



Research protocol - Addressing water and sanitation needs of displaced women in emergencies

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Addressing water and sanitation needs of displaced women in emergencies

Proposed start date of data collection for study: July 2012

Location: Upper Nile State, South Sudan

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Sponsor: MSF-OCA

Glossary:

WatSan:	Water and Sanitation
Project WatSan:	Water and Sanitation practitioner
G&WT:	Gender and WatSan tool
IDP:	Internally Displaced Person
SGBV:	Sexual and Gender-Based Violence
WEDC:	Water, Engineering and Development Centre, Loughborough University
WASH:	Water, Sanitation and Hygiene
PC:	Project Coordinator
MSF	Médecins Sans Frontières
WEDC	Water, Engineering and Development Centre
CHP	Community Health Promotion

1.) Project aim

The aim of this project is to test a simple gender and WatSan tool (G&WT) to determine if its use can increase the uptake of sanitation services in emergency settings without losing valuable response time.

Key objective:

- To increase uptake of sanitation services by women and children in emergency settings.

Secondary objectives:

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- To determine feasibility of use of a G&WT in emergency settings. (Time, money and expertise of staff required)
- To compare the satisfaction level of users in the intervention group versus the control group.
- To determine impact of the G&WT on cases of diarrhoea and skin diseases.

Too often in the first stages of an emergency when everything needs to be done yesterday, and where there tends to be a lack of qualified staff, there is little consideration regarding the type of water and sanitation facilities that need to be provided. Due to severe time constraints there is often no participation or consultation with the people who are actually going to use the facilities. This is understandable as materials need to be ordered, staff and contractors need to be hired and budgets approved. Not to mention that as the WatSan specialist in the project you will also be asked to organize the showers in your own compound under construction and train the cooks on basic hygiene.

So a full-blown consultation and participation process is out of the question, but with minimal effort it should be possible to get results that are close to what would have been achieved with a full consultation process.

An ad hoc intervention in Pakistan in 2010 demonstrated that the idea could work in an IDP setting. Although no specific G&WT was used, quick and random consultations with women in the camps resulted in simple and cheap measures, that when combined with decent quality structure and regular maintenance, did make a difference and the WatSan facilities were well used and appreciated by women. (MSF, 2010, personal communication and observations).

2.) Background

As people become displaced, meeting WatSan needs is a high priority to prevent outbreaks of diarrhoeal and other hygiene related diseases. For women this is even more important than for men as they require more WatSan facilities and services than men. They need more privacy than men, they take care of the children, many of them have to deal with their menstrual cycle and they need more security to avoid Sexual and Gender-Based Violence (SGBV).

In the rush to address emergency WatSan needs, women's specific needs are often completely ignored, apart perhaps from designating separate latrines for men and women, or they are only considered as an afterthought. This often results in limited accessibility for women to WatSan facilities, especially latrines and showers. Sometimes they won't use the latrines or showers at all because they don't fit their needs. Reasons can vary from: lack of cleaning to wrong locations, or a latrine door that has no lock or has the door facing the wrong area. If that happens then the initial investment is a waste of time and money and women will have to go some place else, where they can defecate, urinate and wash more privately, usually outside the camp and behind some bushes. This also impacts on their security, as they will be at greater risk for Sexual and Gender-Based Violence (SGBV).

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Several agencies have tried to address the issue and there is an increasing interest to address in particular menstrual hygiene management (Sommer, 2012). In most guidelines and field handbooks it is mentioned that gender issues need to be addressed and there are numerous development projects where gender issues in water and sanitation projects are integrated. For example there are many programs building latrines in schools with the aim to increase attendance rates of girls in particular.

But in emergency programs it is a different story. Even though there is acknowledgement that the issue needs to be addressed, few agencies have even tried to put gender WatSan guidelines into practice. Some attempts are being made, but few are documented. OXFAM experimented after the earthquake in Pakistan (2005) with screened-in sanitation facilities for women that included menstruation units. The initial design was made by OXFAM engineers and later tweaked by asking the users their input. (Nawaz et al, 2006). It was successful, but small details, like addressing issues with sight lines and making sure that entrances are on the correct side were crucial to its success.

Taking into consideration that experienced staff is not always available to design and implement water and sanitation programs, it would be beneficial to have a simple guideline that describes the steps to facilitate minimum effort consultation and design more gender sensitive water and sanitation facilities.

As no one will read a 200-page manual while responding to an emergency, the aim is to provide a short, easy to use guideline, the G&WT, for use in emergencies by the project WatSan. See Annex 1: Draft G&WT

To test the hypothesis a field study needs to be carried out in which the G&WT will be used and the usage of the resulting WatSan facilities, satisfaction levels and impact on health among the users will be compared to a similar setting where a standard WatSan intervention has been implemented.

3.) Methodology

The research can be classified as “action research”. See Denscombe, 2010 pp125. Practitioners will take part in the research. After all, the idea is that the research will provide the basis for good practice and that a G&WT will be developed and tested to achieve that. Both qualitative and quantitative data will be collected and analysed. Although the principal research question suggests that a quantitative research method would suffice, the transferability of the results depend very much of a good understanding of why the G&WT works or not. This requires the analyses of associated qualitative data that will be collected through interviews with key informants, focus group discussions and observations.

Study design:

The draft G&WT will be tested in an emergency setting through a cohort study by comparing a comparison site where WatSan facilities that already have been built following current standard practices and a test site where WatSan facilities are developed following the guidelines listed in the draft G&WT.

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Success of the G&WT in this pilot will be based on the following metrics: uptake of the use of WatSan facilities by women, satisfaction levels of users, decrease of WatSan related morbidities, time to WatSan service delivery and cost of the WatSan service.

Selection of sites:

MSF-OCA is currently responding to an emergency in the Upper Nile State of South Sudan that involves the displacement of over 110,000 refugees from The Blue Nile State in Sudan. About 32,000 refugees have settled in a refugee camp in Jamam, where MSF OCA is based. More than 75,000 other refugees are settling in Batil and Doro about 70 km further south where MSF-OCB is working.

The influx of refugees is caused by military action in the Blue Nile State. Conditions in all the camps are extremely poor with limited water supply, over-crowding, lack of shelter, and flooding of terrain now that the rains have started. While conditions are slowly improving the emergency phase is by no means over.

Oxfam GB and MSF OCA have been building community latrines in the Jamam camps, but more latrines are still required in newer parts of the camp.

One of the newer areas without sanitation facilities is proposed as a test site with adjacent areas with existing facilities as a comparison. The number of people in the test area is around 2000. As the camp in Jamam is organised per community it is easy to identify the boundaries of the comparison and test site. Those communities, also referred to as “sheik villages”, are named after the village of origin in the Blue Nile state and headed by a sheik.

Procedure:

In a part of Jamam camp MSF has already built latrines without the use of the G&WT. The same task will be given for another area, village or camp but now with the use of the G&WT.

The MSF project WatSan who has managed the already completed intervention will be interviewed to retrospectively retrieve the information related to the design and construction of the completed WatSan facilities. See Annex 2.

Then the Project Watsan will be given the G&WT (Annex 1) and asked to use it to implement the second phase of the WatSan intervention in the selected test area of the camp.

Data that will be collected in this phase:

- Scope of both projects. E.g. Displaced population, host population number of latrines, showers etc. to be built.
- Time the Project WatSan spends on the intervention.
- What other staff is involved and for what purpose? (Expected: local WatSan staff, community health/ outreach workers, nurses, PC).
- Who is being consulted, how is this organised and how much time was used.
- Money spent on both interventions.
- Successes and failures/ difficulties encountered.

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The researcher will have to sit down with the Project WatSan(s) every evening to gather the information above in a standardised format, see Annex 2. The project WatSan(s) will be asked to sign an informed consent form (Annex 8) in which will be explained that there will be no link between their name in the “thank you” section of the report and their activities described. This will limit professional risks to them. As the cooperation of the Project WatSans in this project is essential and refusal to cooperate can have significant consequences, efforts will be made to ensure their cooperation through education on the study’s aims. All efforts will be made to ensure that MSF WatSans are informed of the study and their potential role in it, prior to accepting the position. However as professionals, their contribution does not put them at any risk, as their contribution is still anonymous and the study is not designed to collect information about their performance. Having good data available for reporting purposes will offset the nuisance of having to provide information on a daily basis.

Users experience:

After people have started using the facilities the focus of the research will shift from the process of designing and constructing to the use of the facilities.

Two methods will be used to gather the data, verify and gain a good understanding of the results.

- Observation of the usage of facilities as well as the occurrence of open defecation in and around the study area. The observations will start a minimum of five days after completion of the facilities so the users will be accustomed to the new situation. All facilities will be numbered as to facilitate the observation and reporting.

A team of locally trained research assistants will gather data on the number of people entering the facilities, quality aspects such as cleanliness and availability of water as well as fresh indications of open defecation. The observations of the facilities will be done from a distance sufficient to not disturb the users. Cleanliness of the facilities will be checked once at the start of the observation and once at the end of the observation period. This will provide information on the actual uses of the observed facilities as well as a better understanding on the functioning of those facilities. Observations will for example reveal if hand-washing stations are actually being used as such. See Annex 3 for the guide for observation teams. Before observations start it will be communicated with the community and community leaders that the observations are planned and the purpose explained. Before going ahead it will be verified if there are any obstacles like privacy issues, cultural habits and beliefs that would prevent doing the observations. It will be determined in the field if any obstacles can be overcome or not. Depending on the maintenance and cleaning arrangements there may be an option to collect additional data from the caretakers and or cleaners.

- Focus Group Discussions: (FGD’s) will be held with women and men separately from both user groups. In those discussions information will be collected on how the WatSan facilities are meeting their needs, what needs to be improved and what should have been done differently. In the women groups the focus will be:

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- Usability of the facilities: are they technically meeting their needs? Sufficient water points, sanitation facilities, distance, quality and technical features.
- Do they have NFI's to take care of their hygiene needs including menstrual needs?
- Are the facilities appropriate for their children?
- Dignity: Do they feel comfortable using (some of) the facilities, why and what could be improved?
- Security: Do they feel safe using the facilities day and night, what are the shortcomings? Location?, what can be improved?
- Maintenance: is the cleaning and maintenance sufficient? What should be improved and how can that be done?
- Who do they feel is responsible for the maintenance and appropriate use of the facilities?

See Annex 4: FGD guide (Women).

In the men's groups the focus will be similar but adapted to locally appropriate gender roles. So most likely, depending on the setting: their opinion about separation of male / female latrines and showers, whether they feel secure using the facilities, the quality and appropriateness for their family and issues around security for women and girls using the WatSan facilities. See Annex 5: FGD guide (Men). The guidance questions in the annexes will be reviewed and tested locally before actually using them.

Prior to selection of participants of the FGD's the hierarchical structures will be investigated to avoid the selection of participants that have different levels of power. The camp is organised by communities that are headed by sheiks. We know there are higher hierarchical levels, but we are uncertain about levels below the sheik. ACTED, the agency in charge of camp management has mapped the different communities and their leaders and they will be consulted about other hierarchical levels.

Purposive and snowball selection method will be used to select participants in the FGD's. Participation in the FGD's is voluntary and anonymous and participants will be asked to sign a consent form. See Annexes 6 and 7. Before the discussion starts approval to record the session will be asked. If there is no unanimous approval, no sound recording will be made, but the discussion will be summarized in notes taken by the researcher or a research assistant. Apart from refreshments during the discussions, no compensation in any form will be offered in exchange for participation. References to the identity of the participants will be deleted after transcription of the recordings or processing of the notes of the discussions.

Impact on morbidities:

Epidemiological data on the incidence of diarrhoea and skin diseases in the user groups will be collected at the clinic level to determine if the use of a G&WT has an impact on morbidities for a duration of three months. To be verified by the field epidemiologist. From the start of the project data needs to be collected. The

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registrars will need to collect sex, age and in which “sheik community” the patients currently live in order to determine whether they belong to one of the two user groups. If there are more clinics, then data from each clinic needs to be collected and classified. Information shared with the researcher will be in aggregate form and will not be linkable on an individual basis.

Events that can have an influence on morbidities also need to be registered like rains and problems with drainage in the user areas. Other data that can have an influence needs to be tracked as well. For example; distribution of food that people are not familiar with can cause an outbreak of diarrhoea if the food is not properly prepared. In Bawaydee, Liberia (2011) CSB (Corn Soya Blend) was distributed to refugees, but were not told how to prepare this. The refugees who were unfamiliar with it ate it uncooked and this caused a diarrhoeal outbreak in this village.

Reports from agencies and feedback from outreach workers working in the user groups can provide this data. The researcher will attend meetings with the outreach workers to record this type of information

If different agencies run the clinics then it will be likely that data may be skewed because different agencies can have different quality standards, protocols, staffing levels, opening hours etc. In that case comparison of the data from the clinics may not be viable.

4.) Data collection and analysis:

There will be a mix of qualitative and quantitative data to analyse. Results of observations regarding the usage of facilities, time and money spent, and the incidence of diseases all produce quantitative data. Most qualitative data such as events that might influence WatSan facility usage like weather etc. will be used to test if quantitative data may be skewed. For example: if it rains very hard one morning and 80% less people use the latrines compared to the previous days, then it seems evident that the rain has an influence, but if at the same time there is a food distribution for which everybody stands in line then perhaps it is not the rain, but the distribution causing a drop of latrine usage.

The focus group discussions and all context data will provide more insight in the numbers and in less quantifiable outcomes like an increase or decrease of dignity and feeling of security among women.

- Field research diary

The investigator will keep a diary in which events are being recorded that can have an impact on the costs or time to delivery of WatSan facilities such as weather events, influx of refugees, limitations in movements, supply issues, staff hiring, training etc. This file will be complemented with assessment reports, activity reports, sitreps and minutes of relevant meetings like WASH coordination meetings. The data will be used to verify time lines and events.

- Data collected from the Project WatSan(s) (costs, time, challenges, successes):

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Per intervention the data from the standardized forms (Annex 2) will be summarized in tables and a narrative. Data will be compared and linked to events recorded in the investigators diary.

The forms used in the data collection will be kept for future reference until 5 years post-publication.

- Data collection from health centres:
 In the MSF clinics the sheik village patients belong to is registered which allow to identify patients that are part of the intervention and control group. Weekly data will then be collected about the incidence of diarrhoea and skin diseases and linked to possible events as recorded in the research diary. The epidemiologist will then analyse the data and check is there is a link between the incidence and realisation of WatSan facilities per group and if there is a significant difference between the intervention and control group. The results will be presented in tables, graphs and a narrative.

- Usage observations:
 Data from the standardized forms (Annex 3) will be entered in tables and usage rates of the facilities will be compared based on facilities per X population and between the intervention and control group. Results will be linked to events and presented in tables, graphs and a narrative.
 Latrines in both study sites will be randomly selected for observation.

 Observation will be made over several days at the same times in each study site with the observed blocks randomly selected without replacement for selected blocks. The number of observations will depend on the number of blocks, elements, population and the recorded differences in usage to achieve error margins smaller than 10%. ($\pm 5\%$)

- Focus group discussions
 The results from the focus group discussions will be transcribed and coded after which recordings (if any) will be destroyed. The data will provide a general picture and context for all other data sets. Apart from giving context it is expected to also give an insight in where the priorities are in the circumstances of this project. The results will be presented in a narrative and will be linked to outcomes of the observations and user survey.

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5.) Expected outcomes and analysis:

Table 1 summarizes the outcome measures, indicators and what method will be used to collect the data.

Table 1: outcome measures

<i>Indicators</i>	<i>Method of data collection</i>	<i>Means of verification</i>
Uptake in usage of WatSan facilities by women.	Observation (counting)	FGD
Satisfaction levels, dignity and safety related to WatSan facilities.	FGD's	Observations, FGD's
Incidence of diarrhoea and skin diseases.	Medical reports	
Time to implementation of WatSan facilities.	Interviews with WatSan staff, time sheets and research logbook.	Timing of events will be logged.
Costs of the WatSan facilities	Financial project reports, interviews with WatSan staff	The log-co will be asked to do an assessment on costs.

- i) Usage of facilities: The hypothesis is that with the use of a G&WT particularly women will make better use of the facilities. From the analysis of observational data, FGD's and the survey it must be clear that a possible uptake of the use is indeed related to the use of the GW&T and not to other factors. For that reason data like distance from dwellings, cleanliness and other factors that influence the usage must be analysed to determine their impact.
- ii) Satisfaction with the WatSan facilities: The results of the FGD's should provide the answer if there is as difference in satisfaction levels between the intervention and control groups. The FGD's should also provide a more in depth understanding and is expected to give an insight in dignity, security and accessibility issues.
- iii) Incidence of diarrhoea and skin diseases: Epidemiological data gathered will be sorted according to study site, sex and age. If there is a difference between the two sites, factors like timeline (construction of facilities) and events that have occurred and can have an influence on the numbers of patients with diarrhoea and or skin diseases, need to be further analysed

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to determine if there is a relation between an increased uptake of WatSan facilities and diarrhoea / skin diseases.

- iv) Time and money spent on the design and construction of the WatSan facilities: The data gathered during the design and construction process will determine if the use of a GW&T requires more resources. In the analysis attempts will be made to control for factors like sequence of activities. For example: Purchases for materials or services (contractor) can turn out to be cheaper or take less time to organise for a second project as now there is some experience and earlier mistakes can be avoided.

Positive and negative effects associated with the use of a GW&T need to be considered for their value. For example: Increased sense of security may outweigh the extra cost for the plastic sheeting to fence off the latrines used by the female users. Values need to be assigned to those effects, but those will depend on priorities of the agency and the setting of the projects.

6.) Ethical issues.

The G&WT is untested, and it is not clear if it will provide a different quality or level of service. There is a risk that its use will delay the implementation of the WatSan intervention thereby delaying access. If the implementation is delayed as a result of using the G&WT in comparison with the routine implementation by more than 7 days, the test will be stopped. There is a risk that the intervention will not be successful in increasing uptake of services but it is not expected that the intervention will result in a worsening of uptake. This is due to the fact that the G&WT will maintain the usual minimum standards for implementation. If the G&WT is shown to provide a better quality of service than that received by the control group, the intervention will be implemented in the control group at the completion of the field research when practical. Other risks to survey and FGD participants are judged to be minimal. The minimal risks to participants of the focus group discussions will be explained to them and they will be asked to sign an informed consent form. (See consent forms in annexes 6 and 7).

The study protocol will be submitted to the MSF ERB. Approval of local leaders, and health authorities will be sought. The survey tools used ---FGDs, observation of uptake of services, and routine morbidity recording are often used in emergency interventions to determine quality of the intervention and adjust interventions and are judged to be minimal risk to participants.

Benefit to the community:

The community will benefit from the intervention in that their feedback on the services will be used to adapt the WatSan interventions. If the GW&T proves effective and feasible, it will be instituted in the comparison site after the intervention. If the tool does not prove effective, nevertheless the feedback of the participants will be used to improve the services in both the comparison and intervention sites.

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7.) Limitations:

The timing of information collection in the comparison group will be retrospective in terms of the feasibility components, and as the intervention was done routinely and outside of the study, there could be a lack of information available. However it is felt that the majority of information will still exist, even within the limits of the emergency response.

Part of this research will produce quantitative data that is expected to be significant enough to be generalizable in the area where the research takes place, but limited to the area and same population group. As there is qualitative data to analyse and to link with other data sets there is a risk of researcher bias and lack of methodological rigor. This we hope to minimize by adequate training and supervision of staff involved in the data collection and the involvement of a supervisor with extensive research experience and co-investigators who will closely monitor and advise during the research process.

After one pilot project in one particular setting it may be premature to draw a final conclusion on the usefulness of the G&WT, but it should give a good indication. Further experience with the tool will be required, while that experience needs to be used to fine-tune it.

Confounding Factors:

A number of events can each disrupt the research. Such as:

- Rapidly changing circumstances. For example: the situation is changing as a result of rapidly increasing or decreasing numbers in one or both user groups.
- Changing security situation. This can impede movements and access to the target and control group or can interrupt or even cancel the program.
- Weather: Flooding of camps, roads, runways or bridges being washed away, can easily disrupt supplies and movements and grind programs to a halt.
- A relocation of the complete or part of the refugee camp in Jamam to a site closer to an adequate water source. There is a possibility that the complete refugee camp will be moved to a site less prone to flooding and with more adequate water sources. This could prematurely terminate the research.
- The start of the research can be delayed while construction may restart leaving no clearly defined testing area.

Most of these confounding factors are common in an emergency setting. Monitoring the context closely and take mitigating measures will reduce the risk. A change of location for the testing site may be necessary in case of relocation of the camp or in case there are no defined areas without sanitation facilities in Jamam by the time the research can start.

8.) Partnerships, collaboration and operational issues.

There is close collaboration between MSF-OCA and a variety of actors; notably: OXFAM GB (WASH actor), ACTED (Camp management) and UNHCR. These

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partners will be fully informed and their assistance where necessary will be requested.

The field research will be fully integrated in the MSF project and most members of the team (expat and national) will be expected to contribute at some time. Whether it is in a primary role, like leading a focus group discussion, or in a support role like following up supply or transport requests. This also applies the other way around where for example the epidemiologist is expected to be helping out the medical team in regards to data collection and reporting.

As the same research will also be used for an MSc thesis there will also be involvement of the WEDC, University of Loughborough. This is expected to benefit scientific standards as well as the overall quality and usefulness of this research as this institution has earned worldwide recognition for its research and involvement in water and sanitation issues in low-income countries and in emergencies.

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9.) References:

Brikci, Nouria and Green, Judith (2007), A Guide to Using Qualitative Research Methodology, MSF UK. Available at <http://fieldresearch.msf.org/msf/handle/10144/84230> Accessed on January 17th 2012.

Denscombe, Martyn (2010), The Good Research Guide for small-scale social research projects, fourth edition, Open University Press, Maidenhead, Birkshire, UK

Harvey, P.A. (2007), Excreta Disposal in Emergencies: A field manual, WEDC, Loughborough University, UK

Jones, H.E. (2011) Individual Research Project, module notes, WEDC, Loughborough University, UK

Marshall, M. (1996). Sampling for Qualitative Research. Family Practice. 13(6): 522-525.

Accessed on Mar 28 2012 at:

<http://fampra.oxfordjournals.org/content/13/6/522.full.pdf+html>

Médecins Sans Frontières (2010), Public Health Engineering in Precarious Situations, Draft Edition, Brussels, Belgium.

Mills, Clair (2006) Development Of Operational Research In MSF, A Rough Guide For Field Staff, available at <http://fieldresearch.msf.org/msf/handle/10144/51776> Accessed on January 17th 2012.

Nawaz, J., Lal, S., Raza, S. and House, S. (2006) 'Screened Toilet, Bathing and Menstruation Units for the Earthquake Response in NWFP, Pakistan' in 'Proceedings of the 32th WEDC Conference, Colombo, Sri Lanka, 2006, Water, Engineering and Development Centre (WEDC). Loughborough University: UK.

Available at: <http://wedc.lboro.ac.uk/resources/conference/32/Nawaz.pdf> Accessed January 6th 2012.

Scheaffer, R.L., Mendenhall III, W., Lyman Ott, R., (2006) Elementary Survey Sampling, 6th edition, Duxbury Press, Belmont CA, USA

Sommer, M. (2012) Menstrual Hygiene Management in Humanitarian Emergencies: Gaps and Recommendations, Waterlines vol. 31, Practical Action Publishing, Rugby, UK

The Sphere Project (2011), Humanitarian Charter and Minimum Standards in Humanitarian Response, 3rd edition, Practical Action Publishing, Rugby, UK

UNHCR (2007), UNHCR Handbook for Emergencies, 3rd edition, United Nations High Commissioner for Refugees, Geneva

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UNICEF (2005), Emergency Field Handbook, a guide for UNICEF staff, UNICEF, New York, USA

WHO, undated, template Informed Consent Form for Qualitative Research.
http://www.who.int/rpc/research_ethics/informed_consent/en/ accessed April 6th, 2012.