Field Logistics and Logistics in the Field: Undertaking a Mission or Performing Research in Humanitarian Logistics^{1,2}

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Commented by

Karen Spens

Professor and Dean of Education Hanken School of Economics, Uganda is one of many African countries struggling to develop adequate healthcare, particularly at the last mile of local treatment. The author joined a team of five during the fall 2009 to do a study and evaluation of the public healthcare system in Karamoja, north-east Uganda. Over a time period of about one month 27 different health centres were visited for interviews and observations during a field trip covering 5000 kilometres at about 30 kms/hour in 30 degrees Celsius. The case provides an insight into humanitarian logistics both in terms of the challenges of drug supply chains in developing countries and possible solutions as well as how it may be to undertake field research in this context.

10 October 2009: My suitcase and computer backpack are ready, filled with a mosquito net; malaria tablets; camping cutlery; a headlamp; medevac papers; The Lonely Planet Guide to Uganda; The Last King of Scotland; some Norwegian food, including soup, dry meat, and dry bread; and clothes that are suitable for camping, business, and research. After a stop-over at Heathrow, I reach Entebbe Airport, outside Kampala, for my first day as a humanitarian logistician.

Background and Purpose

In 2006, I started working to develop humanitarian logistics as a research and teaching subject. Soon after, it was recommended that I also receive some practical training. Having worked for more than twenty years at the university level with research and teaching in logistics and supply chain management, the urge to do some "practical" work has steadily increased as each year has passed. I underwent a basic training course with the Norwegian Red Cross in 2008, followed by a training course with their field hospital in 2009. I was now certified to work as an international delegate in disaster relief operations. The first job opportunity that presented itself was in cooperation with Global Emergency Group (GEG)³ as a consultant to assess drug supply chains in the Karamoja Region of northeast Uganda.

Karamojong people



^{1.} I would like to warmly acknowledge the UNICEF Uganda Country Office, particularly Claudia Hudspeth, Anna Spindler, and Phillips Limlim, for the opportunity to publish on basis of the study presented in the report entitled Dumoulin, L., Greenhalgh, L., & Jahre, M. (2010, January 28). Global Emergency Group. Health commodities supply chain assessment in Karamoja Region. Kampala, Uganda, UNICEF. I also want to thank my project colleagues, Luc Dumoulin and Langdon B. Greenhalgh, for a challenging, rewarding, and interesting experience and for their patience with an academic who had never really "been out there before."

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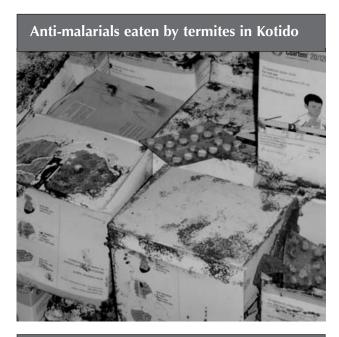
^{2.} Pictures taken by Luc Dumoulin and Marianne Jahre.

 $^{{\}it 3. GEG is a disaster response consultancy and research profit-for-purpose firm (www.globalemergencygroup.com)}.$

Uganda is one of many African countries struggling to develop adequate healthcare systems. A critical problem is establishing supply chain systems for drugs and medical equipment to ensure availability at local treatment facilities.

Karamoja is the poorest region in the country, with 87 percent of the people living below the poverty line (UBOS, 2009). It faces challenges related to poverty, security, drought, food insecurity, and a culture that relies on traditional medicine practitioners and is sceptical towards the government and public systems.

Karamoja's mortality rates are among the highest in Africa, with the main causes of death being pneumonia, malaria, tuberculosis, and anaemia followed by meningitis, AIDS, dysentery, malnutrition, septicaemia, and diarrhoea (UNICEF, 2009). The supply chains for six drugs, among others anti-malarial, cotrimoxazole to treat secondary infections from HIV/AIDS and oral



The Karamoja region of Uganda



rehydration salts to treat diarrhoea, in the five districts of Karamoja were mapped on the basis of stakeholder involvement and previous desk research studies. The purpose of the study was to identify problems in the drugs' distribution and suggest solutions and action plans for implementation.

The project team constituted three consultants from GEG: Langdon Greenhalgh (project manager), Luc Dumoulin (technical logistics specialist), and me (the research specialist). In addition, Bruhan Kagwa, a qualified pharmacist from Kampala, and Charles Magumba, who is also from Kampala and works as a project manager for various NGOs, joined parts of the project. The client, UNICEF Uganda, constituted two health specialists and one logistician at the Kampala level in addition to the chief of UNICEF's Moroto Zonal Office and a health and nutrition specialist in Moroto.

The purpose of this article is to provide some insights into empirical research in humanitarian logistics. This field is becoming popular as a research area, particularly for PhD studies, but the challenges involved in gaining access and undertaking data collection in the field are also becoming clear. Although this is a personal (and probably somewhat naïve) story, my hope is that it will encourage others to "get out there." As noted in the introduction to this special issue, more in-depth empirical studies are needed in order to undertake useful research in humanitarian logistics. The following section outlines some of the necessary preparation for a field trip such as the one discussed in this article. The "response," that is, the field research, is described as combinations of experiences from the field trip itself and some of the research results. The article concludes with some personal reflections as part of the "recovery" phase.

Preparing

Before leaving

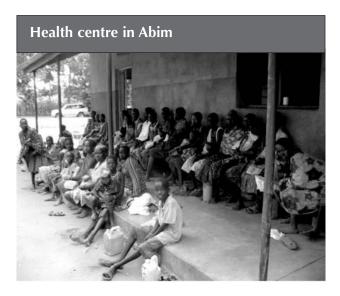
When preparing for a research project, the main task is usually to read the scientific literature and perform a review of previously published articles and papers. For this project, however, that method quickly proved to be not very useful. Little inside information about the region and its challenges could be captured through the scientific papers; Google Earth, The Lonely Planet Guide to Uganda, and the novel The Last King of Scotland offered much more interesting and relevant knowledge. The second common way to prepare for a research project involving empirical research in the form of a case study is to set up interviews and prepare an interview guide. However, this was not possible because, at this point, we had no idea what we wanted to ask. The interviews had to be arranged from Kampala because it was necessary to build prior relationships with the stakeholders and also because the desk research and meetings with UNICEF would identify those people with whom we should speak. The "snowball" technique was adopted in that meetings and interviews with stakeholders provided the names of other people to contact.

Hotels and travel reservations were taken care of by the project manager and the administration of GEG as well as a professional travel agency that deals with trips of this nature. It was more important to get the appropriate vaccines, medevac (medical evacuation) arrangement and insurance, buy a mosquito net, and pack for a mix of meetings and hiking in the mountains. In addition to Skype meetings, one face-to-face meeting was held in order to do some initial planning. Finally, everything I had planned to do during the autumn, including a conference in China, teaching, meetings, and paper writing, had to be cancelled. I also had to make arrangements with my family and prepare them for what I was going to do.

Setting up in Kampala and preparing for the field

Because this was a relatively long-term project, it required setting up a proper office. Having a formal address, phone number, and the necessary infrastructure is important if one is to be accepted as a professional; we rented office space with an exchange board, printing and copying services, and an adequate Internet connection. The set-up also included local cell phone numbers and business cards with both GEG's and UNICEF's logos as well as accommodation and a car with a driver in order to survive the Kampala traffic.

It was both fun and challenging to start working right away with new colleagues and a new e-mail address, system, and project planning tools I had never used before as well as slightly weaker infrastructure than usual. The low light and slow Internet connection in the apartment and the absence of a printer resulted in tired eyes from reading directly off the laptop screen to do the work. I received a lot of good advice and gleaned some useful tips, such as washing tomatoes in chlorine (or soap) to clean them of germs before eating them raw. It was also necessary to put all open foodstuffs in the fridge, as cockroaches enjoy Norwegian dry bread! The first trip to the market was a fascinating experience; it was here that I first heard mzungu, the Swahili word for a white person.



After about a month in Kampala, it was time to get serious about planning for the field trip to Karamoja. Proper field logistics experience comes in very handy when a food box containing soups, wine, coffee, jam, Nutella, condiments, and water must be purchased and packed, and two land-cruisers with experienced drivers and escorts with soldiers need to be arranged. Luc was somewhat bemused when I suggested bringing some eggs. The roads are extremely rough here and chickens are among the few things you can be certain to encounter. Besides, we did not have a stove or cooking pot and eating raw eggs is not recommended. I did feel somewhat foolish for the suggestion, and not for the last time.

Responding

The project

The project involved three different parts. In order to gain an overview of the health system in Uganda, primary data were gathered through interviews with stakeholders in Kampala and compared with secondary documentation of 1,500 pages of articles and reports. This guided the finalisation of the research framework, methodology, and development of the field research, including interview guides, which was undertaken through twenty-seven visits to health facilities in Karamoja.

The collected data included information about how each facility undertakes its logistics processes as well as identifying constraints, possible solutions, and information concerning human resources and performance. Based on the field assessment in Karamoja, interviews at the national level and reviewing previous studies, the primary and secondary supply chains were mapped with regard to process steps and lead times. Solutions were then developed and recommendations were made for the improvements suggested in the third part of the project. The effect of solutions was quantified by developing a model to estimate costs.

Working with stakeholders

Stakeholders were integrated into the project from inception through the action planning stage. They were chosen from national (Kampala) and regional (Karamoja) levels, from the government (particularly the Ministry of Health [MoH], National Drug Authority [NDA], National Medical Stores [NMS], and Joint Medical Stores [JMS]), the private sector, United Nations agencies, nongovernmental organisations, and other associations. Stakeholders provided valuable input throughout, primarily via interviews, written and verbal feedback, offering guidance and suggestions in terms of how best to create sustainable and realistic solutions. A steering committee (consisting of seven representatives from MoH, NMS, JMS, UNICEF, WHO, and USAID) was pulled from the stakeholder group to provide overall project guidance and to present and integrate the input of the wider group. Steering committee member representation was also identified in Karamoja to ensure stakeholder integration at both levels.

Into the field

"Coming into the city of Irina, just across the border from Karamoja, we met our escort and saw our vehicle. It was a red car that held six people: five armed soldiers in full camouflage and a girl in a red dress. I wondered what she was doing there but she was clearly the girlfriend or wife of one of the soldiers, and got off halfway. They took us safely through the land-the reason for escorts is that there is much cattle-raiding between the Karamojongs, who use guns. It has escalated into pure attacks, some of which involve humanitarian aid workers. Soon after we left the town, the car stopped at the side of the road and everyone got out. I thought it was part of checking the area because they all went into the countryside with their guns, but it turned out to be a "pit-stop" (they could not pee in the town). I learned a lot, including a few new expressions."

(Travel journal, Karamoja, 6-8 November 2009)

One of the most important reasons for going into the field when doing studies in logistics and supply chain management is to be able to understand the challenges met by those who set up and run the supply chains you study. When we collected data by physically going to the health centres ourselves, we did some of the same trip(s) and encountered the same lack of infrastructure that health personnel and logisticians live with every day when ordering and transporting drugs and patients in Karamoja. Still, of course, we were far better off than most, with extra supplies from Kampala, money to buy what we needed, and proper vehicles and other equipment.

During the field assessment, we covered 5,000 kilometres in a 4x4 with an average of thirty km/h on dirt roads in 30 degrees Celsius. We visited two to three health centres per day with breaks in between to transcribe interviews, register data, plan subsequent visits, all while writing up the report. It eventually became clear that challenges pointed out in the desk review definitely also existed in Karamoja, although there were some differences. In particular, five major logistics challenges were identified (Dumoulin et al., 2010).

- Frequent stock-out of ACTs (anti-malarials): All of the assessed health centre facilities stated that there was an inconsistent or complete lack of ACTs from NMS or third-party internationals. Fifty percent of the assessed facilities were out of ACTs on the day of our visit.
- 2. Lack of forecasting and ordering problems: None of the health facilities used forecasting processes (i.e., compiling information that assesses future demand and forms the basis for future planning and ordering).
- 3. **Poor inventory management:** There is poor storage infrastructure throughout the region with inconsistent record-keeping (stock-cards, order tracking, etc.), which makes the supply chain data unreliable.
- 4. **Limited transport resourcing:** Although most districts have at least one vehicle allocated for use, accessing this vehicle for logistics purposes is often not

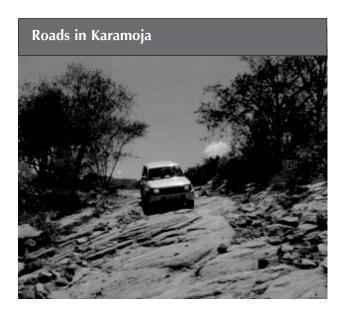
- possible due to competing priorities with other district health staff, a lack of defined funding for fuel and maintenance, poor roads, and security concerns.
- 5. Overly complex district organisational structure and lack of appropriate staff: Logistics systems responsibility is unclear and overly complex, divided as it is among four different bureaucratic layers in each district. This situation is further complicated by a lack of supply chain management expertise in the region.

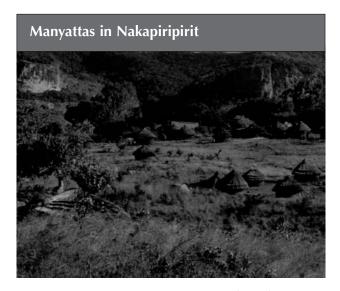
During the visits to the health centres, we saw the challenges created by a lack of electricity, proper transportation, and access to electronic media for ordering. The order forms were transported physically through the supply chain and inputted into the data system only when they reached the National Medical Stores. This resulted in an ordering process that took up 60 percent of the total lead time.

"We stay in one of the two hotels recommended in the area. It is ok, even though it has no electricity during the day as they turn the generator off. But there is running water, we each have a bathroom in our hotel room, and the doors can be locked. The lack of power is a problem as the terrace in the hotel functions as our office except when we go to UNICEF to go online to read and send emails and search the web for documents, possibly Skype a little. Today, after running out of batteries, we asked if we could pay for some hours with the generator on. We ended up paying 14,000 Ugandan shillings for 10 litres of petrol to fill up the generator and an additional 2,000 shillings for the transport (i.e., the boda-motorbike) (1000 shillings = 0.36 Euros). For me this meant I could recharge my two mobile phones, one VHF radio, two computer batteries, camera, iPod, and so on."

(Travel journal, Karamoja, 6-8 November 2009)

During our weeks in the field, we worked to come up with solutions that would have a major impact but would also be realistic to implement. We decided to split solutions into long term-those that required changes to





the system-as well as short-term quick fixes (Dumoulin et al., 2010). Long-term solutions included logistics advisors at district levels building capacity in each district for advice and support in order to establish proper forecasting and help health centres with ordering, thus reducing and simplifying their logistics workload. We also suggested moving safety stocks from each health centre to a central warehouse in each district and developing another funding system for transport. The quick-fix solutions included storage improvement kits and remedies based on specific health centre needs, a temporary transport loan programme, and training in logistics accompanied by posters and guidelines for each centre. The solution that we believed had the greatest impact was electronic data exchange mechanisms (including SMS, netbooks corresponding MTN USB sticks, and airtime) to ensure the electronic submission of monthly stock reports as the basis for ordering.

Wrapping up

"Coming back to Moroto on Friday, we met up with Langdon. This weekend was dedicated to analysis and writing of the report. Saturday was noisy to say the least, an NGO-party hosted by WFP-with very loud music till 4.30 in the morning-felt like sleeping in a disco (no insulation and open spaces around windows/doors). Now we are on our way down to Kampala. At 12.05 a.m. on the 8 of December we reached the tarmac after having spent more than a month on dirt roads. What an adventurous work adventure!"

(Travel journal, Karamoja, 8 December 2009)

Having gone home for Christmas, we came back for the last part of the work on 13 January 2010. This was to become-for me at least-the most intensive work period during the project. The devastating earthquake in Haiti on January 12 had an indirect effect on the project, with many friends and colleagues being deployed during the first week. Watching news on Al-Jazeera and following the development of the operation undertaken by the International Federation of Red Cross Red Crescent in the evening after many hours of work on the project was

intense. The final three weeks of the project just flew by and concluded with last-minute changes and a presentation for all departments and working groups in UNICEF Kampala at the end of January.

Recovery

What now for the Karamojong? Implementation

"10 May 2010: Cholera outbreak has been confirmed in Moroto district where a total of 58 cases with 3 deaths have so far been recorded. The situation is likely to worsen due to the widely practiced open defecation as a result of lack of latrines coupled with inadequate safe drinking water, general lack of sanitation-enabling facilities leading to poor waste disposal especially in the urban areas where the situation in complicated by poor food handling practices amongst the many road side food vendors."

(www.ifrc.org)

This quotation shows the need for continued work to improve the drug supply chain in Karamoja, of which Moroto is one of the five districts. UNICEF has taken initiatives to start implementing some of the solutions suggested from our work. Others may come later and some may not be implemented at all, for various reasons. Karamoja continues to be a very challenging area to live in: "NAIROBI, 26 March 2010 (IRIN)-At least 900,000 people in Karamoja, North-eastern Uganda, are facing severe food insecurity due to consecutive rain failure and poor harvests over four years, according to the Famine Early Warning Systems Network (FEWS Net)."

(www.alertnet.org)

Getting back to normal-reflections about being on mission or doing research in humanitarian logistics

Returning from a project like this can be challenging. It is great to be home with family, friends, and colleagues but there is a lot of catching up to do and it takes a while to "land." I honestly do not know whether this gets





easier with additional missions or more difficult; it probably varies from person to person.

Having a "normal" job as a teacher and researcher, my idea was to use this project for scientific and other publications as well as for teaching material. I also plan to use the results and experiences from this project to feed into a PhD project on vaccine supply chains. Data such as that collected in this project is not easy to access. The experiences have also shown ways to work in the field, such as how to conduct research in humanitarian logistics with the challenges of data collection and access to the field. I also plan to continue undertaking these types of projects in the future as a way of contributing to actual improvements. A question that must be asked, however, is how and to what extent local and regional competencies are used in projects of this nature. Our project team had a mix of international and local resources but was still very much a project run by outsiders of Uganda and Karamoja. In line with local capacity building and in order to secure implementation of the solutions, the intention of the project was to be more rooted in the local community. For different reasons, this became more difficult than anticipated. Future projects should focus more on this very important aspect.

This type of writing is unusual in a scientific journal. I was hesitant to do it because it is very personal and probably also seems naïve and obvious for people who have been on several missions or travels of this nature. However, for some-particularly the PhD students now working on their studies in humanitarian logistics-I hope the story has offered some useful insights.

I would like to finish by referring to the training course I did with the Norwegian Red Cross in 2008. Being on a mission requires you to be a team player, "low maintenance," and flexible, combining humour with common sense. It also requires humility and patience. Finally, I would like to quote my project colleague and fellow logistician, Luc. As we were finishing up, he concluded it had taken quite a lot of "getting out of our comfort zones" to do this project-he was unused to research and I was not used to practice-but that it had definitely been an "enriching experience."

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http://www.alertnet.org/ http://globalemergencygroup.com/ http://www.ifrc.org/

LIST OF INTERVIEWS

Organisation	Interviewee	Position/Location	Interview Date
Chief, Moroto Zonal Office for Karamoja and Teso, UNICEF	Narinder Sharma	Moroto	Various
Administrative assistant, UNICEF	Thomas Ochom	Moroto	Various
Health and Nutrition, UNICEF	Joanna Nikulin	Moroto	Various
HIV specialist, UNICEF	Francis Nyakojoo	Moroto	Various
Health and Nutrition, UNICEF	Charles Wilfred Ochieng	Moroto	Various
Nutrition specialist, UNICEF	Brenda Akwanyi	Moroto	Various
World Food Programme (WFP)	Rohit Pal	Moroto	Various
UNICEF	Dr Claudia Hudspeth	Chief, Health and Nutrition	03.10.09
МоН	Ms Khalid Mohammed	Consultant at the pharmacy division, coordinator of the NPSSP Plan	20.10.09

JMS WHO MoH	Mr Andrew C. W. Nsubuga Dr Soloman Fisseha Dr Martin Oteba	Operations manager Medical officer and emergency cluster lead coordinator	20.10.09
МоН	Dr Soloman Fisseha	emergency cluster lead coordinator	21.10.09
МоН	Fisseha	emergency cluster lead coordinator	21.10.03
	Dr Martin Oteba		
	Dr Martin Oteba		22 10 00
МоН		Assistant commissioner in charge of	22.10.09
МоН		pharmaceutical supplies,	
МоН		international health	
MoH		specialist, pharmacist	
	Dr Gideon Kisuule	Principal pharmacist,	22.10.09
		pharmacy division	
NMS	Mr Kamabare	General manager	23.10.09
2. 50 J. 2 50 J.	Moses		
Kampala	Mr Anthony Kuria	Business development	23.10.09
Pharmaceutical		manager	
Industries Ltd.		3-1	
Quality Chemicals	Mr Nalima Geofrey	Marketing manager	26.10.09
Industries Ltd	in mainia deoney	Marketing manager	20.10.03
NDA	B. Pharm Okello	Inspector of drugs	27.10.09
NDA .	Okidi Simmons	mspector or drugs	27.10.03
Danida	Mr Frans Bosman	Medicines management	28.10.09
Daniua	MII FIAIIS BUSIIIAII	advisor	26.10.09
Danida	Mr Claes Brom	Senior advisor	28.10.09
SURE	Ms Birna Trap	Chief of party	28.10.09
UNICEF	Ms Anna Spindler	Supply manager	23. and
			30.10.09
ICRC	Dr Stephane Du Mortier	Medical coordinator	02.11.09
UNFPA	Dr Ismail Ndifuna	National programme	02.11.09
		officer (reproductive	
		health)	
UNFPA	Dr Primo Madra	National programme	02.11.09
		officer (emergencies)	
UNICEF	Mr Phillips LimLim	Programme officer,	03.11.09
		health and nutrition	
DHI	Dr Martin Lyra	Moroto	09.11.09
OCHA	Kasper Enghorg	Moroto	09.11.09
Health Sub-District	Achia Debora (in	Moroto (Matany Hospital)	10.11.09
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	Bruno)		
CUAMM- TA	Dr Bernard Otucu	Moroto	11.11.09
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officer	Locui resto	Moroto	
Senior nurse	Sister Rosario	Matany Hospital, Moroto	11.11.09
Registered midwife	Irene Apio	Tapac HCIII, Moroto	12.11.09
Enrolled nurse	David Loitakol	Lopelipel HCII Moroto	12.11.09
Nursing officer	Koder Joshua	Lopeei HCIII, Moroto	13.11.09
	Walakira Paul	Kotido	16. 11.09
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CUAMM -TA	Dr Simon Aliga	Kaabong	19. 11.09
CUAMM -TA	Tudo John Bosco	Nakapiripirit	19.11.09
Nakapiripirit DHI	Philip Siloi	Nakapiripirit	19.11.09
IRC	Raphael Ogutu and Mr Epiu Leonard Stephen		19.11.09
HCT/PMTCT	Aboka Moses	Moroto	19.11.09
ACF-USA	Edward Kutindo	Moroto	19.11.09
CUAMM- TA regional	Dr Giovanni Dallogilo	Moroto	20.11.09
Italian embassy, development cooperation office	Dr Pier Luifi Rossanigo	Moroto diocese	20.11.09
Store assistant	Goeffey Okogo	District medical store, Abim	23. 11.09
Store health assistant	Owilli John Logira	HCV Abim Hospital	23. 11.09
Nursing officer	Ojum Benson	Koya HCII, Abim	24. 11.09
Nursing assistant	Akidi Christie	Awach HCII, Abim	24. 11.09
Accounting assistant		Morulem HCIII, Abim	24. 11.09
Record assistant	Bradford	Morulem HCIII, Abim	24. 11.09
Supplies officer	Max Ben	District medical store, Kotido	25. 11.09
Health sub-district	Dr Sherif	Kaabong	26. 11.09
Senior supplies officer	Lokiru Gabriel Tirach	District medical store, Kaabong	26. 11.09
Assistant supply officer	Ayolo Alex Alinga	HCV Kaabong Hospital	26. 11.09
Store assistant	Betty Ayola	HCV Kaabong Hospital	26. 11.09
Senior clinical officer	Angella John Bosco	Kathile HCIII, Kaabong	26. 11.09
Nursing assistant	Chilla Methew	Kamion HCII, Kaabong	30. 11.09
Registered comprehensive nurse	Omara Alfred Daniel	Kalapata HCIII, Kaabong	30. 11.09
Registered comprehensive nurse	Okello William	Kopoth HCII, Kaabong	01.12.09
Nursing assistant	Logwe Zakary	Kopoth HCII, Kaabong	01.12.09
Nakapiripirit DHO	Dr John Anguzu	Nakapiripirit	02.12.09
Assistant supply officer	Edward Ogwang	District medical store, Nakapiripirit	03.12.09
Senior nursing officer	Langgin Sisto Assis	Tokora HCIV, Nakapiripirit	03.12.09
Clinical officer	Turkey Solomon	Karita HCIII, Nakapiripirit	03.12.09
Registered midwife	Alirach Jane	Karita HCIII, Nakapiripirit	03.12.09
Nursing assistant	Boniface Chuma	Nabulenger HCII, Nakapiripirit	04.12.09
Enrolled nurse	Limlim Teddy	Lolochat HCIII, Nakapiripirit	04.12.09

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COMMENTS ON THE CASE STUDY

Karen Spens

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The subtopic of the article (or maybe story is the more proper word in this case) is "undertaking a mission or performing research in humanitarian logistics." I would actually like to say that in this case it is not a question of either or, it is actually and. And this is important. Now that humanitarian logistics as a research field has grown explosively, there is still not much literature out there telling PhD students or even senior researchers how to go out and collect data and at the same time perform a task or work on a project. Students and faculty are becoming more involved in projects and that is certainly something that will become more and more usual, which means that they will be also

out there in the field. How do we prepare for that, how do we perform the task and at the same time manage to get something that will be valuable for our research purposes? These are tricky questions and there are certainly guidelines we can use in terms of collecting reliable and valid data, but how we should deal with situations that we are not prepared for in terms of our education-that is academic another question. Marianne's article, therefore, is a very valuable contribution. It provides some thoughts on how to tackle both personal as well as professional issues during such an encounter. It also raises the questions of what we are actually doing and if we should be doing what we are doing and also who is actually supposed to be involved in these kinds of projects. This is most likely something that the academic who is undertaking a project and working with disaster relief or development-related issues will encounter. I therefore warmly recommend that those of you who are attempting to discover the "real world" to take the time to read this article. As humanitarian logisticians, we should embrace the concept of preparedness, even though there most likely will be challenges facing us in these kinds of contexts that we never can be adequately prepared for.

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