

Planning and Management of Emergency Sanitation

**Proceedings of an International Conference,
WEDC, Loughborough University, UK, 10th-
12th April 2002.**

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Conference Delegates, April 2002

Acronyms

| | |
|-----------------|------------------------------------------------------------------|
| ACF | Action Contre la Faim |
| CBO | Community Based Organisation |
| CHAD | Conflict and Humanitarian Affairs Department (DFID) |
| CPO | Community Participation Officer |
| DFID | Department for International Development (UK) |
| DPDHS | Deputy Provincial Director Health Services (Sri Lanka) |
| DRC | Democratic Republic of Congo |
| DWAF | Department of Water Affairs and Forestry (South Africa) |
| EC | Evacuation Centre |
| GTZ | German Technical Co-operation |
| HR | Human Resources |
| ICRC | International Committee of the Red Cross |
| IDP | Internally Displaced Person |
| IFRC | International Federation of Red Cross and Red Crescent Societies |
| INTERFET | International Force for East Timor |
| IRC | International Rescue Committee |
| KaR | Knowledge and Research programme of DFID |
| KZN | KwaZulu-Natal, South Africa |
| LNGO | Local Non-Governmental Organisation |
| LWS | Lutherin World Service |
| MILF | Moro Islamic Liberation Front (Philippines) |
| MoPH | Ministry of Public Health |
| MRCS | Myanmar Red Cross Society |
| MSF | Medecins Sans Frontieres |
| MSF-B | Medecins Sans Frontieres - Belgium |
| NCTF | National Cholera Task Force (South Africa) |
| NGO | Non-Governmental Organisation |
| NS | National Societies of IFRC |
| O&M | Operation and Maintenance |
| OFFP | Oil For Food Programme (Iraq) |

| | |
|----------------|---------------------------------------------------------------------------------------------|
| PHAST | Participatory Hygiene and Sanitation Transformation |
| Rph | Rupees |
| SanPlat | Sanitary Platform |
| SANTAG | Sanitation Task Group (KZN, South Africa) |
| SCF | Save the Children Fund |
| SKAT | Swiss Centre for Development Co-operation in Technology and Management |
| TPA | Township Project Assistant (Myanmar) |
| UNDP | United Nations Development Programme |
| UNHCR | United Nations High Commission for Refugees |
| UNICEF | United Nations International Children's Emergency Fund (now United Nations Children's Fund) |
| UNTAET | United Nations Transitional Authority for East Timor |
| WATHAB | Water and Habitat unit (ICRC) |
| WATSAN | Water and Sanitation |
| WEDC | Water Engineering and Development Centre, Loughborough University (United Kingdom) |

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1. Introduction

The *'International Conference on Planning and Management of Emergency Sanitation'* was hosted by the Water Engineering and Development Centre (WEDC) at Loughborough University (UK) between the 10th and 12th of April 2002. The objectives of the conference were to:

- Disseminate the outputs from the WEDC/DFID *'Assessment and Programme Design for Emergency Sanitation'* research project, which was undertaken with the support and assistance of DROP, ICRC, IFRC, MSF, Oxfam and UNHCR;
- Disseminate current experience and best practice in the planning and management of emergency sanitation;
- Develop recommendations for future actions to improve the delivery of sustainable sanitation services during and after emergencies.

To this end the conference brought together over 90 delegates from 25 of the leading agencies working in the sector. A total of 15 papers were presented and each was followed by a question and answer session. The details of these sessions are recorded in this publication.

The WEDC 2002 conference followed on from the Oxfam hosted *'Sanitation in Emergency Situations'* (1995) which generated the following recommendations:

1. Promotion of sanitation in emergencies:

Sanitation should be given a higher priority, as a distinct and vital part of any response to emergency situations.

2. Coordination of developments in emergency sanitation:

Developing techniques and guidelines for improved practice in emergency sanitation work should be given higher priority and should be done in a collaborative way.

3. Information exchange:

The exchange of information on emergency sanitation should be improved.

4. Initial assessment of emergency sanitation:

Sanitation considerations should be given a higher priority in initial assessments.

- 5. Development of sanitation kits:**
Kits, or packages of equipment and information should be developed for emergency sanitation work.
- 6. Community participation in emergency sanitation programmes:**
Community participation in emergency sanitation programmes should be encouraged and practice improved.
- 7. Project management tools:**
Project management tools should be developed to improve sanitation work in emergencies.
- 8. Recruitment and training:**
Recruitment and training of emergency workers should be improved at all levels.
- 9. Early warning systems and information for project planning:**
Early warning information, baseline and planning data, should be made more accessible for agencies working on emergency sanitation.
- 10. Funding:**
More and better targeted funding should be made available to enable good quality sanitation work to be done in emergencies.
- 11. Further participatory work:**
This workshop should be the start of a process to improve the status and practice of sanitation in emergencies, and should not simply be a one-off event.

The WEDC/DFID's *'Assessment and Programme Design for Emergency Sanitation'* research project was conceived, in part, on a response to these recommendations. The 2002 Conference provided an opportunity for WEDC to launch the outputs of that project, and for delegates to take stock of the progress they and others had made over the past seven years.

2. Keynote address

DFID and emergency sanitation

Ian Curtis, DFID

Introduction

I will set the scene by talking about DFID priorities in situations of conflict and humanitarian aid.

DFID's purpose in responding to conflict is to build the political and social means to enable the equitable representation of different interest groups, the promotion of all human rights and the resolution of disputes and grievances without recourse to violence. We:

- Recognize the inherent link between poverty and conflict;
- Support the promotion of social cohesiveness and inclusion;
- Support the improvement of the international mechanisms for settling disputes and preventing conflict;
- Promote the protection of human rights in conflict situations;
- Support post conflict peace building.

The purpose of DFID humanitarian assistance policy is to:

- Save lives and help to relieve suffering;
- Hasten recovery, and help to protect and rebuild livelihoods and communities;
- Reduce risks and vulnerability to future crises.

Box 1 DFID's principles for a new Humanitarianism – as set out in a speech by Clare Short

- We will seek always to uphold international humanitarian law and human rights laws and conventions
- We will seek to promote a more universal approach to addressing humanitarian needs. People in need – wherever they are – should have equal status and rights of assistance
- We will seek to work with others whose efforts are aimed at tackling the underlying causes of a crisis and building peace and stability
- We will seek to work with other committed members of the international community and,

in particular, seek North/South partnerships to secure better international systems and mechanisms for timely joint humanitarian action

- We will agree 'ground rules' that prevent the diversion of humanitarian goods and collusion with unconstitutional armed groups
- We will be impartial – our help will seek to relieve civilians' suffering without discrimination on political or other grounds, with priority given to the most urgent cases of distress
- We will seek the best possible assessment of needs, and a clear framework of standards and accountability for those who work to deliver DFID assistance.
- We will encourage the participation of people and communities affected by crises to help them find long-lasting solutions, which respect their rights and dignity.
- We will, where possible, seek to re-build livelihoods and communities, and build capacity so that communities will be less vulnerable to future crises
- We recognize that humanitarian intervention in conflict situations often poses genuine moral dilemmas. We will base our decisions on explicit analyses of the choices open to us, and the ethical considerations involved, and communicate our conclusions openly to our partners.

Emergency situations in the context of DFID's water strategy

Although our water strategy paper '*Addressing the Water Crisis – Healthier and More Productive Lives for Poor People*' focuses mainly on broader development issues, it also addresses situations of conflict and humanitarian emergencies. For example it recognises the way that water resources have been used as weapons of war – examples range from 17th century BC when a ruler in Sumaria damned the Tigris to prevent the retreat of rivals from the Southern marshes of Mesopotamia, to a more up to date example when Serb forces besieging Sarajevo cut off water supply from the surrounding hills.

The paper highlights the tremendous pressures placed on water supply and sanitation facilities both in the refugee camps, and also in host communities. It also refers to the risks of poor sanitation jeopardising the health of refugees and displaced persons, who are already very vulnerable.

One of the priorities identified for DFID is improving emergency responses. Our strategy paper recognises the devastating impact of natural disasters on the lives and livelihoods of the poor. It also recognises that in many conflict and emergency situations people are more vulnerable to water and sanitation related diseases and therefore interventions in these areas should be a priority. The paper goes further, suggesting that it is often around entry point activities,

such as water supply and sanitation, that institutional structures develop in these situations of emergency.

The paper also highlights a further priority for DFID - the support of activities that generate and share knowledge.

As many of you know DFID funds a substantial Knowledge and Research Programme, a fact which reflects the importance that we give to both the generation and the dissemination and uptake of knowledge.

The Water Knowledge and Research Programme (KaR) is focussed in four thematic areas:

- Water Resources;
- Water and the Environment;
- Water Supply and Sanitation;
- Water for Agriculture/Irrigation.

We currently have 50 ongoing water related KaR projects and our annual budget for water related KaR is £3-4m.

In recent years we have supported a number of research projects related to situations of emergency:

The earlier '*Emergency Water Sources Guidelines*' are an example. Others include the work of Brian Clarke and Barry Lloyd at Surrey University on Water Treatment systems - Oxfam was an important partner on this project.

Simon Batchelor of GAMOS undertook some important work relating to exit strategies for agencies following interventions, in this case relating to drought in Malawi and Mozambique, although their findings have a more generic application. The case study in Mozambique is of course also set in a situation of conflict. I recommend that any of you who have not seen this work contact GAMOS for more information. They presented a paper at last year's WEDC conference in Lusaka. They have some very practical findings such as supply of spare parts and the importance of local technical competence, and the fact that even if the entry strategy wasn't perfect there is still a chance to redress the situation through a well-planned exit strategy. Perhaps for me the most important message is the need to have that exit strategy in mind from the beginning. Situations of emergency in time often move into more stable situations – there is a need to consider the issues related to hand-over – a succession plan from day one.

Common to all these projects has been the level of engagement with front line agencies. This is something that we have been encouraging for some time. We also increasingly look for substantive involvement of Southern Partners.

As you can see the Emergency sanitation project plays into a number of priority areas for DFID in the context of conflict. We are placing a particular priority on sanitation and hygiene, recognising the importance of these issues being more clearly located on the global agenda. We were very disappointed that sanitation was not specifically included in the Millennium Declaration. On the other hand we are encouraged by the current efforts to emphasize sanitation in the run up to the Johannesburg World Summit on Sustainable Development.

Some thoughts for this conference

Clearly in holding a conference on planning and management of emergency sanitation programmes you have set yourself the task of bringing greater coherence into this element of emergency response. While there will, I am sure, be room for exchanges of a more technical nature, this is the simplest part of programming that should have the underlying aim of ensuring controllable levels of water borne/water washed disease. More challenging is for you, as the major practitioners, to agree broad approaches to emergency sanitation to an extent that maximises impact by refining and defining the sub-sector. Furthermore if you can then identify how this can be disseminated to your current and future staff such that in five years time most examples of practice undertaken is consistently of a high and complementary standard, this will be a major achievement.

Does sanitation practice, training and support continue to remain less advanced than that of water supply in emergency situations? In December 1995 Oxfam held a sanitation conference gathering together major practitioners to exchange views and experience, with the intention of giving a particular push to sanitation. A number of you may have been there.

Since then DFID has funded this (WEDC's '*Assessment and Programme Design for Emergency Sanitation*') project, culminating with this conference and the launch of these guidelines (WEDC's '*Emergency Sanitation: Assessment and Programme Design*'). Possibly because sanitation lags behind water supply this project has filled a more obvious gap. It may also be true that because the challenges are greater, agencies have been more able to work together and be more receptive to this initiative. But how much will these initiatives contribute to the improvement of planning and management of emergency sanitation?

The mid 90's were dominated by large-scale population displacements in and around Rwanda and Burundi. The SPHERE project and the minimum standards in disaster response (which is due to be revised soon) were born out of this time. However many of you know that natural disasters have been a major preoccupation for relief agencies in the late 90s and these demand a different

approach, particularly when compared to large scale refugee displacements. Understanding the context in which work needs to be undertaken is a primary consideration. Technical solutions may vary but the appropriate application of solutions and standards remain crucial. Many tens of thousands of people were made homeless because of the Gujarat earthquake in January 2001. While 15% or so of the population was urban and used latrines, the majority defecated in the fields and this probably did not constitute a major health risk (during the dry season in an arid area). For most of the affected people their first priority was not to have latrines built, but to have bathing cubicles, which would better serve their requirement for privacy and hygiene. Yet the DEC evaluation pointed to the pressures to build latrines, which were often not appropriate. An application of standards and approaches more applicable for densely populated refugee camps seems to have been made. How can planning and programming better take the context into account, particularly when dealing with natural disasters?

An understanding of the global trends of impact of disasters on a population can be significant as it may influence our approach to tackling sanitation needs amidst a crisis. First and foremost disasters can be seen as disrupting lives and destroying livelihoods, rather than causing loss of life, especially in comparison to several decades ago. Humanitarian responses should be seen in this context. Focusing on figures available for morbidity and mortality in some refugee camps show some patterns that might not be initially expected. While 25,000-30,000 Rwandans refugees died in the camps/town of Goma in Zaire, the subsequent cumulative mortality rate per 10,000 people was less than for the Rwandan refugee camps in Ngara, Tanzania. In the Tanzania camps rates crept up, peaking some months after the relatively ordered and speedy establishment of services. In the Bhutanese refugee camps in Eastern Nepal, the rates of diarrhoea did not peak until nearly one year after refugees arrived. These situations cannot be extrapolated to all refugee camps, let alone natural disasters and population displacements, but it should call into question an assumption that we have to work in a rushed and unplanned way to avoid an imminent disease outbreak. Considered but timely action will have most positive impact on health, especially in the longer term.

Since the early 90s the concept of hygiene promotion occurring alongside emergency water and sanitation programmes has become more established and better accepted. The hygiene promotion element of an integrated emergency water/sanitation/hygiene promotion programme is probably the most appropriate vehicle for community consultation and involvement. Access for dialogue with women (as traditional family healthcarers) is more easily accepted when coupled with a health agenda and is widely recognised as being an aspect of disaster response that a service delivery approach neglects. Sanitation, which is more culturally specific and complex than water supply, needs planning to take community needs and preferences into account. However there is still much debate about when consultation and involvement in decision-making is appro-

priate. For example at what point and how should the community be involved in decision-making? Community involvement is often seen in terms of them providing free labour for construction works, but is it really just this or can we do more, especially in the early stages of a response. What commitment do individuals here have to further develop and incorporate hygiene promotion elements into their sanitation (and water) programmes?

I know that this particular project has not been without its difficulties. I seem to recall that one problem was a lack of disasters in which to field trial the guidelines. But we can now hold the finished product in our hands – congratulations to WEDC and the other partner agencies involved in the project.

I wish you a successful conference and look forward to receiving a copy of the outcome recommendations.

At the end of this conference I hope that participants will be able to identify how emergency sanitation should continue to develop.

3. Emergency planning

3.1 Emergency sanitation: assessment and programme design.

P. Harvey (presenter), Sohrab Baghri & Bob Reed, WEDC

Introduction

The purpose of this presentation is to summarise the recent WEDC research project '*Assessment and Programme Design for Emergency Sanitation*' (R6873) funded by DFID, and to outline the Guidelines contained in the publication '*Emergency Sanitation: Assessment and Programme Design*' (2002).

The research project

The project aimed to tackle the following shortfalls:

- sanitation is often given less priority than other humanitarian interventions;
- there are few planning tools available for emergency sanitation programmes; and
- there is limited information on sanitation sectors other than excreta disposal.

That there is great need for effective planning in emergency situations is undeniable.

"A common message from returning relief workers is that it is very important to take time to assess carefully what needs to be done; and to resist the temptation of rushing headlong into poorly thought-out actions." (Davis and Lambert, 1996)

The need for an effective planning tool for emergency sanitation programmes is also great due to:

- Repeated mistakes made by field staff;
- High turnover of staff;
- Reliance on experienced individuals;
- Lack of existing planning resources;
- Financial constraints (there may be more money available in the initial stages of an emergency than in later stages); and
- High risk factors affecting the health and safety of the affected population.

For the purposes of the project 'emergency sanitation' is defined as the promotion of hygiene and the prevention of disease and other consequences of ill health relating to environmental factors, following a man-made or natural disaster. All types of emergency situations are considered including displaced and settled populations and open and closed settings.

The following sanitation sectors are covered by the project:

- Excreta disposal;
- Solid waste management;
- Waste management at medical centres;
- Disposal of dead bodies;
- Wastewater management;
- Hygiene promotion.

The Guidelines

The objectives of the guidelines are to assist fieldworkers to:

- assess the sanitation and hygiene needs of the affected population;
- select the most appropriate sanitation and hygiene promotion interventions;
- develop a plan for implementation.

The first stage in the Guidelines is making the decision as to whether to intervene in a particular situation or not. This decision should be made based on:

- the existing capacity of the affected population;
- the political context;
- the security situation;
- access to the affected area;
- the likely time-frame of the present scenario;
- the current health of the affected population;
- the potential health risks to the population.

Morbidity and mortality figures can be used as a guide (where available) although morbidity figures must be analysed with respect to the particular situation and through consultation with local medical staff. Table 1 shows approximate threshold levels for mortality rate in an emergency situation.

**Table 1: Approximate threshold levels for mortality
(adapted from Hakewill and Moren, 1991)**

| SITUATION | CRUDE MORTALITY RATE/10,000/DAY | INTERVENTION LEVEL |
|----------------------------|---------------------------------|-------------------------------------|
| Stable and Under control | <1 | Short-term minimum objective |
| Serious situation | 1-2 | Immediate minimum objective |
| Emergency / Out of control | 2-5 | Unacceptable |
| Major catastrophe | >5 | Very unacceptable |

The Guidelines describe the following planning process shown in Figure 1.

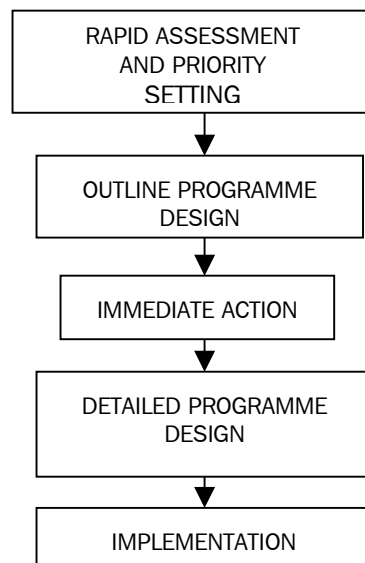


Figure 1: Guidelines process

Rapid assessment and priority setting

The first stage in the planning process is the rapid assessment and priority setting stage which includes the following:

- Data collection: quality, quantity and usage;
- Sector analysis;
- Prioritisation of intervention.

A checklist has been developed for each sanitation sector to guide the user in the collection of appropriate data. Each checklist is divided into:

- quality (of facilities or practices);
- quantity;
- usage.

Data collection is based largely on observation, with some informal interviews.

Checklists are flexible to allow the collection of situation specific data.

An example checklist for excreta disposal includes the following questions:

Quality

Are practices/ facilities:

- technically appropriate?
- socio-culturally acceptable?
- non-hazardous?
- sustainable?

Quantity

- What is the ratio of domestic facilities (cubicle or space) to population?
- What is the maximum one way walking distance for users?

Usage

- What proportion of the affected population has access to appropriate facilities?
- What proportion of the affected population is using and maintaining facilities appropriately?

The collected data is then compared with recommended minimum objectives for each sanitation sector. These recommended minimum objectives are based on the SPHERE Project Minimum Standards in Water Supply and Sanitation. These provide a description of what people affected by disasters have a right to expect from humanitarian assistance and specify the minimum acceptable levels of service (SPHERE Project, 1999). These have been expanded to incorporate quality, quantity and usage and have been divided into the following intervention levels based on duration of service:

- Immediate: very basic minimum standards applied to the initial phase of an emergency lasting up to one month's duration;

- Short-term: basic minimum standards applied to emergency situations lasting up to six months' duration;
- Long-term: objectives applied to longer term emergency scenarios and interventions lasting up to several years' duration.

Collected data is compared to the minimum objectives through numerical analysis by completing sector analysis tables. The data is compared to the information in the 'range columns' and a base score (B) is allocated accordingly. This score is then multiplied by the multiplication factor (M) to obtain the common score (C); the total sector score is the sum of all 'C' scores (see Table 2 for an example).

Table 2: Completed sector analysis table for exceta disposal

| Data | Collected data | B | Range | | | | M | C |
|--------------------------------------------------------|--------------------------------------------------------------|----------|-------------------|------------------------------|----------------|------------------|--------------|-------------|
| | | | 10 | 7 | 4 | 1 | | |
| Technical appropriate-ness | Gen. OK but spaces small, hot interior, slab unstable | 5 | Inappropriate | technically basic | Appropriate | Very appropriate | 0.25 | 1.25 |
| Social and cultural acceptability | Some people would prefer family latrines | 5 | Very unacceptable | unacceptable | Acceptable | Very acceptable | 0.25 | 1.25 |
| Potential hazard to health | No drop-hole covers, not used by young children | 5 | Major hazard | basic protection | minimal hazard | no hazard | 0.25 | 1.25 |
| Sustainability of facilities | 4m³ pits: >1 year | 1 | None | 1 month | 6 months | >1 year | 0.25 | 0.25 |
| Ratio of latrine spaces to population | 1/16 on average | 1 | None | 1/100 or immediate responses | 1/50 | 1/20 | 0.5 | 0.5 |
| Maximum one-way walking distance | 30m | 2 | >100m | 75m | 50m | <25m | 0.5 | 1.0 |
| % of population with access to appropriate facilities | 80% | 3 | None | 50% | 75% | >95% | 0.5 | 1.5 |
| % of population using appropriate facilities correctly | 80% | 3 | None | 50% | 75% | >95% | 0.5 | 1.5 |
| | | | | | | | Total | 8.5 |

By conducting such analysis for each sanitation sector, scores for different sectors and different locations within the affected area can be compared objectively, based on the intervention levels shown in Table 3.

Table 3: Intervention levels

| Score | Level | Situation | Priority |
|--------------|-----------------------------------------|----------------------------------------------------------------------------------------------------------------------------|-----------------|
| 24-30 | Unacceptable | The recommended minimum immediate objectives have not been achieved and immediate action is needed. | Very high |
| 17-24 | Immediate acceptable level (<1 month) | Recommended minimum immediate objectives or better are in place but action is needed to achieve the short-term objectives. | High |
| 10-17 | Short-term acceptable level (<6 months) | Recommended minimum short-term objectives or better are in place but action is needed to achieve the long-term objectives. | Medium |
| 3-10 | Long-term acceptable level (> 6 months) | Recommended minimum long-term objectives or better are in place and no immediate actions are needed. | Low |

Outline programme design

Once priority sectors and areas have been identified the outline programme design begins. This is necessary to:

- select appropriate hardware and software interventions;
- estimate personnel and budget requirements; and
- minimise problems during implementation.

The outline programme design should be rapidly produced prior to immediate action. This will minimise problems in implementation for the longer-term. The outline design is the basis for any initial proposal to ensure the availability of funds for the intended programme. The process of the outline programme design is shown in Figure 2 below.

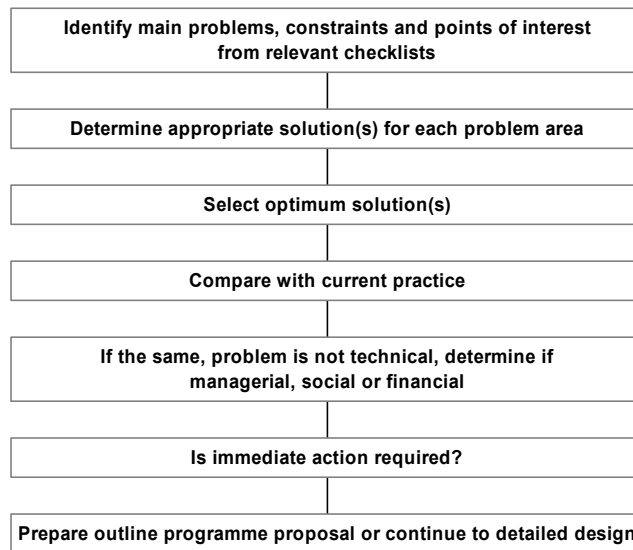


Figure 2: Outline programme design process

Immediate action

Immediate action follows the outline programme design and is designed to prevent the spread of disease through the rapid provision of basic infrastructure and the promotion of good practice. Figure 3 outline the general process adopted.

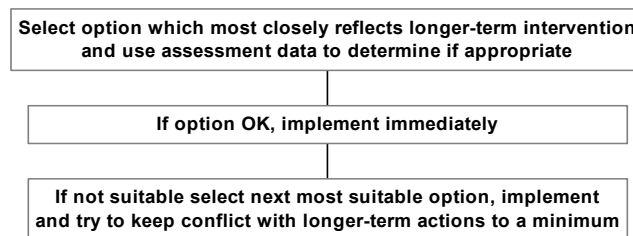


Figure 3: Immediate action process

Simple emergency measures designed to meet existing and imminent urgent needs must not conflict with proposed longer-term actions identified in the outline programme design. For this reason the outline plan is produced prior to implementing immediate actions. In general, funds are more readily available immediately after a disaster than at a later date, it is therefore important to avoid short sighted approaches, which may be costly.

Some agencies or donors may require an outline proposal to be produced before agreeing to the release of funds. If this is the case, it is essential that this is submitted and accepted before the detailed programme design process begins. This will avoid raising community expectations unnecessarily.

Detailed programme design

The detailed programme design follows immediate action and is necessary to:

- plan an effective, efficient and equitable programme;
- determine responsibilities;
- manage resources and finances efficiently.

The detailed design involves identifying stakeholders; collecting relevant socio-cultural information; selecting appropriate actions; developing a logical framework, activity plan and time-frame; determining responsibilities; identifying equipment, materials and services; and preparing the budget.

Offering key stakeholders, such as the affected community itself, the opportunity to be actively involved in the design of the emergency programme should increase stakeholder ownership, develop demand and improve decision-making.

Members of the affected community should be involved in all stages of the design process and should be given the opportunity to identify their own problems and how these can be overcome. Vulnerable groups such as disabled people and female-headed households should be represented in this process.

Actions selected in the detailed programme design should include:

- technology choices;
- hygiene promotion methods;
- provision of appropriate materials;
- construction methods;
- operation and maintenance systems.

For each of these it is important to ask whether the selected action will:

- Satisfy priority needs?
- Be acceptable to all stakeholders?
- Be sensitive to all cultural beliefs?
- Address the needs of the vulnerable?
- Address different gender needs?
- Actively involve the affected community?
- Be sustainable?

Implementation

Once the detailed programme design has been completed implementation of the full programme can commence. Implementation includes:

- Management;
- Contingency planning;
- Monitoring and evaluation.

Figure 4 outlines the different aspects and components that should be considered during implementation.

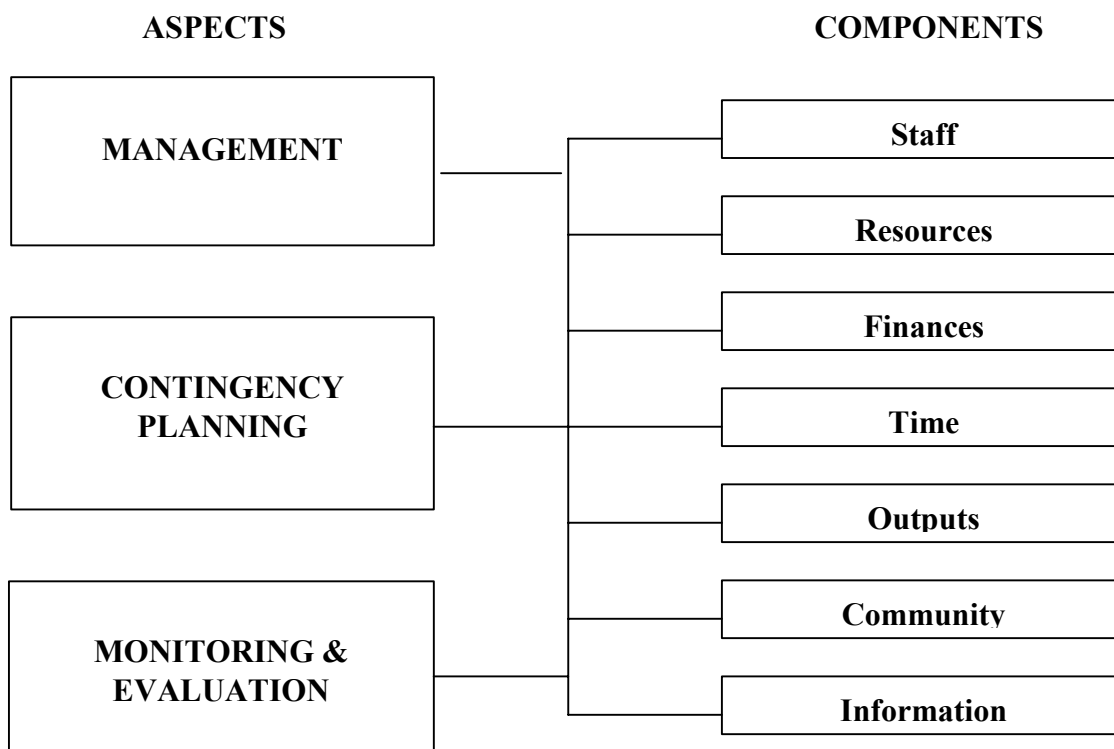


Figure 4: Implementation framework

Conclusions

The following general conclusions from the Guidelines are:

- Assessment and priority setting should be based on qualitative, quantitative and behavioural data;

- Immediate emergency measures should be planned in harmony with longer-term intervention;
- The involvement of affected communities in detailed programme design is a key ingredient of programme success;
- On-going monitoring and contingency planning are essential aspects of effective implementation.

Project Outputs

The following project outputs are now available from WEDC:

- Emergency Sanitation: Assessment and Programme Design (book and CD)
- Aide Memoire;
- Excel rapid assessment tool (on CD);
- Trainer Support Notes for use of Guidelines.

Please contact Peter Harvey P.A.Harvey@lboro.ac.uk or Bob Reed R.A.Reed@lboro.ac.uk at WEDC for more details.

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3.2 Planning emergency relief interventions.

J. Jones, SKAT

Introduction

This conference is built around the launch of a practical, field-based assessment tool. This tool should be used during the delivery of emergency assistance by humanitarian agencies and seeks to help relief agencies to prioritise their emergency sanitation responses during a deployment. This is an exciting project and the release of the tool is eagerly anticipated by many. However, if an assessment tool is to have any practical value, it follows that the results of an assessment must have an influence on the conduct of relief operations.

The purpose of this paper is to look briefly at how relief agencies predetermine their roles in advance of an emergency intervention. It then discusses how field assessments can best influence the nature of response actions if the core response preparedness of relief agencies is expanded at the agency level (or co-ordinated at an inter-agency level) before any deployment takes place.

Pre-assessment assumptions for core response preparedness.

Relief agencies generally groom and prepare their response capacities in preparation for deployment when an emergency occurs. The more professional agencies generally seek to optimise the overall impact of combined resources deployed during an emergency response, but do they co-ordinate their top-level preparedness strategies in the same way? Is the mental model concerning the identity of a relief agency such a fundamental institutional quality that it rises above considerations of collective effort in addressing the needs created by an emergency? In defining their individual institutional roles, are relief agencies leaving critical gaps in their collective response capacities?

Table 1 represents a summary of the assumptions that underpin most generic emergency preparedness in the water and sanitation sector. This table shows a list of assumed needs and also suggests how these needs might be prioritised.

Table 1: Ranked pre-assessment (core) assumptions with respect to water and sanitation vulnerabilities during an emergency

| Priority | Area of Strategic Focus | Sectoral Area of Focus |
|----------|---------------------------|------------------------|
| 1. | Raw water supply | Water |
| 2. | Water quality | |
| 3. | Water access | |
| 4. | Dead body disposal | Environmental |
| 5. | Domestic excreta disposal | 'Sanitation' |
| 6. | Emergency vector control | Sanitation |
| 7. | Surface drainage | |
| 8. | Solid waste disposal | |

The entries in this matrix, together with the order in which they are ranked, has been based upon the following considerations:

- Practical observations of what activities are collectively undertaken and how activities are generally prioritised during emergency responses.
- Conclusions drawn using global water and sanitation coverage statistics.
- Logical arguments based on a justifiable desire to mitigate the loss of life during the first few hours and days of an emergency.
- Preparation of a discussion paper for this conference.

How this matrix influences the collective relief effort.

Relief agencies prepare their core response capacities, which are then deployed at short notice whenever an international response to an emergency is called for. This capacity covers the preparation of specialised materials that have been developed over many interventions, and also includes the ability to recruit and deploy highly skilled individuals whose abilities match with the particular requirements of an emergency intervention.

In setting their priorities according to the suggested matrix and in making their preparations in isolation of one another, relief agencies run the following risks:

- Pre-deployment, and at the level of individual agency responses, there is a danger that agencies focus on preparation to deal with top-ranking issues in Table 1, with a diminished capacity to address lower ranking points. This is very difficult to modify during a deployment. The priority ranking in the matrix is therefore encountered in the field even when case-specific assessments suggest that the priorities should be re-arranged.
- At the level of collective responses, entries at the top of the matrix list will generally be better covered or even overdone, whilst entries at the bottom of the list can be neglected, delayed or inadequately addressed.

In defence of surface drainage and solid waste disposal.

The likely consequences of inadequately addressing the last two points in Table 1 in an urban setting should not be underestimated. Saying it with numbers illustrates this point rather well; as a rule of thumb in solid water management circles, the waste generated by an individual in a developing country can be assumed at somewhere between 250 and 500 grams per person per day. Under normal circumstances, therefore, a population of 200,000 people would generate between 350 and 700 tonnes of solid waste per week, every week. Each week that this waste is not collected from households adds to the backlog of scattered material within the community. Every week that communal collections are not managed properly adds to the size of the piles at collection points. It's hard to generalise on the quantities or nature of waste produced during different types of emergencies, but it is safe to assume that if a beneficiary caseload has nothing to throw away, the humanitarian relief fraternity will be doing its utmost to rectify this situation.

With such numbers, we are not simply talking about aesthetics - it isn't safe to assume that uncollected solid waste doesn't have a major influence on public health. Particularly in an urban setting, where waste generation is potentially high and where people live in close proximity, putting off dealing with solid waste is a guaranteed way of ensuring that the issue becomes more preoccupying. The longer this cycle continues, the harder it becomes to address the problem.

The issue of surface drainage should really be a straightforward question of whether an area drains well or not. Unfortunately, this is not the case in urban settings in developing countries. Cities with fragile economies are often unable to invest in separated storm water and sewerage systems. Indeed, most of these cities do not have sewerage systems at all and rely on on-site technologies for

the disposal of sewage. Those that do have sewerage networks are forced to rely on combined systems where raw sewage is mixed with rainfall runoff. Flooding under such circumstances invariably spreads raw sewage far and wide and represents a clear danger to public health in a concentrated population.

Also of concern, there is a very direct link between solid waste management and surface drainage. The generation of waste is an inexorable process in any urban context. If steps are not taken to manage it properly (or at least to collect it and dump it in a controlled manner), large quantities of waste are often dumped in large drainage channels in the hope that water will carry the waste 'away'. For tropical climates, drainage channels stay dry for months on end before strong currents pass through the storm drains, by which time the accumulation of debris in drainage channels may be sufficient to cause serious flooding instead of being moved on by the water.

What are the consequences of not getting a grip on these two topics in time? In order of increasing tangibility:

- Beyond the immediate considerations of physical health, the SPHERE Standards clearly tells us that we should be striving to maintain or restore human dignity as well as working to improve the functionality of systems.
- Solid waste on its own is a foyer for vermin and vectors.
- When dumped into drains, solid waste causes blockages and a build-up of stagnant water. This reinforces the 'foyer effect' for vermin & vectors.
- Many urban centres in developing countries rely on combined systems for storm water & sewage transport or rely on onsite sanitation. Dual piped systems are rare and expensive. Blockages in drains and subsequent flooding in these cases leads to clear dangers in terms of public health in a concentrated, urban population.
- In extreme cases, large quantities of waste can block primary storm drains. This produces flash floods that can be mini-disasters in themselves. In addition to the public health hazard of floodwater mixed with raw sewage, floods of this type can wash away low-lying settlements as well as functional public infrastructure (roads, bridges, pylons, substations, pump houses, telecommunications).

An example: East Timor - Dili, October – December 1999.*Context*

Motivated by a long-standing conflict between East Timorese nationalist movements and the Government of Indonesia (which annexed East Timor in 1976), the UN brokered a referendum on independence in the autumn of 1999. The process was marred with intimidation tactics from the outset; pro-Indonesian local militias resorted to the use of violence in an attempt to influence the ballot result, favouring a compromise deal rather than outright independence. The bullying tactics did nothing to change the already certain outcome of the referendum: 78% of the East Timorese who were registered to vote opted for complete independence from Indonesia. The local militias were backed by the Indonesian military and the violence spiralled unchecked, resulting in large population movements into the relative safety of remote areas and forests. During their flight from East Timor after the ballot, the militias herded up to half a million pro-independence East Timorese into neighbouring West Timor. All of the major towns were abandoned, and all foreign missions (including the UN and the ICRC) were evacuated at one point in early September 1999.

Once the situation had been stabilised by an international peacekeeping force (INTERFET) led by Australia, foreign missions were able to return to East Timor. On their return, they found that every major town had been systematically sacked and burned, street by street. Very occasionally, a house, a building or an institution had been spared from destruction. Ordinary urban Timorese, returning to their homes, found only blackened walls standing amongst the piles of ashes and scrap.

Dili was the administrative capital of East Timor at the time of the crisis, and before it was abandoned, it boasted a population of around 200,000 inhabitants. The pre-1975 housing stock and infrastructure had been built largely with Portuguese support – the country had been a Portuguese protectorate until that time. Post-1976 investments in infrastructure had been achieved with Indonesian backing. Indonesia's sovereignty over East Timor was never recognised by either the local population or the UN, and as a means of exercising control over the region, Indonesia ensured that very few positions of authority or responsibility were occupied by East Timorese. When Indonesia was forced to withdraw in 1999, a significant vacuum in management resources compounded the effects of the destruction – the combined effect was devastating.

The relief effort

So begins the relief intervention to make the urban 'centres' of East Timor viable again – starting with the most basic needs outlined in each chapter of the

SPHERE document – ensuring the provision of basic shelter, food, water and health services.

Very quickly, the relief community mobilised to respond to the challenge. Initially, agencies established their operational centres in Dili, since INTERFET could not guarantee security outside the city until their peacekeeping forces had reached full strength. Relief projects were therefore all focussed on Dili at the outset of the intervention. INTERFET assumed a co-ordination role as soon as agencies started to arrive (which the UN immediately keyed into), providing a productive framework for inter-agency dialogue at implementing level. Cross-sectoral meetings at a managerial level were quickly organised which assembled all of the relief agencies, the UN and the peacekeepers. Working sub-groups were established to co-ordinate project implementation at a sectoral level and all groups were provided with competent, knowledgeable and co-operative military liaison officers.

During the first few weeks after deployment, there were virtually no human or material resources at the local level that relief agencies could tap into, so they had to rely heavily on their own in-house capacity to implement projects. In Dili itself, a huge clean-up operation was needed before any reconstruction could start, but no agency arrived with the experience or logistic capacity to conduct such an undertaking.

Surface drainage and solid waste

These topics were identified early on (and by all actors) as areas of major concern, but it is interesting to observe how agencies collectively responded to the challenge.

As security became better established and as the process of handing over administrative control from INTERFET to a UN transitional authority (UNTAET) got underway, the Australian military increasingly allocated surplus capacity towards humanitarian activities. In particular, the clean-up operation in Dili was conducted with the support of Australian military logistics. No agency (including the UN) possessed the capacity or demonstrated an early inclination to address the issues of primary collection or of secondary transportation. The entire task was conducted zonally, by the military peacekeepers - with help from the growing local population.

Initially, the collected waste was ‘temporarily’ dumped in a cleared site that had originally been intended as construction land for the expansion of a residential area. Once this site had been highlighted by the NGO community as an area where groundwater contamination might occur, the dump was cleared to another ‘temporary’ location, about 10 kilometres to the east of the town.

INTERFET had no intention to stay long in East Timor, and the commanders were very aware that they controlled the only mechanism with the capacity to deliver public works and services at the level required for a city of 200,000 inhabitants. Although their mandate was to restore peace and security, the engineers of the peacekeeping force increasingly found themselves building bridges, repairing roads, building a runway extension, conducting major works at the port or expanding parts of the drinking water infrastructure. Whilst they were more than willing to undertake one-off interventions, they were very reluctant to become involved in any work without a clear exit strategy, such as the on-going management of Dili's solid waste problems.

Meanwhile, agencies were following their mind frames and bringing in material to address the upper 'priority issues' in the matrix. The inter-agency co-ordination mechanisms worked well to ensure that duplication of effort between agencies did not occur, and thus agencies elected to work in different geographic areas as they were declared safe, but still left the clean up operation in Dili to the peacekeepers.

Dili is situated right on the coast and three rivers must cross it before flowing into the sea. It does not have a sewerage network. The human excrement generated by the local population is either dealt with via a range of simple on-plot technologies or free-range defecation. The annual rains are tropical in their frequency and intensity, so for much of the year the primary storm water drains remain dry. They are often used as a means of solid waste 'disposal' – via a practice that would be termed 'fly tipping' in the UK.

As the weeks progressed, the onset of the rains became more of a concern, as this would clearly produce a significant peak in the morbidity rates for water-related diseases. It was also noted with dismay that the run off would be sufficiently violent to wash mud, sediment and trees from the surrounding hills into the open, primary storm water collectors. In many places, these channels were already so full of debris that the bridges spanning them were in danger of being washed away with the next big storm.

One agency was sufficiently concerned by this looming problem to act, and a food-for-work project was started with the aim of clearing the smaller secondary channels. By this time, Dili was already filling up rapidly with former inhabitants seeking to rebuild their lives and it was possible for the agency concerned to base its initiative on labour-based techniques. However, the initiative still relied on the logistics of the peacekeepers for transporting the cleared waste to dump. Additionally, the programme could never hope to clear all secondary drains in the time available (the onset of the rains had already started), and the large primary drains across the town remained blocked with thousands of cubic metres of debris. Some had been filled in to the point where cars could be driven across them.

INTERFET was asked to assist with the clearing of the primary collectors at the inter-agency co-ordination meetings, but the request was not translated into action and the responsibility for managing this work was relayed to the nascent UN transitional authority when INTERFET formally relinquished its administrative control.

Funding for setting up a programme to address the environmental sanitation of Dili in a sustainable manner would probably not have been a major issue at the onset of the crisis. However, the involvement of humanitarian agencies with a focus on short-term emergency relief was not sufficient in this key sector. Even programmes focussing on excreta disposal did not go further than latrine building, despite the impact this might ultimately have on the quality of the groundwater under certain sections of the city. The inevitable flooding of the storm drains each year would ensure that the contents of latrine pits would always mingle with the floodwaters.

Lessons learned.

- An objective assessment tool that restores some balance between the prioritisation of Water Supply and Environmental Sanitation issues is clearly necessary.
- Such an assessment tool should seek to set priorities within Environmental Sanitation is needed.
- Based on field experience, an assessment tool that is designed for use in an emergency context needs to be of fundamental practical value – but it also needs to be easy to both understand and use.
- If output resulting from an assessment is to maximise the impact of collective relief effort, there is a need to build pre-emergency response capacity for all of the activity areas named in the matrix proposed on page one.
- This means that further inter-agency co-ordination at the level of core response preparedness is required if agencies are to specialise, avoid duplication of effort and address all of the points that an assessment might throw up. Alternatively, relief agencies need to extend their current competency portfolios so that they are better able to respond to any priority action dictated by a site assessment.
- If a collective response can't simultaneously handle all eight points mentioned in the table on page one and task sequencing becomes necessary, an emergency assessment tool could usefully also help users to decide how often to use the tool itself. This is because in an emergency setting, contexts

are dynamic and relief outputs are (ideally) implemented at pace. The shelf life of any assessment's validity is therefore of great concern.

- Solid waste management and surface drainage are interrelated, complex and important issues in an urban setting. In a world of increasing urbanisation, we are rapidly approaching the point when more of humanity lives in cities than in rural settings. Trends in urban migration are for people to move from rural settings towards cities of intermediate size in developing countries. The infrastructure of most (if not all) of these cities is already over stretched and ill equipped to deal with the demand placed upon it during normal circumstances. The post-disaster core response capacities of relief agencies should start to reflect these realities.

3.3 Site selection, preparation and management.

Niall Roche, Environmental Health Adviser, Concern Worldwide

Introduction

In early November 2001 I returned from a five-week emergency deployment with Concern in Pakistan. At some of the early UN hosted meetings agencies were asked to put forward sectors within which they would work. We put ourselves down to become involved in site preparation and camp co-ordination (essentially camp management). What surprised me a little was the small number of agencies putting forward their name to be involved in this area. Only two agencies (ourselves and Islamic Relief) indicated a willingness to be involved in this area.

Since then I've begun to wonder why? I've also tried to identify how this lack of interest or expertise in site preparation and camp management impacts on sanitation, which is the focus of this particular conference.

How do the issues of site selection, site planning/preparation and camp management impact on sanitation?

The SPHERE handbook states that "the primary causes of morbidity and mortality in a disaster affected population are measles, diarrhoeal diseases, acute respiratory infections, malnutrition and malaria". Site Selection, Site Planning, Site Preparation and Camp Management play an extremely important role in the prevention of these communicable diseases. Many of the site selection criteria such as slope, soil type and environmental health hazards for example directly impact on the provision of sanitation.

Here is an example from my own personal experience. Part of Benaco camp (Ngara, Tanzania, 1994, home to approximately 250,000 Rwandan refugees) was not suited to the construction of pit latrines due to a soil type that made digging difficult and the percolation of waste almost non-existent. In addition storm water drainage was less than sufficient. The result was overflowing latrines during times of heavy rain with highly pathogenic waste literally flowing downhill into the homes of other people. The incidence of dysentery and bloody diarrhoea in this camp was particularly high.

Although site selection is often beyond the control of aid agencies I wonder if we, collectively do enough to advocate for suitable sites. In addition when sites

are selected and allocated I wonder if there is enough expertise amongst us to plan, prepare and manage camps which provide quality sanitation and prevent the communicable diseases common in such situations?

My perception is that there is not enough expertise amongst agencies in this vital sector and that agencies do not pay enough attention to the issue of site selection.

Methodology

The methodology is based upon personal observations over a ten-year period and a review of the following common emergencies literature.

- (a) *'Engineering in Emergencies'* by Jan Davis and Robert Lambert (1995)
- (b) *'Refugee Health'* by MSF (1997)
- (c) *'War and Public Health'* by ICRC (1996)
- (d) *'Handbook for Emergencies by UNHCR'* (2000)
- (e) *'Humanitarian Charter and Minimum Standards in Disaster Response'* by The SPHERE Project (2000)

Results

Personal observations

Although UNHCR would be regarded as the agency dealing with the issues of site selection, site planning, site preparation and camp management I can point to numerous examples where UNHCR have not fulfilled their obligations and have delegated these tasks to NGOs. Concern's role in Pakistan is ample evidence of this.

Site Selection: Generally I find that aid agencies all too readily accept camp sites proposed or allocated by host governments. I don't ever recall collective advocacy by agencies explaining the unsuitability of sites or advocating the criteria to be used in the selection of more suitable sites. There is a tendency for agencies to accept a site and get on with the tasks of providing water, sanitation and health services etc.

Site Planning: I don't recall ever meeting NGO personnel who have specialised in the area of site planning. Most recently I was in Rwanda in a small camp for those who fled the eruption of Mount Nyiragongo in the DRC. NGOs covered all services except site planning. The absence of site planning in this

instance was having an impact in that people were beginning to construct shelters in parts of the site subject to flooding.

Site Preparation: This is another area that agencies do not seem to specialise in. I can't name an NGO that does specialise in this area and those that have done it have ended up doing it by default more so than by design.

Camp Management: Camp management is another key component in the protection of health which can play an important role in facilitating co-ordination between medical and sanitation agencies in responding to problems or epidemics of disease within camp sites. Again I am not aware of an agency that specialises in this area like MSF specialises in healthcare, Oxfam in water, SCF in separated children and Care in logistics for example. IRC might be the one exception.

Literature review

A quick flick through the available literature listed above indicates that very little has been written on these issues and in some cases nothing at all. Site selection is well covered but I would argue that there is a shortage of text available on site planning, site preparation and camp management.

Lessons learnt

In March 1996 a report was produced on *'The International Response to Conflict and Genocide, Lessons from the Rwandan Experience'* produced by the Joint Evaluation of Emergency Assistance to Rwanda. The report was critical of the fact that "only a limited number of agencies were prepared to work in the sanitation sector, a situation that contrasted starkly with the number of agencies working in the higher-profile activities, such as establishing cholera treatment centres and centres for unaccompanied children."

I wonder if the evaluation missed something? Should they have been critical of the lack of NGO involvement in site selection, site planning, site preparation and camp management?

Recommendations

The following are potential recommendation I would make to the aid community.

1. More agencies should develop skills among staff in site selection, site planning, site preparation and camp management.
2. We need more literature on what constitutes best practice in these areas.
3. Collectively we should be stronger with host governments when presented with proposed sites. If we are then refugees or displaced people will live in sites more suited to the application of good sanitation.

3.4 Planning sanitation programmes in refugee camps.

Melesse Tegegne, Engineering and Environment Services Section (EESS), UNHCR

Abstract

Improvements in the health of refugees are the main social benefits that UNHCR hope to achieve by investing in sanitation programmes in refugee camps. This can be achieved only if proper planning of the most appropriate sanitation technology for the given locality and population is identified, designed and implemented.

The 'most appropriate technology' may be defined here as that which provides the most socially, technically and environmentally acceptable level of service at the least economic cost in order to achieve the safe disposal of human excreta, solid and liquid wastes to avoid unhealthy living conditions in refugee camps.

For a sanitation programme in refugee camps to be successful, emphasis should be placed at the planning stage on addressing:

- beneficiary preference;
- local conditions;
- physical environment;
- gender sensitivity;
- other socio-economic factors.

It is the proper match of technical inputs to the prevailing socio-economic conditions and physical environment at the initial planning phase that will ensure proper implementation and sustainability of a sanitation programme in refugee camps.

This paper will focus on lessons learnt from best planning practices of environmental sanitation programmes in refugee camps, and address the key elements that needs to be considered at an early stage of refugee crises. The focus will be on planning and designing sanitation programmes within a participatory model in order to give due considerations to cultural and traditional values.

Introduction

The success of a sanitation programme in refugee camps depends entirely on planning at the initial stage of the crises. It is for this reason and within this context that I wanted to share my experience of the past and vision of the future focusing at the most important factors that should be considered.

To start with, the overcrowding and harsh environment in refugee camps, which is aggravated by disruption of the normal sanitation habits of beneficiaries can, threaten the lives and wellbeing of refugees in emergencies. Our experience in refugee and internally displaced person (IDP) camps in the past has clearly demonstrated time and again, that for an environmental sanitation programme to work effectively in emergency situations, strategic planning at the initial stage of the crises is of paramount importance. In the context of refugee camps, environmental sanitation includes:

- safe guarding water quality;
- safe disposal of human excreta, waste water and garbage;
- control of insect and rodent;
- safe handling of food;
- installation of proper site drainage.

The crowding of people in a confined area compounded by disruption from their accustomed way and practices of less crowded conditions makes sanitation planning in refugee camps a complex and demanding task.

Due to unfavourable environmental factors, socio-economic influences, cultural and religious beliefs, the implementation of a sanitation programme in refugee and IDP camps without proper planning can have detrimental effects on the refugee population. The causes and spread of vector born diseases such as diarrhoea, cholera, yellow fever malaria and others are the direct results of poor environmental sanitation programming, originating from poor planning. Factors such as adequate space, available materials, organisational capacity, physical conditions, topographic patterns, skilled personnel, appropriate equipment together with operation and maintenance are instrumental in achieving a sustainable sanitation programme. However, they should be integrated into the traditional practices and social dictums of the refugees, if a sanitation programme is to materialise effectively and remain sustainable in a camp.

To this effect, planning for a sustainable sanitation programme in refugee camps should take into account the following ten points from the beginning:

1. Change passive participation of refugees into active partnership

The passive participation of refugees in a sanitation programme should be aimed at change to active partnership with time; and, as much as possible, run by them with minimum guidance and supervision. This approach will entail the preparation of a strategy in which refugees remain active partners in the execution of the programme. It may sound like difficult work to do at the initial stage of the crises, where organising the refugees in social groups cannot take place easily. However, once the peak crises subsides, a concerted effort should be geared towards a sensitisation and mobilisation campaign on sanitation and hygiene education so that an active partnership of the beneficiaries can be achieved and counted on without reservation during the planning phase. This partnership with refugees should be promoted through social and community services units to reach the different social groups and the refugee committees in the camp. The active involvement of all refugees, the gender advocacy group, the elderly and the youth group should be promoted with the ultimate goal of delegating some of the tasks, responsibilities and accountabilities to the beneficiaries themselves.

The sharing of tasks and responsibilities should be on voluntary (rather than compulsory) basis if the partnership is to materialise and be sustained in the field. Along the same lines, the views, perspectives, knowledge and concerns of the beneficiaries should be respected and taken into account. It is at the planning stage also, that the list of duties, responsibilities and accountabilities that will be undertaken up by each partner need to be well quantified and mutually agreed. The transfer of passive participation to active partnership starts with a common understanding of the tasks, responsibilities and accountabilities among all the stakeholders in the environmental sanitation programme of the camp.

2. Reflect social, cultural and religious practices and values

Sanitation planning in refugee camps should take into consideration the traditional, social, cultural and religious practices, beliefs and values of the refugees. We know that people have their own long standing hygiene practices and sanitation norms. Sanitation planning must be based on and capitalise from the practices, norms and values of the refugees, before embarking on a major utopian sanitation plan that cannot be sustained in the field at a later date. To bring a radical approach to norms and beliefs would simply defeat the purpose of attaining an effective sanitation programme. For example, one has to see if it is a wiper or washer society that is under consideration, where the direction of the toilets for a certain religious group should be, what the acceptable proximity is between men's and women's toilet facilities, what the privacy norm of sanitation is between male and female refugees in the camp.

3. Adaptability to social organisation at a refugee camp level

Sanitation is not just an individual household affair. Rather it is a collective concern and effort that requires active involvement of refugees and IDPs in planning, construction, operation and maintenance activities. In a refugee community, there are traditional and social hierarchy and customary practices that form the social organisation in a camp, which is acceptable by the refugees at large. It is this social structure that can organise them collectively and pull resources communally to address their needs. It is also to be noted here that one cannot always assume that refugees living in the same neighbourhood or village constitute a single community. Social groupings based on caste, ethnicity, religious, age or political factions may divide them.

It is necessary to know in the planning phase whose authority will be respected and accepted within the social fabric of the refugee population, if the partnership with them is to materialise. In an emergency situation, it is the authority that is socially recognised and accepted by the refugees at large that can instigate changes and materialise partnership. Consequently, sanitation planning is expected to adapt to social organisations and hierarchies in a camp if the programme is to be sustained by the refugees themselves.

4. Understanding and addressing refugees preferences

Addressing the preferences of refugees based upon their gender, age and vulnerability group is a key factor to consider in the planning of a sanitation programme. The sanitation services to be provided in a camp should be in agreement with refugees' preferences both technically and socially. The right way of starting a genuine and a lasting commitment to partnership and empowerment begins from understanding and respecting the refugees' preferences. To this end, the respect of social perspectives, traditional values and cultural heritages of the refugees should be stimulated and reflected through a discussion and a dialogue with planners and other stakeholders. The planning scheme should be flexible enough to adapt towards refugees' concerns, needs and preferences. Thus, a dialogue and consultation should be initiated between the refugees on the one hand and the planners on the other side, so that the type of intervention planned would address the needs and preferences of all refugee groups along gender, religion, age and vulnerability lines.

5. Enhance capacity building

Planning of a sanitation programme in refugee camps should be based on empowering the refugees to an active partnership and a lasting ownership through technical and managerial capacity building. Thus, adequate emphasis should be given to providing training, equipment, tools, know-how and hygiene education in a more flexible manner using simple techniques and demonstration schemes with which the refugees are familiar.

6. Sustaining operation and maintenance

In most of our refugee sanitation programmes, operation and maintenance are given less emphasis and focus at the planning phase. Sustaining O&M are pivotal elements to be addressed; and if neglected are the major causes of failure of a sanitation programme in refugee camps. In most, if not all, cases, O&M failures are associated with the poor planning, monitoring and scheduling of maintenance activities. It is of primary importance to quantify what has to be repaired and maintained, identify who is responsible for operation and maintenance, list the type of materials, tools and equipment required, specify how often the maintenance has to be done and map out a responsibility, authority and accountability matrix that will ensure sustainability of the sanitation programme. The partnership for sustaining the operation and maintenance of a sanitation programme with the refugee population should be on voluntary basis to ensure a reliable and lasting commitment in place.

7. Choosing the technical design

The planning phase also has to look also into the selection of a suitable sanitation facility and technology appropriate for the area and the refugees. It should be based on delivering the chosen level of services in a way that is effective, equitable, sustainable, efficient and replicable. The technology and the technical design should be within the capacity of the refugees to manage, operate and maintain the facilities using traditional skills, simple tools, locally available and environmentally friendly materials.

8. Meeting basic needs and conveniences of vulnerable groups

The basic needs, conveniences and concerns of the refugees in general and the vulnerable groups such as the female, elderly, the children, and the handi-

capped in particular, should be addressed separately. Convenience and needs in this context relates to feelings of pride, privacy, access, comfort, protection, prestige and customs to be in consonance with specific needs, social values, religious beliefs and traditional practices for particular refugee groups in the camp.

9. Streamlining gender sensitivity

A sanitation plan for a refugee camp should be sensitive enough to gender related issues. It is therefore important that gender concerns in the refugee population are well addressed and advocacy groups fully consulted during the planning exercise. Sanitation facilities should be designed to meet the needs of all gender groups with regard to spacing, protection of privacy, respect of tradition, safety and security of the vulnerable groups. Any planning of a sanitation programme that runs short of gender sensitivity can not materialise effectively in the field.

10. Environmental protection

The protection of the natural environment around a refugee camp is a priority in UNHCR's programmes. A strategy should be developed at the planning stage to avoid the pollution of lakes, rivers, ground water, recreational facilities, grazing grounds and other sensitive areas in the surrounding of the camp. The concerned environmental protection agencies of the government, bilateral and multilateral environmental institutions should be consulted at the planning phase to seek for their assistance and collaboration.

Conclusion

In conclusion, as the adage says it all, 'a good beginning makes a good ending'. Proper planning at the initial stage of emergency is of significant importance in order to have a successful and a sustainable sanitation programme in a refugee camp. Our field experiences in the past and at present in many countries has shown that for refugees to play an active partnership role in a sanitation programme, their involvement in the scheme should start from the planning phase. The passive participation of the refugees in sanitation programme could easily change into active partnership as long as the above-mentioned points are integrated in the planning phase. For this to happen, a close collaboration is crucial among the refugees, the implementing partners, bilateral and multilateral agencies both at the planning and implementation phase.

3.5 Kwazulu-Natal cholera intervention programme.

David N. James, KwaZulu-Natal Sanitation Task Group (SANTAG)

Introduction

Overview of the need for water services in KZN

KwaZulu-Natal is the most populous province in South Africa with an estimated population of eight million people. The vast majority of the population live in poorly serviced rural and peri-urban areas. As in many developing nations there has been a large movement of people to the urban centres where many find themselves homeless and driven to establish temporary shelters in informal /squatter settlements. These settlements are very poorly serviced, exposing the inhabitants to high disease risk related to poor water and sanitation services.

Rural areas are remote and often not easily accessible, increasing the cost of supplying water and sanitation services to these areas.

The figures below summarises the status quo of water services in KwaZulu-Natal:

| | |
|----------------------------------------------------|--------------------|
| People provided with safe water since 1994 | 1.6 million |
| People provided with sanitation since 1994 | 240,000 |
| School sanitation since 1994 | 175 seats provided |
| People still without access to safe water | 2.5 million |
| People still without access to improved sanitation | 4 million |

Overview of the institutions responsible for the provision of water services

Over the past eight years, since the 1994 South African general elections, there has been a massive restructuring process taking place in South Africa. The provinces have been merged with the former homelands areas, forming nine new provinces. In turn the provinces have been restructured into District and Local Municipalities. It is these newly established District and Local Municipalities that are responsible for the provision of essential services and infrastructure. Water services funds are allocated via DWAF directly to the District Municipalities who plan, prioritise and implement projects. Support and capacity building programmes are provided to the District Municipalities by the Department of Water Affairs and Forestry and the provincial Department of Traditional and Local Government Affairs.

An overview of cholera

Cholera is an acute bacterial infection (causative agent is *Vibrio cholerae*) and is spread primarily by drinking water contaminated by human faeces. The *Vibrio cholerae* bacteria replicates very rapidly in water with culture colonies being seen within four-five hours.

A person will contract cholera by the ingestion of contaminated food and water:

- Infective dose - 10¹⁰ *Vibrio cholerae*
- Reduced to 10⁶ *Vibrio cholerae* in food

A cholera-infected person will display the following symptoms: vomiting and, acute watery diarrhoea. The symptoms will result in death if the patient is not re-hydrated.

Methodology (outlining field practice and attempted solutions)

Background

Location of the Cholera Outbreak in KwaZulu-Natal

A Cholera outbreak struck KwaZulu-Natal in August 2000 with the first index case being reported on the 14th August 2000 from the Lower Umfolozi / Hlabisa District, on the KwaZulu-Natal North Coast.

The Cholera outbreak began in the settlements outside the town of Empangeni on the KwaZulu-Natal North Coast. The Cholera then spread down the coast to the Glendale community 80km from Durban and to the rural communities outside to town of Port Shepstone on the KwaZulu-Natal South Coast. All these areas have a sub-tropical climate with very hot and humid summer temperatures.

The areas most affected were the KwaZulu-Natal North Coast Uthungulu and Ilembe District Municipalities and the South Coast Ugu District Municipality, with fewer cases being reported from other districts in KwaZulu-Natal.

The trend of the epidemic was characterized by a slow rise in the number of cases from August through to Mid December 2000, there was then a steady increase reaching a peak in mid February 2001. The epidemic then began a steady decline.

Management structures

There was a speedy response to the cholera outbreak both at a national and a provincial level through the establishment of interdepartmental co-ordinating structures. These structures included:

- The National Cholera Task Force (NCTF)
- Provincial and District Joint Operations Committee (JOCs) (Focus on Treatment)
- Provincial and District Disaster management Committee (Focus on sanitation Service provision)

Overview of key cholera interventions

The cholera interventions implemented in response to the outbreak can be broken down into four key focus areas namely:

- Medical treatment and surveillance and monitoring
- The supply of emergency water supplies
- The supply of sanitation facilities
- Awareness programmes

In turn these four key focus areas require plans that identify time-based interventions categorised in the following way:

1. Immediate interventions
2. Short term Interventions
3. Medium term Interventions
4. Long term Interventions

All cholera interventions used the following objectives as the basis of their planning:

1. To minimise the fatality rate through immediate treatment interventions
2. To reduce the rate of infections through immediate water and sanitation supply interventions
3. To prevent further spread of the disease through medium and long term water and sanitation supply interventions

Sanitation intervention

- R35 million Emergency funds were made available to the District Municipalities affected by the cholera outbreak
- Emergency business plans were prepared

- In order to fast track the projects, they were implemented with slight deviation from current policy and implementation guidelines
- The projects focused both on Health and Hygiene Awareness and Toilet construction
- District Municipalities used different approaches
 - local contractor/ builder approach
 - off site prefabrication approach
- School sanitation was included as part of the business plans
- The department of works implemented a school sanitation programme to supplement the District Municipalities programme

| Household Sanitation Services | Budget Required | Budget Spent | Budget Still Required |
|--------------------------------------|------------------------|---------------------|------------------------------|
| Immediate | R 199.26 million | R 9.34 million | R 189.9 million |
| Short term | R 212.68 million | R 160.6 million | R 52.08 million |
| Medium to Long Term | R 1,212.1 million | R 291.2 million | R 920.9 million |

| School Sanitation Services | Budget Required | Budget Spent | Budget Still Required |
|-----------------------------------|------------------------|---------------------|------------------------------|
| Immediate | R 205.47 million | R 0.04 million | R 205.03 million |
| Short term | R 49.68 million | R 9.68 million | R 40.3 million |
| Medium to Long Term | R 74.38 million | R 16.29 million | R 58.09 million |

Awareness creation

The following activities took place as part of the awareness programme implemented by the Department of Health, Water Affairs and the District Municipalities:

| | |
|-------------------------------------------------|---------|
| Posters and Pamphlets | 455,000 |
| Street Theatre performances | 800 |
| Community Awareness training sessions | 61,000 |
| Radio broadcasts, Advertisements and interviews | |
| Newspaper inserts and articles | |

It is difficult to identify the real impact of health and hygiene awareness programmes in the short term, however, field-workers are reporting improved knowledge of the key awareness messages. As with the supply of water services the Awareness creation programmes need to be ongoing and provide communities with support of the long term.

Lessons learnt (outlining key conclusion and recommendations)

National

Policy development

A key result from the Cholera outbreak was the raising of the profile of the National Sanitation Programme. Although the programme has been running from 1996 the priority in terms of budget and other resources has been biased towards the provision of water. The cholera outbreak raised the profile of sanitation nationally with emphasis being given to the review and subsequent Cabinet approval of the National Household Sanitation White Paper in November 2002. Prior to the cholera outbreak the National Sanitation White Paper had remained in a draft format for four years.

Resource allocations

As a result of the sanitation policy adoption significant increases in financial and other resources have been made. A national Sanitation Strategy has been developed and a budget of R360 billion has been allocated to address the sanitation backlog in South Africa over the next ten years (R360 million per year-a 200% increase in the national sanitation budget).

Provincial

Co-ordination structures

The cholera outbreak highlighted the need for effective interdepartmental co-ordination and planning. A significant development has been the review of the Water and Sanitation (WATSAN) forum. The outcome being the drafting of a provincial Bill providing the WATSAN Committee with legalised powers and functions as a high level water and sanitation interdepartmental planning and co-ordination structure.

Provincial sanitation strategy development

As a result of the National Strategy Development there has been significant development at a provincial level with the formulation of an interdepartmental provincial sanitation strategy currently being developed.

Communication strategy

A policy awareness strategy has been implemented in order to create awareness among the provincial stakeholders in the province. Workshops have been held at a provincial and a district level. They have achieved the following:

- Increasing the level of policy awareness;
- Provided a platform for people to discuss critical issues regarding the implementation of sanitation in KwaZulu-Natal;
- Facilitated the consultative process and gathering of information to help inform the Provincial Sanitation Strategy Development Process.

District

The District Municipalities are in the process of developing medium term District Sanitation Strategies aimed at identifying their sanitation backlog, their district capacity and resources available from the various role-players and departments.

Summary of key lessons learnt

- Sanitation projects can be implemented a lot quicker than has been the experience in KwaZulu-Natal to date.
- Co-ordination between departments is vital to ensure effective and efficient utilisation of resources
- In an emergency situation sanitation can be prioritised. This needs to be continued in order to ensure meaningful progress in addressing the sanitation backlogs
- There was significant commitment from the private sector to participate and contribute in cash and kind to the cholera intervention. This needs to be nurtured and encouraged as an ongoing contribution.
- The often under resourced health services managed the treatment and monitoring of the cholera very effectively.
- High numbers of cases continued to be reported despite a high level of intervention. This indicates that:
 - The benefits of improved services and awareness are not noticeable in the short term
 - Behaviour change takes time
 - Ongoing commitment is required to ensure meaningful Community participation
 - The cholera outbreak places a massive burden on the Department of Health

Discussion: Emergency planning

Chair: R. Reed (Wednesday session), P. Sherlock (Thursday session)

Peter Harvey (WEDC) opened the emergency planning theme with his paper '*Emergency sanitation: assessment and programme design*' in which he described the structure, content and potential uses of WEDC's '*Emergency sanitation: assessment and programme design*' (2002) publication, launched at the conference.

After his presentation Harvey took questions from the assembled delegates. A number of questions focused on the tension between the dynamic nature of emergency situations and attempts to systematise responses. Specific points were raised relating to:

- The dangers of a numbers based approach to assessment;
- The importance of a speedy response.

These points were acknowledged by the speaker and, it was argued, could be reconciled within the Guideline's assessment framework through intelligent and flexible application.

The issue of the relationship between the Guideline's recommended minimum objectives and the SPHERE standards was also raised. It was explained that the authors had used and developed the standards identified by SPHERE in collaboration with partner organisations. The speaker acknowledged that vector control (a SPHERE theme) had not been included in the Guidelines due, primarily, to financial constraints.

A number of delegates asked whether the emergency sanitation Guidelines included specific themes, namely:

- Potential health risks to the population;
- The use and maintenance of latrines;
- Planning for longer-term interventions.

The speaker confirmed that all of these issues were addressed in the Guidelines.

Looking to the future, it was explained that the Guidelines would be disseminated through key agencies and events. The speaker added that all feedback was welcome, and would be used to develop the Guidelines.

Following on from Peter Harvey, Julian Jones (SKAT) gave his presentation, *'Planning emergency relief interventions'*, in which he argued that agencies needed to address a bias that favoured water supply and excreta disposal over vector control, surface drainage and solid waste management.

Following his presentation, Julian Jones was asked whether this shortfall should, in his opinion, be addressed by:

- expanding the response portfolios of individual agencies, or
- through better inter-agency coordination.

He responded by arguing that improved co-ordination was the best option, but also the most difficult to achieve. He sighted the regular technical coordination meetings that currently take place between a number of agencies as a positive example of close inter-agency co-operation.

Jones was also asked what SKAT (the Swiss Centre for Development Co-operation in Technology and Management), his employer, was. He directed delegates to SKAT's web site: www.skat.ch

The second part of the emergency planning theme was opened by Niall Roche (Concern Worldwide) who presented a paper entitled *'Site selection, preparation and management'* in which he argued that site selection was inextricably linked to sanitation and should be given a higher priority by agencies.

The speaker was then asked by delegates, who he thought should be responsible for site-selection. In answering this question Roche identified the limited capacity and resources of the UN agencies (specifically UNHCR) to deal with this issue effectively. He went on to conclude that individual NGOs should work to develop the skills needed to take on this issue, and for improved collaborative and consultative approaches that included all stakeholders.

Asked about the problematic task of NGO co-ordination, Roche made a similar point: NGOs needed to address this task themselves by building up capacity and delegating, in any given scenario, co-ordination to a single NGO.

Following Niall Roche, Melesse Tegegne's (UNHCR) presentation, *'Planning sanitation programmes in refugee camps'*, argued for active partnerships between stakeholders in developing and implementing emergency sanitation.

Ato. Tegegne was asked a number of questions by delegates. The bulk of the questions put to him returned to the issue of site-selection raised by the previous speaker, Niall Roche. Ato. Tegegne was asked what UNHCR was doing to improve the quality of future sites accepted for refugee camps. He answered this question by saying that UNHCR's staff would continue to work with local governments on this issue and said that the agency was investing in developing

the negotiating skills of its staff. He directed delegates to UNHCR's *'Handbook for Emergencies'* (2000) for specific Guidelines in relation to site selection.

Melesse Tegegne was also asked about the problem of sexual abuse in refugee camps. He responded by emphasising the importance UNHCR placed on this issue and explained how sexual abuse was being addressed through modifications in the design and location of sanitation facilities, made in consultation with local beneficiaries.

The emergency planning session concluded with a presentation by David James, of the KwaZulu-Natal Sanitation Task Group (South Africa). His presentation, *'Kwazulu-Natal cholera intervention programme'* described the authorities' response to the cholera outbreak in Kwazulu-Natal that occurred in 2000.

Following his presentation David James responded to a number of questions from delegates. A number of participants questioned the effectiveness of latrine construction (especially in areas with low population density) and suggested that strategies emphasising hygiene promotion maximised the effectiveness of intervention. David James conceded this point advocating balanced interventions that addressed technical and awareness issues. He argued that there was a need to prioritise health and hygiene programmes in the allocation of resources, although he pointed out that the immediate impact of such interventions were difficult to measure.

A further point was raised relating to the need to clearly distinguish emergency from non-emergency interventions, with the questioner arguing that emergency interventions should respond closely to the demands of the situation and include a clear 'exit strategy'. James agreed but emphasised the need for a sustained commitment to sanitation, health and hygiene awareness programmes from the Department of Health in South Africa

Contributors:

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4. Excreta disposal

4.1 The SanPlat system in emergency situations.

Bjorn Brandberg, SBI Consulting

Introduction

The objective of this presentation is to inform planners and managers of emergency programmes about the potential benefits of using SanPlats when building improved latrines in emergency situations.

The SanPlat system was originally designed for the improvement of sanitary conditions and especially latrines in rural and peri-urban areas. Due to its excellent hygiene, small size, easy production, storage and transport the SanPlat system has a great potential for emergency situations.

Over a million SanPlat latrines have been built, especially in central and eastern Africa in countries often affected by emergencies such as Mozambique, Malawi, Angola, Sudan, Kenya and Tanzania.

The need

Prevention of faecal born diseases like diarrhoeas, cholera and dysentery are major concerns whenever there is an emergency. Whenever people have to abandon their homes, sanitation is a problem. Improved sanitation is also a question of aesthetics and dignity. In an emergency, improved sanitation is one of the necessary pre-conditions for the displaced person to feel minimally dignified in a very difficult situation.

The HIV-Aids pandemic has increased the need for improved sanitation, as infected people have a reduced resistance to infections, which can turn fatal and furthermore drastically increase the number of children without parents.

Enthusiasm for sanitation promotion

The well-made SanPlats add 'porcelain glamour' to the environment of the poor, which has been proved to create enthusiasm for environmental hygiene. Where possible, many refugees choose to take the SanPlats home with them, as a personal belonging, when the emergency is over.

SanPlats for different latrine types

A SanPlat is an improved latrine slab with the following features:

- A child-safe drop hole which is comfortable to use and safe also for the smallest children;
- Elevated footrests which help the user to find the right position even in the dark;
- Smooth and sloping surfaces, which makes cleaning easy and effective.

The right shape and finish is best achieved using appropriate moulds.

Optional features are:

- A tight fitting lid or a flush pan with or without a water seal which effectively stops smell and flies;
- A vent pipe which reduces smell and flies.

SanPlats can be adapted to any shape and size of a latrine.

Shape: Flat/rectangular and dome-shaped/round
Size: Small, Medium and Large SanPlats
Material: Concrete or plastic

Materials and production methods

SanPlats are normally produced in concrete. Small SanPlats can be cast in plastic 'all-in-one' moulds (face down, like baking a cake), while medium and large ones are shaped face up manually with a set of moulds. One mould or set of moulds can produce between one and three SanPlats per day.

Small SanPlats are easily integrated in large concrete slabs and can be used to improve hygienic conditions of traditional latrines where slabs are covered with local mud.

Easy training

Using the all-in-one mould (face down) training is reduced to a day, with excellent result, as all features are incorporated in the mould (like a cake-tin). Casting dome shaped SanPlats requires more skill. On the job training gives it a flying start.

Easy-to-use manuals are available separately and/or with moulds from LCS Promotion (Moulds: Elisabet Levenskog, LCS ProMotion, Flo 18, 4696 Gras-

torp, Sweden. Tel +46 514 40058 Fax +46-514-40273 E-mail: lcs@sanplat.com) and training of trainers, assessments and advisory support from SBI Consulting (Technical assistance and development: Bjorn Brandberg, SBI Consulting, P.O. Box 131 EVENI, Mbabane, Swaziland. Tel: +268-404-0067, 404-3243 Fax: +268-404-0067 E-mail: bjorn@brandberg.org).

Easy storage and transport

Plastic moulds for small SanPlats are compact and light. SanPlats are easy to store and transport. 100 all-in-one moulds is good for production of 1000 SanPlats/latrines in 10 days, and takes only one.4 m³ or 1.2 m² storage area (one pallet 1.2x0.8 m). Total weight ±200 kg.

Post-emergency spin off benefits

Experience from Malawi lakeshore area camps proved that the emergency sanitation programme helped to introduce improved latrines, with dome-shaped SanPlats, in the local communities. Implementation has been continued by local NGOs.

Weaknesses

The SanPlat system is well adapted to water borne sanitation, but field experiences are limited and delivery systems not in place. This should however be overcome in the near future.

Costs

The production cost for a small SanPlat (600 x 600mm) in concrete is normally around USD 2. The mould costs around USD 20. Round dome-shaped SanPlats costs USD 6-12 depending on size and material costs.

Recommendations

- Use plastic SanPlats in the beginning of the emergency, when the situation is chaotic.
- Go over to concrete SanPlats as soon as possible using the all-in-one moulds.
- Where local wood is a problem, introduce dome-shaped SanPlats.

- Keep plastic SanPlats and all-in-one moulds and moulds for dome shaped SanPlats in emergency warehouses.
- Do not hesitate to consult us whenever needed.

4.2 Excreta Disposal in high water table and flooding environments.

Andy Bastable & Emanul Hoque, Oxfam

Introduction

Since the Rwandan conflict in 1994 the world has not seen displacement and refugee camps on the scale that was witnessed in the Great Lakes region at that time. While this type of emergency has decreased, natural disasters have not. Hurricanes, typhoons, cyclones, earthquakes and volcanoes continue to cause death and displacement throughout the globe. Of these natural disasters it is flooding (as a result of hurricanes, cyclones and heavy rainfall) which has posed the biggest threat to life and livelihoods of populations over the last 10 years.

There are different types of flooding events causing different problems. We can define three main types of floods:

- Rapid-onset floods. Including flash floods, tidal surges, high run off from heavy rainfall, dam bursts & overtopping, canals & rivers bursting their banks. Typically water rises to dangerous levels in 48 hours;
- Slow-onset floods. Prolonged rainfall causing low-lying areas to gradually become flooded over a matter of days or weeks;
- Annual flooding and permanently high water table areas. Many communities around the world are flooded annually and maybe under water for some considerable time each year.

Table 1: Examples of flooding events which Oxfam has responded to recently

| Country | Year | Event | Victims |
|------------------|------|------------|---------|
| Mozambique | 2000 | Fast-onset | 919 |
| India/Bangladesh | 2000 | Fast-onset | 1,350 |
| Cambodia/Vietnam | 2000 | Fast-onset | 880 |
| Venezuela | 1999 | Fast-onset | 36,000 |
| India – Orissa | 1999 | Slow-onset | 15,000 |
| Central America | 1998 | Fast-onset | 9,000 |
| Peru/ Equator | 1998 | Fast-onset | 12 |
| India/Bangladesh | 1998 | Slow-onset | 3,000 |
| China | 1998 | Slow-onset | 3,656 |

Millions of people have been affected, some 103,000 people killed and millions of hectares of crops lost over the last 10 years. While the majority of deaths were directly attributable to rapid-onset floods, many deaths were from diseases after the event due to an unsanitary environment and contaminated water. Good and appropriate excreta disposal in these situations can have a profound effect on the health of the affected populations. To ensure an environment free from faecal contamination three main areas must be addressed:

- Promotion of good excreta disposal practices amongst the affected population by the involvement of the community in the design and siting of the latrines;
- Prevention of the overflowing of raw sewage from pits and septic tanks during flooding which results in a very serious environmental health hazard;
- Provision of adequate excreta disposal for displaced people during flooding.

Solutions – based on Oxfam’s responses in a variety of countries

There is no one solution – any solution will depend on the cultural practices and what local materials are available for use. Presented below are some of the techniques Oxfam has used in rural settings in different countries to help solve these problems.

Preparedness – to limit spillage of sewage

Public consultations & awareness programme. What it is and isn’t possible for the community to do. This side of the programme is the most important, if a community truly understands the enormous public health risks associated with bad sanitation, then they themselves can find more creative low cost solutions than most NGOs can.

Raised latrines (& house). There is a whole variety of ways to raise latrines – discussed below. It is important not to forget the house, if the house is submerged then people will flee their houses anyway. There are numerous examples of agencies latrines projects raising the latrines above the house level.

Water seals. A water seal will prevent solids being able to escape when the tank/pit has become water logged.

Lids & seals on holes & covers of pits and septic tanks. To prevent spillage of solids during flooding.

Excreta Disposal

1st Phase. Rapid on-set.

Objective: To remove or contain the excreta as fast as possible to reduce the public health risk

Public Health Promotion. Even in a 1st phase emergency the population need to be involved as much as possible right from the start. They need to know why it is important to remove or contain the excreta and how it can be done. They should be consulted as far as possible on the siting, design and use of any latrines or excreta disposal systems proposed.

Cubicles for river-side toilets. In floods where there is still flowing water or there is a river nearby one of the quickest ways to eliminate the public health risk is to excrete directly in the river. While this may present a health risk for the people downstream it may avoid a health risk in a crowded area of higher land. Cubicles should be quickly as in most cultures privacy is a major concern, especially for women.

Containment of the excreta. A range of materials can be used to contain the excreta - barrels, bamboo, concrete rings, clay pots (plastic bags). These latrines should be downstream/gradient of any sources of ground water as contamination of shallow ground water is normally unavoidable. If the ground is flat then any water extracted should well treated before use.

2nd Phase. Rapid on-set/slow on-set or high water table areas.

Public Health Promotion campaign. The population should be involved in designing a long-term sustainable system/strategy for excreta disposal. How much time and effort can they actually give to this?

Raised lined pits. For longer term raised latrines earth, mud bricks, cement blocks and concrete structures can be used depending on what is locally available.

Raised toilets with septic tanks. For institutions such as schools and hospitals this is the preferred option. When used for houses one septic tank can serve a number of houses.

Small bore sewage systems. In crowded settlements prone to flooding small bore sewage systems can remove the sewage from densely populated areas, but if not constructed properly such systems are prone to flooding. Many developing countries also face the problem of lack of sewage treatment for these low cost systems.

Compost latrines. For use in high water table areas where digging pits is impossible, not recommended for areas that flood frequently. Oxfam has used compost latrines in a few Asian countries and more recently in Peru and El Salvador where the communities did not have a history of excreta reuse. For areas where people do not have a history of reuse considerable time is required for raising the awareness of the process initially and later when the first compost container is full.

Containment in tanks. In high water table areas, especially in areas where it is important not to contaminate the ground water, the excreta must be contained. This can be done using locally available materials such as concrete, cement blocks, bricks plastic tanks, Oxfam tanks, concrete or metal culvert rings, barrels etc and when it is full it can be emptied manually or mechanically.

Desludging. The simplest form of desludging is manually with shovels and buckets into containers that can be transported away. Surface pumps and submersible slurry pumps can be used or vacuum tankers. While there are investigations into small low cost desludging methods such as MAPET, some countries muck spreading farm trailers are the best and cheapest options.

4.3 Looking beyond the immediate health concerns of excreta disposal in a crisis. When might this be possible and appropriate - an example from Bhutanese refugee camps in Eastern Nepal.

Richard Luff, CHAD/DFID

This session will seek to achieve two things:

1. Identify the main factors that appear to preclude having a longer-term view in an emergency situation;
2. Establish from your experiences when having a longer-term view really is inappropriate.

In doing so we shall:

- try to illustrate that these factors are perhaps not as constraining as we might often believe;
- encourage practitioners to develop an approach that allows them to open their eyes to concerns beyond their own immediate horizons.

At the risk of over simplification this could be best summarised by saying that we should take short-term action and have a longer-term view.

Introduction

Rapid-onset and short-lived emergency situations seem to preclude taking a longer-term view of sanitation and excreta disposal, particularly early on in the crisis. However where the initial crisis may continue for longer than expected, (e.g. long standing refugee displacements and ongoing complex emergencies), there is a need to see beyond immediate concerns and have a longer-term view. Often this longer-term view will yield a durable solution in the short term because it is likely to be more appropriate for the needs of a community and better engineered.

However in the midst of the early stages of an acute crisis and surrounded by all the uncertainty of what will happen weeks, let alone months later, it may seem hard to think beyond the end of each day, especially if there is the prospect of an epidemic breaking out. There are many pressures/limiting factors that conspire to force a quick/temporary solution but the following are the major ones:

- The risk of widespread open defecation leading to an increase in disease and/or widespread disease outbreaks.
- Uncertainty about how long a population will remain in a location and require assistance in the provision of excreta disposal facilities.
- A lack of political and organisational will that prevents the development of excreta disposal facilities suitable for the longer term.
- Budgets that may preclude investment in anything other than basic services sufficient for the first few weeks.
- A lack of understanding of communities' needs and preferences as to what they would consider acceptable.

Moving from the acute phase solutions to more durable solutions

In March 1992 around 90,000 people fled persecution in Bhutan and became refugees in the lowlands of Eastern Nepal. In August 1992 when I arrived working for Oxfam, (seconded to Lutheran World Service - LWS the water/sanitation/site planning agency) the health agency were pointing to major problems with water quality from shallow tube wells and a large problem with open defecation with many of the communal latrines recently constructed not being used. These facilities had been installed to satisfy the urgent needs of refugees settled in an area with no services, but the limitations of these systems were becoming apparent. In order to avoid exposing the population to continuing major health risks a different approach was required. While the drilling of deep boreholes, coupled to piped distribution systems, would deal with many of the water quality problems, the excreta disposal problems were more complex to solve. With ground water at 1m depth in the northern camps of Beldangi I and II, digging latrines deep enough to hold excreta for more than six – 12 months would not be possible, necessitating the continual re-digging of pits if the refugees remained for a long time.

The obvious, though in many people's eyes, unlikely solution appeared to be the construction of twin pit composting latrines in order to deal with the shallow water table, shared between two families. Sharing between two families meant that the families would take responsibility and feel ownership of latrines and mean that solids accumulation did not exceed shallow pit capacity.

However the technicalities and infrastructure for developing a proper compost/recycling system are greater than for simple excreta disposal and the material investments required are thus correspondingly higher in the shorter term. However it is the interest and capacity of the community to operate a com-

post/recycling system that is hardest to gauge and develop, especially in the short term and where there is no history of such practices.

After further consultation with the community, government and UNHCR staff, the decision was taken to undertake detailed design work on the latrines and get costings for these in order to be able to generate budgets for the work. Of course the immediate open defecation problem remained, and a sense of urgency was developing because of the health problems being reported from the health clinics. Therefore an excreta clean up campaign was conducted to reduce risks, alongside a health promotion campaign /dialogue to understand the community's needs and views and to raise widespread awareness about the proposed twin pit composting latrine design.

Short and longer term impact

Immediate impacts:

- Moving from communal latrines to shared family latrines initially reduced and subsequently virtually eliminated open defecation.
- In conjunction with improvement in water supply, health problems related to water borne and washed diseases started to decrease to manageable levels.
- Health promotion campaigns conducted increased involvement and understanding of the population.

Longer-term impacts:

- Health improved to acceptable level for the area.
- Over a nine-year period latrine costs were kept to an affordable level as investments was only required for maintenance, rather than regular rebuilding.
- The latrine design has been taken up with local communities in villages surrounding the camps.
- The refugee community has been very satisfied with the latrine design and mostly participated in the maintenance (pit emptying) on a voluntary basis.
- Local government and other agencies have been very satisfied with the latrine design.

Conclusions and recommendations

Were the investments in money and effort therefore justified? In the Bhutanese refugee camps in the East of Nepal this challenge was taken on, initially for technical reasons, but with results that were not expected by many people. Twin pit composting latrines were introduced for Hindu communities who had no previous experience or knowledge of such a system and despite predictions of failure from experts, these proved to be popular with the users. This design has remained in use for over nine years without major change or problems occurring. In this regard the decision to choose this design early on was the right one.

The recommendation that can be drawn from this experience, making reference to the pressures/limiting factors above are as follows;

- The need to deal with excreta disposal immediately but find a way to 'buy time' to make the right decisions. In this case an excreta clean up and health promotion campaign were used to good effect.
- There is a need to make technical decisions based upon an understanding of the context and knowledge of the history of an area/crisis.
- Time must be set aside to have discussions with relevant agencies to develop solutions that satisfy immediate and longer term need where required.
- A familiarity with a range of basic latrine designs and their costs is crucial to be able to influence early decisions in an informed way.
- The importance of building up an understanding and dialogue with communities from day one cannot be over emphasised.

Appendix 1. Feedback on latrines

Jonathan Puddifoot, visited in the Bhutanese refugee camps in May 1995, to evaluate the performance of the large number of VIP pit latrines (8,000 in total).

Major findings were as follows:

- Twin pit VIP latrines were constructed throughout the refugee camps to three basic designs (fully lined 1.2m diameter x 1.2m depth; partially lined 1.2m diameter x 0.6 m depth; and fully lined 0.9m diameter x 0.36m depth). In the case of the latter two types, refugees were instructed to dig a pit about 1m in depth below the pit ring so that the final volume was similar to the 1.2m fully lined pit.

- User surveys indicate high percentages of latrine use by camp populations (98 per cent), which was supported by observations of the lack of open defecation on the camp sites;
- Originally, it was thought that latrines with a fill volume of 1m³ would be sufficient for one year's use by 12 people. However, average fill times in some camps was recorded at over 500 days.
- Studies conducted on 176 pits show that the reduction in volume of material during decomposition in the pit was high, ranging between 50 - 80 per cent.
- It is notoriously difficult to assess the impact of building latrines on a community given the number of variables likely to affect such an assessment. Comparison of diarrhoeal rates before and after latrine construction show a peak average rate of 6.6 diarrhoea cases per 100 between December 1992 and March 1993 (pre-construction), which fell to 3.5 diarrhoea cases per 100 for the same period following construction.
- The latrines were built from pre-fabricated kits. The tasks involved in construction were divided between skilled and unskilled - the user family being responsible for the former, trained refugee construction teams responsible for the latter. Total cost for the latrine (including sub- and superstructure, labour and capital items) was \$47.

Appendix 2: Answers from e-mail questions provided by LWF engineer in March 2002.

- Have the latrines been used as they were originally designed or have there been changes made over the years? If there were any changes could these be explained and the reasons why they were made.

During this period LWF has made some minor changes on the VIP family latrines. Instead of single ring, double ring pit is introduced. The reasons are: there is more soil erosion and ring sunken in single ring and earthen pit. Stone soling on base of the pit seems more durable. Being high water table during rainy season double ring pit is more effective.

- Are the latrines used by all members of the community and kept clean? Have any other sorts of toilets had to be provided for some groups because the main latrines did not work for some reason?

Community users are well aware about the proper use the latrines, keeping it clean. They are maintaining well.

- Overall have the communities found that the latrines been to their liking? If there are any changes that people would want made what would these be?

Users are very much impressed with the existing latrine design. No any comment on the design and no further recommendation for the change.

- Have the design for these latrines been used elsewhere, by for example Nepali people in neighbouring villages?

Yes, upon the request of the local community a maximum nos. of VIP twin pit latrines are introduced and LWF has facilitated the neighbouring communities to construct in the area.

Discussion: Excreta disposal

Chair: Pascal Jansen

The excreta disposal theme began with a presentation by Bjorn Brandberg of SBI Consulting on *'The SanPlat system in emergency situations'*.

After his presentation Brandberg was asked about the possible use of SBI's plastic SanPlat. The speaker replied by saying that his company had a number of models and design ideas that could be adapted and developed in partnership with other organisations. He encouraged interested parties to contact him and engage in dialogue.

Andy Bastable and Emanul Hoque of Oxfam, presented the second paper of the session: *'Excreta Disposal in high water table and flooding environments'*. Having described the problems associated with excreta disposal in areas with high water levels, the authors went on to outline potential solutions.

In the discussion that followed the speakers were asked whether the sanitation unit (based on two rubber bags), developed by Oxfam and WEDC 30 years ago, could be useful in environments with high water levels. The speaker responded by saying that these units would be suitable for locations with a high and/or sensitive water table and a population who are likely to be on-site for one or two years. The speaker felt that these units would not be suitable during a flood situation due to constraints of time and space and the problems associated with getting the sludge into the bladder tanks.

Bastable and Hoque's presentation was followed by *'Looking beyond the immediate health concerns of excreta disposal in a crisis.'* presented by Richard Luff (CHAD/DFID). In this paper the author put forward the advantages of taking a long-term approach to sanitation problems amongst displaced populations, and explained the benefits achieved from such an approach in Nepal.

During his session the speaker addressed a number of questions to the assembled delegates.

First he asked what factors precluded having a longer-term view beyond the start of a crisis. The following factors were suggested:

- Political will;
- Security;
- Cultural/religious beliefs;
- Lack of knowledge of sustainable solutions;

- Equipment and approaches that organisations already have at their disposal;
- Reflection time/space at the start of a crisis;
- Donors;
- Media pressure.

The speaker went on to ask which situations, in the experience of the audience, meant that a longer-term view was inappropriate. The following situations were given:

- Earthquake/natural disaster where vulnerability is relatively low;
- Where people want/are able to return home quickly;
- Prisons and detention centres;
- Transit camps, (but where are people moving to?).

Contributors:

Andy Bastable, Bjorn Brandberg, Emanul Hoque, Richard Luff, Paul Sherlock and others.

5. Solid waste management

5.1 Medical waste management in low-income countries.

Joos Van Den Noortgate, Médecins Sans Frontières

Why is it important to manage medical waste correctly?

Health structures (clinics, field hospitals and the like) are places where infections and pathogens are concentrated. There is a high risk that patients at these locations can acquire secondary infections and that staff can also become infected. Disease transmission within a health structure is known as *nosocomial* infection. Poorly managed medical waste and poor general hygiene are important factors in the spreading of nosocomial diseases. They can also be at the basis of epidemics when people living around the health structure or waste pickers come in contact (directly or indirectly) with badly managed medical waste.

The overall objective of medical organisations is to reduce the morbidity and mortality rates within the population. The risk of infection via medical waste generated by such organisations should be reduced to a minimum both inside the health structure and out. The specific objectives of medical waste management in low-income countries is to render the waste:

- Non-contaminant / non-infectious;
- And/or inaccessible to the population;
- And, if possible, no longer reusable for whatever purpose.

What is medical waste?

Medical waste is only one part of all the wastes such as wastewater, excreta and food residues generated in a health structure which are collectively known as healthcare waste. In high income countries medical waste is categorised and segregated according to whether it is contaminated or not, in order to reduce treatment and disposal costs. As it is often difficult to determine whether medical waste is contaminated and to manage that waste safely, this categorisation is not really appropriate for low-income countries. For low-income countries it is therefore often better to separate medical waste in categories according to the elimination and disposal process. These categories are:

- Softs: i.e. dressings (wet or dry), syringes without needle, packaging, paper, cardboard;
- Sharps: i.e. needles, scalpels, razor blades, ampoules, (broken) glass;
- Organic waste: i.e. placentas, organs, amputated limbs;
- Hazardous waste: i.e. laboratory and X-ray products, expired drugs.

What are the principles of correct medical waste management?

For the medical waste management to be effective in low-income countries, the following principles are recommended:

- The whole management and disposal process should take place on-site as this increases control and allows the training of all staff that come into contact with the waste;
- Handling and manipulation should be reduced to a minimum to reduce the risk of accidents;
- Good medical waste management should be easy to implement and applied in all locations, from the smallest health post to the biggest hospital, in both long-term and emergency situations. In emergencies a slightly simplified format will often be more appropriate;
- The solutions should be technically sound and adapted to the realities of the local environment, taking into consideration human resources, cultural habits and respect for national legislation;
- The medical waste management system should be affordable to run, maintain and repair;
- Technical solutions should be durable, and replicable.

How is medical waste management carried out in low-income countries?

The segregation of waste into different categories must be done at the time and at the place to generation. This implies that it is the (para-) medical staff who should segregate the waste.

Sharps should be collected in containers that are puncture resistant and liquid tight. Modified, empty drugs containers are a cheap and readily available solution. As it is impossible to melt down and destroy needles with the burning/incineration equipment available in the field, and in order to reduce the manipulation of dangerous waste (even after the treatment), it is recommended to dispose the entire container directly in an 'encapsulated' environment - the so-called 'sharps pit'. This pit should be made out of solid construction materials such as concrete, or with a 200-litre drum in emergencies.

As strong plastic waste bags are often difficult to come by and too expensive for low-income countries to continuously replace, robust plastic waste buckets with a lid can be a good alternative for the collection of soft waste. All buckets used for the collection of soft waste should be of the same colour to facilitate the identification of the appropriate receptacle for the waste. Once emptied, they should be washed and disinfected before going back into rotation.

One of the simplest and cheapest treatment methods for soft waste in low-income countries is auto-combustion incineration. Soft waste represents the biggest quantity of waste generated in a health structure; therefore one of the most important objectives of this treatment method is to reduce the volume of the waste. The higher the temperature and the longer the retention time of the gasses achieved within the incinerator, the lower the risk for public health and the environment. It is therefore advisable to use double chamber, auto-combustible incinerators, built using refractory bricks. In emergencies, however, or very small health posts, a simple 200 litre drum burner can be adequate. The ash and residues coming from the incinerator should be buried in a closable refuse pit.

Plastic buckets with a lid can be used for the collection of organic waste - these buckets should be a different colour to the soft waste buckets. Organic waste contains a lot of liquids, it is therefore not recommended to incinerate organic waste in an auto-combustion incinerator as the evaporation of the fluids drastically reduces the combustion temperature. To successfully incinerate organic waste requires a large amount of additional fuel (wood, kerosene), which is often unaffordable in low-income countries. An acceptable alternative is to bury this waste in specially designed organics pits.

As there are a lot of different kinds of hazardous waste with their own specific risks, no general recommendation can be made for this category. They have to be dealt with on a case-by-case basis.

As has been seen in missions such as Cambodia where medical waste management was started several years ago, technical solutions alone will not guarantee the safe and reliable management of medical waste, and it is often the social factor that is crucial in this domain. It is therefore important that from the start, all stakeholders are consulted and that their views are integrated into the design of the medical waste management system, if a sustainable solution, acceptable to all, is to be achieved.

Due to the influence of the social factor, a lot of attention is paid now in Haiti on the design of a waste zone. All the facilities for eliminating the different types of medical waste should be grouped in such a way that the work can be performed as conveniently and ergonomically as possible, this principle also applies to the segregation, collection and the transportation of the waste. People will implement more appropriate techniques because their job becomes eas-

ier, not because they are safer. Good protective clothing and the thorough training of all staff that comes in contact with medical waste are mandatory.

Good medical waste management demands a close collaboration between motivated medical and non-medical staff, appropriate technology, training and a sufficient budget.

Discussion: Solid waste management.

Chair: Melesse Tegenge

The theme of solid waste management was addressed in a presentation given by MSF's Joos van den Noortgate, titled '*Medical waste management*'. In his presentation van den Noortgate defined different categories of healthcare waste and proposed appropriate strategies for the management of these waste streams. After his presentation delegates asked him a number of questions. These questions covered the following areas:

- The transportation of healthcare waste;
- The treatment of healthcare waste during mass vaccinations;
- The main constraints involved in implementing a healthcare waste management system.

Van den Noortgate argued that on-site management of healthcare waste would always be the favoured option, but that in some cases waste might need to be transported. In this scenario all waste should be secured in containers sealed with tape and transported to an appropriate disposal site. If available, a metallic trunk in the vehicle should be used to store the containers whilst in transit.

In response to the second question, the speaker explained that mass vaccinations generated large volumes of dangerous waste that is usually stored temporarily in cardboard boxes. This waste should be transported to a central disposal site (see above) with the following facility: a metal 200 litre drum (with the top and bottom cut out, and a grill with 10x10 cm holes at 1/3 of the height of the drum) suspended on metal beams above a one metre diameter pit. Having ignited the first cardboard box others should then be added on a regular basis. As they burn the ash and needles will fall in to the pit below. After incineration and cooling, concrete should be poured over the detritus and the hole back-filled. The speaker added that a recent mass vaccination of 30,000 children against measles in Goma generated 19 m³ of waste that was reduced to <1 m³ using this method.

Answering the final question, Van den Noortgate said that the main constraint (and asset) in the successful implementation of a healthcare waste management system were people. He explained how if one person in the chain didn't perform their task, then the system became difficult, if not impossible, to manage in a safe manner. He went on to conclude that stakeholder consultation was therefore necessary in order to win staff support and co-operation.

Contributors:

Steve Hide, Peter Maes, Rutger Verkerk

6. Emergency sanitation in urban settings.

6.1 Sewage disposal: the problem of a town of two million inhabitants, Basrah - Iraq.

Robert Mardini, Civil Engineer, ICRC Water and Habitat Department, (presented by Patrick Kilchenmann)

Introduction

Today most of the Iraqi population outside the big towns of Baghdad, Mosul and Kirkuk have to live with insufficient quantities of drinking water and what they have is of low quality. Sanitation and public health remain precarious as a result of the situation which has prevailed since 1991.

Since the second Gulf war, the drinking water situation (which in Iraq is dependant on highly sophisticated water treatment and pumping facilities) has been severely affected by the shortage of electricity, logistics, management and manpower, consumables and spare parts. Furthermore the insufficient available capacity, the ageing networks and, lately, the severe drought (and resultant low river levels, combined with higher pollution and salinity) have made these years particularly difficult ones.

The problem

The Tigris and Euphrates not only supply most of the country with raw water, but also collect all the wastewater rejected.

Many crucial sewage lifting stations in Basrah, the second most inhabited town of Iraq, were stopped after the Gulf war. Furthermore, sewage networks were connected, as for most of the towns of the country, to storm water networks. This adverse combination made most of the poorest urban areas prone to severe flooding.

The ICRC response

Since 1995, the ICRC embarked on a rehabilitation programme which mainly included installation of new pumping equipment for 18 lifting stations. A total pumping capacity of 1.5 MW has been installed. Today the ICRC technicians

are following-up these stations. Since the sewage evacuation is fully dependent on power supply, special attention has been given to the deteriorating electricity situation. Recently, the ICRC assisted the water and sewage authorities in installing six new generators issuing from SCR-986 for the sewage network, which corresponds to a total installation of 3'300 kVA of backup power.

Lessons learnt

Through this programme, ICRC engineers and technicians realised that emergency sanitation situations for a town of two million can be addressed only if the following prerequisites are met:

- Availability of technical expertise to grant a sound and comprehensive survey. A problem analysis and accurate damage assessment of sewage infrastructures should be performed. Relevant solutions should be proposed with a realistic plan of action.
- Good relations with the water and sewage authorities are built in order to establish the right priorities.
- Appropriate safety measures are deployed to ensure perfect working conditions in situ: avoid sewage gases through good ventilation and develop measures to protect workers.
- Availability of qualified HR to implement the rehabilitation programme: technicians, welders, mechanics, and electricians. Project managers should continuously follow-up the implementation to ensure that all safety measures are respected.
- Availability of funds and efficient logistics are in place: most of the time, costly and heavy equipment must be purchased from abroad.

Conclusions

Nowadays, most of the Water and Sewage treatment services in Iraq are in a very poor condition. Not only has the productivity been severely reduced, but also the available capacity is more and more unpredictable. The fact that a service is available today does not mean that it will available be tomorrow. Imbalance between input and deterioration continue to persist. In this situation the best the ICRC and other humanitarian agencies working in the water and sanitation field can do is to stabilise the degradation.

Although specific interventions can positively affect the water and sewage services, or avoid a disaster as seen in Basrah, one should be aware that it is very difficult to substitute for the economy of what was one of the richest oil-producing countries in the world until 1990.

It is important to stress that the ICRC's programme is only dealing with the tip of the iceberg. All it can do is prop up a system which really needs costly rehabilitation, proper maintenance and long-term investment.

It would be impossible to assess the social benefits of the ICRC's Water and Sanitation achievements in Iraq. However, we believe that some risks endangering public health have been significantly reduced, in specific locations such as Basrah town, where evacuation of wastewater has been notably improved through the refurbishment of a number of key sewage pumping stations.

The work that the ICRC has been doing over the past six years, to alleviate the most problematic deficiencies in the Water and Sanitation field, has to continue on a larger scale, involving co-ordination with all the inter linked sectors.

Discussion: Emergency sanitation in urban settings.

Chair: Melesse Tegegne

The emergency sanitation in urban settings theme was addressed in R. Mardini's paper '*Sewage disposal: the problem of a town of two million inhabitants, Basrah - Iraq*' - which was presented, in the author's absence, by his colleague Patrick Kilchenmann. In this paper, Kilchenmann described the sanitation problems experienced in many urban centres in Iraq since 1991. Using the case study of Basrah, he outlined the nature of ICRC's work in this area and summarised some of the lessons learnt.

The first question put to the speaker after his presentation related to the negative repercussions of the conditions of the Oil for Food Programme (OFFP) deal, which only allows finance for importing supplies. The speaker agreed that these conditions meant that training, technical assistance and capacity building activities had been restricted. He noted, however, that the situation was forcing people to adopt innovative approaches to developing cheaper solutions.

Following on from this point, the speaker was asked if, in his opinion, there was room for smaller NGOs to become involved in promoting technologically simple solutions. Kilchenmann responded by saying that, due to declines in Iraqi national income, this kind of intervention was required, and might usefully be targeted at small-scale systems such as those of institutions and small towns. The speaker sighted a lack of interest in such solutions amongst local engineers as an obstacle. One delegate observed that a number of agencies working in Iraq had tried to get local authorities to consider low technology options a decade ago, but had not received a favourable response.

Contributors:

Jean Francois Fesselet, Mark Henderson, Patrick Kilchenmann, Paul Sherlock

7. Hygiene promotion

7.1 Hygiene promotion in emergencies.

Tim Forster, IFRC

Background to water and sanitation in the Americas

Traditionally, water and sanitation have not been core activities of Red Cross National Societies (NS) in the Americas region. However, in view of recent natural disasters (Venezuela Floods [December 1999], Hurricane Keith [November 2000], El Salvadorian Earthquake [January 2001], and Peruvian Earthquake [June 2001]) this has started to change. All these major operations contained water and sanitation components, as part of the Red Cross (RC) emergency response programme. In all these emergencies, hygiene promotion became an integral part of the activities undertaken by RC teams. Volunteers were particularly enthusiastic when participating in WATSAN related activities in the response phase. As a result of these emergency interventions, some NS in the region are now taking an interest in WATSAN, both from an emergency point of view, and as a core RC health activity.

Part of the America's WATSAN strategy is to raise the disaster response capacity of NS in region, in both emergency water supply and sanitation. PHAST (Participatory Hygiene and Sanitation Transformation), is being promoted regionally, as a tool for raising awareness on sanitation issues, both within the RC and at community level. Globally, PHAST is used as a tool by the Federation to promote better sanitation practices. PHAST, although not specifically designed for emergency situations, is useful:

- As a focus for training of RC volunteers responsible for raising awareness of sanitation issues;
- As a tool for mobile brigades conducting community based health activities at national level;
- As an element in establishing a regional pool of trained volunteers for emergency interventions.

Proposed methodology for emergency hygiene promotion

In light of recent experience in the region, (El Salvador [January 2001] and Peru, [June 2001]), emergency hygiene promotion, in support of technical activities, should be quick, effective, and focussed on key messages.

Ideally, we should attempt to set a baseline, identify priorities and carry out activities as quickly as possible. Time delays are frequent in designing and printing educational materials, hence it would be desirable to have generally applicable sets of materials prepared for immediate use. A methodology, in manual form, is currently being prepared with the following steps outlined:

- Creation of community committees as a vehicle for community participation;
- Community diagnostic techniques (i.e. Nurse Tanika from PHAST);
- Other diagnostic techniques (i.e. health walkabouts);
- Identifying key messages, (i.e. hand washing, after handling, safe excreta disposal);
- Using pre-prepared drawings of key messages, (i.e. PHAST hygiene practices activity);
- Providing posters (public areas) and leaflets (family) of key hygiene messages;
- Use of a community monitoring technique (such as family visits);
- Monitoring visits provided by Red Cross volunteers;
- Linking activities to distribution of standard hygiene kits.

To enhance the impact of emergency hygiene promotion inputs, it is planned to use RC volunteers that already have training in the use of PHAST. Modification of some of the steps, allows adaptation to emergency situations, while increasing elements of 'community participation'. The use of simple drawings simplifies the reproduction of training materials. It is also hoped to have pre-printed stocks of standard posters and leaflets, prepared and ready for dispatch, at PADRU warehouse in Panama, thus, increasing speed of response. The challenge of the new methodology is how to set, a quick and useful baseline, against which to measure impact.

Clearly, educational inputs should not to be undertaken in isolation, but in conjunction with other RC activities, such as emergency water distribution; emergency sanitation and distribution of hygiene kits. Also, as part of RC programmes in the region, it is planned to raise 'Disaster Response Preparedness in Emergency Health', by organising training sessions for RC volunteers. To maximise resources, it is planned to train only volunteers that are active in community health programmes in their NS.

Experience to date

Based on experiences in Peru and El Salvador, the work undertaken by volunteers in beneficiary communities, proved on the whole to be positive. However,

it should be clearly stated that measuring impact in a systematic and quantitative manner (although attempted) was not, 100 % successful.

Positive aspects: In both locations, the participation of RC volunteers in mobile brigades was done with much enthusiasm. Acceptance, by the communities, in terms of visits from RC volunteers, was equally enthusiastic. Messages transmitted to the affected communities were adapted to key points, in both situations. Activities were undertaken in collaboration with the distribution of hygiene kits and other technical activities. Contacts made during the emergency phase may lead to more long term inputs as part of RC community programmes.

Negative Aspects: None of RC volunteers involved, had any previous experience in WATSAN related issues. The lack of a defined and structured methodology was a handicap. The lack of access to training materials was also a handicap. It was found to be difficult to establish a meaningful baseline with which to measure progress. The lack of supervisory staff with experience, was another drawback which slowed down the implementation of activities.

Conclusions and recommendations for the future

Through active promotion of water and sanitation as a core NS activity in the Americas, it is hoped to increase the amount of both human and material resources available for emergency hygiene promotion work. This will be particularly aimed at RC branch level, focussing mainly on developing available human resources. At national level, a capacity for planning interventions and providing training needs to be developed. Regionally, within PADRU, stocks of specialised materials (promoting key messages) should be available for rapid response. As a consequence training modules for hygiene promotion will be developed in 2002.

Through the dissemination of PHAST, training of trainer programmes are being organised. Participatory National Societies (PNS), are being encouraged to participate in activities built around PHAST, and to use financial resources to replicate similar programmes. Awareness is also being raised within NS in the region, on the importance of hygiene and sanitation issues, and in creating links between the RC and the community.

One of the main challenges for the future, however, remains to encourage the RC Movement in the Americas, to invest in a long-term vision of water and sanitation. A more effective response can clearly be achieved through better preparedness. Hygiene promotion is a low cost activity which is well within the capacity of many RC branches in the region. There is also a need to work

closely with other organisations that are developing assessment tools, planning tools, and specialised emergency sanitation units.

7.2 Initial project model for hygiene promotion within ICRC environmental sanitation programme, Afghanistan

Pascal Jansen, Water and Sanitation Advisor, International Committee of the Red Cross (presenter), Philippa Nicholson, Hygiene Advisor, Australian Red Cross Society, and Gavin MacMillan, Water and Sanitation engineer, British Red Cross Society).

Background

Health promotion and education are essential components for the success of any emergency or development programme which aims to reduce morbidity and improve public health. The overall impact of integrated water, sanitation and hygiene education activities are enhanced by a complementary approach which combines public health education and water/sanitation technical collaboration.

Recently there has been a paradigm shift towards sanitation and hygiene education as a means of achieving changes in behaviour, as well as community management of the water environment. Thus the improvement of water and environmental sanitation conditions, and related practices, also require a shift in programme strategies, from the early emergency phase to the longer-term development stage.

In many emergency or post-emergency settings, the provision of clean accessible water and ideal sanitation facilities is not within the community's reach. However, communities and individuals can still adopt improved hygiene behaviours which can lead to better health. They can also work gradually to improve their sanitation and water facilities. Even when good facilities are available, they will not necessarily lead to a great improvement in health unless they are accompanied by changes in hygiene behaviour.

Recognition of the need to effectively impact on water/sanitation and health outcomes has been highlighted by ICRC Water and Habitation engineers. It was proposed that a public health specialist advise on the incorporation of hygiene education and the training of volunteer hygiene educators in all ongoing and future environmental sanitation projects.

Given the current low level of hygiene education in the current Afghanistan programme, a new strategy has also been developed with emphasis on the

identification and training of volunteer hygiene educators: specifically Ministry of Public Health trained female staff. This would be implemented with a the priority being placed on onsite household sanitation programmes in Kabul and Mazr-i-Shariff. Given the recent change in situation, this will be immediately developed as part of the current emergency programme response in all major urban centres.

Rationale

Hygiene education is an essential part of the promotion and maintenance of good health in Afghanistan - regardless of the season or humanitarian situation (emergency, rehabilitation, development). According to the *'Hygiene Education Policy Guidelines for Afghanistan'* (2000), all water and sanitation projects should include hygiene education. The information and motivation provided by hygiene education improves the effectiveness of WATSAN projects. Equally important, it enhances the community's capacity to develop skills in identifying problems, finding solutions and making independent decisions regarding their own healthcare.

A recent survey by DACCAR in Kabul showed that the general cleanliness of 300 selected households was poor. In half of them there was an obvious source of possible contamination such as: latrines near a water source, pools of stagnant water, possible animal contamination, etc. In addition a large number of households were using traditional open latrines, with women using household latrines and men frequently defecating in open fields. The hygiene of children in more than 6% of the household was observed to be very poor as were practices regarding washing hands with soap.

A recent case-control study carried out by ICRC (1999) in Kabul estimated that of a sample of 8017 zero - 11 year olds, 608 deaths occurred due to diarrhoeal deaths amongst children in the project areas. Using an attributable risk calculation derived from the multivariate model, it was estimated that 234 deaths in children were averted over the same period. The impact of an effective hygiene education programme could avert further mortality in this most vulnerable age group. Key diseases that are measured in both Kabul and Mazur include typhoid, malaria, leishmaniasis, diarrhoea diseases, eye infections and dysentery. There is a defined seasonal occurrence of these diseases, with disease peaking in the summer season from May - September. The incidence of these diseases is largely related to environmental sanitation and common hygiene practices.

Faeces in the public and domestic environment are the primary source of diarrhoeal pathogens. Effective hygiene promotion could largely prevent diarrhoeal disease in the home. Targeting of risk behaviours in the

community is essential for the health of the community. These target risk behaviours include the safe disposal of faeces, promotion of hand washing, maintenance of clean water, fly control and food hygiene.

Target population and behaviours

Defining a target population is essential for the effective dissemination of health education. Ideally, the target audience should have the greatest impact on behaviour change and therefore most effect on preventable disease. Women and children are the main target group for the health education components of every project as women are the major influencing factor in changing practices regarding personal, household and environmental hygiene. This includes routine and crucial home practices such as the use of water for drinking, cooking, and washing. Children are the main beneficiaries since water born and excreta related diseases are the main contributor to infant mortality in Afghanistan.

Health education and social development in Afghanistan has always been a challenge because of cultural barriers that inhibit communication with women. This problematic gender issue has worsened since the Taliban took power, making it increasingly difficult to communicate with women. The representation of living creatures is illegal and presents problems with visual health promotion aids. However, community and government support has been gained due to consultation with traditional leaders, and officials from the Ministry of Public Health and Ministry of Higher Education. This is a major benefit to the establishment and success of the proposed hygiene programme.

Development and maintenance of the proposed Hygiene Programme will be greatly assisted by the continuation of established contacts and programmes in Kabul. Currently, the hygiene programme is carried out by the Ministry of Public Health and local staff. From January to September 8th, 2001 hygiene education was been provided to 3,578 men, 960 children and 4,383 students (schools and courses). 340 posters and 1,452 leaflets were also distributed.

Effective points of contact for targeting the female community have included visiting clinics which women access, community forums (facilitated by UN Habitat), madressas and mosques, working with children and teachers in selected schools and accessing commercial radio. The project advisor is aware that this will be with full consent of government and community officials. Effective dissemination of hygiene education also relies on being able to access individuals in their homes. This will necessitate the

training of MOPH female staff who can then carry out house to house visits. This can apply to both Kabul and Mazar. There is also a current monthly hygiene / health promotion meeting which is held in Islamabad and attended by all major NGOs working in this sector in Afghanistan. This will assist greatly in the project advisors integration to current hygiene practice in Afghanistan.

Evaluation

In designing effective health and hygiene education programmes, process, impact and outcome indicators are important for evaluation. It would be the intention of the project advisor to further refine the baseline survey developed by Margaret Karr (ICRC) and Christine (UN Habitat) as per their request and apply this survey to the populations of Kabul and Mazar.

As advised by Australian Red Cross epidemiologist M. Karr, it is suggested that a multiple linear regression model is used to measure the impact of the hygiene programme. This model would require eight groups for comparison as linear stratification of samples allows for control of confounding variables and can act as a means of detecting modifying effects.

Data would be collected in survey format by trained female MoPH staff who have direct access to the relevant ICRC project areas, during their household education visits. Survey results would then enable the targeting of hygiene behaviours and modification of health education programmes to be most effective for the relevant population.

Conclusion

Hygiene education is any activity which is designed to achieve learning related to cleanliness and safe water. It means achieving permanent change in an individual's and a community's capacity to improve their health and to improve the total capacity of the community to have responsibility for their own health. Hygiene education should be seen as an integral component of all water and sanitation projects, but often the technical considerations of water and sanitation supply are prioritised over the educational needs of the community.

The ICRC WATHAB department has recognised the importance of hygiene education and it's ability to improve the effectiveness of water and sanitation projects with the development of the proposed project model, initially for Kabul and Mazar-i-Shariff urban WATSAN projects. As such this

project model will be implemented with the return early 2002 of the ARCS hygiene advisor. It is also important that the expatriate project manager and their local counterparts are fully committed to this project and that the team believes that the project model can be applied to Afghanistan.

Modification of the programme would potentially allow the application of hygiene principles to refugee or IDP camps at a second stage.

Discussion: Hygiene promotion

Chair: R. Verkerk

Tim Forster (IFRC) opened the hygiene promotion theme with his presentation '*Hygiene promotion in emergencies*' in which he described the growing role of water and sanitation, and hygiene promotion in the work of IFRC in the Americas.

After his presentation Tim Forster was asked a number of questions about IFRC's use of the PHAST (Participatory Hygiene and Sanitation Transformation) methodology. During this discussion the following points were established:

- The use of the PHAST methodology has been promoted as an IFRC pan-regional initiative. On a global level there has been collaboration with the IFRC regional delegation in East Africa;
- The Ministry of Health in El Salvador are considering using PHAST;
- Evaluating the success of emergency hygiene interventions has been difficult. IFRC plan to use PHAST to develop indicators that will allow improved assessment.

The speaker was also asked about IFRC's distribution of hygiene kits in emergency situations. It was explained that a family kit for one month contained the following items:

- Soap,
- Toothpaste,
- Tooth brushes,
- Comb,
- Towels,
- Sanitary towels,
- Shampoo,
- Toilet paper (occasionally).

The speaker went on to outline the principles that he felt should guide the distribution of such kits:

- Kits should only be distributed after a basic needs assessment
- Distribution should be targeted towards the most vulnerable
- Kits should only be given for a limited period of time (this should be made clear to recipients from the start)
- Kits should only be given as part of a wider intervention

In his presentation *'Initial project model for hygiene promotion within ICRC environmental sanitation programme, Afghanistan'* Pascal Jansen of the ICRC, outlined the hygiene promotion strategy planned by ICRC in Kabul and Masar-i-Sharif.

The forms recording the discussion that followed this session are not available.

Contributors:

Stig Bell, Patrick Kilchenmann, Richard Luff, Kate Riley, Melesse Tegegne

8. Community participation

8.1 Motivating displaced people for emergency sanitation: lessons learnt from ICRC project experiences during recent crises in Asia.

Pascal Jansen, Water and Habitat Unit, Assistance Division, International Committee of the Red Cross, Geneva.

Background

The issue of how to motivate IDPs or refugees in constructing latrines and other sanitary facilities is a complex issue. The factors are varied and related to technical, environmental, human, social and economical matters. ICRC and other relief or development agencies already recognize the complexity of organising such a programme in relatively stable environments (i.e. household latrine projects in rural areas of Bangladesh, ecological sanitation programmes in urban centres of Central Asia, particularly Afghanistan). In a refugee or IDP camp situation the issue is even more complex. Despite this complexity, agencies in the area of latrine construction have to face this issue with minimal guidance, therefore the new WEDC guidelines for assessment and programme design for emergency sanitation will be more than useful in the future

The issue of motivating IDPs or refugees in water and sanitation activities in their camps has already been discussed at several conferences and inter-agency meetings. This paper documents the experiences of the ICRC in involving refugees or IDPs in latrine construction and other sanitation works during recent health emergencies associated with poor sanitation, on the basis of four small case studies from Asia:

- refugees in West Timor (Indonesia);
- flood-affected residents in Hpa-an (Myanmar);
- evacuees in Mindanao (Philippines);
- IDPs in Jaffna Peninsula (Sri Lanka).

It looks at the overall displacement situation in each case and attempts to develop basic guidelines for when to use contractors or community-based schemes directly involving the beneficiaries. We will discuss the motivation strategies for the construction of latrines and other sanitation facilities when involving directly refugee or IDP communities or individuals. The community-based approach is the more complex of the two considered in the case studies, necessitating a specific focus on the strategic aspects of this approach.

Case studies: ICRC experiences in sanitation programmes in refugee/IDP camps

The following case studies were gathered from ICRC engineers, field officers and health personnel working in the four emergency project areas the past three years (1999 to 2001).

Case 1: Latrine construction in IDP camps in West Timor, Indonesia (1999-2000)

Project background:

From October 1999 to May 2000, ICRC with the Indonesian Red Crescent Society (PMI) provided a full range of sanitation services in four camps of Timorese refugee in Kupang district and 11 others in Atambua (Betu district) including latrine construction, shelter assistance and water supply. A total of 750 pit latrines were built, of which 500 units were built by local artisans (contractors using refugee labour) while the remaining 250 units (mainly in Atambua) were constructed by refugee labour with building materials supplied by ICRC. In some case ICRC-PMI did pay incentives or food for work for refugees or local workers who worked for institutional latrine construction (mainly for communal latrines in some centres).

UNICEF and some NGOs were also involved in latrine construction in camps, using either contractors (for the supply of materials and works) or refugee labour with contractors supplying the building materials.

The first 500 units built by contractors cost an average of 650,000 Rph each. They consisted of a concrete floor slab and bamboo cladding for the superstructure. The tender for the supply of materials showed that it cost about 500,000 Rph. The difference between the original construction cost and the supply of materials were about 150,000 Rph and this was paid to the refugees for constructing the latrines. Local labour rates suggested a much lower figure than 150,000 Rph. Thus a heavy 'subsidy' was obviously 'offered' to the contractors.

The construction using the contractors was relatively straightforward. However there were problems when using refugee labour directly for the 250 units in Atambua camps. They were meant to use their own tools but there were often disputes about the ownership of the tools. In addition the refugees made their own design changes. For instance the significance of the high water table was not realised by the refugees, leading to a 'failure' rate in Atambua of more than 40% as latrines filled much quicker than planned. Other issues concerning the dynamic among the refugees in the camps have also been identified in Atambua. Not all the sub-camps were involved in the decision making about latrines

sites, allocation and construction. This highlights the complex issues involved in a community-based approach.

In Umaklaran camp (Atambua), ICRC tried to involve the refugees in the latrine construction at a stadium, however they demanded payment for their labour. Labour rates were agreed but the refugees were then demanding adjustment in the rates due to the rock formation encountered during digging. Work on the latrines stopped for several days. Oxfam experienced the same problem at the Kobelete camp in Soe.

In some other camps of Betu the ICRC, UNICEF and MSF-B were initially constructing latrines using contractors. However they shifted to providing materials to families who were willing to have their own family latrine. This was because there were continuing problems with maintenance and cleaning of the community latrines constructed using contractors. In constructing their own latrines, the families provided free labour. They noted that those intending to stay in West Timor were usually those that constructed their own latrines. This approach also required several meetings with the camp leaders that constructed the latrines. As such it was much slower than using contractors.

UNHCR in Noelbaki camp (Kupang) indicated that the refugee leaders have made a stand that 'no digging will be allowed in Noelbaki unless food is distributed to the camp'. At the same time and in the same camp MSF-B continued to deliver bathhouse materials but the majority of the drum type latrines were not built until food was delivered.

Clearly, food for work, payment of refugees or contractors and the involvement of refugees in WATSAN construction activities was a burning issue in West Timor not only for ICRC but also for all other agencies.

Discussion:

The following conclusions were made at several WATSAN committee meetings in Kupang and Atambua concerning the issue of motivation of refugee workers or volunteers:

1. The number of dispersed settlements and camps throughout West Timor particularly in Kupang and Atambua made any response by the Government, agencies and other partners difficult.
2. The complaints of the refugees and their serious concerns about the timely delivery of food and non food items at the camp significantly influenced community development efforts, particularly for latrine construction
3. Security issues of the refugee population have to be considered as well when engaging in a community based approach for sanitation works. The:

- irregular supply of basic necessities;
- political environment of the camps (the presence of many militia within the refugee camps complicated community efforts);
- uncertainty of their future (whether they will decide to stay or go back to East Timor);
- threat of flooding (in Kupang camps).

all contributed to great feelings of insecurity among refugees. The organisation of refugee leaders and the instigation of NGO programmes with the refugees can help to reduce these insecure feelings. The setting-up of local organisations in various refugee committees (including WATSAN and health) slowly helps to restore normality in the refugee camps

4. All major agencies involved in camp sanitation recognised that where there were latrine ratios of 20 to 100 users/latrine the use of contractors became logical because of the time constraints and the large numbers required. In West Timor camps, 40% of all 60 camps in January 2000 had a ratio of about 20-100. More use of contractors was required in 32 camps where the ratio was above 100, in order to reduce immediately this ratio (50% of the camps were in this situation). For latrine ratios of less than 20, a community approach involving the refugees was preferred (only a few camps had this level of ratio).

5. These levels and ratios were a useful tool for analysis of community-based or contractor-based latrine construction. But these latrine ratio indicators also showed the poor sanitation in the large majority of the 60 camps five months after the on-set of the emergency and arrival of the 130,000 refugees. However there was a developing need for a community-based approach as those camps in the 20-100 range move gradually by mid 2000 to the preferred long-term option of one latrine to one family.

6. The option to use contractors is relatively straightforward compared to organising the community to build their own latrines. Moreover, contractors could also use refugees for the labour component of latrine construction, reducing any perceived gap between the two approaches. Yet the participation of refugees was seen as crucial as by early 2000 the relief situation progressively moved away from an emergency.

Case2: Emergency sanitation during floods in Hpa-an province, Myanmar (2001):

Project background:

From February to June 2001 repeated floods affected a number of townships in southeast Myanmar close to Hpa-an where ICRC was operational with field programmes. Due to the floods, the ICRC supported local branches from the Myanmar Red Cross Society (MRCS) for emergency WATSAN assistance in two small townships in Hpa-an and Kawkreit. The objective was to provide safe drinking water and sanitary latrines to flood affected villages by rehabilitating a number of shallow tube-wells (19), dug-wells (15), open ponds (three) and household latrines (330).

Implementation of the latrine project components in Hpa-an and Kawkreit townships relied on the participation of households in constructing or upgrading their latrines and on village committees for co-ordinating the activities, helped by the responsible Township Project Assistants (TPAs) from the MRCS branches. The latrine design was a pour-flush offset pit latrine widely promoted in the central and southeastern plains of Myanmar. A low-cost (\$3) locally manufactured plastic pipe set was made available to households who excavated (and lined where necessary) a pit, and built a simple superstructure as they could afford. Initially people were sceptical about the promise of 'free' sanitary hardware for any interested household not having a latrine (or only having an unsanitary surface latrine), but gradually as trust developed between the ICRC/MRCS and the people then became more enthusiastic. A second priority group once the first priority households had been attended to, was households having an unsanitary pit latrine. Special attention was also given to schools, health centres and religious meeting places (18 in total).

A specific objective of the small latrine project was to provide individuals and communities with better knowledge for hygiene practices. ICRC supported MRCS mobile health teams with a small education and training programme, using existing education materials made by UNICEF and SCF who were also active in the WATSAN sector in Hpa-an region. One area of hygiene behaviour that was not covered by the materials was the proper use and care of the latrine by all household members (especially men). SCF consequently produced an additional poster for helping promote important latrine use and care practices in every household completing a new latrine during the floods but also in the normal rural WATSAN programme.

Discussion:

1. The most difficult group of people to motivate for sanitation improvements were households alongside rivers and canals which were highly vulnerable to flooding. Logically they did not see the point in building a latrine that has to be replaced after every year's flood. Protecting latrines against floods needs more materials and requires more work from the owner. Furthermore durability is never guaranteed. Highly flood-prone households face particular difficulties with sustainable sanitation, making them an important target group for special attention in an emergency situation.

2. The experience of this small projects show that many people who already have a household pit latrine (constructed with local materials) are keen to upgrade the facility by installing a plastic pan. The modern pan is seen to be superior and much easier to keep clean (and therefore less smelly and more likely to be used) than the local-material version. Their owners regard it as a significant improvement to their living conditions (cleaner environment, more convenient and respectable). There was therefore great interest in upgrading individual household sanitation especially if the nice looking plastic latrine pan is made available as an incentive.

3. The community contribution to the sanitation activities was far higher than their contribution to water supply and the cost per beneficiary lower. The cost could even fall lower if more pan manufacturers enter the market in the future.

4. The common practice of helping others in Myanmar ('Parahita activities') provides a strong foundation for participatory community development, even in crisis situation such as flood periods. Providing people with drinking water is considered particularly valuable and important which may make participation in drinking water projects easier to achieve compared to other interventions such as sanitation.

5. The latrine project could not have been achieved without the dedicated efforts of the local TPAs and MRCS mobile health teams who spent many days promoting and monitoring the activities in the flood affected villages. Progress was better in the wards (compared to villages) and this was also the case in villages where there had been dissatisfaction with previous sanitation programmes (including ICRC-MRCS).

6. Well-constructed and well-looked-after sanitation facilities at schools and religious meeting places can help promote better standards of sanitation in disaster-hit villages. Poor families can also earn money from pit construction to pay for cost of their own. Non-functioning village committees mean greater workload for TPAs.

7. The high cost of local construction materials in most villages means poorer households had difficulty building latrine shelter to a good standard. Quality of construction for a latrine should be compatible with that of the house. Poor households frequently used materials salvaged from a previous latrine or occasionally from their dwellings. Women in the flood affected villages showed more concern/interest in sanitation and hygiene than men.

6. Hygiene promotion activities were mainly carried out by the sanitation TPAs supported by the Zone Project Officers and the Community Participation Officer (CPO). In some villages sessions were organised in schools, though the opportunity for doing so was limited by the frequent holidays.

7. Some additional impressions made during a rapid visit in May to three villages:

- House to house promotion was quite effective but is difficult to implement in an emergency;
- Older people are less open to the idea of using latrines than the young.
- Children generally do not start to use latrines until they are over five and so their special circumstances require proper attention;
- Maintenance of school latrines was problematical. Typically facilities are few and in poor condition (or they are locked up, reserved for the teachers);
- In the majority of villages, users thought that availability of water for latrines was not a problem due to their proximity to rivers.

Case 3: Sanitation works in evacuation centres in Mindanao, The Philippines (2000)

Project background:

Following the fighting in early 2000 between the Government troops of the Philippines and the MILF an alarming situation was created in 23 municipalities of northern Mindanao - the southern province of the country. The mainly Muslim victims of the conflict in one of the municipalities (Lanao where the ICRC was operational) moved towards the city of Marawi (the only Muslim city in the Philippines with a population of 200,000 people). From an initial 31 ECs (Evacuation Centres), about 16 were abandoned community buildings not designed to house people (old schools, health centres, gymnasium). Most compounds were overcrowded and most of them lacked proper structures and facilities. In addition there were several thousands home-based IDP families accommodated in host communities, mainly Muslim dwellers living in an already poor environment.

The overall aim of the emergency project was to improve the environmental health conditions and awareness of 25,000 IDPs sheltered in the 16 evacuation centres and improve the living conditions of 11,000 home-based IDPs accommodated in poor slums around the city. Immediate provision of safe water and sanitation facilities was made in all 16 centres and housing and latrines were improved or maintained at about 2,800 households (poor urban dwellers accommodating the very poor 11,000 evacuees). Piped water schemes and drainage/sewer systems were also upgraded in the slum areas benefiting both residents and home-based IDPs.

The hardware aspect of the sanitation project (construction of 120 latrine blocks in 16 community centres, shelter/latrine provision for 2,800 home-based IDP families, sewer/drainage works in slum areas) was implemented via a local

NGO (MuCARD) which was experienced with the evacuees and involved in previous emergencies and the Philippines National Red Cross Society (PNRC). Local volunteer committees (water and latrine attendants, cleaning teams, spraying and garbage collection teams, and chlorination teams) were set up by the ICRC/PNRC PHC team in order to enable effective participation in the works by all evacuees.

At the on-set of the emergency, latrine blocks and wash areas were constructed in the evacuation centres via MuCARD using paid labourers both local and refugee. ICRC also paid refugees who were willing to clean the communal blocks, collect the garbage and be involved in maintenance of the water supply system via its local partners (MuCARD and PNRC). For the home-based IDPs, MuCARD provided local shelter material for improving/ maintaining the housing and the pit latrines but no payment was made.

A second stage of management of the completed sanitation facilities was undertaken. Collaborative efforts were made between community-based NGOs, refugee committees, MuCARD, the PNRC and ICRC in order to involve refugee communities (EC based and home-based) in the WATSAN activities of the various displacement areas in and around the town. These were as follow:

- CBOs/MuCARD undertook the community organising and development efforts in order to integrate the IDPs in the society and provide them with decent shelter and facilities. Refugee leaders were identified and training workshops organised by MuCARD. Pilot block latrines were built at each EC by MuCARD
- ICRC engineers provided technical expertise and prepared a pilot design and model for the block latrine and wash area; ICRC supplied all local materials and latrine slabs and paid incentives to local and IDP labours.
- PNRC implemented with the local health authorities a hygiene promotion programme using local health workers and refugee volunteers (in both ECs and home-based IDPs)
- Municipal officials were assisting the project in the logistic requirements such as the supply of trucking equipment and co-operation with ICRC in the rehabilitation of the piped-water schemes benefiting all residents and IDPs

Discussion:

The project experiences in Marawi underline again the complexity of a community-based approach in displacement areas. The following was noted:

1. The importance of agencies recognising and analysing the dynamics of displaced people: this is often easier with a smaller number of IDPs from the same origin than with a larger camp. It can also be complicated by the fact that some IDPs are home-based. IDP leaders in Marawi were chosen only from the ECs and none was elected within the home-based IDPs, partly because it was difficult to locate them. Women representation in the various committees was significant and their input for the door-to-door hygiene campaigns with the PNRC health staff was essential to improve the sanitation situation for the home-based IDPs.
2. Tensions between the displaced (mix of Muslim and Christian IDPs) and host communities (exclusively Muslims) was always a preoccupation for the smooth execution of the work and to avoid intimidation of our staff. The WATSAN project in Marawi was designed to improve the sanitary conditions of the host urban community too, particularly those accommodating IDPs in the slum areas. This is especially important in south-east Asia since there is almost never a population which is entirely displaced in large camps: wherever IDPs settled (particularly in the outskirts of towns, i.e. in abandoned buildings), some resident population were already there.
3. The regional Governor, major, municipal officials and IDP leaders were met on a regular basis to inform them of our work and to try and dispel the myth of the ICRC being a Christian organisation. The partnership with a well-known LNGO (MuCARD) and its CBOs represented both by Muslim and Christian community leaders in every part of the city proved to be essential to develop the community-based scheme for WATSAN construction works in the ECs.
4. The issue of salary payment came up at separate occasions during the initial organisation of the CBOs and IDP committees and was facilitated by MuCARD who had a sound knowledge of community set up in the respective parts of the town but also in the ECs. Low incentives were paid to those CBOs and committee members for the block latrine construction.
5. Construction of wash areas proceeded faster than the latrine blocks because of the relative ease of construction. Furthermore it was noted that to construct the 120 blocks would take a 15-man CBO team of five workers nearly 50 days under ideal conditions of material supply (by ICRC/PNRC) and weather. Thanks to the larger number of CBOs in town, MuCARD could contract up to 25 local organisations to build all the blocks in less than a month. The weather conditions made coordination of the pit digging and supply of the above ground latrine structure difficult. One had to dig the hole on a dry day hoping that it did not rain that night or the next day otherwise the hole would be flooded and rendered useless.
6. Changing the habits of Muslim IDP men in the ECs was a difficult task for the PNRC PHC team since they initially defecated in plastic bags in their

rooms inside the buildings at night and throw the bags on the ground outside in the morning. The persistence of the team resulted in the changing of this habit and men used the block latrines after their completion. The supply of bath and laundry soap, and also special sulphur soap for scabies, together with the supply of enough water and the PHC education resulted in a dramatic improvement in the cleanliness of the IDPs in the ECs and their clothing.

Case 4: Sanitation services in IDP welfare centres in Jaffna, Sri Lanka (2000-2001)

Project background:

During the period of March to May 2000, due to the fighting on the Jaffna peninsula, a total of about 25,000 people were displaced from their original places of living. Around 10% of the IDPs (25,000 people) sought temporary shelter in welfare centres such as schools, community buildings, temples and churches. 80 to 90% of the displaced found accommodation with friends and relatives. At the onset of the emergency situation, ICRC and other agencies (ACF, CARE, UNDP, GTZ) assisted the Government departments of Jaffna and the municipal services with material and equipment (like water bowsers and bowsers for the removal of excreta from latrine or septic tanks) and this significantly increased their capacity.

Thanks to the sponsorship from UNDP, three sanitary bowsers were made available to ICRC and two additional ones from the Municipal Council. The total capacity was close to 27,000 litres and was enough for emptying about 30 septic tank latrines per month. Temporary pit latrines built around the welfare centres were not emptied even if they were full, but ICRC teams constructed new pit latrines. Solid waste collection trucks and trailers were made available by the ICRC and the Council to clean about 7,000 m³ of rubbish per month. GTZ provided 11 water bowsers for water trucking to welfare centres not supplied by piped-water schemes or equipped with wells or handpumps. ICRC assisted the local water board in upgrading community piped-schemes and building tubewells in the majority of the centres. About 12 spraying teams were hired from the DPDHS and MOH (public health inspectors) to cover the malaria prevention programme in the 133 welfare centres. The municipal commissioner provided from the municipal council a total of 180 unskilled workers, 70 skilled workers, 25 supervisors and 50 water supply workers to implement, with the respective IDP committees, the various WATSAN works in the 133 IDP centres.

Though the excreta disposal programme in the welfare centres was the last to be conceived and implemented by the ICRC, with the support of the municipality and IDP committees (trained staff hired to assist in technical jobs for the O&M of the toilets, latrines and tanks), it proved to be the most important. The

Jaffna public was normally very wary of using latrines especially water sealed latrines and was not accustomed to maintain such sanitary structures or manage them on a community basis. This was also the case of the IDPs in the centres: in a matter of days most toilets inside the hired schools were vandalised by the IDPs and sewage or septic tanks and collectors became clogged, leaving most IDPs defecating around the centres.

Discussion:

1. We had faced serious problems in getting the IDPs in the 133 welfare centres to use and maintain collective pit latrines (already existing for the pupils in the schools) and we had to focus attention on salvaging and maintaining all the available water sealed latrines. In addition to washing, disinfecting and keeping the latrines clean (thanks to the voluntary involvement of IDP women groups) we had to embark on emptying the septic tanks periodically as this was found to be the best option in providing the best possible sanitation facilities. Tractors were hired to IDPs themselves at low cost for towing the five sanitary bowsers and dumping the waste at locations identified by the local authorities. Supervisors were also hired from the IDP community to assist the municipal skilled workers in the respective desludging operations (liquid waste) and tank/collector cleaning works (solid waste).

2. ICRC, in agreement with the authorities, initially involved IDP committees in latrine construction and maintenance without payment (about 85 VIP latrine units were built in welfare centres where water-sealed latrines or septic tanks were beyond repair). However, a later NGO involved in social welfare programmes in the same centres offered payment to the IDPs for latrine and bath construction and even maintenance/cleaning. Finally ICRC became once again involved in the same centres during the second emergencies (additional IDPs arrived in October-November 2000) and re-introduced the no payment approach for latrine maintenance it had originally used but not without many problems.

4. At the end of 2000, ICRC WATSAN team drafted an Emergency Preparedness document after discussion with the main stakeholders (especially the municipal commissioner, the manager of the water board and other agencies). Based on the possible sites identified by the local authorities to accommodate a further 20,000 IDPs in Jaffna town, an assessment of the sanitary facilities at 147 additional welfare centres was made by ICRC. As part of the ICRC's Emergency Preparedness package, in addition to the 200 double barrel ordinary pit latrines, 150 temporary water sealed twin-barrel (perforated) latrines were manufactured using exclusively IDPs from the original 133 welfare centres.

5. In early 2001, the ICRC took a decision not to continue its sanitation services to the IDP families that were moving out from the welfare centres and getting accommodated in the shelter schemes. In principle at least, these shelter

schemes had to provide all the services within/by themselves and the population were to be treated as normal resident population. In reality, however, a number of international and local NGOs provided support to these schemes by construction latrines, wells and shelters without involving the IDPs and the municipal resource personnel (most construction works were contracted to local enterprises, at cost twice of what was offered by the municipal services). This highlights the importance of coordination among agencies to adopt the same approach regarding salary payment and/or community/voluntary based works) not only in the emergency set up but also during the post emergency and resettlement phase. The coordination with IDP/refugee groups, municipal services and Government departments is equally important. The input from the private sector for re-construction works during the resettlement phase may be an option.

Conclusions and recommendations

The motivation of refugees or IDPs in emergency sanitation situations is clearly a complex issue and finding a straightforward strategy for motivation will never be easy. It would require an understanding of many behavioural factors of the refugees/IDPs who are all different from a socio-economical and ethnical perspective (Sri Lankan IDPs have different behavioural and cultural approach to sanitation and community works than Muslim evacuees in southern Philippines or refugees in Afghanistan). These factors cannot be predicted because of the changes going on both for the refugees/IDPs (collapse of political, social, family and institutional set-ups) and in the external environment.

As a general guideline, based on four project experiences reviewed above, community based approach for initiating sanitation works at the on-set of an camp emergency are rarely feasible, especially when emergency latrines (trench or other collective temporary facilities) have to be built quickly. In order to achieve, in a limited period of time, an acceptable latrine coverage ratio (20 to 50 users per latrine unit) it is preferable to pay the users directly, or via a local NGO or CBO recognised by the refugees/IDPs, for construction. Local contractors can also be hired when a large number of sanitary infrastructures have to be built.

In larger refugee/IDP camps (camp population over 1,000-2,000) the latrine ratio is often over 100 in the acute emergency phase. In this situation, as in West Timor, there is an urgent need to built more latrines as soon as possible, regardless of whether the work is done by contractors, LNGOs, CBOs or by organised IDP or refugee groups. The main concern in such a situation is to prevent the outbreak of disease on an epidemic level. This was also demonstrated by the Hpa-an emergency programme during the floods when a number of quali-

fied contractors were hired to provide immediate sanitary facilities to isolated communities.

After the emergency phase, like in Mindanao or Sri Lanka, agencies can consider community-based approach for building family or permanent latrines in camps or community centres. When the person to latrine ratio is less than 20, a community-based approach should always be promoted. Experience in West Timor has shown us that in a situation with a ratio of between 20 -100, either approach may be appropriate, depending on local factors and availability of material for individual latrine construction.

Community-based approaches can also be used systematically for the maintenance of sanitary facilities in collective IDP centres. This was demonstrated by the experiences in welfare centres in Jaffna and evacuation centres in Mindanao. Communal facilities, especially latrines, are difficult to maintain in a permanent state of cleanliness. The most common cause of breakdown is inadequate maintenance, even for properly designed water-sealed latrines, VIP latrines and associated septic tanks and infiltration fields.

For community maintenance of latrines in small camps (as well as community management of other services such as water, garbage collection, repairs and disinfection, etc) some form of incentive can be given as experienced in Jaffna and Mindanao (preferably not cash). All incentives should be agreed by all agencies. What one agency does at one camp quickly filters back and refugees/IDPs at other camps soon demand similar conditions. Thus agencies should not make such decisions in isolation.

The importance of encouraging refugee/IDP participation at all stages of planning and construction of WATSAN facilities should also be recognised for home-based refugees/IDPs, who are often accommodated at already poor relatives' or friends' households. As it was in Marawi (Mindanao), both home-based IDPs and host communities should benefit from external WATSAN assistance by encouraging both groups to help themselves by using their own skills and resources in maintaining or upgrading household sanitation facilities - ideally right from the beginning of an emergency.

IDPs and refugees should be consulted in the design and location of sanitary facilities and particularly their maintenance. However, as seen in West Timor, there must be a certain level of quality control during construction.

The Jaffna and West Timor experiences have shown that IDPs or refugees who are willing to stay 'permanently' tend to be those that are keen to have their own family latrines. This has obviously strategic implications for community based latrine construction programmes. A 'one family per latrine' approach has a good chance of success if a large number of IDPs or refugees tend to settle 'definitely' in permanent areas agreed by the local authorities. For the family

type latrine there shall be no payment or incentives for construction and maintenance.

All the four cases studied have indicated that some form of incentive (not necessarily cash payments) can be made, preferably via local groups or CBOs to the IDP or refugee workers under a community approach that should be agreed prior to implementation, with both local authorities and IDP/refugee leaders. The prime objective of all four programmes was first to build latrines. Moreover if refugees/IDPs feel that other issues such as lack of food distribution are preventing them from working it would be incorrect for the agency to try to solve the problem as part of a latrine construction programme.

Local workshops with refugee/IDP leaders, LNGOs, CBOs and agencies on community approaches for various works in the camps (not limited to sanitation) often help to create the synergy and dynamic required to implement community based schemes for infrastructure development in camps.

Finally all four examples have shown that community participation in sanitation works in camps or community centres is the key to successful sanitation projects (during and after the emergency). Encouraging IDPs/refugees at all stages of sanitation work is difficult to realise, but should ultimately allow them to maintain a sense of dignity, self-reliance and help avoid too much dependency.

8.2 Community approaches to emergency public health in Burundi and the Democratic Republic of Congo.

Rick Neal, Field Co-ordinator, International Rescue Committee

Introduction

Community approaches to emergency public health are crucial if agencies are serious about reducing the threat of diarrhoeal diseases during crises. Traditional models of emergency public health focus on technical interventions in water supply and sanitation, with hygiene education and community outreach following later. During the acute phase of an emergency, such directive approaches may be warranted. As the threat wanes, however, lack of connection with the community and integration of technical projects with a larger vision of health promotion could reduce impact because the population (overwhelmed with immediate issues of protection and food) may not be aware of how to take advantage of the infrastructure and has no support in maintaining it.

In Burundi and the D.R. Congo, humanitarian agencies are responding to several years of ethnic conflict and civil war. In the former country a major crisis occurred in September 1999 when the minority Tutsi-dominated government forcibly relocated 350,000 majority Hutus into camps surrounding the capital, Bujumbura, in order to reduce support for Hutu rebels. All of the camps are now officially closed but thousands of families are still displaced and the security situation remains volatile. The International Rescue Committee (IRC) responded to the initial crisis with water and sanitation interventions. Two years later, they were still using a fairly directive approach, but finding that water systems, for example, were falling into disrepair only a few months after being completed. In D.R. Congo, occupation by Rwanda and Uganda in the east and the consequences of the failed economy in the west have also created humanitarian crises. Oxfam GB adopted a community-oriented public health strategy near Goma and on the outskirts of Kinshasa but were constrained by short funding periods. Staff also had difficulties adopting the approach, and infrastructure maintenance remained a problem. Even where maintenance fee schemes were established, the population did not know how their money was being used and did not trust the system.

Methodology

Based on the experience in Burundi and Congo with Oxfam, the IRC's current public health activities around Bujumbura uses the following principles:

- A move away from participation (which can mean simply getting people to follow directions dictated by project staff) to collaboration, where staff and community members use a process of working together to analyse issues, plan responses, take action, and evaluate results;
- A focus on action rather than education, where learning occurs and healthy behaviour evolves as groups organise to create a healthy environment by carrying out specific tasks addressing specific issues;
- Project staff and community volunteers see themselves as facilitators of an action-oriented process rather than as educators or labourers carrying out the work themselves; and
- The project support natural helpers in the community who are already pursuing their own interests in addressing public health issues.

In each project community co-ordinating committees of men and women representing residents, displaced, and community institutions (such as schools) have been established. Project staff work with the committees to identify community members who could work as health animators: people who have some time to spare and already play a role (usually informal) in advising people about health or helping solve community problems. Committees, animators, and staff then organise campaigns focusing on those activities that could have the greatest impact: water supply, excreta disposal, and hand washing. These campaigns include:

- Workshops for animators to discuss the campaign theme, share information, and develop strategies and an action plan;
- A community event that draws attention to the campaign theme (such as children planting small flags on exposed excreta, rendering visible what is often hidden) and that provokes group meetings facilitated by the animators to discuss the issue and agree on action;
- The action itself, that subsumes both technical and promotion activities into the process so that they become part of the action taken by the community to address the issue with technical support from project staff; and
- A clear end to the campaign so that staff and volunteers alike can assess their efforts and regroup before applying them-selves to the next issue.

Results

There is no evidence that this approach contributes to a reduction in diarrhoeal diseases: measuring this kind of impact in emergencies simply remains too difficult. Likewise, in considering process indicators, one year is a short time for measuring changes in community capacity to identify and address priorities. However, in Burundi, all committees asked Oxfam to continue working with them after the relocation camps closed. In both Burundi and Congo, some

committees and animators continued working independently after the end of the project. Once relationships and trust were established with the communities, it became very easy to deal with new issues (including those related to protection and security), and to respond to new funding opportunities. It was also relatively easy to adapt proposed activities to community realities.

Staff were energised at first by the process, but maintaining close relationships with communities was also exhausting. In Burundi, collaboration between largely Tutsi staff and mostly Hutu communities provided an entirely unintended benefit, demonstrating how the two groups could work together on shared objectives. However, the relative lack of structure in this approach was disconcerting for staff: technical staff did not always accept the emphasis placed on process and collaboration, and promotion staff were not always comfortable with an open-ended process that avoided teaching. This approach also provided an interesting solution for access issues: even when access was impossible, staff were able to meet with committees and animators in more secure locations, sustaining contact and interest until technical teams could return to complete their activities.

Lessons learnt

Collaborating with communities in emergency situations requires a dual-track approach, where NGOs establish processes and working towards relatively long-term objectives in areas and times of stability while also responding to short-term emergency needs when security worsens and displacement occurs. Indeed, crises often provoke an impulse towards taking action, and thus provide a unique opportunity to strengthen community capacity.

Time and a focus by donors on quantifiable, technical outcomes are substantial obstacles. In particular, defining communities and developing processes, is time consuming and requires a great deal of planning and forethought. Investment of this kind, however, pays handsome dividends later, in terms of the ability to respond quickly and appropriately to new crises and in sustainability of project activities.

Measuring impact in emergencies remains a problem: baseline situations shift constantly as populations are displaced and return home; health centre data are unreliable and the methodology of household-based monitoring is unclear. With increased experience, health promoters should be able to develop comprehensive projects in emergency settings that establish collaborative processes, set up simple monitoring and evaluation systems, and integrate technical and promotion activities that are implemented by communities with support from their partners.

8.3 Men and machines, women and latrines. How should engineers respond to 'gender' in emergencies?

Brian Reed and Sue Coates , WEDC, Loughborough University

Introduction

Infrastructure projects, both in relief and development, often have 'gender' issues included as part of the terms of reference. Where these projects are led by engineers, how can this requirement be met, especially when considered alongside urgent demands for water and sanitation? A research project at the Water, Engineering and Development Centre of Loughborough University has been investigating what the engineer's role should be.

Box 1: Definition

The word 'gender' was found to be a barrier in addressing the issues that are included in the term. It refers to the social differences between men and women rather than the physical differences, which are 'sexual'. 'Gender' is sometimes used when the word 'women' is more appropriate. It sometimes also includes children or even other factors such as race or disability.

Reasons

There are various reasons why 'gender' is included in projects. It is a basic right that people should not be treated differently because of their gender. This right has often been included in policies at organizational, national and inter-national levels.

Box 2: Extract from Oxfam's Mission Statement

People's vulnerability to poverty and suffering is increased by unequal power relations based on, for example, gender, race, class, caste and disability; women, who make up a majority of the world's poor, are especially disadvantaged.

There are pragmatic reasons for ensuring that the needs of women are considered in a relief situation. Women form a large proportion of the displaced population. They traditionally carry out tasks such as food preparation, collecting water, care of children, the sick and elderly, washing and cleaning and are therefore likely to form the overwhelming majority of the users of basic services such as feeding stations, health centres and water supplies. Any 'product' that does not take into account the needs of the main customers is not going to

be as successful as one that has been designed to meet their specific needs. These needs are likely to be both physical and social.

Box 3: Extract from the International Federation of Red Cross and Red Crescent Societies' Gender Policy

...the full participation of both men and women in all Red Cross and Red Crescent actions not only ensures gender equality, but also increases the efficiency and effectiveness of the work of the organization

Problems

The research project (funded by the UK Department for International Development) was aimed at "mainstreaming gender in water and sanitation projects". There has been recognition that 'adding-on' a gender activity is not as effective as integrating a gender approach into the core of development or emergency work. However, if engineers, technicians and project managers are to carry out this task, rather than delegate it to a gender specialist, they will need to know what it involves.

Box 4: Extract from UNHCR Policy on Refugee Women

... to encourage each staff member and staff of implementing partners to ensure that the integration of refugee women's resources/needs takes place in his/her area of competence.

To this end, the project team prepared guidelines and training materials to raise the awareness of gender issues amongst technical staff and indicate what response they could provide.

Testing the guidelines

The outputs from the project were tested with groups of engineers in India and South Africa. Two issues became apparent.

- Engineers did not see the relevance of 'gender', sending social scientists to the workshop as deputies
- Engineers who were aware of the issues wanted technical guidance – how do you design a raised water tank so women can maintain it safely and respectably, given cultural conditions of conduct and dress?

Box 5: Extract from 'Gender and Organizational Change: Bridging the Gap Between Policy and Practice'

... very few gender experts have experience or training in management and organizational development in the traditional sense... This means [gender experts] may not have tools to address the problem which will necessarily be understood or accepted by those who are part of the problem.

Source: Macdonald M, Sprenger E and Dubel I.' Gender and Organizational Change: Bridging the Gap Between Policy and Practice' Royal Tropical Institute, The Netherlands, 199, p107

In order to explore these issues and gain insights into the perceptions of engineering staff, an informal semi-structured discussion was held with technical emergency personnel. There was a low level of understanding of the word 'gender', with assumptions being made, a recognition that it was to do with women and children and a feeling that it was used in policies and proposals, but did not impact on their work. There was, however, a strong recognition that women and children were vulnerable, due to the additional stresses of being displaced and their exposure to violence. The social changes in male and female roles were noted, with additional responsibilities, although men were seen as the people who carried out technical and construction tasks. They had little knowledge of how or when to address women's physical and social needs (such as menstruation) and very few staff had had any exposure to such a discussion before, but found it useful.

Box 6: Extract from the Charter of Medecins Sans Frontieres

Medecins Sans Frontieres offers assistance to populations in distress, to victims of natural or man-made disasters and to victims of armed conflict, without discrimination and irrespective of race, religion, creed or political affiliation

Developing the engineer's role

Promoting awareness

The guidelines were rewritten, with the introduction bound separately so that it was easier to distribute and read. The language was altered, to avoid social terminology such as 'gender' and more accessible terms such as 'vulnerable', 'socially excluded', 'men and women' or even 'poor' where used. The rights-based rationale for addressing social exclusion was given less prominence than the pragmatic effectiveness and efficiency reasons. Engineering analogies and examples (such as collection of water) were used rather than social issues (such as exclusion from education).

The training material also reflected this approach. The three-day course was broken down into manageable units, that could be introduced within other

technical activities. The awareness raising addressed the needs of women and other disadvantaged groups by considering the 'customers' for infrastructure services: who they are and what are their requirements.

Practical actions

Engineers who do accept that different social groups have different priorities and practical needs, need to be able to ascertain those needs and respond to them. Many participative tools have been developed to engage local populations and share information. These have mostly evolved to look at socio-economic information in the development context. The time scales and social disruption in an emergency make these tools less applicable. They also have not been developed to enable people to make informed technical decisions. Thus, an exercise may make it clear that women clean latrines, but not what options would make that task easier. The guidelines highlight some of the technical areas that could be discussed with representatives groups of people.

For example on sanitation, the technical criteria of geology and structural stability have to be balanced with: ease of cleaning; fear of snakes; exposure to violence (should they be on the edge of the camp?); privacy (should they be next to the shelters?); and practical issues of construction (can women build them – do you have the correct tools?).

Is this still 'gender'?

Much of the established work on gender aims at changing society so the socially excluded are included in decision-making. The technical approach can be accused of just addressing women's welfare rather than their position in society. Whilst most engineering interventions have a short time span, they can offer some opportunities for social development. Employing women to carry out technical tasks, where they are willing and able to do so, coupled with the necessary training and support, can enable them to take on new responsibilities and demonstrate that to the wider community.

Practising what is preached

The research also highlighted the need for organisations to address the needs of the socially excluded in their work, but also at their workplace. Issues of equality of opportunity, practical arrangements onsite or in the office and inclusion in decision-making all require consideration in each specific context.

Box 7: REDR fundamental principle number 3

"Impartiality; RedR makes no discrimination as to nationality, race, religious belief, gender, class or political opinions. It endeavours to provide suitable personnel being guided solely by the needs of each situation."

Conclusions

The research has shown that engineers are both willing and able to contribute to addressing the needs of men and women in emergencies and development. However, there is a need to raise the issue in the profession, of:

- the importance of the needs of vulnerable people; and
- how engineers can respond to this need.

The technical contribution will be in the engineering context and this will alter the priorities and activities of 'gender issues'. Appropriate technical options still need to be recognised and expanded, and methods of consulting with separate user groups require development. Gender experts will also need to accept the type and extent of the engineering contribution as being valid and worthwhile.

Discussion: Community participation

Chair: Tim Forster

The community participation session opened with a presentation from Pascal Jansen (ICRC) titled, *'Motivating displaced people for emergency sanitation: lessons learnt from ICRC project experiences during recent crises in Asia'*.

The discussion that followed Jansen's presentation highlighted the following points:

- The importance of motivating displaced people to be part of the solution in implementing emergency sanitation improvements;
- The need to decide between:
 - contracting out technical work, and
 - using displaced groups for carrying out the work

(Generally, experience from ICRC has shown that contracting out is a more efficient means of undertaking work in a timely fashion);

- There is no single framework for undertaking emergency sanitation improvements, above all approaches should remain flexible;
- Generally, community based approaches are not applicable in the initial stages of rapid-onset emergencies.

The question of community involvement was also the subject of Rick Neal's (IRC) presentation, *'Community approaches to emergency public health in Burundi and DR Congo'*. In this paper Neal shared the experiences of the International Rescue Committee in Burundi and D.R. Congo and emphasised the benefits of close community collaboration.

During the ensuing discussion the danger of communities being manipulated was raised. The speaker acknowledged that this was a danger that all professionals needed to be aware of.

The following points were also made:

- Approaches should be appropriate, aim at achieving real changes, be sustainable and empower people;

- Health/Hygiene Promotion can often provide the vehicle for mobilising and working with the community;
- Learning occurs, and health behaviour evolves, as groups organise to address specific health issues;
- Using volunteers from the community will increase the impact of interventions;
- Technical and promotional activities should be combined for greater impact;
- The length of community campaigns should be limited to avoid fatigue, both in the community and amongst project staff.

The community participation session was rounded off with a presentation by Brian Reed (WEDC) titled: *'Men and machines, women and latrines. How should engineers respond to 'gender' in emergencies?'*

In the discussion that followed Brian Reed was asked why women were so poorly represented amongst water and sanitation engineers working in the humanitarian sector and what WEDC was doing about this situation. The speaker replied by explaining that the 'gender gap' started early, with many girls in their early teens moving away from a technical education. He explained that about a third of WEDC's students are women compared to an average of 10% in the engineering profession, and suggested that the sector needed to work harder at creating further opportunities and role models for girls.

A number of other points were also made:

- Gender is an often misunderstood concept and does not translate readily into other languages;
- In some emergency situations, 80% of the beneficiaries are women. The social and physical implications of this need to be taken into consideration in designing responses;
- Women will have the biggest impact on hygiene issues, but the men need to be informed;
- Diversity and vulnerability must be taken into consideration when planning emergency sanitation responses;
- A female engineer is not necessarily more 'gender aware' than a male engineer.

Contributors:

David Banks, Bjorn Brandberg, Pascal Jansen, Rick Neal, Brian Reed, Lawrence Sithole and others.

9. Conclusions

Conclusions arising from conference papers and plenary discussions

Emergency planning

Responding to multifaceted and dynamic situations in a coherent and comprehensive way is a major challenge. A structured and systematic approach to assessment and planning has major advantages, both as a one-off and as an on-going activity. To this end WEDC, in collaboration with other agencies, has developed assessment and planning guidelines that, it is hoped, will now be used and refined. The conference suggested that sector professionals take the challenge of effective planning seriously. The following conclusions were made:

- On-going monitoring and contingency planning are essential;
- Planning and programming need to take specific contexts into account;
- A 'dual-track', phased approach, buying time with immediate interventions, whilst developing longer term solutions, is often advantageous;
- An emphasis solely on the quantity of technical outputs achieved, may inhibit project success;
- There is a need for clear exit strategies from the start of intervention;
- Site selection has a profound impact on sanitation.

Excreta disposal

Excreta disposal has traditionally dominated the emergency sanitation sector. The range of papers presented at the conference demonstrated an encouraging widening of focus to incorporate a broader range of issues (see below). Delegates also demonstrated an awareness of the dangers of applying a 'numbers of latrines constructed' approach to all emergency interventions. Having said this, excreta disposal remains a core emergency sanitation issue, about which the following conclusions emerged:

- Plastic SanPlats may have a role in the early stages of emergencies;
- Familiarity with a range of basic latrine designs is essential when developing viable options for any given situation.

Solid waste management

Solid waste management is a neglected area: the conference received only one paper on this subject. That paper, however, demonstrated the importance of effectively managing solid waste and provided an excellent example of how the issue can be addressed in a practical and systematic way. The following points were established:

- The ergonomic design of solid waste management facilities is of paramount importance - users are likely to do things because they're easier, not because they're safer;
- Healthcare waste should be dealt with on-site whenever possible.

Hygiene promotion

There is a growing recognition of the 'value added' to WATSAN interventions by the full integration of hygiene promotion activities. The following conclusions were made:

- Hygiene promotion needs to be targeted at those with the greatest ability to impact behaviour: women and children;
- Hygiene promotion generally improves the effectiveness of WATSAN projects;
- If a community understands the public health risks associated with bad sanitation then they themselves can begin to identify problems and solutions;
- The PHAST methodology may be usefully adapted for emergency situations.
- Hygiene kits should be used with discretion. They should be distributed after a basic needs assessment and as part of a wider intervention. Distribution should be targeted towards the most vulnerable and should occur for a limited time period only.

Community participation

The profile of community participation has risen considerably in recent years. While debate continues over exactly when and how community participation can and should start in any given intervention, there is a general consensus on the importance of the issue, and its' role in achieving improved and sustained results. The following conclusions were made:

- The involvement of affected communities in detailed programme design is a key ingredient of success;

- Sanitation is more culturally specific than water supply, resulting in a greater need for community participation;
- Community participation can increase self-reliance and feelings of security and dignity;
- The need for rapid, large scale intervention may sometimes prohibit community participation;
- 'Home-based' refugees/IDPs need to be included in community participation activities;
- Any incentives offered for community participation need to be agreed by all agencies in order to maintain consistency;
- Breaks between focused community campaigns can reduce fatigue among the community and project staff.

Conclusions generated by the conference feedback groups

The importance of sanitation in emergencies

Sanitation has a much higher profile than it did five years ago and plays a greater part in emergency responses. The range of papers presented at the conference demonstrated an appreciation of the fact that sanitation is more than excreta control and disposal.

A professional body for emergency sanitation workers

There is a continuing need to improve professional standards within the sector. An international association or institute charged with raising the quality of personnel and service delivery, could be one way of achieving this. Such an organisation could also exercise a collective bargaining power that would allow it to influence the shape of future policy.

Urban centres

The majority of information and advice currently available relates to refugee camps and rural settings. Very little information is available on emergency sanitation in urban settings.

Gender

The sector remains male dominated, although there is a greater awareness amongst practitioners of the importance of gender issues.

Dissemination

Targeted knowledge transfer remains crucial. Support material need to be simple and easy to use.

Vector control

Support materials on vector control remain disjointed, overly complex and incomplete.

10. Recommendations

Planning

WEDC's *Emergency Sanitation Guidelines* provide a useful framework for systematic programme assessment and design. They should be used widely in different emergency situations and refined over time.

Inter-agency coordination

Inter agency strategic co-ordination would benefit from improvement. Specific attention should be given to ensuring that the sectors' collective response portfolio includes non-excreta disposal sanitation related issues such as:

- vector control;
- surface drainage; and
- solid waste management.

A professional emergency WATSAN association

An international association or institute for emergency water and sanitation staff should be investigated.

Site selection

A professional approach to sanitation planning should be an essential element of site selection.

Hygiene promotion

Agencies need to fully integrate hygiene promotion into their work in order to maximise the effectiveness of sanitation interventions. Hygiene promotion should not be a distinct discipline but rather an integral part of all sanitation programmes.

Community participation

Efforts to increase community participation in interventions should continue and aim for empowerment rather than simple motivation. Practical guidelines for fieldworkers on developing meaningful partnerships with communities should be developed.

Vector control

Work is required to further develop advice on measures to control vectors in emergency situations.

Urban areas

Further attention should be given to emergency sanitation in urban areas. Tools and resources for fieldworkers operating in this environment are required.

Dissemination

All support materials need to be 'versioned' for field practitioners. They should be simple, easy-to-use and easily available. Information about sanitation networks should be also be disseminated.

Learning from the experiences of development

Further efforts need to be made to adapt and transfer lessons from development to the emergency sector.

Exit strategies

The profile of exit strategy planning should be raised.

11. Comments on the conference

At the end of the conference delegates were asked to give feedback on the conference itself. The following points were made:

- Gratitude was expressed to those who had organised the conference;
- The conference was felt to have provided an excellent networking opportunity and provided new energy;
- It was good to see non-technical issues such as participation and other social issues included in the conference;
- The conference should occur regularly (every two years);
- It was felt that future events might benefit from a more varied format, including working groups tasked with addressing practical issues and case studies, and more time for discussion;
- Future conferences might include the following topics:
 - Vector control,
 - Indoor air pollution,
 - Environmental sustainability,
 - Co-ordination,
 - Emergency urban sanitation
- The input of non-sanitation (e.g. health) professionals and donors would add to the dynamism of future conferences.

12. Annexes

12.1 List of participants

| Name | Organisation |
|------------------------|---------------------------------------------------------|
| Felix Addo-Yobo | WEDC - MSc Student |
| Sohrab Baghri | Plan International |
| David Banks | Norwegian Church Aid |
| Will Bartels | MSF |
| Andy Bastable | Oxfam |
| Stig Bell | Norwegian Church Aid |
| Sylvain Bertrand | University of Surrey |
| Daudi Bikaba | Oxfam |
| Estelle Boivin | WEDC - MSc Student |
| Leonie Borstlap | WEDC - MSc Student |
| Kristof Bostoen | London School of Hygiene & Tropical Medicine |
| Bjorn Brandberg | SBI Consulting, Swaziland |
| Marie Brisley | DWAF |
| Maud Catalan | MSF |
| Brian Clarke | University of Surrey |
| James Cooper | Student - Belfast |
| Ian Curtis | DfID |
| Iyad Dahiyat | WEDC - MSc Student |
| Elisenda Dalman | MSF |
| Solomon Demelash | MSF |
| Francisco Diaz | MSF |
| Suzanne Ferron | Oxfam |
| Jean Francois Fesselet | MSF |
| Tim Forster | IFRC |
| Nicole Frelechoux | WEDC - MSc Student |
| Simon Gaillard | WEDC - Ex student |
| Shemeles Gebeyehu | MSF |
| Veronique Goraj | MSF |
| Toby Gould | RedR |
| Elizabeth Gray | Cranfield University |
| Peter Harvey | WEDC |
| Tim Hayward | RedR |
| Jan Heeger | MSF |
| Mark Henderson | UNICEF |
| Steve Hide | MSF |
| Isaac Hodgson | Student - Chemical Engineering, Loughborough University |
| Enamul Hoque | Oxfam |
| Raf Houbert | MSF |

| | |
|---------------------------|------------------------------------|
| John Howard | Oxfam |
| Justin Hummel | MSF |
| Cristina Imaz | MSF |
| Arild Isaksen | Norwegian Church Aid |
| David James | SANTAG |
| Pascal Jansen | ICRC |
| Julian Jones | SKAT Consulting |
| Patrick Kilchenmann | ICRC |
| Gilbert Kimanzi | WEDC - MSc Student |
| Bruno Kowalczewski | MSF |
| Elisabet Levenskog | LCS ProMotion International AB |
| Alasdair Lord | WEDC - MSc Student |
| Richard Luff | CHAD/DFID |
| Peter Maes | MSF |
| Bongai Msimanga | WEDC - MSc Student |
| Alastair Morrison | Oxfam |
| Rene Mous | MSF |
| Nomathamsanqu Mpotulo | DWAF |
| Meniri Nadir | MSF |
| Rick Neal | IRC |
| Gareth Owen | Save the Children UK |
| Natali Pereira dos Santos | MSF |
| Helen Perry | Local Government |
| Edoardo Piano | Centre for Sustainable Development |
| Roberto Pizzorni | MSF |
| Stefan Pleger | MSF |
| Brian Reed | WEDC |
| Bob Reed | WEDC |
| Colin Reynolds | Self funding |
| Kate Riley | Self funding - USA |
| Niall Roche | Concern Worldwide |
| Mark Rowney | Action Against Hunger - UK |
| Nuria Serra | WEDC - MSc Student |
| Paul Sherlock | Oxfam |
| Dr Tim Short | Durham University |
| Roberto Simpson | MSF |
| Lawrence Sithole | DWAF |
| Ian Smout | WEDC |
| Suresh Surendran | Ex-WEDC student |
| Ximena Tanayo | WEDC - MSc Student |
| Brian Taylor | CSIR |
| Chris Taylor | Mott MacDonald |
| Melesse Tegegne | UNHCR |
| Sam Treglown | WEDC |

| | |
|------------------------|----------------------|
| Tor Valla | Norwegian Church Aid |
| Joos van den Noortgate | MSF |
| Jaap van der Woude | MSF |
| Rutger Verkerk | MSF |
| Matthew Walton-Knight | Cranfield University |
| Denis Weerts | MSF |
| Thomas Wu | MSF |
| Eduardo Yanez | MSF |

12.2 Conference programme

Wednesday 10th April – Room R.0.08 Sir Frank Gibb Building

2.00-3.00 **Opening and keynote address** (R. Reed, WEDC; I. Curtis, DFID)

3.30-5.30 **Emergency planning (1) (chair: R. Reed)**

- Emergency sanitation: assessment and programme design (P. Harvey, WEDC)
- Planning emergency relief interventions (J. Jones, SKAT)

7.00-11.00 Conference dinner and social (Cayley Dining Hall)

Thursday 11th April – Room W.0.01 Sir David Davies Building

9.00-10.30 **Emergency planning (2) (chair: P. Sherlock)**

- Site selection, preparation and management (N. Roche, Concern World-wide)
- Planning sanitation programmes in refugee camps (M. Tegenge, UNHCR)
- Kwazulu-Natal Cholera Intervention Program (D. James, SANTAG)

11.00-12.30 **Excreta disposal (chair: P. Jansen)**

- The SanPlat system in emergency sanitation (B. Brandberg, SBI Consulting)
- Excreta disposal in high water table and flooding environments
- Bastable & E. Hoque, Oxfam)
- Looking beyond the immediate health concerns of excreta disposal in a crisis
- (R. Luff, CHAD/DFID)

2.00-3.00 **Solid waste management (chair: M. Tegenge)**

- Medical waste management (J. van den Noortgate, MSF Belgium)

Emergency Sanitation in Urban Settings

- Sewage disposal : The problem of a town of two million inhabitants, Basrah – Iraq (R. Mardini, ICRC)

3.30-4.30 Hygiene promotion (chair: R. Verkerk)

- Hygiene promotion in emergencies (T. Forster & U. Jaspers, IFRC)
- Initial project model for hygiene promotion within ICRC environmental sanitation programme in Afghanistan (P. Nicholson et al, ICRC)

6.30-8.30 Workshops and demonstrations (details to be announced)

Friday 12th April – Room W.0.01 Sir David Davies Building

09.00-10.30 Community participation (chair: T. Forster)

- The motivation of displaced people in emergency sanitation: lessons learnt from ICRC project experiences during recent crisis in Asia (P. Jansen, ICRC)
- Community approaches to emergency public health in Burundi and DR Congo (R. Neal, IRC)
- Men and machines, women and latrines: How should engineers respond to ‘gender’ in emergencies? (B. Reed & S. Coates, WEDC)

11.00-12.00 Emergency sanitation: the way forward (group discussions)

12.00-12.30 Close of conference (R. Reed, WEDC)