half of the area's population of 200 000 cannot afford basic health care and rely on aid. Continuing unrest on the strife-torn island is hampering relief efforts, which are even more urgently needed after the storms.

Poor water quality was one of the main health concerns in all the flooded areas of Haiti and other storm-hit countries because of the increased risk of diarrhoea, malaria, typhoid and dengue, among other diseases, humanitarian agencies said.

"The risk of epidemics remains a serious a concern because latrines and sewers have been flooded, leaving people without access to clean drinking water," the Red Cross said in an 18 October report on recovery efforts in Haiti.

"The main hospital in the town of Gonaïves and over 90% of the private clinics were damaged by the disaster. Stagnant flood waters remain in the streets, still covered in mud and debris," the Swiss-run agency said, adding that clean-up will take eight to 10 months.

PAHO is monitoring rates of diarrhoea and respiratory infections, two of the leading causes of death in Haiti. CARE, a nongovernmental organization that combats poverty worldwide, and the Red Cross said the level of diarrhoea seems stable, though David Dofawa, heading Haiti's Red Cross efforts, has noted a slight increase in respiratory infections.

The Haitian Health Ministry, with WHO/PAHO, the United Nations Children's Fund (UNICEF), nongovernmental organizations and other groups, has established emergency health centres staffed by 70 international doctors. The Canadian Government and Norwegian Red Cross are running a 100-bed field hospital that the Red Cross set up after the storm. The temporary hospital's equipment will be donated and transferred to Gonaïves's hospital once that is repaired.

Stanley Goldenberg, a meteorologist with the Hurricane Research Division of the US National Oceanic Atmospheric Administration, said that since 1995 a normal, periodic warming in the North Atlantic has more than doubled the annual number of major Atlantic hurricanes. During this "active cycle", more storms develop in the tropical Caribbean, leading to a fivefold increase in the number of hurricanes there. This pattern could last another five to 30 years, he said.

"Not every year is going to be crazy but most years will be busy," Goldenberg said. "The news is not good for the Caribbean." ■

Theresa Braine, *Mexico City*

Drive to produce more long-lasting insecticidal mosquito nets for malaria

International efforts are under way to step up production of new long-lasting insecticidal mosquito nets which falls far short of the massive demand, experts say.

The new nets, which were first developed in the 1990s but have only recently become more readily available, provide fresh hope for preventing malaria, the number one killer of children aged under-five in Africa.

> "Every 30 seconds, a child dies of malaria, a life that could be saved with an insecticidal net. A quantum leap in production will help us save millions and also enable the private sector to do good business."
>
> *Per Engebak, UNICEF'S Regional Director for Eastern and Southern Africa*

Production has increased and more money is there to buy them, but experts say major obstacles to delivering treatment are supply, distribution and red tape.

In an unprecedented meeting last month, humanitarian and health agencies working in malaria control linked up with the private sector to discuss ways of speeding up production and distribution of these improved insecticidal mosquito nets.

Members of the Roll Back Malaria Partnership including WHO and the United Nations Children's Fund (UNICEF) organized the two-day event in Johannesburg, South Africa with the Rockefeller Foundation and USAID NetMark Plus, a US government initiative to fight malaria in Africa.

The new net retains insecticide for the life of the net, which can be four years or more. This is a major improvement on existing insecticidal mosquito nets, which needed to be re-treated every 6–12 months.

High levels of re-treatment, however, have proved very difficult to achieve in Africa, partly due to the cost of insecticide but also because of a lack of proper organization. According to WHO less than 20% of nets there are re-treated.

"Those who expected people in poor rural areas to take the initiative to re-treat their mosquito nets have been proven wrong", said Dr Allan Schapira, coordinator of the strategy and policy team in WHO's Roll Back Malaria Department.

"In East Asia this is organized by the public health services but in most areas in Africa re-treatment has been left to individuals," Schapira said.

Of the one million deaths annually from malaria, 90% are in Africa and are mostly among young children and pregnant women. A systematic review found that using insecticidal nets is a highly effective way to reduce childhood mortality and morbidity from malaria (Cochrane Database Syst Rev 2004; (2): CD000363).

One of the targets set at the Abuja Summit in April 2000, a key meeting of the Roll Back Malaria Partnership of humanitarian agencies and governments, was to have 60% of populations at risk sleeping under insecticidal nets by 2005.

However, the Africa Malaria Report produced by the Roll Back Malaria Partnership in 2003 found that although 15% of children under five years old were sleeping under a net, only 2% were sleeping under an insecticical mosquito net (www.rollbackmalaria.org).

UNICEF estimates that 30–40 million long-lasting insecticidal nets are required annually for the next five years to meet demand. At the moment only 13 million are being produced each year.

UNICEF's Regional Director for Eastern and Southern Africa, Per Engebak said: "Our goal is to save lives. Every 30 seconds, a child dies of malaria, a life that could be saved with an insecticidal net. A quantum leap in production will help us save millions and also enable the private sector to do good business."

Several long-lasting nets are currently under development and two products were approved by WHO last year. Long lasting insecticidal nets are subject to assessment by the WHO Pes-

WHO/P. Virot

Health worker from the clinic in Kiyi village in central Nigeria shows villagers how to re-treat antimalarial net with insecticide (April 2001).

ticide Evaluation Scheme as part of the WHO recommendation process. This is a rigid scientific review of their efficacy, effectiveness and safety based on a series of laboratory, experimental hut and field studies (www.who.int/whopes).

The Olyset, which is manufactured at plants in China by Sumitomo Chemical Company of Japan, is now also being made for the first time in Africa.

A technology transfer agreement means A to Z Textile Mills in the United Republic of Tanzania is now manufacturing the nets with funding from Acumen Fund, a non-profit venture capital fund set up with seed capital from the Rockefeller Foundation, Cisco Systems Foundation and three wealthy individuals.

The other approved net is PermaNet 2.0 made by the Danish company Vestergaard Frandsen in Thailand and Viet Nam.

"We need to get more manufacturers making the nets to increase production capacity and hopefully bring the prices down", says Dr Don de Savigny, research manager at the Swiss Tropical Institute in Basel, Switzerland, who chaired the Johannesburg meeting. "There are lots of idle polyester factories in Africa that could be used to make nets."

Dr de Savigny told the *Bulletin* that an exciting innovation presented at the meeting was the development of a binder that can be used to lock insecticide onto nets for many years. This would mean that millions of nets already in homes could be given a one-off treatment to last several more years.

The treatment, developed by German pharmaceutical company Bayer, has been submitted to WHO for approval, de Savigny said.

A normal net costs around US$ 1.75 compared to US$ 4.50 for a long-lasting insecticidal net but is not as cost-effective as a long-lasting one. The Global Fund to Fight AIDS, Tuberculosis and Malaria recently approved the purchase of 108 million nets so money is available.

"At this point in time, the major bottleneck is not money but for countries in Africa to organize distribution of long lasting insecticidal nets to achieve high coverage. Governments need to assume responsibility rather than leaving it up to NGOs," WHO's Schapira said.

> "Some countries tax mosquito nets at the same rate as an Armani suit. At the Abuja summit all the African heads of state agreed to stop this but few countries have followed this through."
>
> *Dr Don de Savigny, research manager at the Swiss Tropical Institute in Basel, Switzerland, and chairman of the Johannesburg meeting*

Dr David Molyneux, director of the Lymphatic Filariasis Support Centre at the Liverpool School of Tropical Medicine, argued in the *BMJ* in May that the Roll Back Malaria Partnership's scheme for net distribution, in which pregnant women attending antenatal services should receive vouchers to subsidize the purchase of nets, misses the many women who do not attend such services (*BMJ* 2004;328:1129-32).

Dr Molyneux said that the distribution of nets should be linked to other disease control programmes. For example, a recent programme offered a free insecticidal net to people attending measles vaccine sessions in remote rural districts of Zambia and Ghana.

As a result, the target for net coverage in the areas was achieved in one week. Malaria control programmes could also be combined with programmes for preventing two other parasitical diseases: river blindness and bilharziasis.

In the Abuja Declaration of April 2000, African governments committed themselves to reduce or eliminate the tariffs and taxes imposed

on mosquito nets and insecticides.

"Some countries tax mosquito nets at the same rate as an Armani suit. At the Abuja summit all the African heads of state agreed to stop this but few countries have followed this through," De Savigny said adding: "Tanzania was one country that did so and now has one of the highest net coverages in Africa. In comparison, Nigeria still applies a 70% tax on nets". ■

Jacqui Wise, *Cape Town*

Darfur overshadows "forgotten" crisis in neighbouring Uganda

As world attention has focused on the unfolding tragedy in Sudan's Darfur region in recent months, the international humanitarian community has been struggling to mobilize enough resources to help the victims of a largely ignored conflict in neighbouring Uganda that has raged for 18 years.

There are more than 1.6 million internally displaced persons (IDPs) in Uganda's north and east — 80% of them women and children — as a result of fighting between government forces and rebels from the Lord's Resistance Army (LRA), humanitarian agencies say.

Led by cult-like leader Joseph Kony who claims he wants to create a government in Uganda based on the Ten Commandments of the Old Testament, the LRA has abducted 12 000 children in the past two years to serve as child soldiers and sex slaves, humanitarian agencies say.

Despite an improvement in the security situation in recent weeks, the terror sown by the kidnappings and brutal night raids remains undiminished. To escape those raids, as many as 44 000 children leave their home villages every dusk to sleep in empty buildings and doorways in Uganda's urban centres.

Dr David Nabarro, head of WHO's Health Action in Crisis unit, described the health situation in Northern Uganda as "dramatic".

"Disruption in regular immunization, shortage of drugs, lack of skilled medical staff and basic medical equipment, and seriously inadequate water supplies and sanitation facilities are jeopardizing the health of a population already made vulnerable by displacement and insecurity," Nabarro said.

As of mid-October, the Office for the Coordination of Humanitarian Affairs (OCHA), which coordinates United Nations and other groups providing aid, reported a US$ 47.3 million shortfall towards the 2004 consolidated appeal of US$ 127.9 million for what it described as the "world's biggest forgotten emergency."

The World Food Programme said it had only received 64% of the US$ 92.5 million it says is needed to feed the displaced.

The United Nations Children's Fund (UNICEF) issued an urgent appeal at the end of September for an additional US$ 7.8 million, saying that lack of funding jeopardized the provision of life-saving interventions such as therapeutic feeding and supplies of emergency medicines to 300 000 children.

> "How do you teach children who were abducted at the age of seven, treated brutally, raped and forced to fight for the rebels, forced to attack their own people, maybe their own family?"
>
> *Gordon Lewis, leader of the Salvation Army's team working in Uganda, in a Salvation Army report on the "forgotten disaster".*

WHO assessments in IDP camps in the districts of Gulu, Kitgum, Pader, Katakwi, Kaberamaido, Lira and Soroti revealed malnutrition, diarrhoea, malaria, conflict-related injury, HIV/AIDS, reproductive ill-health, and outbreaks of communicable diseases to be the most pressing health concerns. WHO appealed on 16 September for US$ 890 000 (US$ 75 000 per month), mainly for technical assistance and training programmes.

Uganda's Ministry of Health, with assistance from UNICEF and WHO, is planning a campaign called Child Days for under-fives in the IDP camps in November to provide catch-up immunization, vitamin A provision and de-worming.

The conflict in the north is undermining overall health gains in Uganda, which has cut under-five mortality rates from 224 per 1000 live births in 1960 to 141 in 2002 and which won international acclaim for cutting HIV adult prevalence from 15% in the early 1990s to 5.1% last year.

A recent report by the relief organization World Vision estimated HIV infection rates at nearly 12% in the zones affected by the war.

"There has been a collapse of the region's health-care system due to the civil war, historic neglect of the area and the flight of many health-care workers," the World Vision report said. "As a result, the majority of people are unable to get information on preventing HIV infection, or testing and treatment, and all these factors contribute to HIV rates double that of Uganda's national average."

AIDS was the leading cause of mortality, according to World Vision's analysis, constituting 69% of fatalities in the northern city of Gulu. This was three times the rate of death directly related to the civil war between the LRA rebels and Ugandan Government forces.

"The humanitarian community has been slow to address health issues in Northern Uganda. The shortage of funds has limited what we have been able to do," WHO's Nabarro said, adding: "It is now time to act even if funds are scarce. WHO is borrowing funds to establish a sub-office in Gulu, in support of the national authorities, to scale up health interventions."

Nabarro said that through this presence in Gulu WHO would work with UNICEF, other UN agencies, and NGOs to support the Ugandan health authorities and help safeguard the health of displaced communities.

Physical suffering aside, relief workers said the psychosocial and mental health challenges of rehabilitating and educating abductees and former child soldiers were enormous.

"How do you teach children who were abducted at the age of seven, treated brutally, raped and forced to fight for the rebels, forced to attack their own people, maybe their own family?" said Gordon Lewis, leader of the Salvation Army's team working in Uganda, in a Salvation Army report on the "forgotten disaster". ■

Clare Nullis-Kapp, *Cape Town*