7%	7%	77%
6	Daikondi	Khedir	70	10%	9%	46%	0%	0%	23%	63%	9%	1%	1%	76%
7	Farah	Qalal Khan	80	15%	31%	34%	3%	1%	9%	29%	3%	11%	11%	49%
8	Faryab	Balchiragh	63	8%	11%	27%	2%	0%	8%	27%	0%	40%	40%	81%
9	Ghazni	Nawur	227	21%	38%	54%	4%	0%	22%	47%	9%	17%	17%	57%
10	Ghor	Saghar	97	13%	25%	25%	0%	2%	7%	40%	11%	38%	38%	51%
11	Hilmand	Sangeen	55	24%	38%	45%	4%	4%	13%	11%	11%	11%	11%	55%
12	Hirathaaf	Khushk-e-Kuhna	96	13%	22%	27%	2%	2%	4%	6%	6%	2%	2%	31%
13	Jowzjan	Quseh Tepa	52	2%	19%	29%	4%	0%	19%	21%	8%	10%	10%	35%
14	Kandahar	Arghistan	65	26%	23%	31%	0%	3%	6%	29%	8%	51%	51%	51%
15	Kapisa	Nijrab	246	8%	54%	49%	2%	2%	4%	40%	8%	36%	36%	67%
16	Khost	Tanai	109	29%	52%	66%	2%	2%	12%	47%	6%	27%	27%	60%
17	Kunar	Chaapa Dara	35	11%	49%	60%	6%	0%	6%	74%	3%	3%	3%	69%
18	Kunduz	Khanabad	116	7%	18%	37%	7%	5%	3%	34%	8%	24%	24%	65%
19	Laghman	Dawlat Shah	79	19%	34%	41%	3%	1%	9%	54%	3%	16%	16%	67%
20	Logar	Kharwar	56	2%	20%	30%	0%	2%	5%	41%	9%	36%	36%	75%
21	Maidan Wardak	Jalrez	86	17%	27%	35%	5%	2%	19%	41%	8%	27%	27%	47%
22	Nangarhar	Hisarak	136	9%	8%	28%	0%	1%	1%	9%	3%	10%	10%	20%
23	Nimroz	Chahar Burjak	54	13%	13%	17%	2%	4%	6%	89%	0%	4%	4%	61%
24	Nooristan	Waygal	37	0%	11%	8%	0%	0%	3%	73%	8%	0%	0%	49%
25	Oruzgan	Shahidi-Hissas	79	5%	8%	8%	13%	0%	10%	41%	5%	22%	22%	71%
26	Paktia	Shwak	20	25%	20%	20%	5%	5%	5%	70%	10%	25%	25%	65%
27	Paktika	Jani Khel	65	14%	9%	17%	5%	2%	9%	85%	2%	9%	9%	46%
28	Panjsher	Darah	30	10%	37%	33%	3%	3%	3%	30%	27%	27%	27%	37%
29	Parwan	Shekh Ali	53	4%	8%	8%	0%	0%	6%	26%	11%	25%	25%	32%
30	Samangan	Daray Suf-i-bala	53	0%	8%	56%	13%	6%	3%	28%	5%	8%	8%	54%
31	Saripul	Sayyad	52	6%	38%	35%	6%	0%	12%	38%	13%	10%	10%	48%
32	Takhar	Rustaq	52	26%	43%	44%	1%	1%	13%	63%	8%	6%	6%	51%
33	Zabul	Qalat	94	4%	16%	19%	6%	0%	22%	51%	10%	16%	16%	59%

**Most vulnerable districts:** A fairly straight-forward method was used to arrive at the list of most vulnerable districts and provinces, based on the 10 provinces with the highest proportion of Very High and High vulnerability settlements (Table 9).

**Table 9: Common Provinces across Individual Ranking Criteria**

Rank	Province Ranking Criteria: Vulnerability due to ...			
	Poor WASH		Compounding factors	
	Very High	Very High + High	Very High	Very High + High
1	<b>Baghlan</b>	Laghman	<b>Khost</b>	<b>Baghlan</b>
2	<b>Kandahar</b>	<b>Baghlan</b>	<b>Kunar</b>	<b>Laghman</b>
3	<b>Logar</b>	<b>Faryab</b>	Ghazni	<b>Kunar</b>
4	<b>Faryab</b>	<b>Kandahar</b>	Kapisa	Hilmand
5	Paktia	<b>Kunar</b>	<b>Baghlan</b>	<b>Kandahar</b>
6	Khost	<b>Logar</b>	Takhar	<b>Khost</b>
7	<b>Kunar</b>	<b>Hilmand</b>	Paktia	Faryab
8	<b>Nimroz</b>	<b>Nimroz</b>	<b>Laghman</b>	Panjsher
9	<b>Badghis</b>	Balkh	Daikondi	Maidan Wardak
10	<b>Hilmand</b>	<b>Badghis</b>	<b>Kandahar</b>	Logar

The method was based on selecting common provinces in two steps. In Step 1, all the common provinces between the two lists of top 10 provinces with most WASH vulnerable settlements (i.e., Provinces with most settlements assessed as Very High Vulnerability and Very High + High Vulnerability), which have been coloured blue in Table 9. Similarly, common provinces were identified across the two lists of top 10 provinces with most vulnerable settlements due to Compounding Factors, which were then marked yellow. In Step 2, the common provinces between the Most Vulnerable WASH and Compounding Factor lists are selected (Table 10).

**Table 10: Most vulnerable provinces based on poor WASH and Compounding Factors**

List of Most vulnerable provinces based on			
Poor WASH	Compounding factors	Common factors	
Badghis			
Baghlan	Baghlan	1	Baghlan
Balkh			
Faryab	Faryab	2	Faryab
Hilmand	Hilmand	3	Hilmand
Kandahar	Kandahar	4	Kandahar
	Khost		
Kunar	Kunar	5	Kunar
Laghman	Laghman	6	Laghman
Logar	Logar	7	Logar
Nimroz			
	Maidan Wardak		
	Panjsher		

Such an assessment can help to prioritize districts based on the proportion of settlements are highly vulnerable on one or more of the 20 sub-indicators. It could also help to prioritize between WASH-related and compounding factors. Finally, it could also help identify and prioritize settlements where specific components of WASH – e.g., water supply, sanitation or health - are a problem, as shown, for instance in the detailed findings for all 33 districts given in Annexe 4.

## 4.2 PERCEPTIONS OF DISTRICT-OFFICIALS

Perceptions of local officials are based on personal experience with local conditions and are extremely useful for this reason. Three issues were discussed with district-level officials: (1) actions undertaken to promote WASH in the district; (2) challenges, risks and problems for WASH at district-level and (3) their suggestions for improved WASH in the district. Their responses are summarized below.

### **Actions undertaken to promote WASH**

Officials in a few districts (e.g., Badakhshan, Oruzgan, Paktika) report good progress in addressing WASH issues, while officials in most other districts reported that major WASH problems remained despite WASH activities being undertaken by government and national and international NGOs (e.g., Paktia, Panjsher and Takhar). A few provinces said that WASH implementation was affected by the security situation (e.g., Zabul, Khost, and Bamyan) while in a few others, little WASH work had been done even though security was not an issue; the issue cited being the poor economic condition of the people (e.g., Nimroz, Faryab and Baghlan).

### ***Challenges, risks and problems for WASH at district level***

There were broadly five challenges mentioned by most district-level officials:

- (1) A lack of infrastructure – e.g., piped schemes, dug wells or toilets, because of which people had to go far to collect water or were forced to defecate in the open
- (2) A lack of awareness about WASH among the public and a lack of capacity to spread this awareness – e.g., why it was important to drink clean water, why open defecation is a problem, and why they have to wash hands at critical times
- (3) A lack of budgetary and other resources, from both government and non-governmental sources, to create infrastructure or improve awareness and capacity
- (4) External factors such as droughts and floods, that exacerbated the WASH problems
- (5) A lack of access, especially to interior and distant villages – either because of poor roads or security considerations.

A special issue that was mentioned was the tendency for programmes to focus in the ‘centre’ of the district (or province) or the district or province capitals – leaving the peripheral regions to be poorly covered by WASH infrastructure and services.

### ***Suggestions for improved WASH in the district***

In line with the problem analysis, the district-level officials suggested increased budgetary resources – from government or non-government sources – for WASH promotion. For government funds, they suggested a priority for WASH in the next Annual Planning exercise while for NGOs, they suggested taking WASH in that particular district as a priority issue in their work planning.

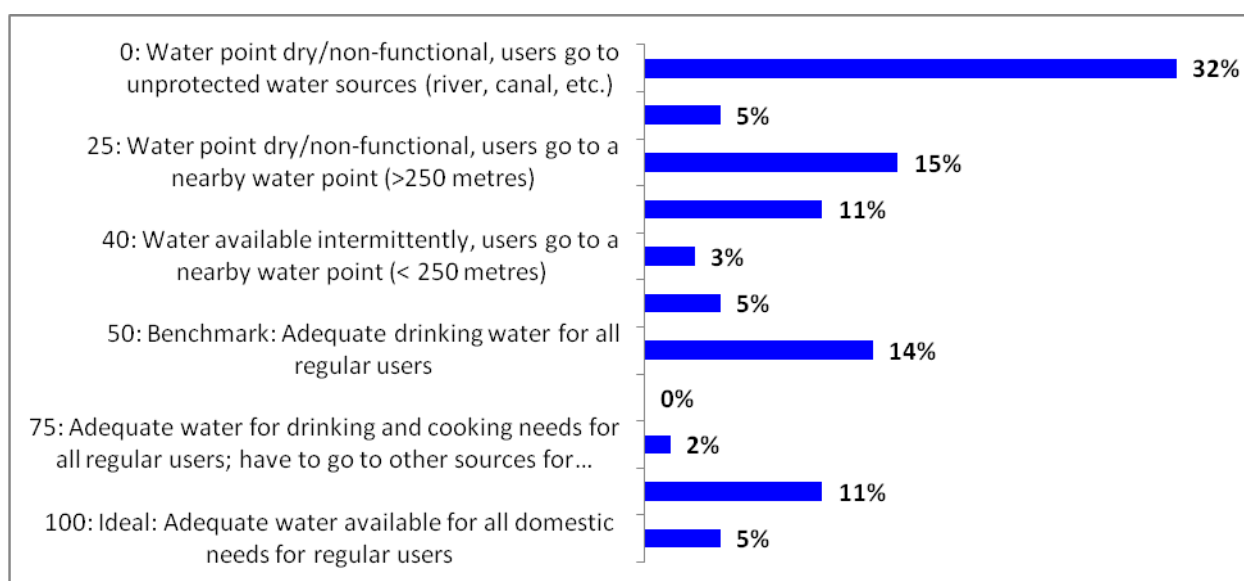
However, a special suggestion was to make WASH awareness raising a joint exercise involving the local government (the *shura*), the religious leaders (*mullahs* and *imams*) and the media.

## 4.3 SETTLEMENT-LEVEL FINDINGS

District-level perceptions of settlements do provide a lot of useful information, as seen above, but they can also hide a wealth of detail - including vulnerable groups *within* villages. The analysis of information from the 66 settlements where detailed assessments were carried out show several interesting trends.

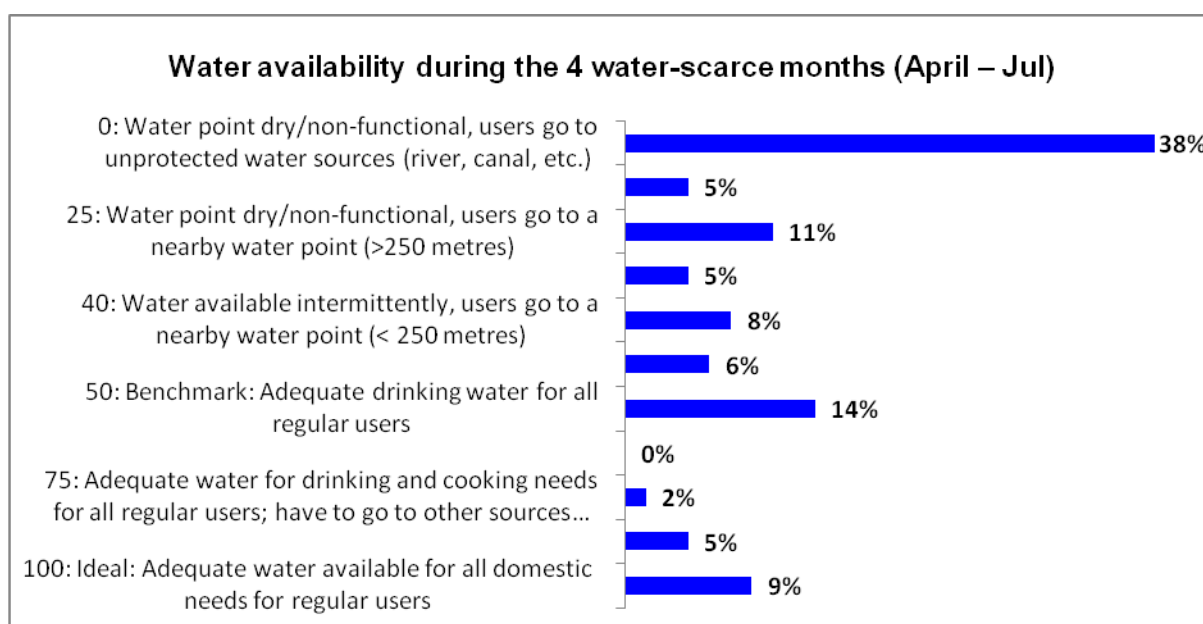
- **There are seasonal variations in water supply:** Some users who had water during the 8 non-summer months no longer do so in the 4 summer months (Figures 1 & 2).

**Figure 1: Water availability during the 8 non-summer months (August – March)**



What is perhaps unexpected here is the fact that there are nearly one-third of settlements that report at least adequate water for all regular users (total of all scores above 50 in the figure above: 14% + 2% + 11% + 5% = 32%).

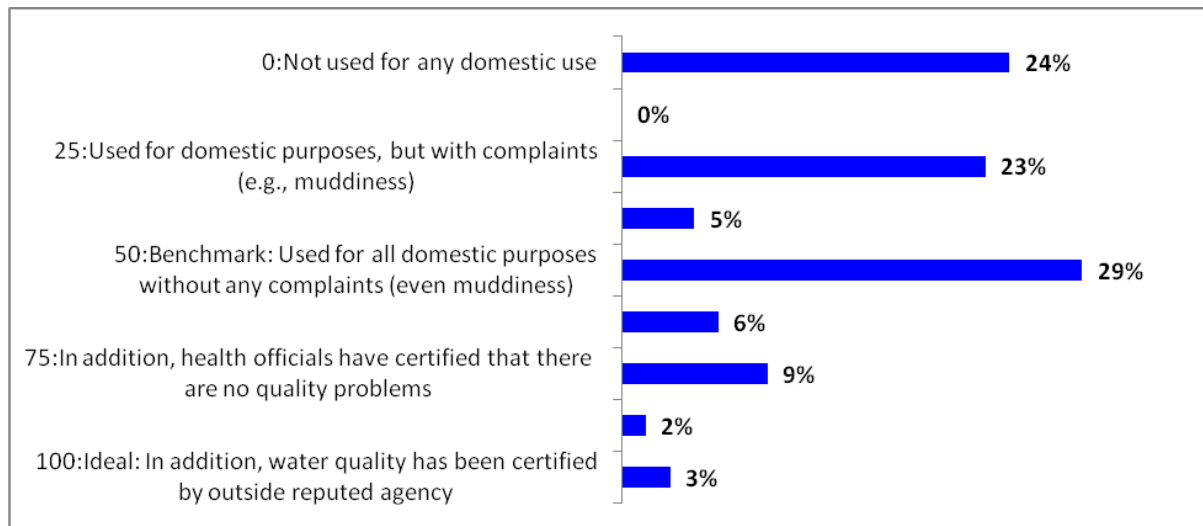
**Figure 2: Water Availability during the 4 water-scarce months (April - July)**



In the four dry months (April – July), the situation worsens with 38% of users having to go outside looking for water, compared to 32% during the eight non-summer months.

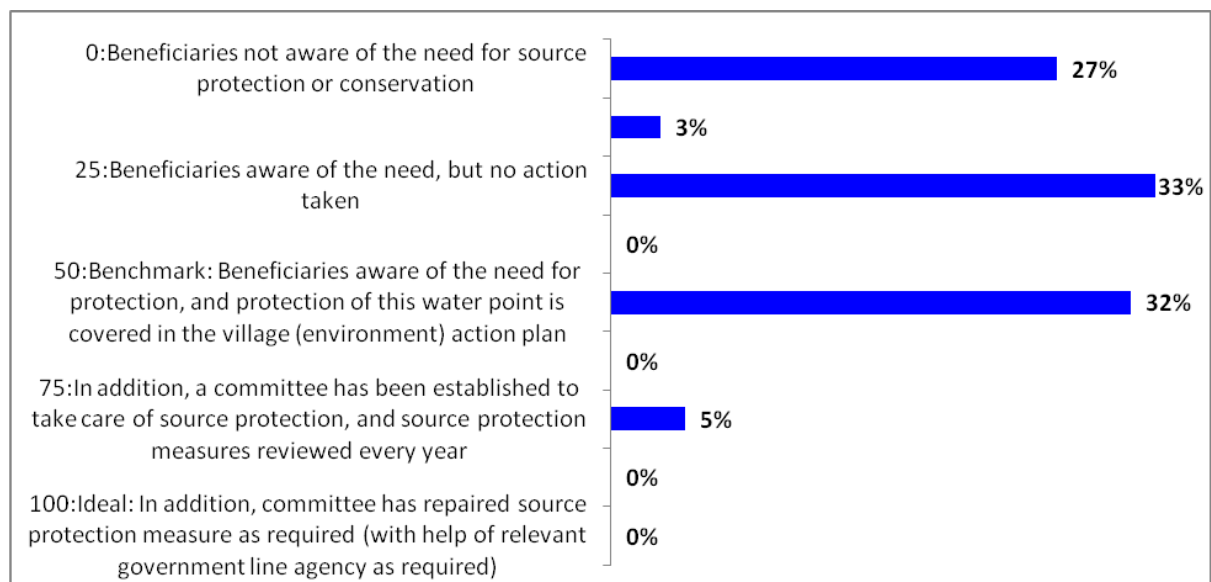
- **Water quality problems are perceived:** Even if water is available in taps or hand pumps, there may be quality problems. According to user perception (and not based on water tests), more than 50% of users complain of water quality problems (Figure 3).

**Figure 3: Water Quality (User Perceptions)**



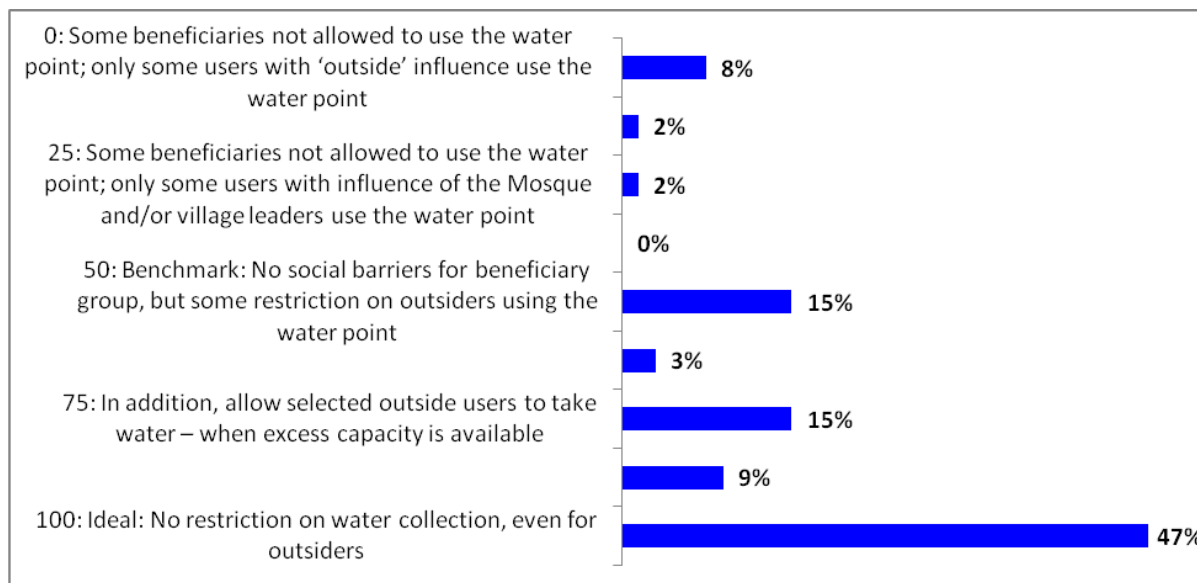
- **Poor protection of water sources – due to lack of awareness:** Water sources are not protected, largely because users are unaware of the need to do so – or the consequences of lack of protection (Figure 4).

**Figure 4: The nature of protection of the water source**



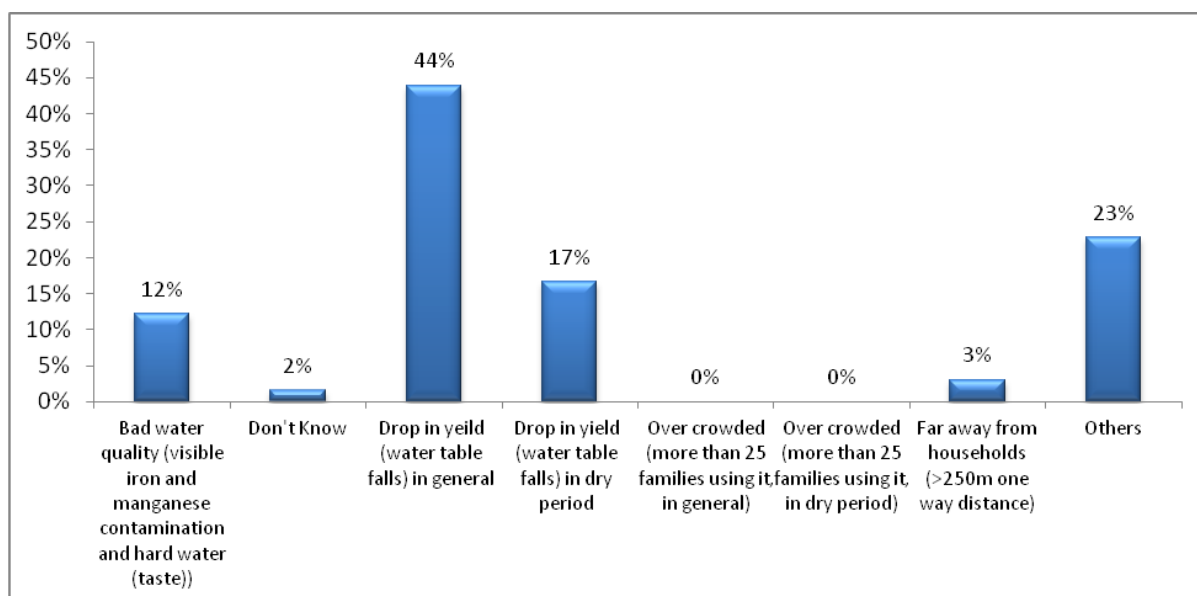
- **No social barriers to access:** There are, however, no social or other barriers to accessing water supply sources (Figure 5).

Figure 5: Social barriers to accessing water points



- **There are problems of service delivery from water points:** Users reported problems with both dug wells and hand pumps – but while the majority of users complained of over-crowding at dug wells, the major problem with hand pumps was that they ran dry (Figure 6).

Figure 6: Problems with hand pumps (% responses)



- **Hand pumps are under repair most frequently in September:** And also in June (Figure 7).
- **Time taken to repair hand pumps:** While 26% said that it took 1 to 2 weeks to repair hand pumps, a significant proportion (23%) said that it took more than 4 weeks, although 14% said that it took less than 3 days to get them fixed (Figure 8).



Figure 7: Frequency of hand pump repairs in the last 12 months

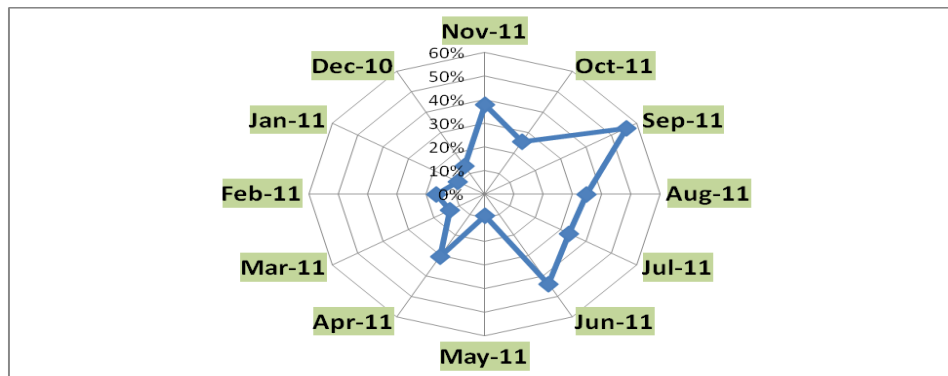
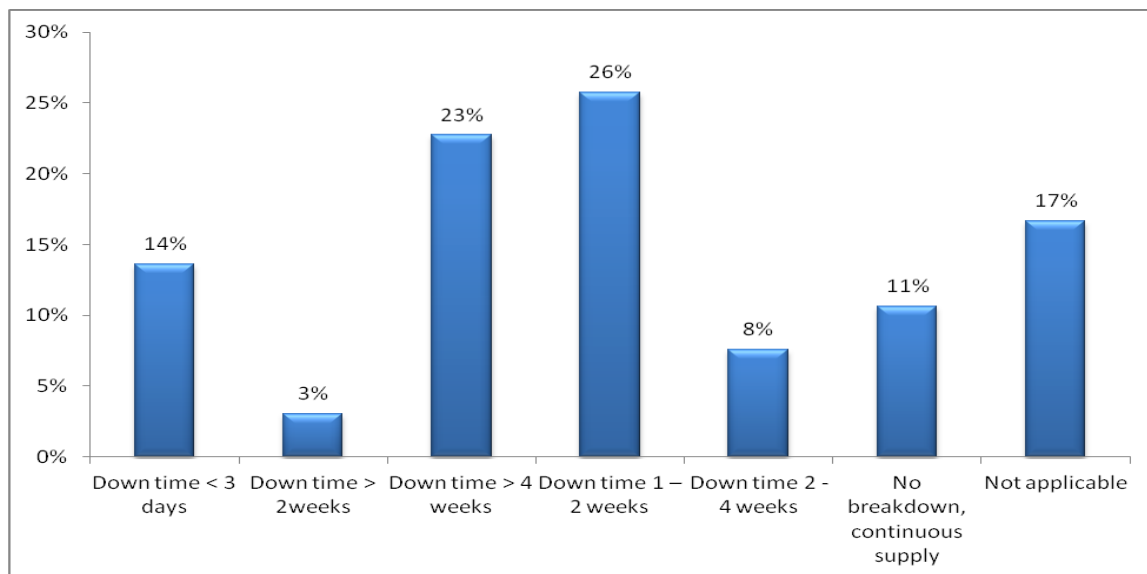
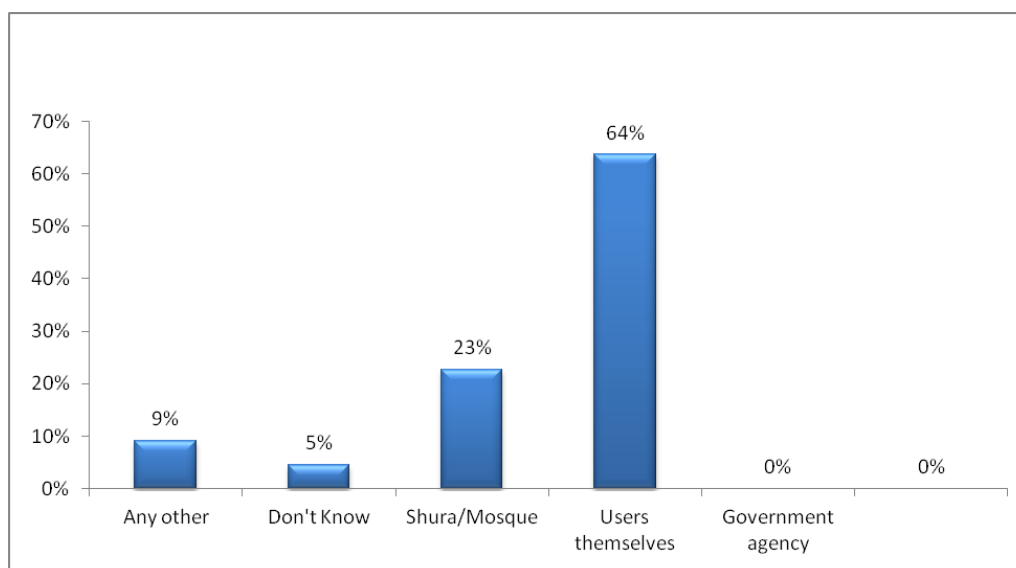


Figure 8: Average time taken to repair hand pumps (% responses)



- **Users organize repairs themselves:** In the case of major (and minor) repairs to dug wells, users said that they either organized the payment, labour & material themselves (most common) or the shura or mosque did (less common) (Figure 9).

Figure 9: Organizing payments, labour & material for major repairs of the common dug well





## 5. OUTPUTS AND RECOMMENDATIONS

### 5.1 STUDY OUTPUTS

#### DATABASE

The main product of the study is a Microsoft EXCEL database, with information on WASH vulnerability for 2771 settlements (as shown in the example earlier). This not only contains scores on 20 sub-indicators, but also detailed reasons for these scores, that improve understanding of ground reality and assists in planning interventions better.

The database is replicable in the sense that repeating the assessment will provide another set of scores (and reasons for score) to see whether the situation has changed between one assessment and another. This could be particularly useful when assessing the impact of interventions that have been planned and carried out on the basis of a first assessment. Such an assessment could also be extended to other districts, either in an entire zone or in a larger sample of districts.

There is also detailed information on WASH service delivery within 66 settlements, including information on specific water points and public toilets (e.g., in schools and health centres).

#### MAPS

A set of maps have been prepared to depict WASH vulnerability and its constituents.

District maps: There are two sets of district-level maps. The first set is that of maps showing the WASH Vulnerability status (i.e., Very High, High, Medium, Low and Very Low) for each settlement for the following indicators:

- (1) Water
- (2) Sanitation
- (3) Hygiene
- (4) Disasters
- (5) Accessibility
- (6) Health
- (7) Governance

The second set of district-level maps shows the status of each settlement vis-a-vis the following

- (8) Vulnerability due to WASH
- (9) Vulnerability due to compounding factors
- (10) Vulnerability due to both WASH and compounding factors

**National maps:** These maps show the % of settlements (in each district) that are highly vulnerable (i.e., with Very High or High Vulnerability scores) for the following indicators:

- (1) Water
- (2) Sanitation
- (3) Hygiene
- (4) Disasters
- (5) Accessibility
- (6) Health
- (7) Governance
- (8) Vulnerability due to WASH
- (9) Vulnerability due to compounding factors
- (10) Vulnerability due to both WASH and compounding factors

These maps can also be updated with fresh information, either when Vulnerability assessments are conducted for additional districts or when these assessments are repeated over time.

## 5.2 RECOMMENDATIONS

Five key recommendations from this study on WASH risk and vulnerability are the following:

- **Focus on service delivery rather than access to infrastructure:** Given the fact that service delivery is a more important indicator than mere 'access to infrastructure', and also given that a service delivery framework is now available, a shift to using service delivery as the basis for assessments and interventions is a logical extension.
- **Prioritizing is vital but sustainability is key:** While prioritizing the most vulnerable settlements and districts is necessary, given scarce resources, the move to address the next set of prioritized areas must only be after ensuring that the interventions in the first priority settlements and districts are sustainable. Using a service delivery approach to check sustained services – and the factors underlying sustainability – would be thus a vital part of the intervention itself.
- **Provide localized hubs of trained personnel and spare parts for WASH infrastructure:** Given that sustaining water supply and sanitation services through public taps and public toilets in settlements, in schools and in health centres have local causes – and a lack of access to spare parts and repair services, either due to distance, poor roads, bad weather or landmines compounds normal maintenance problems - it might be useful to consider having local 'hubs', above the CDCs and below districts, servicing all settlements within a given radius, with trained resource persons and spare parts, perhaps attached to health centres or family health workers' office.
- **Promote a coordinated and integrated approach:** Since WASH issues are more than just providing infrastructure (e.g., hygiene promotion, capacity building), WASH interventions could benefit considerably from a coordinated and integrated approach. As suggested by the district officials, WASH interventions could be coordinated not

only across relevant government departments and NGOs but also with local media and mullah imams (e.g., to provide hygiene messages).

- **Some areas require priority attention based on their vulnerability:** The districts selected in the provinces of Baghlan, Faryab, Hilmand, Kandahar, Kunar, Laghman and Logar emerged as the most vulnerable among the 33 districts surveyed in the 33 provinces. Within these districts, however, attention needs to be focused on different issues, ranging from the WASH issues of water, sanitation and hygiene to the compounding factors of disaster management, health facilities, accessibility and governance. The nature of vulnerability in these districts, however, has been detailed in the assessment.

Finally, a database on WASH vulnerability, with supporting maps, is a useful and helpful tool in planning interventions, advocacy and policies, but it requires a dedicated set of users who not only know how it can be used, but can also oversee its future development and keep it updated to ensure its functionality.

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## ANNEX 1: Quantified Participatory Assessment

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### 1. INTRODUCTION

Several methods have been developed in the recent past to address this issue of generating numbers from participatory activities.<sup>5</sup> The Methodology for Participatory Assessment (MPA)<sup>6</sup> was developed in the late 1990s to assess the sustainability of 88 water supply and sanitation projects in 15 countries and used participatory tools to bring out information and then translated this into numbers using a scoring system.<sup>7</sup> The MPA continues to be used as a 'comparative evaluation tool in large domestic water projects and programs'.<sup>8</sup>

The Quantified Participatory Assessment (QPA) was developed from the MPA and used in India in a variety of development projects since 1999 (James, 2003a).<sup>9</sup> Apart from the expansion from the water and sanitation sector to other sectors, notably watershed development, poverty alleviation, rural livelihoods and water resources, the QPA added several other features to the MPA, including peer review of scores, documentation of reasons for scores, use of an MS ACCESS database to store and analyse information, several rounds of stakeholder meetings and a detailed action planning report.

The QPA was also the basis of the modification of the MPA in Nepal to the NEWAH Participatory Assessment (NPA) by the Gender and Poverty (GAP) Unit of the national NGO, Nepal Water and Health (NEWAH), in Kathmandu, Nepal.<sup>10</sup> The NPA adapted the MPA to suit the geographical, socio-economic and ethnic reality of Nepal, modified the scoring systems to include benchmarks in a flexible 0 – 100 scale, developed additional tools to elicit information on health, hygiene and sanitation issues, and collected additional qualitative information using case studies (James et al., 2003a, 2003b, 2003c).

Qualitative Information Appraisal (QIA) is a generic methodology, developed from the experiences with the MPA, QPA and NPA, which goes beyond the constraints of the term 'Assessment'. The QIA is designed for use in both one-time assessments for baseline, mid-term and overall project impact assessments, as well as for continuous monitoring as part of a project's regular monitoring and evaluation system.

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<sup>5</sup> See, for instance, Chambers (2003).

<sup>6</sup> The MPA was developed by Christine van Wijk (van Wijk, 2003) for a Participatory Learning and Action (PLA) project that was a multi-disciplinary and multi-country assessment exercise looking at the factors underlying the sustainability of water supply and sanitation projects (Dayal et al., 1999, Gross et al., 2001).

<sup>7</sup> The scoring system is detailed in James (2000 and 2001) and in Dayal et al. (1999).

<sup>8</sup> Wijk, 2001, p. 2. The revised MPA is described in Mukherjee and van Wijk (2003) while experiences with using the MPA are in van Wijk and Postma (2003), Postma et al., (2003), van Wijk et al., (2002), Paudyal et al. (2002).

<sup>9</sup> This work was done by AJ James who did the statistical analysis of the MPA data for the initial PLA study coordinated by Rekha Dayal of the Water and Sanitation Program. See also, James (2002, 2003b, 2003c, 2003d), James and Kaushik (2002), James et al., (2002), James and Snehalata (2002a and 2002b).

<sup>10</sup> For an account of the pilot MPA and the problems experienced in the field see Paudyal et al. (2002). See James et al., (2003a and 2003b) for a description of the creation of the NPA, and James et al., (2003c) for the details of one application in Nepal.

## 2. APPLICATIONS

The QPA has been applied in several applications within India and outside (see Table).

Funding source	Location	Project	Focus Area	Sample size	Year
<b>Water &amp; Sanitation Program (World Bank)</b>	Global	Participatory Learning and Action (PLA) global study of the World Bank's Water and Sanitation Program	Impact assessment of RWSS projects	88 projects; 15 countries	1997-9
<b>European Community</b>	India	Doon Valley Integrated Watershed Management Project	Social & environmental impact	16 villages	1999-2000
<b>DFID India</b>	India	APRLP	Water Resources	106 habitations	2001-2
<b>DFID India</b>	India	WIRFP	Rural Livelihoods	45 villages	2002-3
<b>World Bank</b>	India	Rajasthan District Poverty Initiatives Project	Project Processes	14 villages, 2 districts	2001-2
<b>World Bank</b>	India	Analytical and Advisory Activity (AAA) on Urban Public Health in Tamil Nadu	Performance of Essential Public Health Functions	26 ULBs	2002-3
<b>Asian Development Bank</b>	Nepal	Community-based Water Supply and Sanitation project preparation	Water Supply, Sanitation & Hygiene	5 regions	2003
<b>Asian Development Bank</b>	Sri Lanka & Vietnam	Evaluation of ADB-funded national Water Supply and Sanitation projects	Water Supply, Sanitation & Hygiene	Sri Lanka 104 sub-projects Vietnam WSS 20 villages; 350 households	2005
<b>UNICEF</b>	India	Independent Evaluation of the Child's Environment Programme (CEP)	Water Supply, Sanitation & Hygiene	117 villages	2004
<b>Nepal Water for Health (NEWAH)</b>	Nepal	GAP Evaluation	Water Supply, Sanitation & Hygiene	15 villages	2003-4
<b>Tamil Nadu Water and Drainage Board</b>	India	Change Management Pilots Evaluation	Water Supply, Sanitation & Hygiene	200 habitations	2005-6
<b>Uttaranchal Livelihood Project in the Himalayas (ULIPH)</b>	India	Baseline survey	Rural Livelihoods	140 villages	2007

Funding source	Location	Project	Focus Area	Sample size	Year
<b>PATH</b>	India	SureStart (community-level rural health programme)	Strength of partnerships among NGOs	50 organizations (rural NGOs)	2009-10
<b>UNICEF</b>	India	Impact of Quality Package on Education Quality	Education	18 schools	2007
<b>Uttaranchal Livelihood Project in the Himalayas (ULIPH)</b>	India	Mid Term Evaluation	Rural Livelihoods	140 villages	2008
<b>WASTE, the Netherlands</b>	Costa Rica, Holland, Benin, Philippines	PSO Learning Trajectory	Organizational Development (of NGOs)	5 international NGOs	2011-12 (ongoing)
<b>World Bank</b>	India	Tamil Nadu Integrated Agricultural Modernization and Water bodies Restoration and Modernization (TN IAM WARM) Project	Community-level Assessment of the Impact of Change Management among Rural Development Officials	40 villages	2012
<b>UNICEF Afghanistan</b>	Afghanistan	National WASH Vulnerability and Risk Assessment	WASH	33 provinces and districts; 66 villages	2011-12 (ongoing)

### 3. KEY COMPONENTS OF THE METHOD

From past experience in applying this methodology (in India, Nepal, Sri Lanka and Vietnam), the following arrangements have been found to be optimal:

#### I. Inception Meeting

A brief meeting (one-day) to clarify the issues to be assessed, the background information available and the logistical arrangements.

#### II. Methodology and Planning Workshop

This is a vital part of the assessment, where the assessment team discuss and finalise the issues to be assessed, the indicators to be used, the ordinal scales, and thus the QPA field formats. This usually has role plays, mock interviews and field testing to make sure the assessment team practise and develop their PRA and facilitation skills, which is one of the key determinants of the success of the QPA field assessment. This workshop can take from 10 – 14 days depending on the complexity of the issues to be addressed.

**Field testing:** Although this is usually carried out at the end of the Methodology and Planning Workshop activity, it deserves a special mention. Two rounds of field testing are needed, the first to identify the problems to be rectified in the field formats, and the second to make sure the revised formats are suitable for the survey. Given the size of the assessment team being trained (36 field staff + 3 field coordinators+ 1 field supervisor+2 Research Associates), usually 2 villages are needed for each round of field testing – making a total of 4 villages. None of these villages should be part of the actual survey.

### III. Field Assessment

**Informing villages about the assessment:** Prior information is usually needed for the meetings and focus group discussions – except where it is apprehended that villages may be ‘dressed up’ for the assessment. If so, the village is informed only a day or two in advance.

**Village assessment schedule:** In accordance with ‘good practice’ in participatory assessments, the assessment usually starts with a meeting with village officials (headman, patwari, VAO, etc.), elders, teachers and key informants – to inform them about the purpose of the assessment, to get basic information about the village, and to plan the various focus group discussions (FGDs). Thereafter, a transect walk and social mapping is carried out (to check ‘unserved households’, etc.), also a water system review. Subsequently, either in the afternoon or evening, FGDs can be held with those who have received training from the project/TWAD Board, women’s groups, etc. Finally, a village meeting is held to inform them about the basic findings of the assessment. Compliance with international ‘good practice’ is vital for the validity of the participatory assessment.

**Assessment time:** Assessments take 1 – 4 days per village, depending on the complexity of the field formats. The minimum time is 1 day per village. It is best to have the team debriefing and data entry the very next day, so that field teams remember details of discussions and verify the scores. Entering data in the latter part of the same day will minimise errors and avoid the fatigue (and hence errors) of mass data entry at the end of the assessment. This gives a maximum rate of 3 villages per week (with 1 day off), at which rate, 10 2-person teams can cover 100 villages in 20 days.

**Field teams:** While field teams have been between 4 – 6 people per village, the ideal combination is a 4-member field teams which can split into two 2-member teams in the field. The minimum, however, is 2-persons per team. Gender balanced teams are highly desirable. To complete 100 villages in 2 weeks, at the rate of 3 villages per week per team will require 18 teams, or 36 field staff.

**Field coordinators:** Field-level coordination is essential for quality control, especially to check the nature of facilitation during FGDs and to ensure validation of information provided in the FGDs. They are also useful for trouble-shooting field-level problems, including logistics. In addition to the field supervisor, a minimum of 3 Field Coordinators would be necessary for a 100-village assessment.

**Focus group discussions:** Each FGD takes between 1-2 hours, and more than 2 hours tests participants’ patience and could yield biased responses. These have basically to give participants the ‘freedom and space’ to present their own views, feelings and must adhere to



good practice of facilitation (e.g., no leading questions, no prompting, opportunities for all participants to express their views, etc.).

#### IV. Database, Data Cleaning and Analysis

**Database:** An ACCESS database is usually created for data entry, so that the computer format matches the paper format exactly and thus minimises data entry errors.

**Data cleaning:** Even after careful data entry, there is need to ‘clean’ the data, usually in a joint meeting with the field teams, lasting up to 5 days, depending on the number of villages surveyed and the number of issues covered in the field formats. Basically, this involves scanning the scores and reasons for scores entered in the database, identifying data gaps (e.g., Reason for Score not filled out), and doing some basic calculations (e.g., COUNT, MAX, MIN) to check possible data entry errors. Having the field team at this point is useful for quick cross-verification.

**Data analysis:** This basically involves generating frequency histograms and user-friendly graphs to present the findings as clearly and intelligibly as possible. This should take around 3 days after data cleaning.

#### V. Report Writing

Pulling together the methodology, presenting the main findings, and mentioning the quality control efforts of the survey are the key aspects of the report writing exercise, which should take around 6 days in total.

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## ANNEX 2: Using the QPA to assess Water Supply Service Delivery

A recent example of the use of the Quantified Participatory Assessment (QPA) in India to assess water supply service delivery is detailed in the following Table.

**Table A1: QPA Indicators for a Water Supply Service Delivery Ladder: WASH Cost Project, India**

Service level	Quantity	Quality	Accessibility	Reliability	Status
High	There is adequate water for ALL users for ALL domestic as well as additional uses (>60 lpcd)	<i>In addition</i> , water quality has been tested using a water quality testing kit (e.g., by Village School Students or Gram Panchayat) OR by Rural Water Supply department staff and found to be of good quality according to Government of India standards	Less than 10 minutes per person to collect water from the public stand post, less than 10 minutes per person to reach the public stand post from their house and nobody is excluded from using the service	Water is supplied at scheduled times and for scheduled duration EVEN DURING breakdowns by other means (e.g., by bringing water from other sources through tankers, etc.) AND source protection measures are undertaken	Improved
Intermediate	For ALL water point users, quantity is adequate for ALL domestic uses (drinking, cooking, washing), e.g., 40 lpcd per person = 4 x 10 litre buckets per day), but not for additional uses such as livestock, kitchen gardens, micro-enterprises, etc.	<b>Acceptable:</b> No complaints by users (not even muddiness) but water has not been tested	In addition to the above, more than 10 minutes for a person to collect water from the public stand post and more than 10 minutes for a person to reach the public stand post from their house	<i>In addition</i> , supply comes at convenient times agreed by the Panchayat and Gram Sabha AND Panchayat makes alternative arrangements for supply during breakdowns – but it does not always happen	Improved
Basic	For ALL water point users, quantity is adequate for ALL drinking uses but not for ALL domestic uses (e.g., cooking, washing, bathing) – less than 40 lpcd, e.g., 3 pots of 12 litres for a person per day	<b>Acceptable:</b> No complaints by users (not even muddiness) but water has not been tested	All 3 criteria satisfied: less than 250 persons using the public stand post, less than 1 km from residence and no one excluded from using the public stand post	Supply comes at scheduled times and duration except during breakdowns	Improved

Service level	Quantity	Quality	Accessibility	Reliability	Status
Sub-standard	For ALL water point users, quantity is inadequate for even drinking - less than 1 pot of 12 litres for a person per day (e.g., because the water point is not functional for substantial parts of the year)	<b>Problematic:</b> No complaints by users (not even muddiness) but water has not been tested	2 out of 3 of the above criteria satisfied, but not all 3	Supply has scheduled times and duration, but water comes at different times than scheduled and for less duration than required	<b>Unimproved</b>
No Service	No water from the tap for the past year	<b>Unacceptable:</b> Water is unfit for drinking by humans OR water is used for drinking by humans despite bad smell, bad taste or colour or appearance (e.g., muddiness)	More than 250 persons using the public stand post OR more than 1 km from residence OR some people excluded from using the public stand post	No scheduled times and duration of water supply; water comes at different times and for different durations	<b>Unimproved</b>

**Source:** James et al., 2012

## ANNEX 3: QPA Questions for Settlement Assessments

### Quantified Participatory Assessment (QPA)

#### WASH RISK AND VULNERABILITY ASSESSMENT IN AFGHANISTAN

UNICEF Afghanistan

## SETTLEMENT ASSESSMENT

### 1. BASIC SETTLEMENT INFORMATION

#### 1.1 General Information

Name of the Province	
Name of the District	
Name of the Settlement	
Date of the assessment	
Name of Field Investigator 1	
Name of the Field Investigator 2	

Start time		AM/PM
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#### 1.2 Population

Total number of families (2002 census)	
Total number of families (2007 census)	
Total number of families now	

#### 1.3 Existing Water Supply Infrastructure

Type	Built by Government agencies	Built by Non Government agencies	Total
Shallow tube wells			
Deep tube wells			
Dug wells – private			
Dug wells – common			
Protected springs			

Rain Water			
River/Stream			
Village Pond/Lake			
Irrigation Canal			
Others (specify)			

#### 1.4 Existing Sanitation Infrastructure

Type	Built by Government agencies	Built by Non Government agencies	Total
<b>Private toilets</b>			
Dry pit latrine			
Pour flush toilet			
<b>Public toilets</b>			
School			
Health Clinic			
Others (specify)			

## 2. DISTANCES FROM THE SETTLEMENT

Distance from the settlement to nearest	Distance (kms)
Town for spare parts, tools & technical support services for <b>water supply</b>	
Town for spare parts, tools & technical support services for <b>sanitation</b>	
Health Clinic	
Family Health Workers office	
Hospital	
Local government office	
District Government office	
Provincial Government office	

## 2. WATER SUPPLY

### 2.1 Water Supply: Resources

Options	Scores	Score
<b>Worst case:</b> There is no source of safe drinking water for the whole human population in the settlement for more than 3 months	0	
There is no source of safe drinking water for the whole human population in the settlement for up to 1 month	25	



<b>Benchmark:</b> There is one source of safe drinking water for the whole human population in the settlement for all 12 months of the year	50	
There is more than 1 source of safe drinking water for the whole human population in the settlement for all 12 months of the year	75	
<b>Ideal:</b> There are adequate sources of safe drinking water for the whole human AND animal population in the settlement for all 12 months of the year	100	
<i>Reason for score</i>		

## 2.2 Water Supply: Infrastructure

Options	Scores	Score
<b>Worst case:</b> There is no infrastructure to provide safe drinking water in the settlement (e.g., hand pumps, motor pumps, pipes, taps, etc.)	0	
There is infrastructure to provide safe drinking water in the settlement (e.g., hand pumps, motor pumps, pipes, taps, etc.), but it is not working	25	
<b>Benchmark:</b> There is infrastructure to provide safe drinking water in the settlement (e.g., hand pumps, motor pumps, pipes, taps, etc.) and it is working well (only minor breakdowns with downtime is less than 3 days on average per breakdown)	50	
There is infrastructure to provide safe drinking water in the settlement (e.g., hand pumps, motor pumps, pipes, taps, etc.) and it is working well (downtime is less than 2 day on average per breakdown)	75	
<b>Ideal:</b> There is infrastructure to provide safe drinking water in the settlement (e.g., hand pumps, motor pumps, pipes, taps, etc.) and it is working well (downtime is less than 1 day on average per breakdown)	100	
<i>Reason for score</i>		

## 2.3 Water Supply: Awareness

Options	Scores	Score
<b>Worst case:</b> No awareness campaigns held on the need for safe water supply; All residents unaware of this need	0	
Awareness campaign held in the last 1 year on the need for safe water supply; but no change in awareness	25	
<b>Benchmark:</b> Awareness campaign held in the last 1 year on the need for safe water supply; Awareness of key stakeholders (e.g., Malik, Mullah, etc.) changed	50	
More than 1 awareness campaign organized in the last 1 year on the need for safe water supply; Awareness of key stakeholders (e.g., Malik, Mullah, etc.) and women and children changed	75	

<b>Ideal:</b> More than 1 awareness campaign organized in the last 1 year on the need for safe water supply; All residents aware of the need for safe water supply	100	
<b>Reason for score</b>		

## 2.4 Water Supply: Entitlement

Options	Scores	Score
<b>Worst case:</b> Some social or other barriers for some groups to access water supply at some water points in the settlement	0	
Some social or other barriers for some groups to access water supply at some water points in the settlement	25	
<b>Benchmark:</b> No social or other barriers to access to water supply at any water point in the settlement	50	
No social or other barriers to access to water supply at any water point in the settlement	75	
<b>Ideal:</b> No social or other barriers to access to water supply at any water point in the settlement	100	
<i>Reason for score</i>		

## 2.5 Water Supply: Entitlement

Options	Scores	Score
<b>Worst case:</b> Some social or other barriers for some groups to access water supply at some water points in the settlement	0	
Some social or other barriers for some groups to access water supply at some water points in the settlement	25	
<b>Benchmark:</b> No social or other barriers to access to water supply at any water point in the settlement	50	
No social or other barriers to access to water supply at any water point in the settlement	75	
<b>Ideal:</b> No social or other barriers to access to water supply at any water point in the settlement	100	
<i>Reason for score</i>		

### 3. SANITATION

#### 3.1 Sanitation: Awareness

Options	Scores	Score
<b>Worst case:</b> No awareness campaigns held on the need for safe sanitation; All residents unaware of this need	0	
Awareness campaign held in the last 1 year on the need for safe sanitation; but no change in awareness	25	
<b>Benchmark:</b> Awareness campaign held in the last 1 year on the need for safe sanitation; Awareness of key stakeholders (e.g., Malik, Mullah, etc.) changed	50	
More than 1 awareness campaign organized in the last 1 year on the need for safe sanitation; Awareness of key stakeholders (e.g., Malik, Mullah, etc.) and women and children changed	75	
<b>Ideal:</b> More than 1 awareness campaign organized in the last 1 year on the need for safe sanitation; All residents aware of the need for safe water supply	100	
<b>Reason for score</b>		

#### 3.2 Sanitation: Infrastructure

Options	Scores	Score
<b>Worst case:</b> None of the residents have access to adequate and safe sanitation facilities	0	
Only 50% residents have access to adequate and safe sanitation facilities	25	
<b>Benchmark:</b> All residents have access to adequate and safe sanitation facilities	50	
All residents have access to adequate and safe sanitation facilities; some even have safe disposal of human waste (e.g., septic tanks)	75	
<b>Ideal:</b> All residents have access to adequate and safe sanitation facilities (with safe disposal of human waste)	100	
<i>Reason for score</i>		

#### 3.3 Sanitation: Use

Options	Scores	Score
<b>Worst Case:</b> 100% open defecation; no sanitation facilities in the settlement	0	
50% residents defecate in the open; there are some sanitation facilities in the settlement	25	

<b>Benchmark:</b> Very few adults (e.g., less than 10%) defecate in open; most use sanitation facilities in the settlement	50	
No open defecation; all adults use sanitation facilities provided in the settlement	75	
<b>Ideal:</b> No open defecation; ALL residents use sanitation facilities provided in the settlement	100	
<i>Reason for score</i>		

#### 4. HYGIENE

##### 4.1 Hygiene: Awareness

Options	Scores	Score
<b>Worst case:</b> No awareness campaigns held on the need for hand washing at critical times; All residents unaware of this need	0	
Awareness campaign held in the last 1 year on the need for hand washing at critical times; but no change in awareness	25	
<b>Benchmark:</b> Awareness campaign held in the last 1 year on the need for hand washing at critical times; Key stakeholders (e.g., Malik, Mullah, etc.) aware of this need	50	
More than 1 awareness campaign organized in the last 1 year on the need for hand washing at critical times; All key stakeholders (e.g., Malik, Mullah, etc.), especially women and children, are aware	75	
<b>Ideal:</b> More than 1 awareness campaign organized in the last 1 year on the need for hand washing at critical times; All residents aware of the need for hand washing at critical times	100	
<i>Reason for score</i>		

##### 4.2 Hygiene: Practice

Options	Scores	Score
<b>Worst case:</b> None of the residents wash hands at critical times (even with water)	0	
Only a few residents wash hands at critical times (with water)	25	
<b>Benchmark:</b> All residents wash hands at critical times (with water)	50	
All residents wash hands at critical times (with water); some wash with soap or ash	75	
<b>Ideal:</b> All residents wash hands at critical times, with soap and water	100	
<i>Reason for score</i>		

## 5. DISASTERS AND RESPONSES

### 5.1 Disasters: Whether disaster prone

Options	Scores	Score
<b>Worst case:</b> More than 1 major natural disaster affected the settlement in the last 5 years (destroying WASH infrastructure)	0	
One major natural disaster affected the settlement in the last 10 years (destroying WASH infrastructure)	25	
<b>Benchmark:</b> No natural disasters affected the settlement in last 50 years	50	
No natural disasters affected the settlement in last century	75	
<b>Ideal:</b> No natural disasters affected the settlement in recorded or remembered history	100	
<i>Reason for score</i>		

### 5.2 Disasters: Actual Response to disasters (Water Supply)

Options	Scores	Score
<b>Worst case:</b> Drinking water supply not restored; no alternative water supply provided	0	
Drinking water supply restored after 1 month; some alternative water supply provided but not adequate and not safe	25	
<b>Benchmark:</b> Drinking water supply restored within 1 month; some alternative safe supply provided, just enough for survival (e.g., 1 litres per person per day)	50	
Drinking water supply restored within 2 weeks; some alternative safe supply provided, just enough for survival (e.g., 1 litres per person per day)	75	
<b>Ideal:</b> Drinking water supply restored in less than 1 week; adequate safe water supply from alternative sources provided in the interim	100	
<i>Reason for score</i>		

### 5.3 Disasters: Actual Response to disasters (Sanitation)

Options	Scores	Score
<b>Worst case:</b> Sanitation facilities not restored by government	0	
Sanitation facilities not restored by government; some private efforts made	25	
<b>Benchmark:</b> Existing sanitation facilities restored; but after long time (e.g., 1 year)	50	
Existing sanitation facilities restored within 1 month	75	
<b>Ideal:</b> Sanitation facilities restored for all residents – with improvements	100	
<i>Reason for score</i>		

## 6. ACCESSIBILITY

### 6.1 Accessibility: Security Situation

Options	Scores	Score
<b>Worst case:</b> Highly insecure; not possible to visit the settlement	0	
Insecure; but possible to visit the settlement with security guards	25	
<b>Benchmark:</b> Secure; no need for security guards normally while visiting the settlement, but maybe at some times (e.g., night time)	50	
Very secure; possible to visit the settlement without security guards	75	
<b>Ideal:</b> Normal; Nobody uses security guards to reach the settlement	100	
<i>Reason for score</i>		

### 6.2 Accessibility: Land Mines

Options	Scores	Score
<b>Worst case:</b> Badly infested; Constant danger of death or disability due to landmines en route to and within the settlement	0	
Infested; real possibility of death or disability due to landmines inside the settlement but not en route	25	
<b>Benchmark:</b> Not infested; no landmines en route to or inside the settlement	50	
Not infested; no landmines en route to, inside or around the settlement	75	
<b>Ideal:</b> Not infested; no landmines anywhere - en route to, inside or around the settlement	100	
<i>Reason for score</i>		

### 6.3 Accessibility: Roads and weather

Options	Scores	Score
<b>Worst case:</b> Inaccessible: No access by motorable roads; takes more than 12 hours from the district capital to reach the settlement; cut off in winter months	0	
Problems of access: Roads are not good OR usable only in good weather; takes more than 6 hours (but less than 12 hours) if driving from the district capital	25	
<b>Benchmark:</b> Fairly accessible: Good roads in all weather; can reach in 6 hours by driving from the district capital	50	
Accessible: Good roads in all weather; can reach in 3 hours by driving from the district capital	75	
<b>Ideal:</b> Easily accessible: Good roads in all weather; can reach in 1 hour by driving from the district capital	100	
<i>Reason for score</i>		

## 7. HEALTH

### 7.1 Health: Hospitals and Health Centres

Options	Scores	Score
<b>Worst case:</b> No health centres and the nearest hospital is in the district capital, but it does not have adequate doctors, nurses, medicines or equipment	0	
Nearest functional hospital or health centre with doctors is in the district capital; there is a health centre closer, but it does not have adequate doctors, nurses, medicines or equipment as per need	25	
<b>Benchmark:</b> There is a functional health centre with a regular doctor and nurse within 1 hour’s drive from the settlement; the nearest hospital is at the district which is functional, and well-equipped with experienced doctors and nurses	50	
There is a functional, well-equipped hospital with experienced doctors and nurses within 1 hour drive by a good road	75	
<b>Ideal:</b> There is a functional, well-equipped hospital with experienced doctors and nurses within 1/2 hour drive by a good road	100	
<i>Reason for score</i>		

### 7.2 Health: Morbidity due to water-borne diseases

Options	Scores	Score
<b>Worst case:</b> Very high: More than 50% above the average for settlements in the district	0	
High: Up to 25% higher than the average for settlements in the district	25	
<b>Benchmark:</b> Average: Same as the average for settlements in the district	50	
Low: Below the average for settlements in the district	75	
<b>Ideal:</b> Very low: More than 50% below the average for settlements in the district	100	
<i>Reason for score</i>		

### 7.3 Health: Mortality due to water-borne diseases

Options	Scores	Score
<b>Worst case:</b> Very high: More than 50% above the average for settlements in the district	0	
High: Up to 25% higher than the average for settlements in the district	25	
<b>Benchmark:</b> Average: Same as the average for settlements in the district	50	
Low: Below the average for settlements in the district	75	
<b>Ideal:</b> Very low: More than 50% below the average for settlements in the district	100	
<i>Reason for score</i>		



## 8. GOVERNANCE

### 8.1 Governance: Responsiveness of local government

Options	Scores	Score
<b>Worst case:</b> Very poor: No representatives come to the district to meet officials to address their WASH problems	0	
Poor: Representatives come to the district rarely and WASH problems are not addressed	25	
<b>Benchmark:</b> Average: Settlement representatives come to meet district officials to address WASH problems in the settlement, but they do not come often – and there is no follow up; some WASH problems therefore persist	50	
Good: Settlement representatives come to meet district officials to address WASH problems in the settlement, and problems are resolved, but take time (e.g., 6 months) as they are not persistent	75	
<b>Ideal:</b> Very Good: Settlement representatives come to meet district officials to address WASH problems in the settlement – and persist till the problems are resolved	100	
<i>Reason for score</i>		

### 8.2 Governance: Adequacy of budget

Options	Scores	Score
<b>Worst case:</b> Very poor: More than 50% below the average for settlements in the district	0	
Poor: Up to 25% below the average for settlements in the district	25	
<b>Benchmark:</b> Average: Around the same as the average for settlements in the district	50	
Good: Up to 25% above the average for settlements in the district	75	
<b>Ideal:</b> Very Good: More than 50% above the average for settlements in the district	100	
<i>Reason for score</i>		

End time		AM/PM
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### ADDITIONAL COMMENTS AND OBSERVATIONS ABOUT THE SETTLEMENT

## ANNEX 4: Detailed Vulnerability findings for settlements

This table shows the proportion of settlements in each of the selected districts in the 33 provinces that have been identified as being vulnerable to different extents (i.e., Very High, High, Medium, Low and Very Low) on different aspects of WASH vulnerability (water, sanitation and hygiene) and vulnerability due to compounding factors (disasters, accessibility, health facilities and governance). The colour codes used in the Table to depict vulnerability are as follows:

Very High	High	Medium	Low	Very Low
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PROVINCE	DISTRICT	Proportion of vulnerable settlements in each district due to ...																			
		Poor WASH									Compounding factors										
		Poor water supply				Poor sanitation			Poor hygiene		Disasters			Poor accessibility			Poor health facilities			Poor governance	
		Source	Infra-structure	Aware-ness	Access-ibility	Aware-ness	Access-ibility	Use	Aware-ness	Pract-ice	Prone-ness	Resp-onse: Water	Resp-onse: Sanit-ation	Insec-urity	Land-mines	Roads/Climate	Hospi-tals & Clinics	Morb-idity	Mort-ality	Resp-onse to disasters	Budgets for response
Badakhshan	Tagab	13%	13%	5%	13%	23%	40%	45%	23%	28%	10%	8%	25%	8%	3%	8%	20%	18%	5%	15%	58%
		43%	48%	90%	10%	75%	35%	33%	70%	55%	15%	13%	5%	13%	20%	50%	18%	58%	58%	30%	30%
		30%	15%	3%	3%	3%	23%	13%	8%	13%	8%	5%	0%	30%	8%	13%	3%	23%	35%	38%	5%
		13%	25%	3%	50%	0%	0%	10%	0%	3%	28%	3%	3%	25%	30%	25%	60%	3%	3%	15%	3%
		3%	0%	0%	25%	0%	3%	0%	0%	3%	40%	73%	68%	25%	40%	5%	0%	0%	0%	0%	3%
Badghis	Ab Kamari	48%	57%	35%	1%	32%	42%	21%	15%	3%	22%	21%	29%	1%	1%	1%	34%	15%	3%	35%	43%
		20%	18%	53%	22%	55%	33%	59%	72%	78%	24%	19%	14%	22%	6%	34%	43%	69%	72%	27%	47%
		24%	19%	10%	14%	13%	20%	17%	10%	18%	9%	6%	2%	19%	31%	19%	7%	10%	21%	35%	9%
		5%	4%	0%	26%	0%	2%	2%	3%	1%	5%	7%	3%	19%	14%	29%	11%	2%	0%	2%	0%
		2%	2%	2%	36%	0%	2%	1%	0%	0%	39%	35%	40%	38%	47%	16%	4%	4%	4%	0%	0%
Baghlan	Burka	55%	52%	40%	2%	43%	60%	47%	27%	3%	22%	30%	40%	0%	3%	20%	30%	12%	0%	40%	70%
		17%	28%	53%	40%	48%	33%	45%	65%	87%	38%	23%	13%	0%	5%	40%	63%	78%	90%	25%	25%
		25%	20%	5%	8%	8%	7%	7%	8%	8%	7%	7%	7%	20%	20%	12%	3%	8%	7%	27%	5%

PROVINCE	DISTRICT	Proportion of vulnerable settlements in each district due to ...																			
		Poor WASH									Compounding factors										
		Poor water supply				Poor sanitation			Poor hygiene		Disasters			Poor accessibility			Poor health facilities			Poor governance	
		Source	Infra-structure	Aware-ness	Access-ibility	Aware-ness	Access-ibility	Use	Aware-ness	Pract-ice	Prone-ness	Response: Water	Response: Sanitation	Insec-urity	Land-mines	Roads/Climate	Hospitals & Clinics	Morbidity	Mortality	Response to disasters	Budgets for response
		3%	0%	2%	17%	0%	0%	2%	0%	2%	2%	3%	3%	13%	15%	18%	3%	2%	3%	8%	0%
		0%	0%	0%	33%	0%	0%	0%	0%	0%	32%	32%	32%	67%	57%	10%	0%	0%	0%	0%	0%
Balkh	Zari	20%	19%	17%	9%	11%	22%	11%	13%	4%	8%	10%	16%	0%	0%	17%	13%	5%	2%	22%	49%
		38%	48%	77%	15%	86%	59%	53%	80%	83%	22%	11%	15%	4%	5%	68%	78%	78%	82%	23%	49%
		24%	26%	6%	4%	2%	14%	21%	5%	11%	23%	12%	3%	9%	8%	5%	6%	12%	12%	49%	1%
		16%	5%	0%	12%	0%	4%	13%	0%	0%	4%	3%	0%	18%	11%	5%	2%	1%	1%	5%	0%
		1%	1%	0%	60%	1%	1%	2%	2%	2%	42%	19%	21%	69%	76%	5%	1%	4%	3%	0%	0%
Bamyan	Panjab	55%	66%	15%	2%	13%	13%	12%	8%	1%	9%	14%	14%	0%	1%	7%	61%	8%	2%	7%	77%
		11%	14%	44%	2%	41%	4%	1%	37%	7%	9%	5%	2%	0%	1%	9%	13%	61%	49%	16%	17%
		17%	6%	3%	2%	6%	45%	46%	4%	53%	0%	2%	0%	0%	1%	28%	5%	24%	34%	69%	6%
		6%	4%	4%	0%	0%	14%	13%	4%	12%	1%	0%	2%	5%	3%	35%	3%	5%	13%	5%	0%
		12%	9%	34%	94%	40%	24%	28%	46%	27%	80%	78%	81%	95%	94%	20%	18%	1%	2%	2%	0%
Daikondi	Khedir	17%	21%	3%	9%	6%	49%	43%	0%	6%	10%	9%	46%	0%	0%	23%	63%	9%	7%	1%	76%
		20%	33%	79%	10%	87%	47%	44%	81%	43%	46%	31%	13%	6%	3%	14%	30%	61%	61%	17%	21%
		46%	31%	14%	13%	6%	1%	4%	11%	37%	6%	14%	0%	4%	0%	6%	3%	24%	26%	60%	1%
		17%	14%	4%	29%	1%	0%	4%	7%	7%	7%	3%	1%	51%	53%	43%	4%	6%	6%	21%	1%
		0%	0%	0%	40%	0%	3%	4%	0%	7%	31%	30%	27%	39%	44%	14%	0%	0%	0%	0%	0%
Farah	Qalal Khan	50%	45%	11%	3%	14%	26%	14%	8%	3%	15%	31%	34%	3%	1%	9%	29%	3%	1%	11%	49%
		16%	29%	58%	20%	60%	38%	56%	68%	54%	40%	23%	16%	1%	1%	41%	53%	69%	66%	28%	40%
		29%	21%	25%	13%	24%	36%	29%	24%	39%	29%	13%	9%	25%	23%	24%	11%	26%	29%	48%	11%
		5%	5%	6%	46%	3%	0%	1%	1%	5%	4%	4%	6%	36%	25%	18%	6%	3%	4%	14%	0%
		0%	0%	0%	19%	0%	0%	0%	0%	0%	13%	29%	34%	35%	50%	9%	1%	0%	0%	0%	0%

PROVINCE	DISTRICT	Proportion of vulnerable settlements in each district due to ...																			
		Poor WASH									Compounding factors										
		Poor water supply				Poor sanitation			Poor hygiene		Disasters			Poor accessibility			Poor health facilities			Poor governance	
		Source	Infra-structure	Aware-ness	Access-ibility	Aware-ness	Access-ibility	Use	Aware-ness	Pract-ice	Prone-ness	Response: Water	Response: Sanitation	Insec-urity	Land-mines	Roads/Climate	Hospitals & Clinics	Morbidity	Mortality	Response to disasters	Budgets for response
Faryab	Balchiragh	35%	41%	37%	6%	35%	59%	59%	24%	2%	8%	11%	27%	2%	0%	8%	27%	0%	0%	40%	81%
		14%	38%	56%	33%	62%	33%	37%	70%	79%	52%	43%	29%	11%	0%	52%	63%	70%	84%	13%	14%
		44%	19%	5%	21%	3%	8%	5%	6%	13%	5%	3%	2%	13%	14%	10%	10%	24%	10%	17%	2%
		5%	2%	2%	17%	0%	0%	0%	0%	5%	2%	2%	2%	11%	11%	13%	0%	6%	5%	3%	0%
		2%	0%	2%	22%	0%	0%	0%	0%	2%	33%	35%	35%	63%	75%	17%	0%	0%	2%	27%	3%
Ghazni	Nawur	24%	30%	4%	6%	7%	50%	44%	4%	7%	21%	38%	54%	4%	0%	22%	47%	9%	3%	17%	57%
		19%	23%	81%	15%	79%	31%	37%	77%	51%	33%	17%	10%	9%	12%	26%	30%	68%	67%	22%	36%
		39%	41%	12%	19%	12%	14%	15%	16%	37%	7%	9%	4%	19%	11%	15%	11%	21%	27%	42%	5%
		15%	6%	2%	28%	2%	4%	4%	3%	6%	11%	3%	3%	31%	36%	32%	11%	1%	1%	17%	0%
		3%	1%	0%	33%	0%	1%	1%	0%	0%	27%	31%	27%	38%	41%	5%	1%	1%	1%	2%	1%
Ghor	Saghar	44%	52%	24%	1%	30%	41%	15%	8%	4%	13%	25%	25%	0%	2%	7%	40%	11%	5%	38%	51%
		10%	10%	51%	11%	34%	21%	45%	51%	48%	11%	11%	7%	9%	28%	65%	21%	46%	48%	38%	19%
		23%	20%	23%	4%	27%	18%	13%	26%	26%	0%	1%	1%	24%	8%	16%	33%	16%	12%	19%	31%
		22%	18%	2%	10%	6%	14%	18%	10%	15%	1%	1%	6%	16%	5%	7%	6%	8%	2%	4%	0%
		1%	1%	1%	73%	3%	6%	8%	5%	6%	74%	62%	61%	51%	57%	4%	0%	18%	32%	1%	0%
Hilmand	Sangeen	33%	53%	9%	7%	11%	58%	58%	11%	11%	24%	38%	45%	4%	4%	13%	11%	11%	4%	11%	55%
		31%	24%	80%	15%	84%	25%	33%	84%	73%	51%	36%	27%	35%	4%	42%	60%	62%	75%	20%	44%
		35%	22%	11%	16%	5%	13%	9%	4%	13%	4%	0%	0%	11%	11%	15%	24%	27%	20%	36%	2%
		2%	0%	0%	42%	0%	2%	0%	2%	2%	4%	0%	0%	0%	29%	27%	5%	0%	0%	13%	0%
		0%	2%	0%	20%	0%	2%	0%	0%	2%	18%	4%	5%	51%	53%	4%	0%	0%	2%	20%	0%
Hirath	Khushk-e-	18%	31%	2%	4%	4%	35%	34%	3%	4%	13%	22%	27%	2%	2%	4%	6%	6%	2%	2%	31%
		18%	13%	49%	7%	49%	13%	17%	50%	41%	28%	21%	15%	20%	2%	25%	34%	33%	42%	13%	25%

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		Source	Infra-structure	Aware-ness	Access-ibility	Aware-ness	Access-ibility	Use	Aware-ness	Pract-ice	Prone-ness	Resp-onse: Water	Resp-onse: Sanit-ation	Insec-urity	Land-mines	Roads/Climate	Hospi-tals & Clinics	Morb-idity	Mort-ality	Resp-onse to disasters	Budgets for response
	Kuhna	22%	14%	6%	9%	4%	7%	6%	3%	9%	3%	0%	0%	6%	4%	6%	14%	18%	13%	24%	1%
		0%	0%	0%	28%	0%	1%	0%	1%	1%	4%	0%	0%	0%	18%	18%	3%	0%	0%	7%	0%
		0%	0%	0%	8%	0%	1%	0%	0%	2%	9%	2%	3%	29%	31%	4%	0%	0%	1%	11%	0%
Jowzjan	Quseh Tepa	8%	10%	0%	2%	10%	19%	25%	4%	17%	2%	19%	29%	4%	0%	19%	21%	8%	2%	10%	35%
		29%	27%	88%	4%	75%	58%	48%	87%	63%	12%	8%	8%	29%	17%	60%	31%	75%	65%	40%	56%
		38%	42%	8%	4%	13%	21%	17%	8%	13%	13%	4%	2%	17%	6%	15%	6%	13%	31%	46%	8%
		21%	21%	2%	37%	0%	2%	6%	2%	4%	21%	6%	8%	4%	21%	6%	40%	4%	2%	4%	2%
		4%	0%	2%	54%	2%	0%	4%	0%	2%	52%	56%	46%	46%	56%	0%	2%	0%	0%	0%	0%
Kandahar	Arghistan	54%	54%	63%	8%	46%	31%	18%	42%	3%	26%	23%	31%	0%	3%	6%	29%	8%	3%	51%	51%
		8%	15%	32%	31%	48%	48%	65%	52%	95%	29%	18%	20%	6%	5%	46%	52%	86%	86%	26%	45%
		17%	18%	5%	9%	5%	18%	15%	5%	2%	0%	8%	0%	34%	35%	0%	9%	6%	11%	20%	5%
		14%	3%	0%	12%	2%	3%	2%	2%	0%	0%	3%	2%	11%	8%	28%	6%	0%	0%	3%	0%
		2%	0%	2%	42%	2%	0%	3%	0%	0%	42%	45%	37%	43%	48%	0%	2%	0%	0%	0%	0%
Kapisa	Nijrab	53%	59%	28%	4%	27%	29%	10%	14%	4%	8%	54%	49%	2%	2%	4%	40%	8%	3%	36%	67%
		11%	14%	48%	2%	55%	28%	38%	53%	38%	20%	11%	17%	5%	5%	43%	35%	61%	61%	12%	21%
		19%	11%	12%	7%	10%	32%	40%	15%	35%	5%	3%	4%	9%	5%	15%	5%	17%	19%	50%	12%
		11%	9%	3%	24%	2%	7%	9%	3%	10%	5%	2%	2%	25%	6%	25%	14%	2%	3%	1%	0%
		7%	7%	9%	64%	7%	4%	4%	16%	13%	62%	25%	23%	59%	82%	13%	6%	11%	14%	1%	0%
Khost	Tanai	52%	55%	34%	5%	36%	45%	29%	25%	3%	29%	52%	66%	2%	2%	12%	47%	6%	5%	27%	60%
		11%	18%	57%	10%	57%	40%	45%	67%	57%	43%	25%	13%	12%	7%	43%	39%	77%	77%	37%	35%
		24%	15%	7%	8%	5%	15%	23%	6%	30%	9%	6%	4%	16%	25%	17%	8%	12%	12%	32%	6%
		11%	10%	2%	21%	2%	0%	0%	2%	8%	4%	2%	4%	34%	35%	16%	3%	2%	2%	4%	0%

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		Source	Infra-structure	Aware-ness	Access-ibility	Aware-ness	Access-ibility	Use	Aware-ness	Pract-ice	Prone-ness	Resp-onse: Water	Resp-onse: Sanit-ation	Insec-urity	Land-mines	Roads/Climate	Hospi-tals & Clinics	Morb-idity	Mort-ality	Resp-onse to disasters	Budgets for response
		2%	2%	0%	56%	1%	0%	3%	1%	2%	15%	15%	13%	37%	31%	12%	3%	3%	5%	1%	0%
Kunar	Chaapa Dara	71%	66%	3%	3%	9%	66%	43%	0%	9%	11%	49%	60%	6%	0%	6%	74%	3%	9%	3%	69%
		17%	23%	89%	6%	83%	29%	37%	86%	66%	54%	29%	17%	14%	9%	37%	23%	83%	54%	43%	20%
		11%	9%	9%	6%	9%	6%	14%	11%	20%	26%	11%	9%	29%	49%	20%	3%	14%	37%	49%	9%
		0%	3%	0%	54%	0%	0%	6%	3%	0%	3%	3%	6%	31%	17%	20%	0%	0%	0%	3%	3%
		0%	0%	0%	31%	0%	0%	0%	0%	6%	6%	6%	6%	20%	26%	17%	0%	0%	0%	3%	0%
Kunduz	Khanabad	35%	29%	27%	9%	33%	52%	27%	18%	4%	7%	18%	37%	7%	5%	3%	34%	8%	3%	24%	65%
		20%	22%	47%	5%	41%	18%	33%	48%	39%	20%	15%	4%	22%	11%	39%	47%	70%	58%	38%	22%
		26%	22%	14%	12%	10%	16%	21%	18%	34%	18%	7%	8%	33%	28%	21%	9%	15%	25%	23%	8%
		10%	11%	4%	47%	3%	5%	3%	1%	11%	30%	16%	15%	22%	30%	32%	8%	6%	10%	10%	3%
		9%	16%	8%	26%	12%	9%	16%	15%	11%	25%	42%	34%	16%	25%	5%	3%	2%	3%	4%	3%
Laghman	Dawlat Shah	52%	43%	15%	33%	16%	30%	30%	11%	3%	19%	34%	41%	3%	1%	9%	54%	3%	1%	16%	67%
		18%	37%	80%	10%	81%	61%	62%	87%	89%	48%	25%	25%	1%	0%	34%	35%	91%	91%	27%	28%
		19%	18%	5%	8%	3%	8%	5%	1%	5%	8%	5%	1%	1%	1%	5%	9%	5%	6%	48%	5%
		10%	3%	0%	15%	0%	1%	1%	0%	4%	3%	1%	3%	15%	14%	23%	0%	1%	1%	5%	0%
		1%	0%	0%	34%	0%	0%	1%	0%	0%	23%	20%	16%	80%	84%	29%	1%	0%	0%	4%	0%
Logar	Kharwar	46%	45%	30%	2%	30%	64%	46%	36%	2%	2%	20%	30%	0%	2%	5%	41%	9%	0%	36%	75%
		20%	29%	66%	11%	64%	30%	38%	61%	80%	29%	20%	5%	5%	14%	38%	38%	80%	84%	27%	21%
		18%	13%	2%	9%	4%	5%	14%	2%	16%	9%	2%	4%	55%	48%	20%	18%	11%	16%	29%	4%
		9%	4%	2%	38%	2%	0%	0%	2%	2%	4%	2%	0%	9%	5%	21%	4%	0%	0%	4%	0%
		7%	11%	0%	41%	0%	0%	2%	0%	0%	57%	57%	61%	30%	30%	16%	0%	0%	0%	5%	0%
Maidan	Jalrez	31%	31%	26%	7%	27%	21%	15%	17%	2%	17%	27%	35%	5%	2%	19%	41%	8%	1%	27%	47%

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		Source	Infra-structure	Aware-ness	Access-ibility	Aware-ness	Access-ibility	Use	Aware-ness	Pract-ice	Prone-ness	Resp-onse: Water	Resp-onse: Sanit-ation	Insec-urity	Land-mines	Roads/Climate	Hospi-tals & Clinics	Morb-idity	Mort-ality	Resp-onse to disasters	Budgets for response
Wardak		21%	29%	56%	20%	59%	51%	65%	63%	73%	45%	28%	15%	7%	8%	50%	52%	78%	84%	29%	45%
		33%	36%	17%	16%	13%	21%	16%	19%	21%	15%	9%	14%	24%	15%	14%	6%	13%	14%	34%	8%
		13%	3%	1%	23%	1%	5%	2%	1%	3%	5%	6%	5%	16%	22%	8%	1%	1%	1%	10%	0%
		2%	0%	0%	34%	0%	2%	1%	0%	0%	17%	29%	29%	48%	52%	9%	0%	0%	0%	0%	0%
Nangarhar	Hisarak	17%	15%	15%	1%	31%	33%	27%	7%	1%	9%	8%	28%	0%	1%	1%	9%	3%	0%	10%	20%
		6%	10%	26%	1%	30%	16%	25%	46%	13%	9%	4%	1%	15%	16%	30%	9%	13%	17%	34%	10%
		14%	17%	51%	0%	34%	37%	27%	38%	59%	1%	1%	1%	18%	14%	7%	16%	10%	1%	49%	67%
		54%	54%	7%	9%	4%	7%	11%	10%	26%	13%	13%	5%	40%	10%	51%	35%	13%	8%	5%	2%
		10%	5%	1%	89%	1%	7%	10%	1%	1%	68%	74%	65%	26%	59%	10%	32%	62%	74%	3%	1%
Nimroz	Chahar Burjak	65%	57%	6%	4%	6%	65%	56%	7%	0%	13%	13%	17%	2%	4%	6%	89%	0%	0%	4%	61%
		6%	20%	94%	6%	91%	19%	31%	91%	63%	26%	11%	15%	6%	4%	19%	9%	94%	93%	41%	31%
		20%	22%	0%	6%	4%	7%	6%	2%	35%	17%	15%	13%	26%	46%	11%	2%	6%	7%	52%	6%
		7%	0%	0%	52%	0%	6%	2%	0%	2%	17%	0%	4%	46%	26%	44%	0%	0%	0%	4%	2%
		2%	0%	0%	33%	0%	4%	6%	0%	0%	28%	61%	52%	20%	20%	20%	0%	0%	0%	0%	0%
Nooristan	Waygal	22%	27%	0%	3%	0%	24%	5%	0%	0%	0%	11%	8%	0%	0%	3%	73%	8%	0%	0%	49%
		16%	22%	68%	8%	86%	43%	78%	81%	76%	65%	35%	27%	8%	8%	54%	27%	89%	95%	41%	43%
		46%	38%	19%	16%	8%	27%	14%	11%	16%	11%	8%	16%	19%	3%	19%	0%	3%	5%	38%	5%
		5%	8%	11%	14%	5%	5%	3%	5%	5%	11%	5%	8%	5%	3%	11%	0%	0%	0%	22%	3%
		11%	5%	3%	59%	0%	0%	0%	3%	3%	14%	38%	38%	68%	86%	14%	0%	0%	0%	0%	0%
Oruzgan	Shahidi -Hissas	19%	19%	1%	1%	1%	32%	29%	1%	1%	5%	8%	8%	13%	0%	10%	41%	5%	1%	22%	71%
		16%	20%	68%	3%	76%	46%	47%	73%	47%	19%	11%	10%	15%	5%	51%	51%	48%	47%	29%	24%
		41%	30%	29%	6%	19%	15%	15%	16%	28%	8%	6%	1%	19%	10%	18%	9%	24%	27%	41%	3%



PROVINCE	DISTRICT	Proportion of vulnerable settlements in each district due to ...																			
		Poor WASH									Compounding factors										
		Poor water supply				Poor sanitation			Poor hygiene		Disasters			Poor accessibility			Poor health facilities			Poor governance	
		Source	Infra-structure	Aware-ness	Access-ibility	Aware-ness	Access-ibility	Use	Aware-ness	Pract-ice	Prone-ness	Resp-onse: Water	Resp-onse: Sanit-ation	Insec-urity	Land-mines	Roads/Climate	Hospi-tals & Clinics	Morb-idity	Mort-ality	Resp-onse to disasters	Budgets for response
		16%	19%	1%	28%	3%	8%	8%	9%	23%	24%	0%	3%	13%	16%	14%	0%	19%	20%	9%	3%
		8%	11%	0%	62%	1%	0%	1%	0%	1%	44%	72%	76%	41%	68%	8%	0%	4%	5%	0%	0%
Paktia	Shwak	50%	45%	25%	0%	25%	65%	60%	20%	5%	25%	20%	20%	5%	5%	5%	70%	10%	5%	25%	65%
		5%	20%	65%	10%	70%	10%	15%	75%	50%	30%	30%	20%	5%	5%	30%	25%	75%	85%	25%	25%
		30%	20%	10%	5%	5%	20%	25%	5%	45%	20%	25%	35%	25%	40%	15%	0%	15%	10%	45%	10%
		15%	15%	0%	35%	0%	0%	0%	0%	0%	10%	5%	5%	50%	30%	25%	5%	0%	0%	5%	0%
		0%	0%	0%	50%	0%	5%	0%	0%	0%	15%	20%	20%	15%	20%	25%	0%	0%	0%	0%	0%
Paktika	Jani Khel	11%	14%	8%	8%	11%	11%	2%	2%	3%	14%	9%	17%	5%	2%	9%	85%	2%	0%	9%	46%
		14%	29%	55%	9%	54%	46%	55%	66%	63%	55%	28%	18%	5%	3%	32%	9%	75%	71%	15%	40%
		54%	46%	31%	8%	28%	26%	29%	29%	23%	14%	18%	23%	18%	6%	20%	2%	20%	28%	54%	14%
		14%	8%	6%	17%	5%	6%	2%	3%	11%	5%	14%	8%	17%	11%	14%	2%	0%	0%	17%	0%
		8%	3%	0%	58%	3%	11%	12%	0%	0%	12%	28%	31%	55%	78%	25%	3%	3%	2%	5%	0%
Panjsher	Darah	7%	7%	0%	7%	0%	27%	10%	3%	0%	10%	37%	33%	3%	3%	3%	30%	27%	10%	27%	37%
		23%	43%	93%	10%	90%	23%	57%	87%	27%	87%	50%	33%	13%	7%	80%	70%	63%	70%	53%	47%
		40%	40%	7%	10%	10%	47%	20%	10%	73%	0%	13%	13%	27%	30%	3%	0%	7%	17%	20%	13%
		30%	10%	0%	7%	0%	0%	0%	0%	0%	0%	0%	17%	20%	17%	0%	0%	0%	0%	0%	3%
		0%	0%	0%	67%	0%	3%	13%	0%	0%	3%	0%	3%	37%	43%	13%	0%	3%	3%	0%	0%
Parwan	Shekh Ali	28%	26%	15%	0%	19%	23%	8%	0%	4%	4%	8%	8%	0%	0%	6%	26%	11%	0%	25%	32%
		4%	4%	30%	4%	55%	15%	28%	40%	34%	8%	9%	6%	25%	43%	74%	15%	26%	36%	47%	15%
		17%	19%	53%	0%	25%	53%	36%	60%	17%	4%	0%	4%	36%	19%	15%	55%	30%	4%	25%	53%
		47%	51%	2%	11%	2%	8%	19%	0%	45%	0%	0%	4%	2%	0%	2%	4%	17%	13%	4%	0%
		4%	0%	0%	85%	0%	2%	9%	0%	0%	85%	81%	77%	38%	38%	4%	0%	15%	47%	0%	0%

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Samangan	Daray Suf-i-bala	6%	11%	13%	1%	23%	58%	56%	10%	3%	0%	8%	56%	13%	6%	3%	28%	5%	3%	8%	54%
		18%	19%	79%	14%	73%	16%	21%	80%	33%	70%	34%	1%	6%	6%	43%	65%	71%	59%	48%	36%
		66%	60%	6%	23%	4%	14%	13%	9%	63%	8%	21%	8%	50%	6%	28%	3%	21%	35%	29%	9%
		9%	9%	1%	44%	1%	11%	9%	1%	1%	9%	11%	9%	15%	50%	24%	4%	3%	4%	16%	1%
		1%	1%	1%	19%	0%	1%	1%	0%	1%	14%	21%	21%	16%	31%	4%	1%	0%	0%	0%	0%
Saripul	Sayyad	8%	12%	4%	2%	13%	23%	23%	4%	15%	6%	38%	35%	6%	0%	12%	38%	13%	4%	10%	48%
		38%	38%	75%	2%	69%	52%	52%	69%	35%	8%	4%	4%	19%	8%	40%	15%	46%	56%	37%	42%
		23%	25%	4%	2%	4%	8%	8%	4%	19%	2%	4%	2%	27%	2%	25%	8%	27%	25%	44%	4%
		21%	13%	10%	54%	12%	4%	4%	12%	19%	52%	6%	8%	27%	35%	13%	35%	10%	12%	6%	2%
		10%	12%	8%	40%	2%	13%	13%	12%	12%	33%	48%	52%	21%	56%	10%	4%	4%	4%	4%	4%
Takhar	Rustaq	51%	50%	1%	1%	4%	59%	52%	1%	1%	26%	43%	44%	1%	1%	13%	63%	8%	6%	6%	51%
		12%	25%	87%	3%	81%	22%	22%	83%	45%	26%	18%	20%	11%	9%	38%	26%	79%	74%	20%	43%
		22%	19%	12%	12%	13%	17%	22%	13%	46%	21%	10%	7%	22%	34%	8%	8%	10%	12%	62%	4%
		13%	6%	1%	32%	1%	1%	1%	2%	4%	12%	2%	4%	38%	23%	25%	3%	1%	3%	10%	1%
		3%	0%	0%	53%	0%	2%	3%	1%	3%	15%	26%	24%	28%	33%	16%	0%	2%	5%	3%	0%
Zabul	Qalat	27%	28%	17%	6%	14%	17%	17%	11%	3%	4%	16%	19%	6%	0%	22%	51%	10%	2%	16%	59%
		10%	13%	57%	5%	64%	50%	54%	63%	70%	32%	15%	7%	3%	9%	45%	45%	71%	77%	20%	35%
		40%	40%	23%	5%	19%	24%	14%	24%	20%	9%	6%	7%	14%	11%	6%	4%	17%	18%	45%	4%
		18%	13%	2%	22%	3%	6%	7%	2%	4%	13%	9%	12%	11%	4%	19%	0%	2%	3%	19%	2%
		5%	6%	0%	61%	0%	2%	7%	0%	2%	43%	49%	49%	66%	77%	7%	0%	0%	0%	0%	0%