A Global review of water and sanitation provision in refugee camps (currently *in press*, Journal of Water & Health)

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Introduction

Comprehensive research on water, sanitation and hygiene promotion issues among refugee populations has remained a challenge. Reasons include security restrictions, complex operational conditions, scarce resources, the difficulty of undertaking thorough measurements during emergency situations and the fact that refugee camps are often forcibly located on marginal lands. In general, all the available time and resources are needed simply keeping water supply and sanitation control mechanisms functioning Here we present and build on recent monitoring initiatives in UNHCR, complemented by surveys at the refugee household level in order to get a global overview of the gaps in water and sanitation provision in refugee camps.

Water & Sanitation Indicators

UNHCR employs a number of targets (referred to as Standards and Indicators) to assess if programs are adequately addressing the needs of the beneficiaries; e.g. two indicators are presented In Tables 1 and 2. Data is average annual data (i.e. one value per camp per year) and was completed in 93 camps located in 24 countries representing a total population of 1.8 million. In these settings UNHCR partners implement water, sanitation and health activities directly on the ground with operational and financial overview by UNHCR offices in the field and, therefore, much of the base data for the Standards and Indicators initiative is collected by UNHCR partners. UNHCR had over 102 partners in 2005 and these range from Government bodies to national and international NGOs. Data was complemented via the UNHCR health coordinators' annual reports from 20 countries.

Table 1: Results from UNHCR Standards and Indicators report: per capita water availability (litres per person per day 2003 to 2005) based on annual averages per camp

	2003	2004	2005
No. of camps with data available	92	73	93
Maximum	152.5	361	444
Minimum		6.9	6
Median	20.2	22	20.1
Average	23.1	35	31.3
% of these camps meeting UNHCR 20L/day standard	54	59	53
Average % of population in camps meeting the UNHCR 200m access distance standard	86	72	77

Table 2: Excreta disposal availability (persons/latrine 2003 to 2005).

	2003	2004	2005
No. of camps with data available	89	81	90
Maximum	793	802	1124
Minimum	2.8	3.5	5.0
Median	10.9	11	6.4*
Average	27.7	36	26.9
% of these camps meeting UNHCR excreta disposal standards	74	67	83

*based on family latrine coverage figures assuming 5 people per family

As issues in spatial differences in access to services across camps can not be dealt with by single annual average indicators, detailed household surveys were carried out in refugee camps and results are presented here (Table 3) from those undertaken in West Africa (Ghana) in Dec. 2005 and in East Africa (Kenya) in June 2006 in order to compare the standards and indicators information with the situation on the ground but also to assess to what extent inequalities in distribution occur. Table 3 shows households reporting a case of diarrhoea within the past 24 hours collect **26% less water** on average than those free from diarrhoea.

Table 3: Diarrhoea and water quantities relationships from the 2 household (HH) surveys.

Parameter	West African camp (Ghana)	East African camp (Kenya)
% of all HH reporting a case of diarrhoea (minimum of 3 watery stools) within the previous 24 hours	15	17
Average no. of cases of diarrhoea per HH in those reporting diarrhoea within the previous 24 hours	1.3	1.4
Average per capita water usage (litres) in HH reporting no cases of diarrhea ± 95% confidence interval	41.8 ± 2.2	21.5 ± 1.7
N of HH used to calculate this value	716	236
Average per capita water usage (litres) in HH reporting cases of diarrhea ± 95% confidence interval	30.9 ± 3.4	15.9 ± 1.3
N of HH used to calculate this value	123	47

Tapstand queuing, Kenya

In search of water, Chad

Health and Nutrition Indicators

Figure 1 demonstrates the high burden of morbidity in various camp operations. Nutrition surveys in refugee camps and surrounding local areas have frequently shown that there are equally poor nutritional status in both populations (UNHCR, 2006) and the current work has also shown strong correlations between morbidity indicators and Global Acute Malnutrition (GAM). Indeed, malnourished individuals have compromised immunity and are not only more likely to contract many communicable diseases, but also suffer from more frequent, severe, and prolonged episodes of these diseases (Connolly et al., 2004). Fig. 1 shows that there are a large range of malaria and watery diarrhoea values due to different local and climatic conditions and that only that typically higher levels of morbidity of one infectious agent, linked to the watsan sector, are also reflected across other infectious agents and underlines the importance that general environmental conditions on health in camp settings.

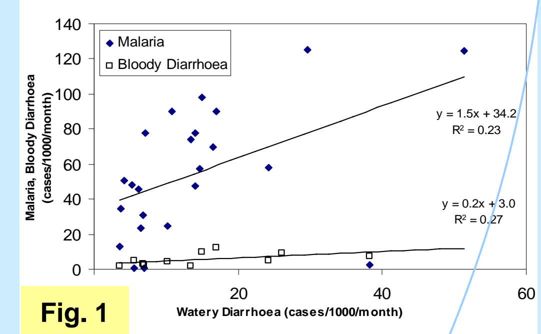

Fig. 1

Where to go from here?

Despite such insights into how poor water and sanitation provision can compound morbidity and mortality, there is a need for greater documentation and advocacy on the impact of resource gaps on the suffering related to poor water, sanitation, health and nutrition services (especially in protracted refugee situations) to help convince donors and financial controllers as to why more resources are justified. Strong inter agency collaboration in the water and sanitation sectors can directly assist such advocacy work. Until such detailed information exists, service provision should, ideally, be well in excess of the minimum guidelines and program managers must strongly emphasise that dealing with the water, sanitation, health and nutrition sectors in isolation will not maximize the potential overall benefits, and may even hinder progress in the other sectors (UNHCR, 2006).

Strengthening of monitoring initiatives is also required and UNHCR is currently rolling out its new Health Information System to standardise and strengthen data collection and analysis across refugee operations. UNHCR has earmarked an additional $11.5 million for health, water & sanitation activities in priority camps in 2007 though much more work still remains.

References: *Connolly, M.A., Gayer, M., Ryan, M.J., Spiegel, P., Salama, P., Heymann, D.L. (2004) Communicable diseases in complex emergencies: impact and challenges. The Lancet; 364(9449): 1974-1983.*

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