Assessing the mobile environment:
Factors affecting the suitability of SMS and mobile for communicating with disaster-affected communities

Start with the target population, end with the tool

The technological tool, and even the communications channel you use, should not be the starting point for programme planning. Instead there is a logical progression through understanding the context, the community and their preferred communications channels:

- Who do you want to reach?

- What tools and technologies do people already use, and how do they use them?

- Is there anything about the emergency which may have disrupted this technology? For example, network outages, power cuts, lack of access to markets due to call-time suppliers closing or lack of buying power for airtime.

- Which tools and approaches are available for this technology? Which are most appropriate to your needs, and how could you structure your communications to engage and inform people?

Factors affecting the mobile context

A number of factors will impact whether, and how, populations use mobile, and how agencies can use mobile, at multiple levels:

- Network/national level
- Community / cultural level
- Agency capacity

This document seeks to set out some of the considerations and factors to be aware of in assessing the mobile context. They are not weighted or prioritised, but rather present an overall picture which should inform decision-making.

This checklist does not discuss the types of interventions and communications approaches available to agencies via mobile - this is highly context- and programme-specific, and should be considered on a case-by-case basis.

Network / national level

Issue	Comment	Action
Has infrastructure suffered damage as a result of the emergency, been deliberately shut down or suffering overload?	After a natural disaster operators will be working to restore some network coverage as soon as possible, and should be able to give some assessment of damage. In conflict, this may take longer due to lack of access and ongoing risk of damage to equipment and infrastructure. The same factors may impact electricity supplies, although people may have telephone charging solutions which do not depend on central electricity supply.	Stay in touch with operators for sit-reps and estimated duration of outages, if possible through a central coordinator such as OCHA. If electricity is the only blocker to using mobile as a significant communications pathway, consider distributing solar chargers; similarly, wind-up radios can be a useful intervention.
How widespread is network coverage? What type of coverage?	GSM (basic voice and SMS) coverage is likely to be the most widespread standard in most developing countries, with GPRS (WAP or cell data) coverage confined to urban areas. 3G is likely to be sparse and expensive.	Seek up-to-date information about network coverage directly from network operators or from observations on the ground - this information is proprietary and fast-changing, even outside of natural disasters and conflicts.
How far are the mobile networks controlled or owned by the State?	State ownership and control of mobile networks is common where dissent is suppressed. In these contexts, SMS traffic may be monitored, and agencies should be wary of potential risks to their operation and the people they communicate with if content could be interpreted as criticism.	Ensure staff and beneficiaries understand that SMS operates over the mobile network and that there are implications for the integrity and security of information transmitted via SMS. See the FrontlineSMS Data Integrity Guide for more information on this.
How many mobile phone networks exist, and how do they compete? How do users cope with varying pricing structures and signal strength?	Markets vary widely between countries. There are normally 3-5 major mobile network operators in a country, but Nigeria has ten, while more controlled states may have only one or two. Networks may charge more for texting or calling across networks, so people may have multiple SIM cards or handsets to avoid this (some handsets in the developing world accommodate multiple sim cards). If networks use different mobile standards (CDMA versus GSM, for example) it may be difficult or more expensive to text between them. FrontlineSMS does not work well on a CDMA network. Competition for market share is likely to be fierce in most markets, with networks handing out free SIM cards and engaging in price wars. Competition may do much to shape the cost of mobile in a country.	Understand how mobile markets work from a consumer perspective and how people work around it to get the best value. Consider using more than one network to communicate with people, particularly to receive inbound messaging. Agencies may be able to entice mobile operators to help with the hardware and SIM elements of an outreach programme as they stand to gain market share. If you are offered free outbound SMS messaging during 'network downtime' check that this does not mean sending out messages at night.

Issue	Comment	Action
How much does mobile use cost?	Pricing structures for mobile are broadly stabilising around message and minutes bundles in many middle-income countries. Where the market is less developed, costs of individual SMS and calls may remain high - albeit cheaper than alternatives such as physical travel. SMS are normally cheaper than calls. Where there is a well-established GPRS network, people may have adopted this as a lower cost per byte of data and may pay for data bundles (as in urban South Africa). Costs may vary across and between networks (see above).	Understand how mobile markets work from a consumer perspective and how people work around it to get the best value. This may vary from urban to rural areas. If SMS cost is high, interactions will need to represent increased value to users to engage their interest and lead them to spend money interacting with your service. You may need to consider offsetting interaction costs with reverse airtime top-ups and micro-incentives.

Community / cultural level

Issue	Comment	Action
Who owns handsets?	Where poverty and supply restrict access to handsets, people may have their own SIM card but share or borrow a handset, or simply share a phone. In some cultures handset ownership may be restricted or controlled for women and girls, or may be less likely for certain ethnic groups.	Sending sensitive or valuable data (for example, medical information or mobile money disbursements) to a shared phone should be carefully considered. Different types of information can be sensitive or potentially valuable in differing ways and degrees in different places - such as information about certain illnesses or preferences. See the FrontlineSMS Data Integrity Guide for further reading. If information is targeted at women or girls, check that they have access to the handset and that your interactions with them will not cause them embarrassment.
What communications flows do people use and trust?	Research following the Pakistan flood response showed that communities obtained most of their trusted, actionable information through word of mouth, rather than via SMS or even radio. Key considerations here are how different formats are perceived as being useful for different types of information; and how resistant people are to change, particularly at speed and in times of flux, such as emergencies.	Assessments in accessible communities should include questions about current and habitual information sources and modes. Seek to use similar communications formats and patterns to those used before the emergency, if possible, for example, stick to voice help lines and radio if this is what people are used to.

Issue	Comment	Action
Do people read easily, and does the script that they read display on mobile phones? How does this affect mobile use?	Literacy is an obvious and significant blocker to use of SMS. Additionally, some scripts do not display on mobile phones. In areas with high illiteracy or where the local script does not work, the default mode of mobile use may be voice calls. People may be functionally literate in areas where mobile and SMS are powerful modes of communication and transaction - for example in Kenya, where mobile money is widespread, people may be able to interpret and respond to SMS with a standard format despite being illiterate. If SMS is not commonly used locally, people may not be technologically literate to use SMS, i.e. they may not be aware of this functionality or may not know how to access it on their handset.	Understand how literacy affects use of mobile, mobile plans, and how far people routinely interpret and respond to SMS from large-scale providers such as mobile money service providers. Where literacy and other factors indicate that SMS would not be productive, explore IVR (voice menu) systems and other alternatives. Any technology that you have to deploy into communities in an emergency will arrive too late. Distributing handsets and SMS literacy training may be more appropriate in less urgent phases of the response.
Visual acuity and manual dexterity	For people whose manual dexterity or vision is limited or compromised, SMS can be difficult to operate. For this reason, SMS may not be an appropriate communications channel for older people.	Consider IVR (voice menu) systems. In places where SMS is widespread, older people sometimes ask their younger relatives for help - this raises issues where sensitive information or mobile money is being transferred.
What is considered appropriate in mobile use by companies?	For many people SMS is considered a private medium. Receiving an SMS from an organisation may be unusual. Unsolicited SMS are spam, unless in extraordinary circumstances - for example, geographically targeted disaster warnings from a government.	Word communications carefully and ensure that they are welcome by sending only to individuals who have opted in to a service, where possible, and by including information about how to unsubscribe from a service at the end of every text message, or in periodic SMS which could also be used to monitor the service ('is this service useful?').

Agency level

Issue	Comment	Action
How far does the agency already interact with communities in these ways?	Moving to interacting with communities in a different, more structured, or digital way is a non-trivial change for an agency's procedures.	Ensure that staff understand the need to incorporate community feedback in this way, and that new communications flows are accommodated within staffing and project structures.
Will a mobile or SMS outreach service raise expectations which the agency is unable to meet?	Bulk SMS outreach to thousands can prompt large numbers of replies. Failure to reply can cost good-will and lead to the service being regarded as spam - particularly if feedback about the service itself is being disregarded.	Agencies contemplating large-scale mobile outreach programmes will need to budget for response capacity - someone to read and respond to SMS replies, and incorporate feedback into future messaging. This will also affect the choice of mobile messaging tool (or gateway) as the way the interface deals with incoming messages may be important.
Could staff use SMS to keep in touch?	Community volunteers, national staff and all staff in the field may have sparse access to a data connection.	Explore whether information could be sent and received using SMS - from internal coordination and security alerts up to relatively complex data collection.
Does the organisation have capacity to build relationships with mobile network operators to establish services?	In the days following a large-scale natural disaster, there may be little time for liaison with mobile network operators.	Consider using tools that do not require a relationship with operators at the outset, such as FrontlineSMS which simply requires a mobile device and a laptop, or a connection to an SMS aggregation service.